

# Hinting *Civic Futures*

*A Call for Cityness  
in the Smart Age*



Master Thesis by  
**Sen Lin**





# Author's Notes

Design is used to be conducted under the Sun, where everything is visible: the ergonomics of a product, the pixel perfection of an interface or the value proposition of a service. While these are constrained by other invisible counterparts, alleged dark matters which, usually emerge from the organisational settings, the applied business models, the regime and policies of the regulatory context. However, problems are now often simplified and isolated to a scale and scope that we are comfortable with and can understand, which leads to biased solutions.

Tackling this issue during my two years of study at Strategic Product Design, I developed my interest in hybrid thinking from the radical expansions of the existed purview. The essence

of strategic thinking is to do the right thing, while I'm curious to hunt for another path for strategic thinking as an activator to seek dynamic futures informed by various values.

During my search for graduation assignment, I got the opportunity to be part of the research project PACT which shares the same goal. And I had the luck to have Elisa Giaccardi and Iskander Smit as my (fancy) supervisor team. (check Acknowledgment) All these created a dream field for me: a project with no space to be designed, no brief to be had and no problem to be articulated, where I experimented with different dimensions of being strategic, where I enjoyed all the struggles and uncertainties, where I had a glance of the futures... Anyway, welcome to **Hinting Civic Futures**. ▼



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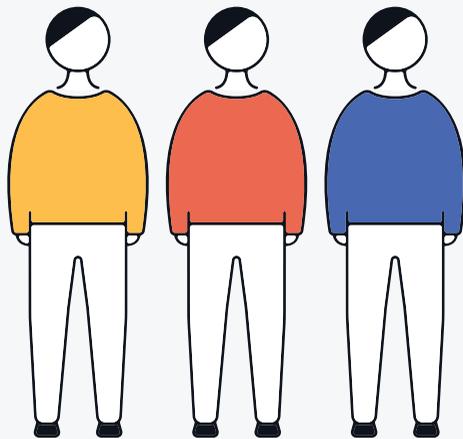
**PACT (Partnerships in  
Cities of Things)**  
PACT is a research  
program by TU Delft in  
collaboration with AMS  
Institute on IoT, Smart  
City, and autonomous  
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Let's say  
in future,  
**how** do  
you want  
to dwell in  
**what** kind  
of city?



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# Project Summary

By 2030, 70% of the world's population will live in cities. With technological development, the focus of building a city has been changing over time. Currently, the urban construction is dominated by the dream of the built environment with embedded intelligence. Urban data streams are processed by algorithms which feed to the physical urban choreography, namely the Smart City. But what does this smart-dream-future vision mean to its citizens? People choose to live in the city for seeking out meaningful jobs, like-minded communities, exciting opportunities etc. People take delight not in urban technological wonders, but in how the city can empower them to fulfil their own dreams. And this is where cityness lies. Taken as an organic combination of the 'nexus of technological infrastructure' and the 'concentration of humanity', cityness reflects how people live in and live for the city.

The core of this project is to call for cityness in the future smart age. Hinting Civic Futures is a design practice that explores the alternative futures for cities in the smart age, concerned with interrelatedness of social and technical aspects. It stimulates a re-envisioning of urban solutions beyond traditional smart city. By exploring how people want to dwell in what kind of city in the future, Hinting Civic Futures strives to find the connection of functionality and desirability, where resides the cityness. And furthermore, to develop the notion cityness in a preferable direction.

By exploring next generation cities derived from positive value incentives and brings them alive, the project strives to uncover the composition of cityness. This will help further open up space about how cityness can be amplified in enacting policy-making, business-modelling and behavioural change.

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“What the city needs is not redesign,  
but reorganization...”

Peter Marcuse

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How author feel  
during the project



1

# Project

This chapter addresses the background and aim of the PACT project, which encompasses the graduation project Hinting Civic Futures. It provides an overview of the project, through setting the objective, defining the gap and design approach.



# 1.1 Introduction

## 1.1.1 PACT Project

As objects of everyday use become more intelligent and adaptive with the rise of ICT technologies like IoT and Artificial Intelligence (AI), intelligent things as new actors are involved in the city construction. The Internet becomes dashboard, with sensors in the real world. Data can be collected, visualised, and used for defining smart strategies. But what if connected things could not only sense but also act?

The research project PACT (Partnerships in Cities of Things) researches this topic by generating, prototyping and validating design hypotheses for flexible and responsive urban infrastructures by a collaboration with companies, cities, citizens and intelligent things together. The aim of PACT is to develop novel methods and tools for understanding and demonstrating how intelligent things can act together with people and connect to existing data and cloud services.

PACT is a research program conducted by TU Delft (Connected Everyday Lab) in collaboration with AMS Institute on IoT, Smart City, and autonomous things. Elisa Giaccardi and Iskander Smit are mainly responsible for the project.

## 1.1.2 Hinting Civic Futures Project

Mentioned in PACT project, ICT technologies and intelligent things contribute to the modern city development. Currently, the urban construction is dominated by the dream of the built environment with embedded intelligence. Urban data streams are processed by algorithms which feed to the physical urban choreography, namely the 'Smart City'.

However, what this smart-dream-future vision means to citizens is not fully addressed in most urban planning. Lots of critiques have been made on smart city's technologically deterministic character, which tends to focus on ICT solutions to be applied top-down. A key critique is that it fails to address the complexity and sociality of cities, and the vision of smart city is now somewhat biased towards technical and quantitative ways for solving urban issues and only judged by metrics like efficiency and cost reduction (Figure 1.1).

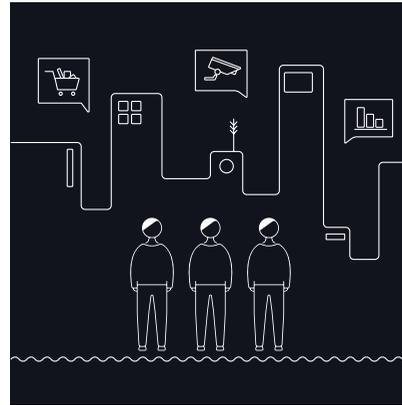
Hinting Civic Futures looks into exactly this smart city context. And instead of focusing on the HCI part, this project sheds light on the notion of *cityness (the state or condition of being a city)* which helps explore the desirable directions for future city development.

Cityness here refers to a way to kindly measure the pleasantness of citizens' life in the city (Figure 1.2). The intent behind is to oriente the focus of urban development from innovation towards citizens: how they want to live and how the city can enable them to live in such ways. Therefore the whole project strives to answer:

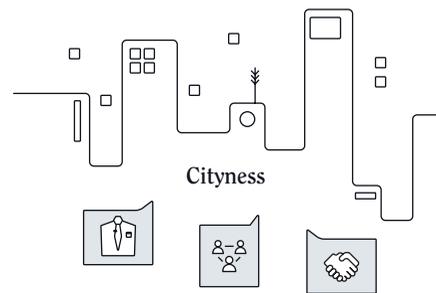
***In the future, how do people want to dwell in what kind of city?***

Hinting Civic Futures critically rethinks the development of the traditional smart city. By exploring alternative future cities derived from positive value incentives, the project strives to uncover the composition of cityness (Figure 1.3). Mobility is chosen as a lens to bring these futures alive where concrete service concepts are designed.

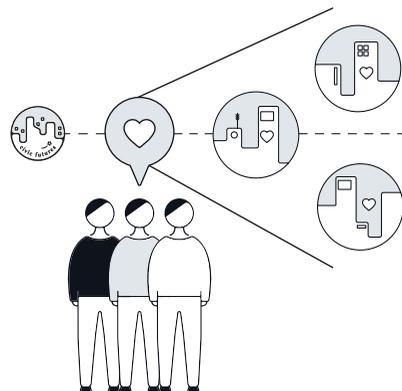
The goal of this project is to stimulate a re-envisioning of urban solutions by considering the interrelatedness of future social and technical aspects. And furthermore, to open up space about how cityness can be amplified in enacting policy-making, business-modeling and behavioral change in future urban planning.



***Figure 1.1: The problematic smart city***



***Figure 1.2: Cityness fathoms the pleasantness of citizens' life in the city***



***Figure 1.3: Uncover the composition of cityness by exploring next-generation cities***

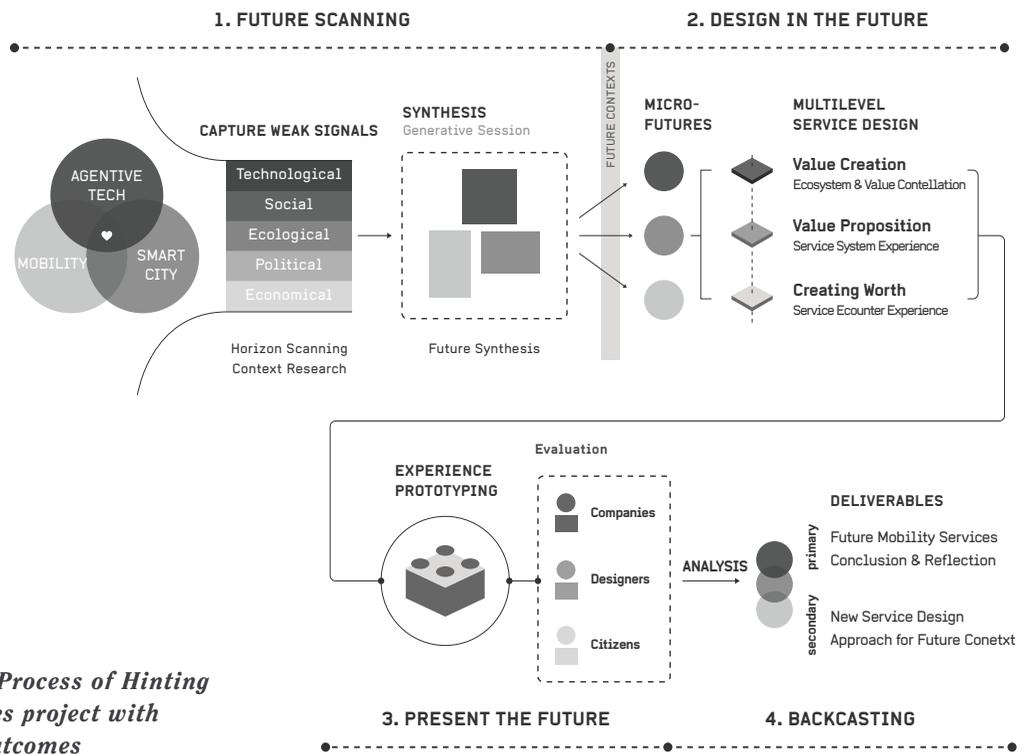
# 1.2 Approach

## Design-led Futures Technique

The graduation project will flexibly apply a Design-led Futures Technique (Mejia, Pasma, & Stappers, 2016) incorporating ideas from Transition Design (School of Design at Carnegie Mellon University, 2012) and Speculative Design (Dunne & Raby, 2013). The aim is to understand complexity, understand what agency is possible within the systems we are in, and speculate in an informed way about how things could be different by adopting a more nuanced and exploratory way to tackle the future (Lockton, 2016).

## “Civic Futures” Design Practice

Based on the Design-led Futures Technique, a “Civic Futures” design practice is established. “Civic Futures” was originally created by design studio Dash Marshall as a way to “reframe the challenge, develop a wide range of possible design responses, and bring those possibilities to life”. While in this project, “Civic Futures” is later tailored into a framework that can improve the process of urban development from the perspective of cityness, and provide future-proof values. Chapter 4.1 introduces the coming of “Civic Futures”. And it is developed as an independent design framework in Chapter 6.3.



*Figure 1.4: Process of Hinting Civic Futures project with steps and outcomes*

# 1.3 Process & Structure

Figure 1.4 illustrates the overall process. As it shows, this graduation project is divided into 4 parts: Future Scanning, Design in the Future, Present the Future and Backcasting.

## Future Scanning (Chapter 2)

This phase is about moving from current state to the future. First a thorough research about Smart City was done by reviewing theoretical literature, attending related lectures and by conducting interviews with experts from different domains to enrich the theoretical insights from literature. Four interviews were conducted with with one professor in the field of civic media, one PhD specialized in human values and design of meaningful technology, one professional futurist and one founder of social enterprise for creative technologies and social innovation.

A discussion-based creative session was carried out. During the session, people discussed the concept of smart city and reflected current problems. Based on that, the future citizenship was probed. And combining all the analysis and insights at that moment, value incentives for future living were generated.

To define the possible future scope, a horizon scanning study was conducted to collect related trends and emerging issues.

## Design in the Future (Chapter 3, 4 & 5)

This phase is to create future cities based

on the value incentives and future synthesis collected in the Future Scanning phase.

The future cities with micro focus explain how cityness could be embedded in urban environment. To bring these abstract worldviews alive, mobility was chosen as a lens to depict what the lives in these future cities look like. Each mobility concept was designed to reflect the value proposed by each future city and was developed further in diegetic ways from both system and experience perspective.

## Present the Future (Chapter 6)

This phase is mainly about presenting the whole project in a storytelling way. A website was built as an 'exhibition' to tell the story in a fluid way. Future cities and concepts were considered as carriers of different cityness. To gather triggered insights and thoughts, experts were invited to evaluate the website and then share their opinions on specific questions. Results were studied qualitatively.

## Backcasting (Chapter 7)

In this phase, results were discussed and main insights were identified, regarding what composes a good cityness and how such cityness can be amplified in the future urban development such as policy-making, business modeling and changing behaviors. Besides, the 'Civic Futures' design practice was introduced as a new framework for further application in dealing with similar multilevel issues with various stakeholders.



2

# Research & Review

This Chapter depicts the current state of knowledge on the smart city concept with problems pointed out. Future citizenship is probed which gives the form of cityness. Based on that, future context is also framed through a horizon-scanning study.



# 2.1 Reviewing Smart City

*“Always design a thing by considering it in its next larger context—a chair in a room, a room in a house, a house in an environment, an environment in a city plan.”*

*Eliel Saarinen*

City is a complex ecosystem with massive issues and hidden patterns, in order to grasp its core mass (Hill, 2012) which actually shapes our everyday life, we should take as much of a holistic systems approach as possible. That is why I am always inspired by the quote from Eliel Saarinen, not only because we are encouraged to evaluate if our designs can fit into the larger context (the environment) but also it nudges us to reframe the problem with a broader purview.

## 2.1.1 What (the Hell) is Smart City

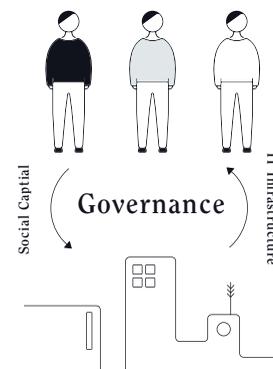
*Smart city is an “urban labelling” phenomenon which does not have a single template nor a one-size-fits-all definition.*

*(Hollands, 2008) (Berardi et al., 2015) (Nam and Pardo, 2011)*

The “smart city” rose to prominence in the public sightedness as a marketing concept from global technology companies that saw an opportunity to sell digital transformation and new technology into big city systems. Since then, the term “smart city” turns into a fuzzy concept (Berardi et al., 2015) which could be understood in various perspectives. It could be seen as a mix of vision in urban development which help (re)shape the city (de Waal, 2015b). To tackle this uncertainty, Nam and Pardo (2012) trace the genealogy of the word “smart” in the label “smart city” where they find different meaning of smartness and

categorize the core factors of smart city as technology (infrastructures of hardware and software), people (creativity, diversity, and education), and institution (governance and policy). They further connect these factors and conclude:

*A city is smart when investments in human/ social capital and IT infrastructure fuel sustainable growth and enhance a quality of life, through participatory governance (Nam and Pardo, 2012).*



**Figure 2.1: Balancing societal and technological aspects through governance**

*Smart city has become a metaphor for urban modernity, a contemporary language game around urban management and development.*

(Glasmeyer & Christopherson, 2015) (Nam and Pardo, 2011) (Rosati & Conti, 2016) (Söderström et al., 2014)

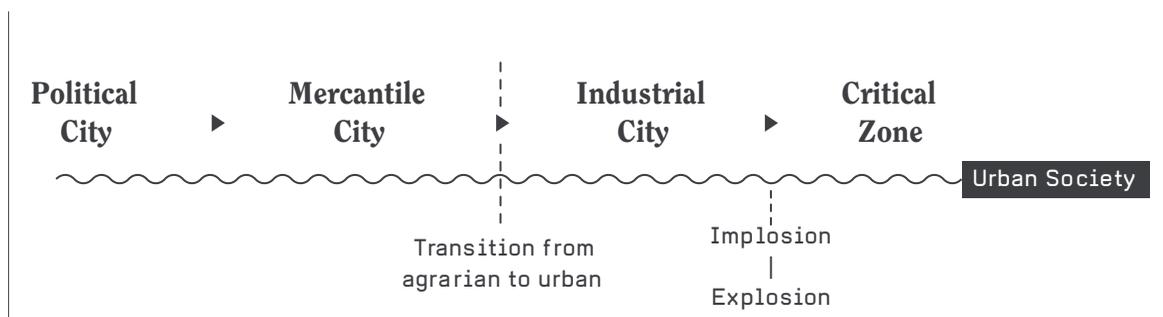
With the influx of growing interpretations from both the academia and enterprise, smart city has become a metaphor which represents either the vision or process of urban modernity. Dirks and Keeling (2009) emphasize the organic integration of systems in smart city. While contrarily Moss Kanter & Litow (2009) think a smart city should be treated as an organic whole--as a network, as a linked system. The UK Department for Business, Innovation and Skills (BIS) however considers smart cities a process rather than a static outcome. These metaphors are intertwined with various conceptual variants of smart city more or less, such as digital city, ubiquitous city and so on (Nam and Pardo, 2012). Meantime, the concept of smart city is also changing alongside the emerging challenges (Catapult Future Cities, 2017) and more actors getting involved.

### 2.1.2 Evolution of Smart City

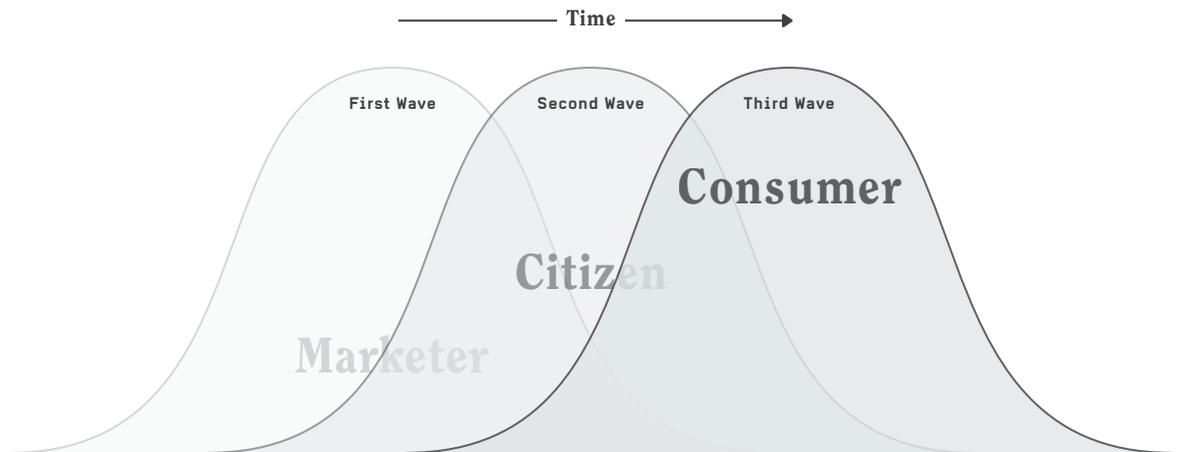
In the book *The Urban Revolution*, Lefebvre (1970) brings about the hypothesis of a completely urbanized society, suggesting this as an inevitable process where he presents an abbreviated history:

The domination of agriculture by pressure from urban centers gave rise to the political city. While later the integration of markets and merchandise threatened the power of the political city with the idea of personal property and ownership (mercantile city). Following that was an influx of industry, in searching of capital, capitalists, markets, and labourers (industrial city). And then came to the turning point towards urban society which refers to ideas and consciousness of total urbanisation.

Smart city, as a possible carrier of urban society at the turning point, similarly experienced a period of evolution (framed by Catapult Future Cities as Three Waves) which is still in process: the Marketer's Smart City, the Citizen's Smart City and the Consumer's Smart City. (next page)



*Figure 2.2: An Abbreviated History of Urban Revolution from Henri Lefebvre*



*Figure 2.3: Three Waves of Smart City Evolution (Catapult Future Cities, 2017)*

### The Marketer's Smart City

Driven by large technology companies, the technological component is the key component to their conception of smart cities. The focus was on big city systems and the smart city definition focussed on the outcomes delivering through these systems.

### The Citizen's Smart City

Citizen engagement came to the fore. Local authorities, particularly in Europe, became more proactive in reaching out to citizens through digital platforms, open data portals, civic crowdfunding, co-design and living labs, hackathons, innovation competitions and more.

### The Consumer's Smart City

Silicon-Valley-type companies using the city as a platform to create their own markets, delivering products directly to citizens (consumers). Governments are under growing pressure to play a more active role in enhancing the positive impact of technology.

As mentioned in Chapter 2.1.1, the first wave of smart city emerged as a marketing concept "tailored" to governments by technology companies like IBM and Cisco, considering smart city as an operating system focusing on efficiency and cost-saving. While the market opportunity was clear to companies, the proposition for

cities was less clear. Why city need this?

It has been pointed out that, from the voices of academia and government, smart city-approaches had been rather top-down, techno-centric and technocratic examples of solutionism, serving the interests of corporations and governments rather than

actually improving the quality of life for actual citizens (de Waal and Dignum, 2017). Since technology always has unanticipated consequences on the one hand, a key critique on conceiving smart city is that it fails to address the complexity and sociality of cities (the dark matters). Thus the second wave called for a citizen-centered smart city, focusing on citizen engagement.

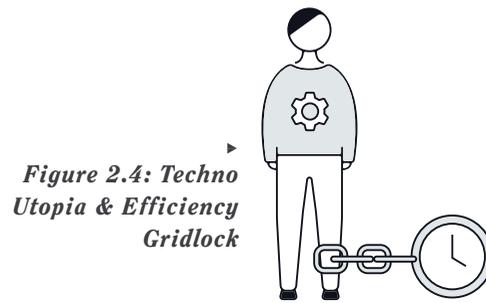
Since then smart city-policy makers and technology vendors are increasingly stating they want to bring about citizen-centered smart cities (de Waal, 2017), where Silicon-Valley-type companies increasingly disrupt existing ecosystems with new innovations for gaining consumers and governments try to balance the disruptive marketplace.

### 2.1.3 The Problematic City

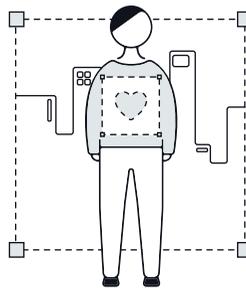
*“If we don’t know the enemy — the problems we collectively face — and we don’t know ourselves — our skills and our limitations, we have put ourselves in peril.”*

*Douglas Schuler*

Lots of critiques have been made on the notion of smart city at different stages and from different views. It could be found from the practice that “technology always develops as a mix of interests of different actors and what it does and how is always a negotiation where different actors that enjoy different power positions try to influence the process” (Bendor, 2018). And through the definition and evolution explained in the last chapters, several emerging problems could be concluded in the current development of smart city. ▶



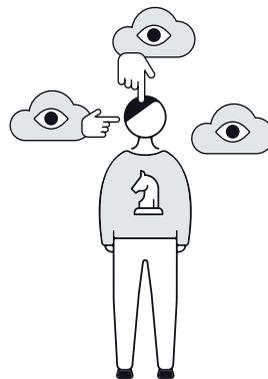
▶ **Figure 2.4: Techno Utopia & Efficiency Gridlock**



◀ **Figure 2.5: Civic Initiatives Being Hard to Scale**



▶ **Figure 2.6: City as Consumer-Optimised Zone**



◀ **Figure 2.7: Invisible Nudging for Being “Good”**

## Techno Utopia & Efficiency Gridlock

Total management and easy control are always the selling point of smart city systems developed by technological companies with the belief of Techno Utopia in which laws, government, and social conditions are solely operating for the benefit and well-being of all its citizens. Lots of critiques have been made on the technologically deterministic language in the smart city concepts. This way of thinking pulls attention away from deeper problems which are likely to grow worse while we only focus on technology (Schuler, 2016). While asserting that social issues will go away if the efficiency problem is eliminated (Schuler, 2016), it simply ignores the fact that city is more than “efficiency”. (Figure 2.4)

## Civic Initiatives Being Hard to Scale

Total management and easy control are always the selling point of smart city systems developed by technological companies with the belief of Techno Utopia in which laws, government, and social conditions are solely operating for the benefit and well-being of all its citizens. Lots of critiques have been made on the technologically deterministic language in the smart city concepts. This way of thinking pulls attention away from deeper problems which are likely to grow worse while we only focus on technology (Schuler, 2016). While asserting that social issues will go away if the efficiency problem is eliminated (Schuler, 2016), it simply ignores the fact that city is more than “efficiency”. (Figure 2.5)

## City as Consumer-Optimised Zone

In the third wave of smart city evolution, companies are disrupting start to deliver

services directly to citizens to make them become consumers, like the preface of Digitarians in Dunne & Raby’s speculative project “United Micro Kingdoms”. Lyster (2016) explains the logic behind:

... the increasing agency of mobility infrastructure; the appearance of corporate interests in public space; profit-seeking synergies between mutually beneficial industries; the pervasiveness of information technologies, especially in the realm of consumer routines; the elevation of individual choice over collective will, matched by unreasonable expectations of convenience; and finally a city stimulated and accelerated by intense circulation flows.

With the consumption experience becoming more and more seamless and frictionless, the city may eventually grow into a consumer-optimised zone controlled by private corporations and markets while consolidating the capitalism. (Figure 2.6)

## Invisible Nudging for Being “Good”

With the fast pace of development, technology gradually becomes an opaque black box (Resnick & Eisenberg, 2000) making it difficult for users to feel a sense of personal connection. A further affect will be people feeling unconscious of the dark side of the technology since they even don’t understand how it works. In this way, smart city has disciplinary power over its inhabitants by utilizing its cameras and sensors for surveillance. It could then affect its citizens through the ‘invisible hand’ – a mechanism known as ‘nudging’ in the social psychology, leading to less responsible behaviour (Starke, 2017) and top-down criterias of “good behaviors”. (Figure 2.7)

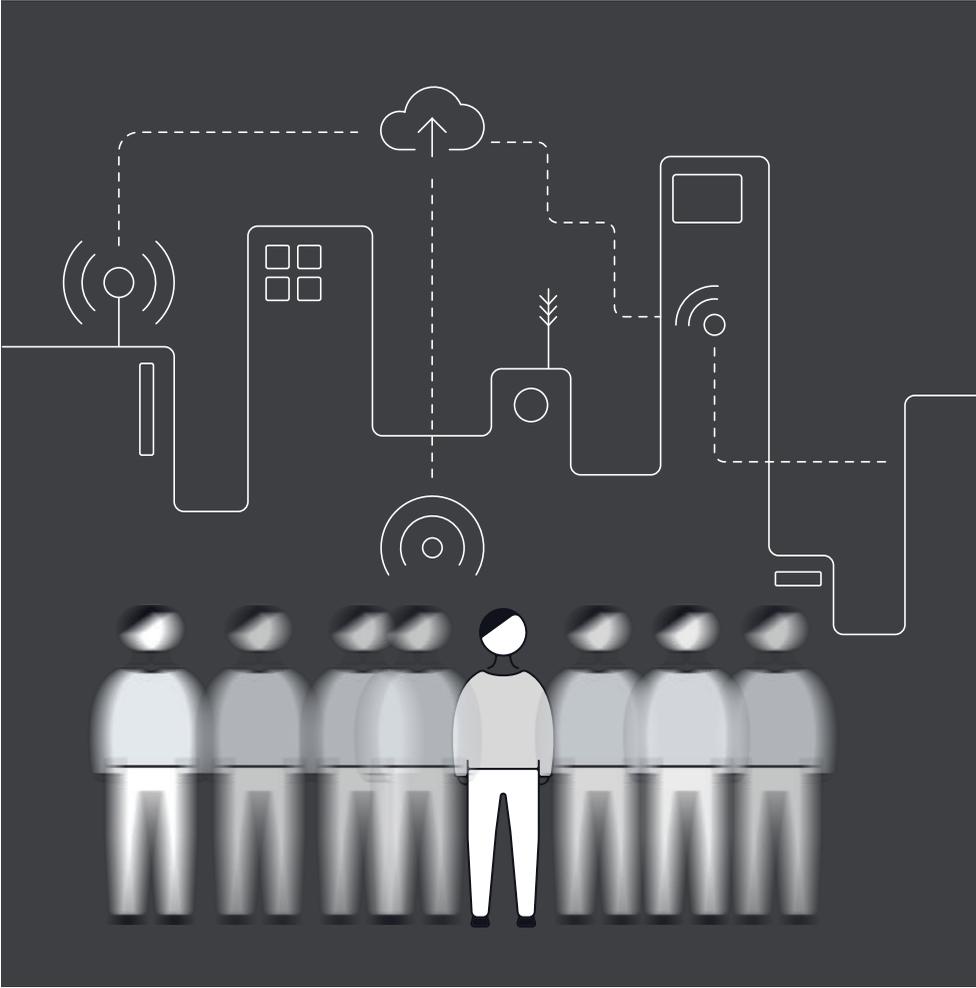


Figure 2.8: Smart City Dystopia

Why being problematic?

The smart city is a kind of label for urban development which depicts a political choice in favor of technological prosperity.

Within this smart city ecosystem, tech corporations package and sell their problem-solving solutions to the municipality so as to add profitable influence on urban spaces.

The municipality meantime tries to present its city as an innovation node to encourage such technological competitions for cost-saving, job attraction and etc. This nudges its policy-making towards solutionism.

While citizens in the city are treated as the end-users of these solutions and don't have a fighting chance of unleashing their opinion on such development.

---

◀ and this...



◀ this...



◀ In order to change this...



◀ We need to shift the attention to a more meaningful direction, those who actually compose the city: citizens, and the way they live that creates urban culture: citizenship.

### 2.1.4 Citizenship in Smart City

***Citizenship is a developing institution which is constantly challenged and reshaped.***

*(Leydet, 2003) (Marshall & Bottomore, 1992) (Vanolo, 2016)*

Citizenship traditionally involves rights and responsibilities that accompany membership in a national community (Brown, 1994; Marshall, 1950). However, as a fluid and in motion conception (Starke, 2017) formerly accepted definitions are always under discussion and reshaping. Debates on the constitution of citizenship not only lie on the expanding scope of community membership (Vanolo, 2016) but also the growing technological affordance in smart city development (de Waal and Dignum, 2017). And this may compose “new acts of citizenships” and “a wider set of processes that constitute civic culture’s starting-points” (Couldry et al., 2014).

***The roles of citizens and their citizenship are affected by smart city visions and practices.***

*(Starke, 2017) (de Waal and Dignum, 2017)*

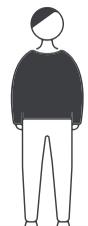
Citizenship could be understood as a socio-legal status between citizens and governments (Starke, 2017) that let citizens profit from rights and duties that the city provides. And the relationships between citizens and governments have been rearranged a few times: from the original one between administrator and residents (Cities 1.0) to the relation between “service provider” and “consumer” (Cities 2.0) and further “facilitator” and “participants” (Cities 3.0).

Now it is more conceived as one between “collaborator” and “co-creator” (Cities 4.0) (Foth, 2017). Along these lines, smart city practices can be contextualized in various political-philosophical perspectives on citizenship (de Waal and Dignum, 2017), which in other words, citizenship is affected by smart cities.

To make it clear, a social mechanism in smart city (Figure 2.9) is configured based on the literature research in which citizenship as a socio-legal status empowered by smart city capabilities (Starke, 2017) offers citizens the obligation and rights for them to act in the city, creating social capital (Caragliu et al., 2011) as resources for the city itself. An interplay between citizenship and smart city could be found as socio-techno interaction (Nijman, 2016).

***“The right to the city is like a cry and a demand... (for) a transformed and renewed right to urban life.”***

Aside from that the concept of smart city will affect the composition of its citizenship, citizens can also have a say on how technology should affect their wellbeing (Starke, 2017) and in long-term determine what kind of people they would like to be (Frankenfeld, 1992) in what kind of city. In brief, it is to imagine the proper citizenship *how do we want to live in the city* and use it to suggest the development of future city *what should the city provide* (Figure 2.10). All these efforts are trying to shift the debate on urban development in a more humane direction: ***citizen.***



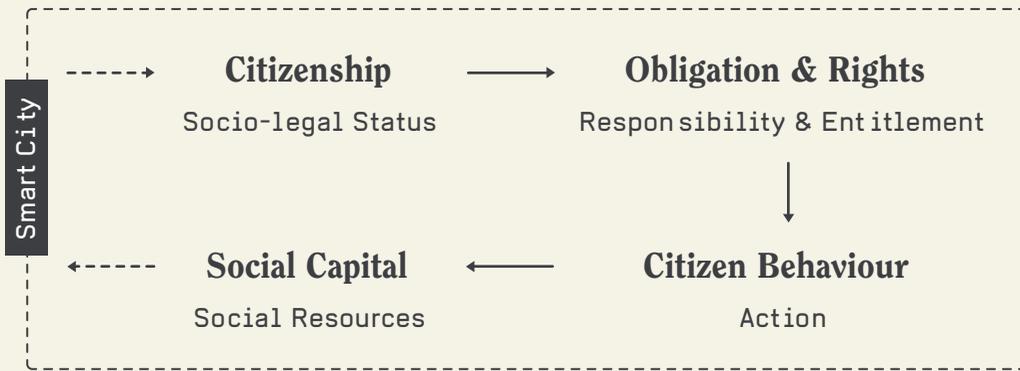


Figure 2.9: Social mechanism in (smart) city

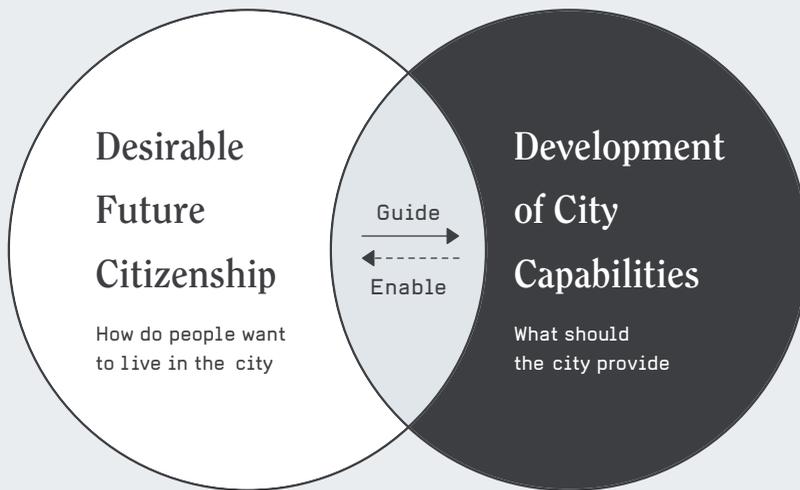


Figure 2.10: Social mechanism in (smart) city

## 2.1.5 Emergence of Agentive Technology

### What is Agentive Technology?

The concept of smart city is strongly supported by the maturing ICT technologies in dealing with issues like efficiency, quality of life and environmental effects. Among all the cutting-edge technologies, agentive technology emerges as a type of Artificial Intelligence which can bring fruitful possibilities. Technically speaking, it's a new mode of interaction enabled by recent advances in narrow AI, in which 'agentive' means the technology does something on behalf of the user (Noessel, 2017), persistently and in a hyper-personalised way.

### Relevance to Focus on Agentive Technology

While things powered by agentive tech could be understood as things with a level of agency (Cila et al., 2017), which have an ability to foment action, to be decisive and articulate (Bleecker, 2006). These thing agents are continually involved in the smart city construction. As they could offer a pluralistic approach to meaningful interactions between all the actors involved in a context (Cila et al., 2017), such special characteristic stimulates new dialogue to occur and has lots of potentials both for urban systems and human interaction. Since the goal of this project is about stimulating a re-envisioning of solutions within a socio-technical context rather than envisioning new technological applications. Emphasis is therefore put on leverage the agentive capabilities of things to motivate human agency.

### Opportunities Enabled by Agentive Technology

A small literature study is conducted to discover the opportunities enabled by agentive technology which are listed below:

#### 1. Thing Servitization with System Embedded

With their ability to act, thing agents can become actors within the ecosystem including other objects and people; they are part of the whole system around them (Cila et al., 2017). The exchange of data and the ecosystem that thing agents are a part of provides extra value to people. They can understand user's goals and preferences, monitor complex data streams and make smart inferences and plans (Noessel, 2017). This integration of individual and system makes them appear to be more important or of more influential for the user experience (Rowland et al., 2015) through servitization as well as the societal impact due to their exceeding capabilities.

#### 2. Practice Enabler with Co-Performance

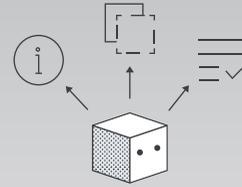
Thing agents can work with a focus on the goal (Noessel, 2017) instead of tasks. This enables them to collaborate with users who share the same goal rather than just being good tools. While being goal oriented means they can occupy spaces and forms adaptively and increase intelligence through practice. This kind of appropriateness resonates with the notion of co-performance (Kuiker and Giaccardi, 2018), a modification of the practice theoretic framework that considers

artefacts as capable of learning and performing next to people. And thing agents have the potential to complement human capabilities in novel and rich forms of everyday practice (Kuiker and Giaccardi, 2018).

### 3. Human Improvement with Skillset Upgrade

The fact that thing agents can make decisions on behalf of their users indicates that they are taking over part of agency from human. If thinking in a dystopian way, this may take practical skills away from people and decrease their certain expertise by reducing the involvement of human agency during social practice. But on the other side, we can also say agentive tech turns people from labourers into task managers. Coins always have two sides especially for technology.

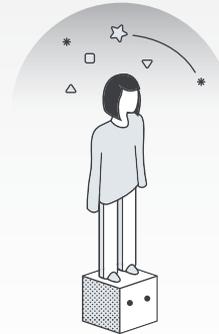
While Bill Sillar (2009) argues that rather than being the ability to achieve specific aims, human agency is the motivation and individual creativity incorporated in the human body. And this will be a challenge but also an opportunity for designing agentive tech properly to help people foster new interests and skills (Noessel, 2017) and trigger people to adapt their own recipes for their own needs. All these can lead to an upgrade of general social skillset forming a better evolution.



*Thing Servitization with System Embedded*



*Practice Enabler with Co-Performance*



*Human Improvement with Skillset Upgrade*

## 2.2 Probing Future Citizenship

The problem discussed in Chapter 2.1.3 reveals the fact that smart city tends to consider city as a system which can be managed, optimised and personalised by the government. That is why the focus of development is more on infrastructure within smart city concept rather than its citizens. The city however, is its people without which, a city is only a shell. As Dan Hill said, “We don’t make cities in order to make buildings and infrastructure. We make cities in order to come together, to create wealth, culture, more people” (2013). This chapter explains the process of probing new citizenship in future which could be desirable.

### 2.2.1 Future Citizenship Workshop

*“Cities, like dreams, are made of desires and fears, even if the thread of their discourse is secret, their rules are absurd, their perspectives deceitful, and everything conceals something else.”*

*Italo Calvino, Invisible Cities*

A paradigm shift is needed on how future city should be developed, it is no longer to add on new technology and wait for or even force people to adopt. The orientation should be on citizens and how they can collectively built urban culture with technology. Thus, a discussion-based creative session is conducted as a starting point to let people reflect current conundrums and then imagine future configuration of citizenship, to collect their hope & dream and also fear & concern (Dunne & Raby, 2013; Superflux). A city is surely not only “a concentration

of humanity” but also “a nexus of technological infrastructure” (Dourish & Bell, 2011), while the essential is to use the humanity to nudge the construction of infrastructure. So the result would therefore help to seek out the overlapping possibilities between the citizen empowerment and the technological capabilities.

#### Participants

Five Master students from TU Delft are selected for joining the session (Figure 2.11). All of them currently study at the faculty of Industrial Design Engineering with different specialisation. Among them, three are from the Netherlands, one from Japan and one from Singapore. Since the later concept development will choose the Netherlands as context, the participants are considerably chosen to keep the balance of locality and diversity.



Figure 2.11: Participants discussion during the session



Figure 2.12: Participants discussion during the session



Figure 2.13: The filled Utopian/Orwellian map

## Structure

The creative session has two parts: envisioning the future citizenship and the social impacts it may bring. A Utopian/Orwellian map is used as a supportive tool to collect and guide thoughts (Figure 2.13).

During the first part, participants brainstorm about the future types of citizenship that they prefer. The question “how do you want to dwell in your city in 2030” is raised to provoke the discussion and pictures of urban life are provided as inspiration (Figure 2.12). Based on the

envisioned rights and obligations, participants continue brainstorming about the good and bad social impacts that may follow as to the question “what kind of a city do you want to live by then”, as well as the measures that could be taken as drivers to foster the good and prevent the bad.

## Results

The clustered contents of the Utopian/Orwellian map is analyzed and synthesized combined with insights collected from former research. Patterns emerge during the synthesis as shown in

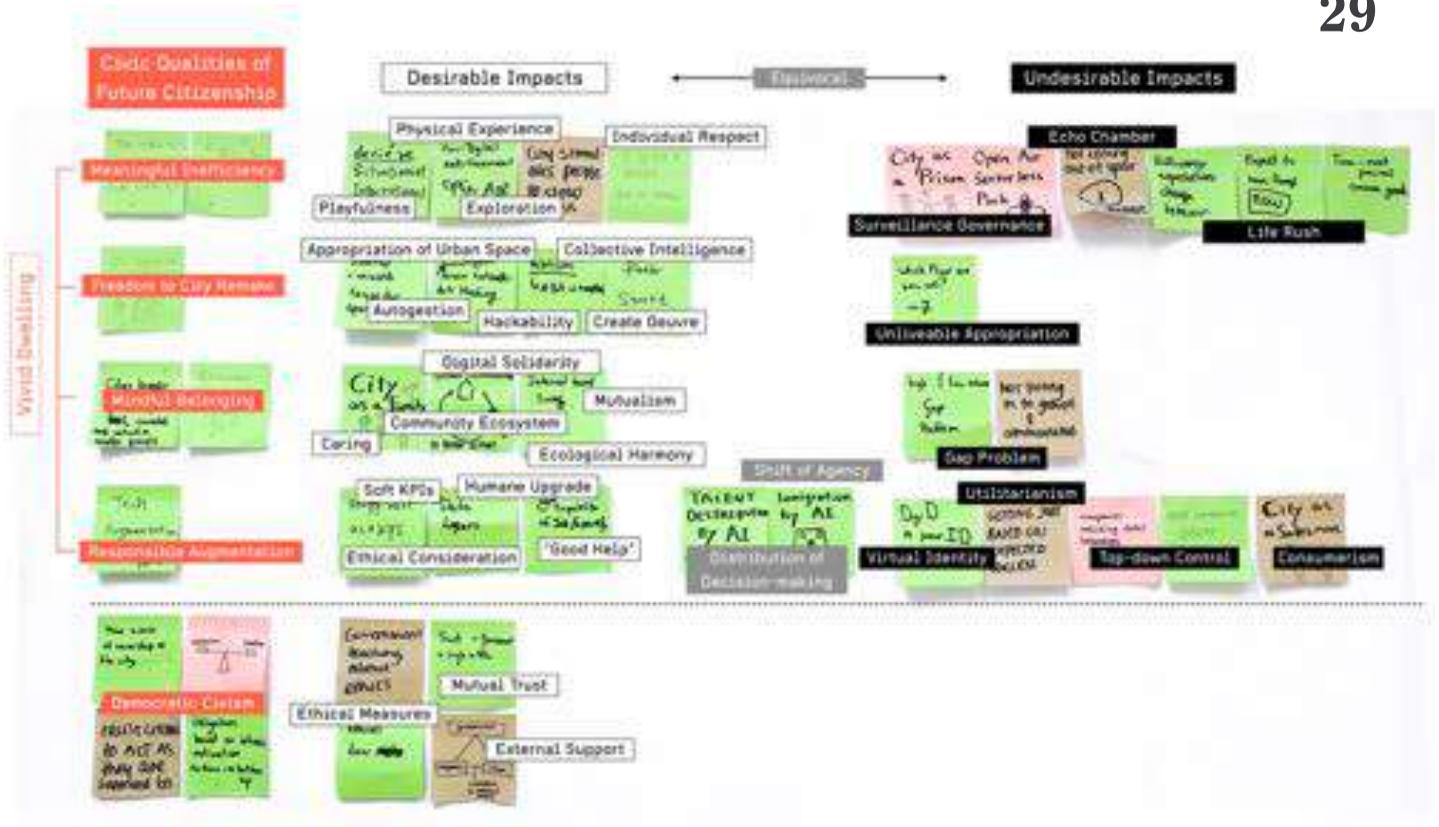


Figure 2.14: Synthesis of the clustering results

Figure 2.14.

Apart from the normative democratic civism (Butts, 1988), four themes (Figure 2.7) appear as distinct opportunities of future citizenship, which are a bit provocative but also closely related to the current problems of smart city:

- *Meaningful Inefficiency*
- *Freedom to City (Re)make*
- *Mindful Belonging*
- *Responsible Augmentation*

Further literature research and expert interviews are conducted based the four themes to make them concrete with theoretical backbones that support the latent meaning behind them, while also view them in real practices for better understanding in order to frame them in a more actionable way.

## Meaningful Inefficiency

*Synthesis of Physical Experience, Individual Respect, Playfulness, Exploration*

Meaningful Inefficiency is an idea Eric Gordon used to “represent the design of systems for civic action” (Gordon & Walter, 2016). In the world where technological efficiency has become the dominant design value of civic systems, specifically in the smart city, Meaningful Inefficiency sheds light on the significance of social experiences. It does not imply to create inefficiency deliberately, but rather to add a meaningful layer onto the existed efficient system. By adopting play as the main action, Meaningful Inefficiency aims to foster “civic learning, reflection, empathy, and increased awareness of civic systems and their effects” (Gordon & Walter, 2016). Besides that, it also encourages collective prosperity by making “one’s own experience more worthwhile to others” and enabling “one participate more richly in the worthwhile experiences of others” (Dewey, 2011).



Figure 2.15: Meaningful Inefficiency

## Freedom to City (Re)make

*Synthesis of Appropriation of Urban Space, Collective Intelligence, Autogestion, Hackability, Create Oeuvre*

The notion of Freedom to City Re(make) indicates an active citizenry that people actively participate into the city (re)making. It resonates with Henri Lefebvre’s “Right to the cit” where city is valued as an oeuvre (artwork) that is created and recreated every day by the quotidian practices of urban inhabitants (Lefebvre, 1996). Pointing out that urban space serves a complex social function in addition to its economic function and laying emphasis on the importance of the everyday experience of inhabiting the city, Freedom to City Remake encourages collective power to reshape the processes of urbanisation. It leverages a thing’s use value over and above its exchange value (Habermann, 2015) which enables people’s appropriation and self-management of urban resources.

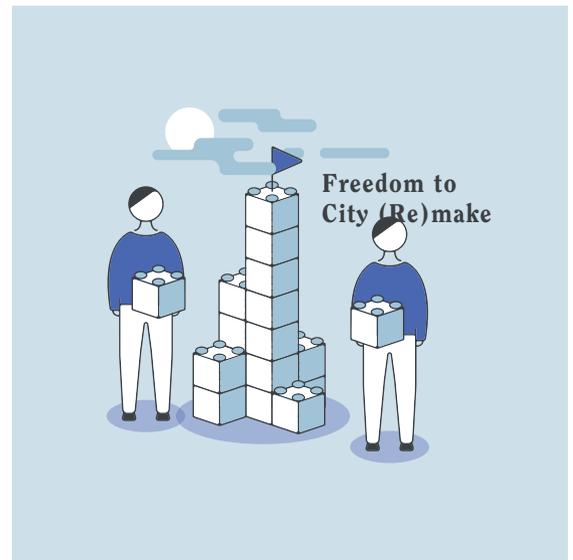
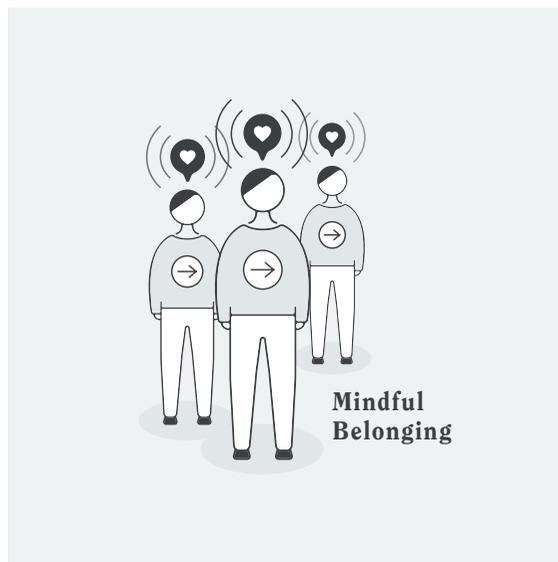


Figure 2.16: Freedom to City (Re)make

## Mindful Belonging

*Synthesis of Digital Solidarity, Community Ecosystem, Mutualism, Caring, Ecological Harmony*

People are relational beings and have many ways to identify themselves as part of a community that gives them a sense of belonging and purpose. However according to Space 10, studies show people are becoming increasingly lonely and losing a sense of community, especially in the metropolitan crowd, where cities becoming overwhelming places full of anonymous strangers. Mindful Belonging represents a kind of cognitive tribalism, which is not defined by consumption or competition for recognition but belief and choice for latent social identity. By encouraging individuals to choose their community by passion and value and to contribute to the collective well-being (Chang, 2015), Mindful Belonging exists when people find meaningful engagement among communities which are embedded in a web of social connections (Purcell, 2014). People are defined not by where they come from but rather where they want to go.



**Figure 2.17: Mindful Belonging**

## Responsible Augmentation

*Synthesis of Soft KPIs, Humane Upgrade, Ethical Consideration, Good Help*

Technology sometimes falls into the bottleneck of being foolproof and many services still attempt to fix people from professionals' perspectives (Wilson et al., 2018). With more intelligence embedded into people's everyday life, the question of decreasing expertise concerns people a lot (Noessel, 2017). Responsible Augmentation calls for 'good help' (defined by Nesta) which equips people to take positive action for improving their lives (Wilson et al., 2018). It extends the capabilities of humans in a way that feels natural instead of replacing people's capabilities with technology (Brown et al., 2017). Therefore, Responsible Augmentation requires technology to be designed in a resourceful way that opening up space for people's participation. And eventually to create a transition from augmentation to improvement.



**Figure 2.18: Responsible Augmentation**

Cities emerge with people start living together, usually along rivers. That is why “human dwelling” always includes the concept of city (Rajanti, 1999). Turning back to the premise of smart city, it is the *cityness* (Sassen, 2005) that makes people willing to live in the city and further develop it. Giuseppe Zarone (1993: 9-10) considers the “city” as a “place of living” where one subordinates oneself to the historical-rational, organisational and architectural forms of the city. It is where the human being is linked with the world in a way that one does not only *live in* the city but also *for* the city.

Sharing a similar mindset with those historical metaphors, a future lifestyle is composed which captures the essence of the four themes of future citizenship, named as:

# Vivid Dwelling

Meaningful Inefficiency  
Freedom to City (Re)make  
Mindful Belonging  
Responsible Augmentation

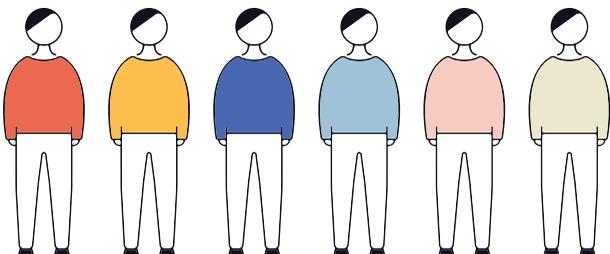


### 2.2.2 Vivid Dwelling

*To hold an active attitude towards everyday life, to not only earn a living but also enjoy a living, to explore and adopt new forms of wellbeing, to leverage technology for participatory city making, to do things together, these are what Vivid Dwelling brings about.*

*“Vivid” depicts an attitude and approach to life. Besides the seek of economic opulence and efficiency, it encourages the abundance of dynamics going beyond mundane life. “Dwelling” means not simply about entering a space pre-fabricated, but about creating new space-times; it is not a passive being-in-the-world, but a creative, appropriative means of living (Mommersteeg, 2014).*

Vivid Dwelling is a proposed future lifestyle. With its distilled value, it reflects part of the cityness of future cities, and it could be taken as an incentive for the current state to change. Vivid Dwelling is also a metaphor of hope, dream and consensus in an explorative pattern since it integrates people-envisioned future citizenship into a way of living. Being an echo from the past, a provocation to the present and a hint for the future.



### 2.2.3 Cityness

*“You take delight not in a city’s seven or seventy wonders, but in the answer it gives to a question of yours.”*

*Italo Calvino, Invisible Cities*

The notion of “cityness” was mentioned in the Vivid Dwelling chapter which represents the reason for people to live in the city. It is actually a term which is used to replace “urbanity” since the latter can not capture all the aspects that a city have (Sassen, 2005). The Skyscraper Dictionary defines cityness as “the idea of being able to develop and experiment with every interest and potential you might have, especially the very niche ones.” So we could consider it as “an instrument to capture something that might easily get lost”. Saskia Sassen (2010) gave an example that “public space, not as a representation of

what it ought to be, but public space as the activity of making it such” illustrates the key part of cityness. Putting it simple, cityness covers all kinds of urbanity but also grasps something extra (personal, intangible or niche etc.).

I found cityness an interesting term for this project since it can depict forms of uncovered urbanity which can strip our old concept of the city. While what Hinting Civic Futures tries to do is to explore new futures and arouse imagination of the conditions that make a good city. And besides being a sociological term, Vigar et al. (2005) even suggested that policy-makers should unfold the contemporary notions of ‘cityness’. This means cityness has the potential to be applied in real practice. Therefore, cityness here is used as a guiding term for this graduation project. But its latent meaning needs to be discussed further.





## 2.3 Framing Future Context

*“The future is already here — it’s just not very evenly distributed.”*

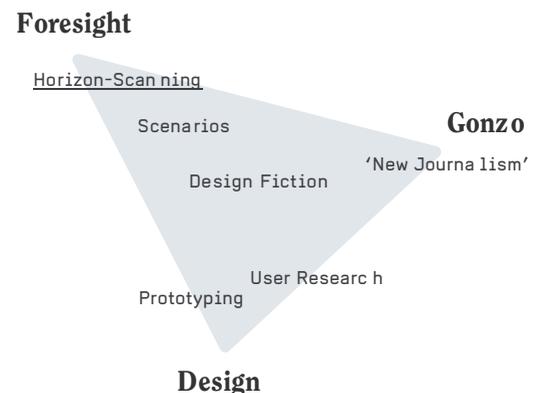
*William Gibson*

Jenny Holzer said that we live the surprise results of old plans. It explained why developing future visions is an essential part of all urban design projects (Pollastri et al., 2018) and it brings the state and civil society back into the collective dialogue about futures. It is vital to be willing to imagine and demand a possible world, even if that world is impossible under the conditions that exist now (Purcell, 2014), simply because “If we cannot imagine, then we cannot manage” (Neuman and Hull, 2009). This Chapter therefore explains the process of framing the future urban context from resource collection to theme synthesis. The results could help us know what futures do we see emerging right now and what might they grow into.

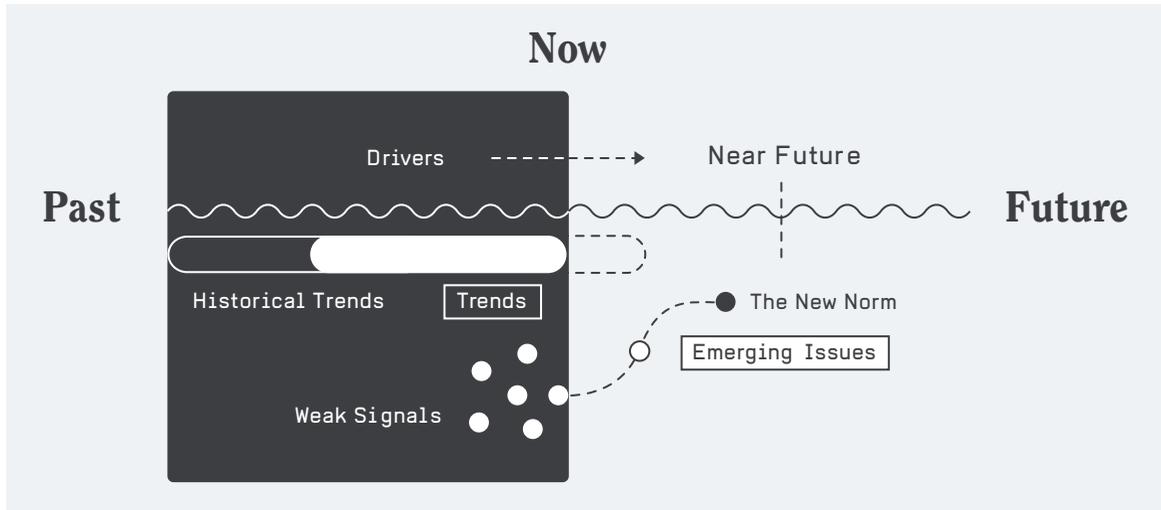
### 2.3.1 Future Scanning

#### Approach: Horizon-Scanning

To have a glance of possible futures, methods and tools need to be applied for harnessing information and uncovering hidden patterns. For this project, horizon-scanning which is a foresight method (Figure 2.8), is chosen as the approach to help deal with an uncertain and complex future. It is the systematic examination of potential hazards, opportunities and likely future developments which are at the margins of current thinking and planning (DEFRA). Horizon-scanning can be completely explorative and open or be a limited search for information in a specific field based on the objectives of the respective projects or tasks (Cuhls et al., 2015).



*Figure 2.19: Mapping design and experiential futures terrain (Source: Justin Pickard, “My Radio Prefers Bacon”, APF V-Gathering online presentation. 2011)*



*Figure 2.20: Trends and emerging issues as new sources of change*

The purpose of adopting horizon-scanning is to explore novel issues and trends as well as unexpected problems to guide the framing of future context. If present is a transitory moment between what was and what might be, then signals about change are a window for us to grasp the future. Among these signals are emerging issues and trends which are chosen as the target collection for this project. For explanation, a trend is a historical change over time and an emerging issue is a possible new technology, a potential public policy issue, or a new concept or idea that, while perhaps fringe thinking today, could mature and develop into a critical mainstream issue in the future or become a major trend (Figure 2.20). They constitute what is called “*new sources of change*” (Lum, 2016) which indicate the possible directions of transition.

In order to create a more robust conversation about the future by incorporating emerging issues into world-making, the framework Verge (Lum, 2016) is used as a filter as well as a connector. As an ethnographic futures framework, Verge focuses on future impacts rather than drivers comparing with STEEP (Social, Technological, Economic, Environmental, Political). It highlights key experiences as human beings, and also explores change at the point of impact on people and human systems. Eventually it can help translate thinking about the future into innovation and decision-making. By applying Verge, it begins by answering the questions of how people may “define”, “relate”, “connect”, “create”, “consume” and “destroy” the world. Each of the aspects is explained below:

**Define**

The concepts, ideas, and paradigms we use to define ourselves and the world around us.

**Relate**

The social structures and relationships which define people and organizations.

**Connect**

The technologies that connect people, places, and things.

**Create**

The processes and technology through which we produce goods and services.

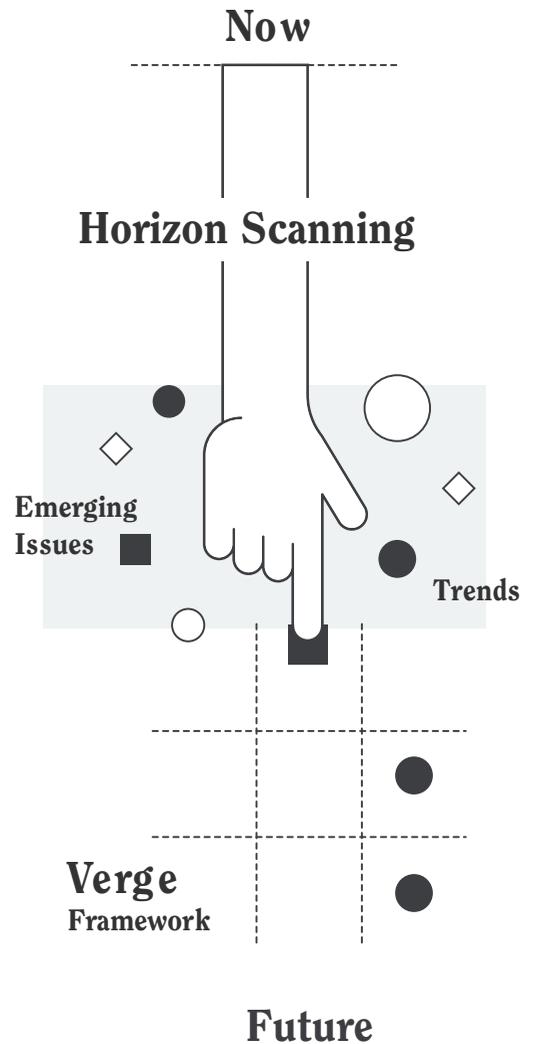
**Consumer**

The ways in which we acquire and use the goods and services that we create.

**Destroy**

The ways in which value is destroyed and the reasons for doing so.

In summary, for framing the future context, horizon-scanning is adopted as a main approach while emerging issues and trends known as new sources of change are the target collection, and Verge is picked as a framework for both categorising and analysing the information collected.



*Figure 2.21: Process of framing the future context*

## Method

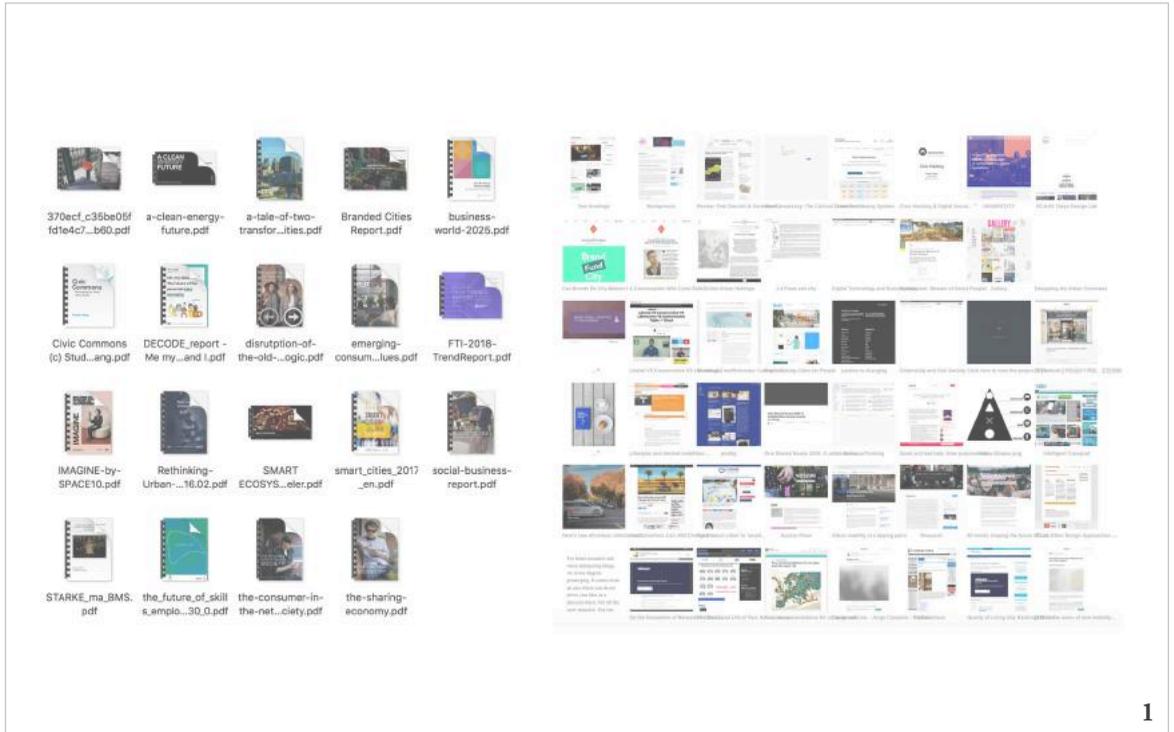
The scope of scanning is defined around topics like smart city, future living, urban design, artificial intelligence etc. which are aligned with the project focus. And the scanning starts by raising the question:

*How will citizens dwell in the cities in near future and by which means can they create urban culture with technology?*

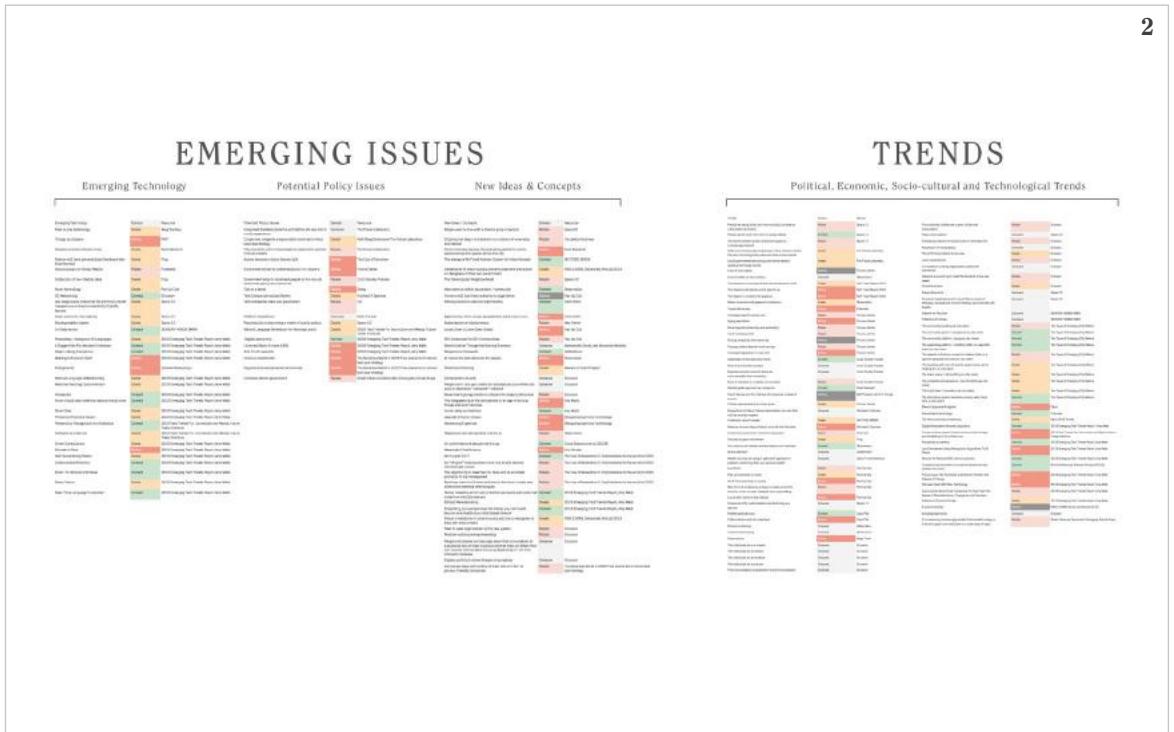
A combination of different methods are used for scanning to collect information from various resources to add the diversity and credibility. A secondary analysis of current international future studies on research, design and technology covers the latest development within the scanning scope (Figure 2.22). Based upon that, a series of structured and focused interviews with experts specialised in civic media, futurology, participatory city-making and open technology discuss the essential problems of the smart city and highlight the potential areas for sustainable, empowering and responsible urban innovation. Besides, additional literature research is conducted for understanding the contextual knowledge around the scanned issue.

During the process, trends and emerging issues are hunted and assessed to keep

them diverse but focused. Every trend or emerging issue is labeled with “define”, “relate”, “connect”, “create”, “consume” or “destroy” according to Verge. For better clustering the hunted emerging issues, “Emerging Technology”, “Potential Policy Issues” and “New Ideas & Concepts” are added as three macro categories. The collection comes to an end when repetitive content is found to appear frequently which is a sign of saturation. Figure 2.23 gives an overview, with 100 emerging issues and 105 trends being collected eventually (check Appendix for detail).



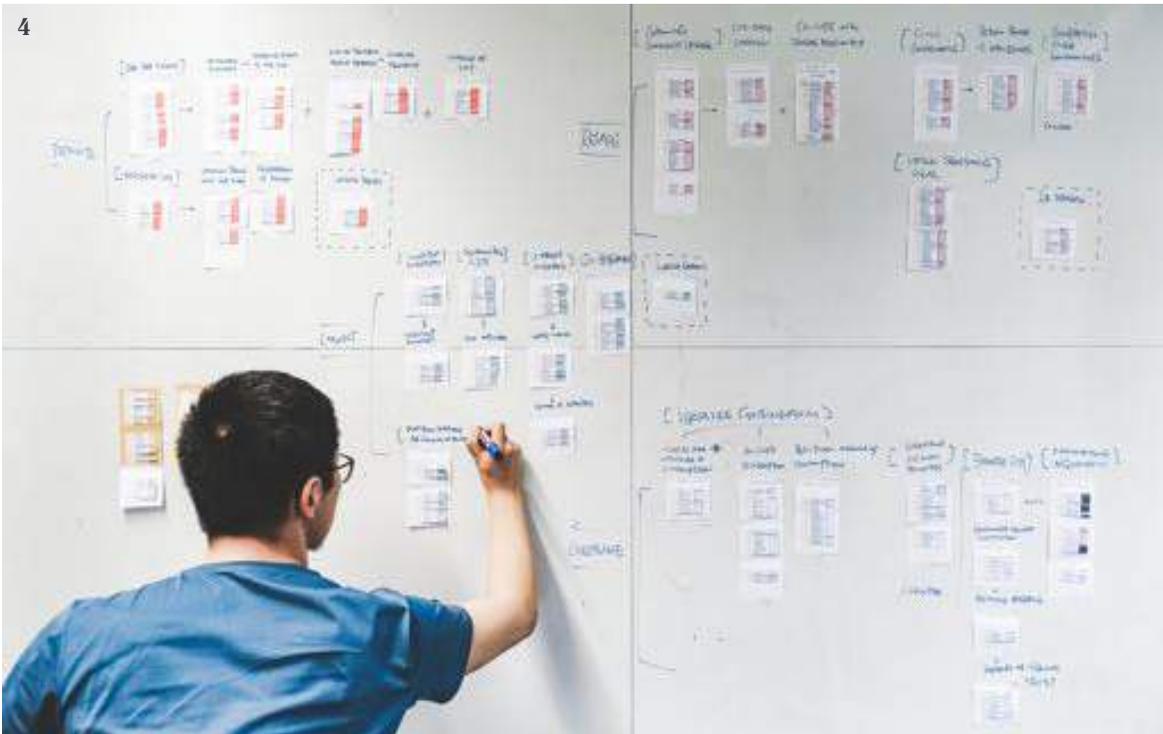
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2

▲ (Above) Figure 2.22: Materials for horizon-scanning

▶ Figure 2.23: Collection of emerging issues & trends with Verge by horizon scanning



▲ (Above) Figure 2.24: Printed new sources of change

► Figure 2.25: Clustering and synthesising new sources of change

### 2.3.2 Future Synthesis Synthesis

The collected emerging issues and trends are printed out for synthesis (Figure 2.24). In order to develop future themes, the sources of changes are clustered based on their connection with one another within each aspect (Figure 2.25). The process of clustering is iterative and reflective since the sources of change could share a consensus, involve infections, form a contradiction, or have multiple layers of meaning when combined. After several iterations,

The process of clustering is iterative and reflective since the sources of change could share a consensus, involve infections, form a contradiction, or have multiple layers of meaning when combined. After several iterations, themes start to emerge from the clusters. It is then important to identify the hierarchy among the themes which is helpful for making connections with their latent meaning. Figure 2.26 shows the categorised themes within the aspect of "Define" as an example, where main themes are prioritised followed by minor themes as further derivation.

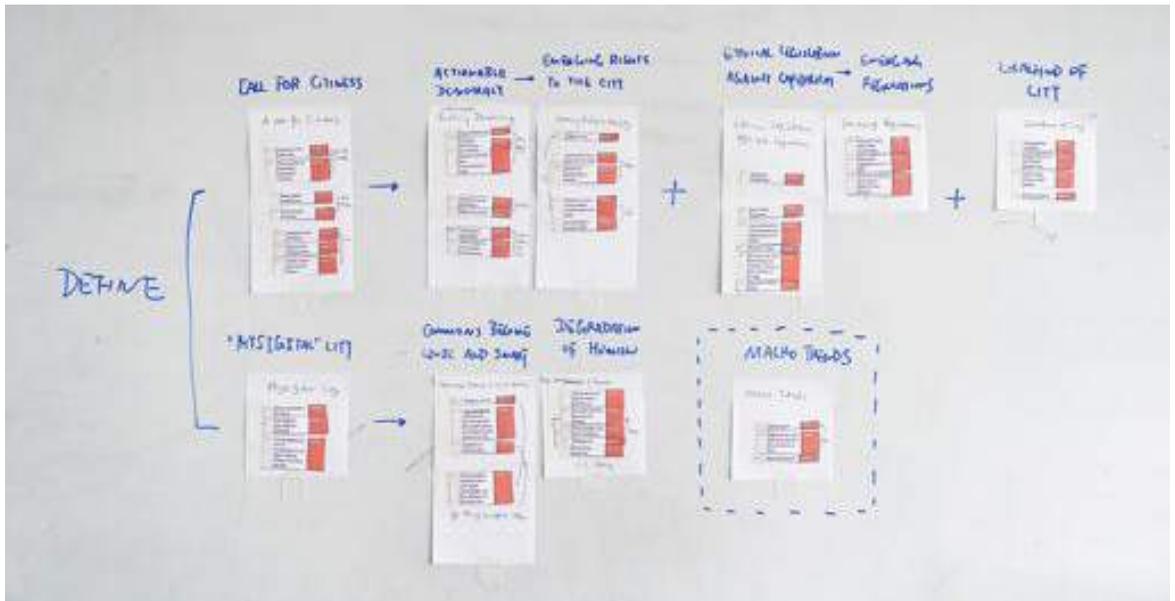


Figure 2.26: Categorized themes within the aspect 'Define'

## Results

17 future themes emerged from the synthesis, they are:

### Define

Call for Cityness  
Physigital City

### Relate

Civic Governance  
Growing Community Upsurge  
Virtual Squeezing Real

### Connect

Connected Everyday  
Ubiquitous Interface  
Co-Performance  
Platformization for Community Building  
Searchable City

### Create

Ethical Cradle to Cradle  
Everybody Designs  
Internet of City

### Consume

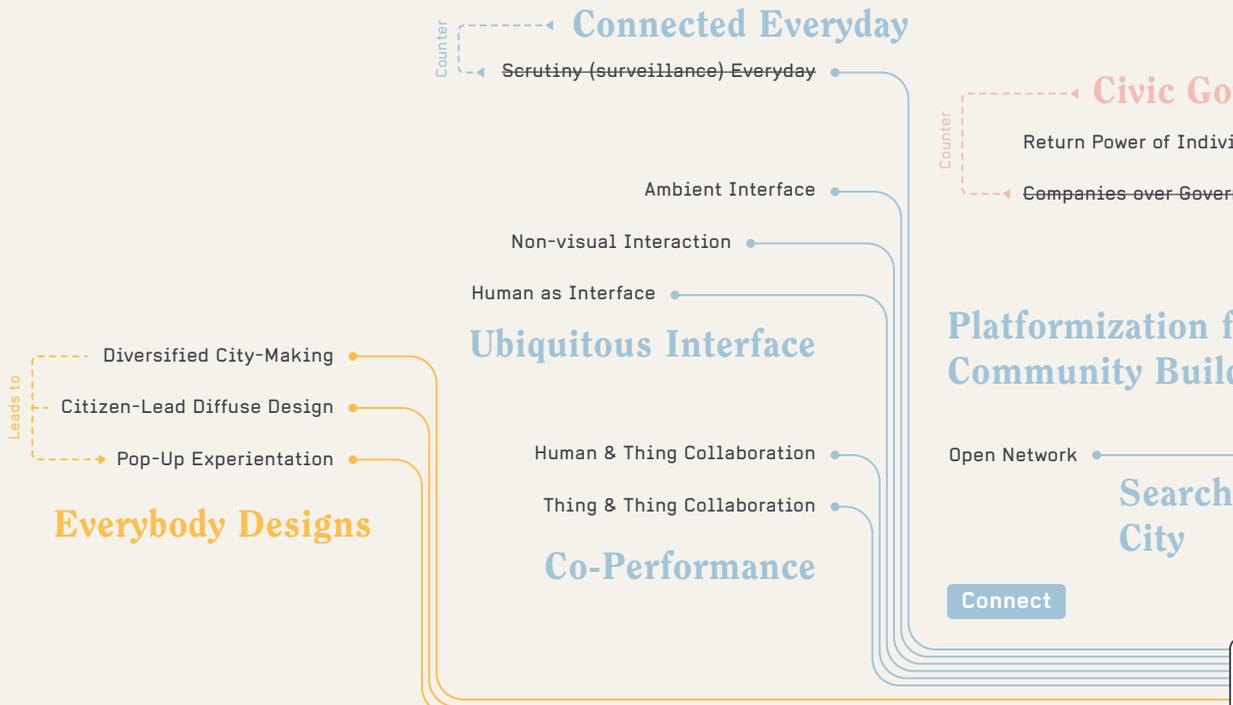
Versatile Consumerism  
Branded City  
Grassroots Social Business

### Destroy

Dehumanising Algorithms

---

Figure 2.27 shows the overall map of future themes where main themes are usually supplemented by the minor ones with derivation (support themes) or contradiction (counter themes). As fragments of future context, the future themes will be used later for making up world views of future cities (Chapter 4.2).



**Everybody Designs**

- Diversified City-Making
- Citizen-Lead Diffuse Design
- Pop-Up Experimentation

**Ethical Cradle to Cradle**

- Ethical Economy (Responsible, Inclusive, Sustainable)
- Ethical Manufacturing (Open, Affordable, Circular)
- Tech Invasion

**Create**

**Internet of City**

- Frictionless Machine to Human Communication
- Offline Intelligence
- Advanced Robotization

**Grassroots Consumption**

**Social Business**

**Branded City**

- Frictionless Tailored Consumption
- Predictive Advertising
- Internet of Services (IoS)

- Shift Role of Consumer & Consumption
- Political Meaning of Consumption
- Involved Consumption

governance

Individuals

Government

for  
living

able

**Future  
Themes**

## Growing Community Upsurge

- City-scale Localism
- Co-life with Diverse Relationship

## Virtual Squeezing Real

Relate

## Call for Cityness

Define

- Actionable Democracy
- Emerging Rights to the City
- Ethical Legislation against Capitalism
- Emerging Regulations
- Localhood of City

Leads to

Leads to

## Physigital City

- Commons Become Civic and Smart
- Degradation of Human

## Dehumanizing Algorithms

Destroy

- Human Degradation
- Exclusivity
- Gentrification

Versatile  
Consumerism

Figure 2.27: Synthesis of future themes

## 2.4 Conclusion

As the smart city concept becomes a dominant urban planning, its disadvantages and misconception are revealed from multiple perspectives in recent years. Chapter 2 first critically reviews the overall conception of smart city, and by shedding light on its main problems, the focus is shifted to imaging future citizenship as a meaningful direction to approach future city making. As a result, four themes of future citizenship are discovered as core value with the help of a generative session and together they form a new future lifestyle: Vivid Dwelling, which is regarded as an incentive for change. By conducting horizon-scanning for collecting related emerging issues and trends, 17 themes are generated as reference for framing future contexts. In Chapter 4, Vivid Dwelling and future themes will direct the process of world making.



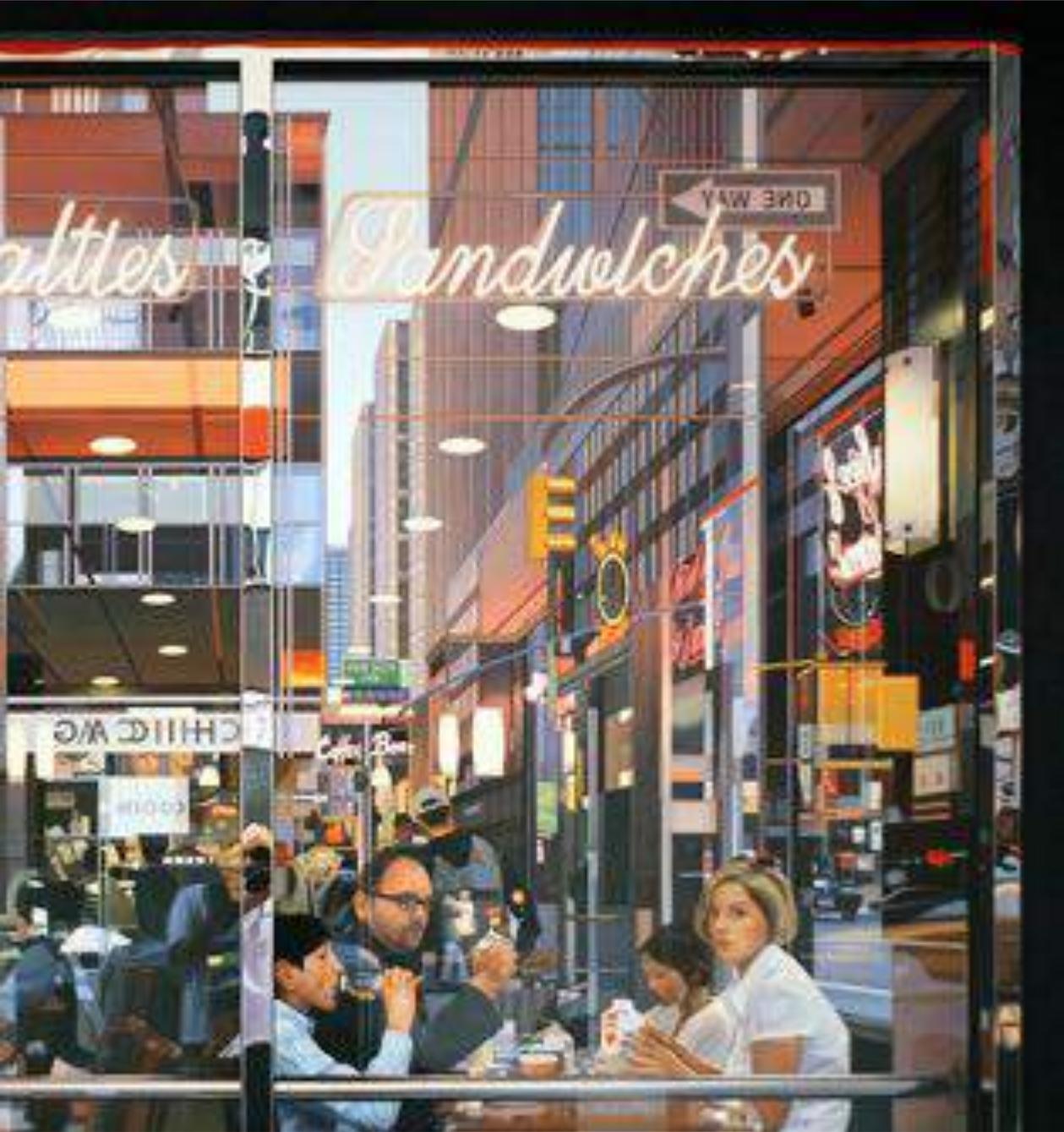


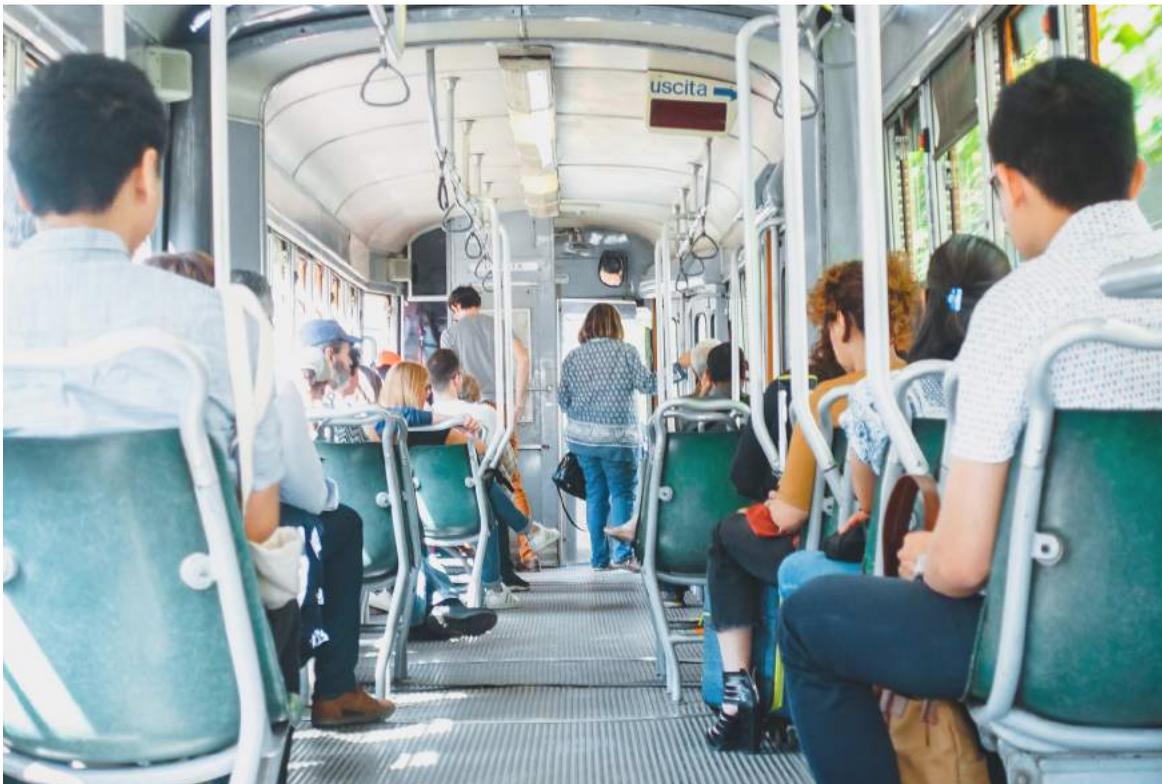
Figure 2.28: 'Hot specialities' by Nathan Walsh



3

# Design Context

This Chapter explains why mobility is chosen as the design context. The dimension of mobility is discovered to enrich its implication, which helps to shape the focus of final design scope.



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# 3.1 Mobility as City Lens

*“Transportation is civilisation.”*

*Ezra Pound*

While speaking of framing the future context, it is about creating the the macro world view of micro future (Lockton, 2016). To bring this abstract future to life, concrete concepts are needed to make the value behind visible. A design context therefore should be defined and mobility is chosen as the scope for this project.

---

Mobility which usually means “something that moves or is capable of movement” (Urry, 2007) is a key dynamic of urbanisation. While mobility service is always considered as a piece of city infrastructure, the focus often lays on increasing economic efficiency (Bradbury, 2006). Mobility being a technological requirement “emerges as a set of constraints on forms of connectivity, size and power requirements and an attentiveness” (Dourish & Bell, 2011). Since mobility is largely supported by technology, it has always been an indicator of change. Lots of cities are focusing on developing their smart mobility to catch up with the “smart” trend. From such perspective, mobility becomes a city lens which showcases the city’s level of technological development. This way, however, human interest is later

aligned with technology which shares the same problem with typical smart city concept.

But to think another way around, from a social point of view, the meanings, relevances, and networks behind mobility imply well beyond those instrumental concerns. Mobility is about more than getting from A to B. It contributes to the agency “by which social capital networks can be supported” (Bradbury, 2006); it lends city a geography; and it provides an important piece of urban experience. As Urry (2007) argued, Mobility is “economically, politically and socially organised”. It being a lens, amplifies a city’s social dynamics with a broad dimension from individual experience to the system operated behind, and that is why mobility is chosen as the design context.

## 3.2 Dimension of Mobility

Three aspects of mobility are found to broaden its dimension and enrich its implication: movement, meaning and practice (means) according to Tim Cresswell (2013).

### Movement

Mobility commonly provides movement and this could be a line linking point A and B in a simple way. It is actually the geographical displacement which is often the focus of planners and quantitative researchers. Movement could be the most intuitive comprehension of mobility.

### Meaning

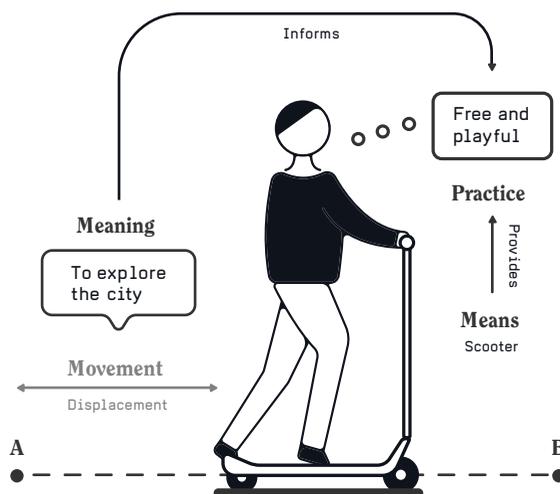
Meaning questions the impact behind the line: what does this movement mean to people when they are conducting or thinking about this kind of movement? The mobility meaning is important because it's often neglected by more technocratic ways of thinking (Cresswell, 2013). The same movement can have different meanings to different people and in different contexts. Thus ideologies, narratives and stories can be extracted from meaning.

### Practice (Means)

Practice explains how we move and how we experience the movement. Practice is intertwined with the narrative, and the mobility experience is often informed by

the narratives and meanings that are around it. Since practice is provided by the means of transport, it is also influenced by this medium which supports the mobility.

Figure 3.1 illustrates the three aspects with the example of travelling by scooter. Movement explains the displacement as a physical trace. While the meaning of this particular movement is to explore the city, which informs the experience of practice to be free and playful. And all these meaning and feeling are provided by the scooter as a means of transport. The combination of movement, meaning and practice dissects the latent significance of mobility.



*Figure 3.1: A scooter example with three aspects of mobility*

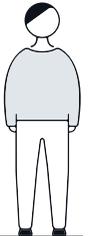
## 3.3 Focus of Design Scope

The initial purpose of this project to use urban mobility as the design context is to leverage mobility which is a second-order aspect of cities (Hill, 2013) for conveying the values rooted in the proposed future cities (Chapter 4.2). It takes the approach of “infusing a technological account of mobility with a sense of the social and cultural dimensions within” (Dourish & Bell, 2011). And this gives a fresh perspective on dealing with second-order drivers of cities.

The design scope will be on the corporeal travel of people, since the physical travel concerns the individual experience and the enabling system at the backside (Urry, 2007). While the focus is to link the socio-economic value of mobility system with the socio-technical value of mobility experience, and the combination of movement, meaning and practice can enrich such link.

## 3.4 Conclusion

Mobility with its rich implication is an ideal lens to view the city. This Chapter explains the intention of choosing urban mobility as the design context by reviewing it from a social perspective. Three aspects of mobility are laid emphasis. And this helps to narrow down while enrich the focus of design scope where the link between mobility system and experience is identified. Within this focus, more insights will be addressed in Chapter 5.1 during the conceptualisation.







4

# Proposing Futures

This Chapter explains the design practice “Civic Futures” which is applied through the whole project. Three future cities are presented as results that combine Vivid Dwelling and future synthesis. To make these future worldviews more concrete, a workshop for mapping these futures is introduced. From which, the generated design directions are also discussed.



## 4.1 Introducing “Civic Futures”

Design is fiction until it's not (Boyer, 2017). When dealing with current issues, Dunne and Raby (2013) argue the future visioning creates spaces for discussion and debate about alternative futures and new ways of being. It is important to extrapolate from the present condition and to place ourselves, as designers, in a fictive but possible future context with the intent of realizing or precluding that future through public discourse (Ratti, 2016).

To tackle this issue before making up the future cities, I found “Civic Futures” extremely interesting and useful for this project. To briefly introduce it, “Civic Futures” is a term framed by design studio Dash Marshall which they define it as the practice that “turns these moments of uncertainty into future opportunity”. It combines strategic design and futures methods to reframe the problem which helps to develop a wide range of possible design responses and bring them to life.

“Civic Futures” was considered relevant because it focuses on both technological and social forces in an urban context to define the changes. Besides, it also considered societal impacts and how individual experiences can be connected.

Linking between designing for humans and for systems remains useful for the project, since the project planned to create service system concepts and also want to bring the human experience to life. In addition, the social responsibility and the strategic property of “Civic Futures” very much fit the project goal and my vision. And that's why “Civic Futures” was adopted as a guide and combed with the original approach design-led future techniques for the rest of the project. Also it is chosen as a shorthand for this project.

**Are you ready for the future(s)?**

## 4.2 Future Cities

This chapter describes three proposed alternative future cities (world views) which are the synthetic outcomes combining Vivid Dwelling as the value incentive (Chapter 2.2.2) and related themes emerged from the future synthesis (Chapter 2.3.2): Bilateral Urbrandism, Versity and Un-Commons. They are created to explain how cityness (Chapter 2.3.3) can be variously embedded in urban development and what it may look like.



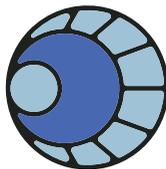
**Versity**

A city where playfulness is embedded in daily lifestyle and meaning making is prioritised in urban planning



**Bilateral  
Urbrandism**

A city that ensures a cautious collaboration between public sectors and branded corporations for responsible city making

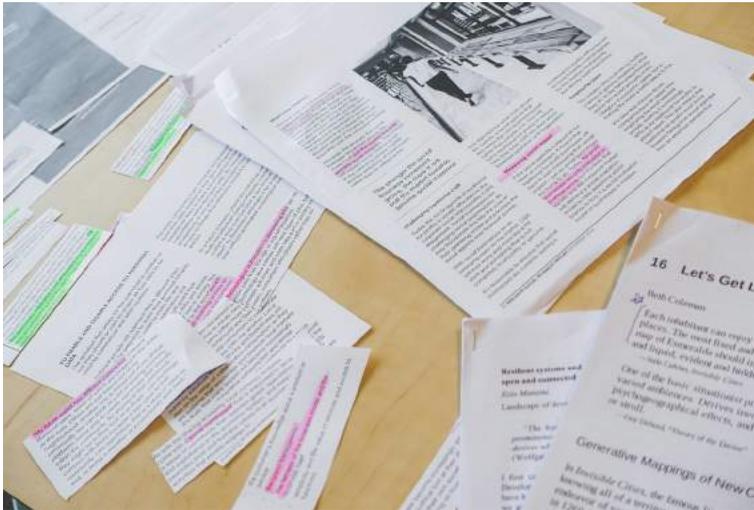


**Un-Commons**

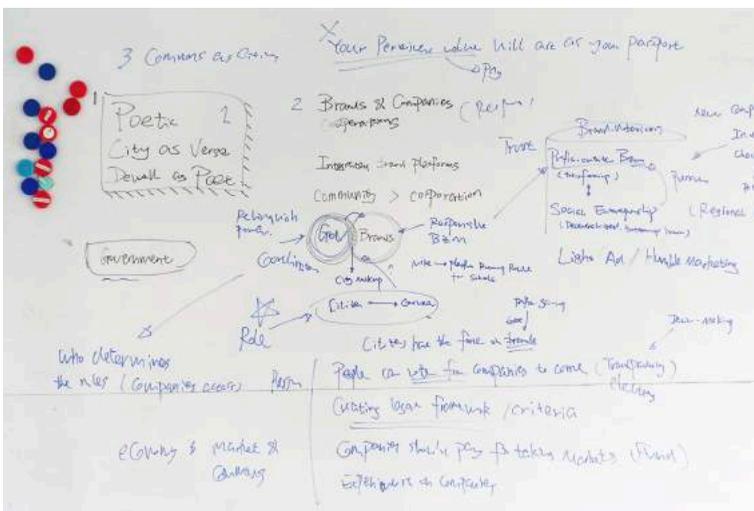
A city whose resources are collectively managed as commons and individuals contribute for the public good

*Figure 4.1: Badges for each future city*

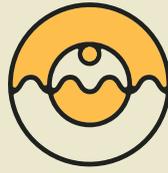
The process of making future world views starts by digesting all the research and exploration insights so far. The current problems of the smart city are iteratively reflected, while experimental connections are continually made between Vivid Dwelling and future themes to seek out the intriguing chemistry of cityness (Figure 4.2). Build upon that, the relationships between governments, businesses, and citizens are then adopted as an entry point to construct the world (Figure 4.3).



**Figure 4.2: Linking Vivid Dwelling and future themes for urban development with extended literature review**



**Figure 4.3: Constructing relationships between government, business and citizens and redefining their possible roles**



# Versity

*Dwelling poetically to take delight not only in achieving  
the goal but also in the journey alongside*

## Deprioritize Efficiency

Versity encourages its citizens to enjoy the every minute of life. Learning from gaming systems, government and companies adopt fun as a design principle. Urban places are built with smart infrastructures not to enhance promptness, but to add a playful layer to the existed technical efficiency.

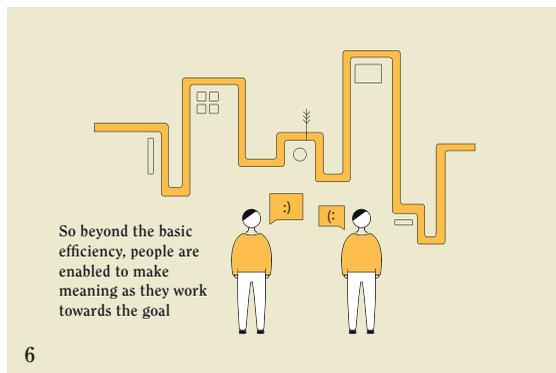
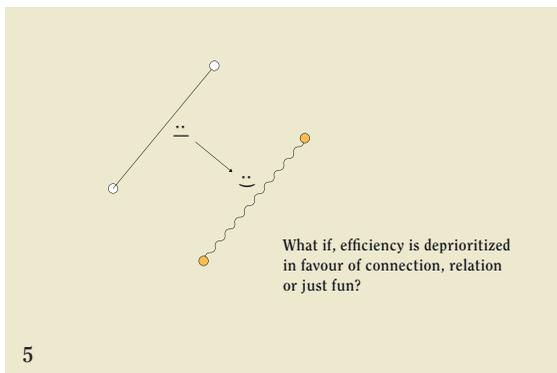
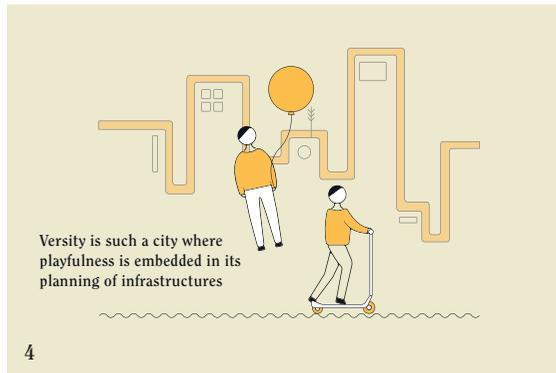
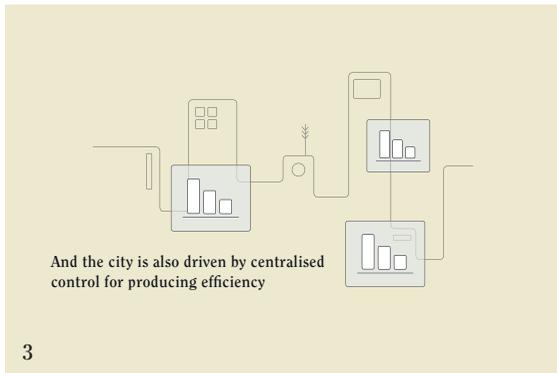
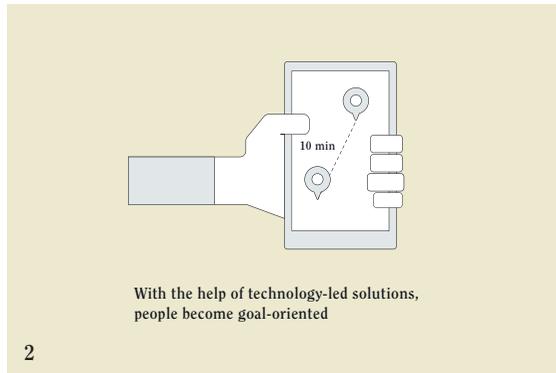
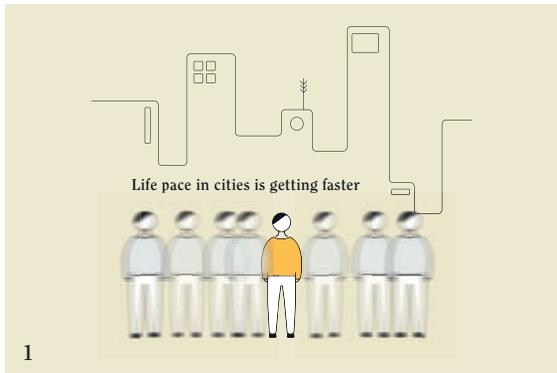
## Play as Urban Culture

Citizens can be efficient if they need to, but they are more willing to get rid of the monotonously 'seamless' life. They enjoy to be the player of everyday practice and take delight in the journey towards goals. This helps form a culture of playing, while citizens' participation suggests an active citizenry and a sense of community.

## Data for Meaning Making

City data collected by the play & exploration of citizens is analysed to inform people of meaningful issues, without any governing or commercial intent.

Figure 4.4 - 4.9:  
Story boards explaining what Varsity is...



# Versity (City as Verse)

Dwell Poetically | Open up the Cityness with Collective Creativity



**Active  
Citizenry  
over  
Passive  
Consumerism**

The notion of cityness returns as a space for new meanings of the monotonously seamless urban life



**Human  
over H**



**Prosperity  
over Efficiency**

**Citizens are encouraged to get  
rid of their fixed and calm lives**

Everyday life are "adventures", urban spaces are built with smart infrastructures for creating new action of citizens and form a sense of community inadvertently

A city can be explained only by telling a story and each city has its own poem

**Culture over  
Infrastructure**

**Inefficient and  
yet Productive  
Delightful and  
Engaging**

Information is inclusively generated by the play and exploration instead of forcing and nudging with governing of commercial intent

**Human Actors  
Human Factors**

*Figure 4.10: Collages for Versity*



# Bilateral Urbrandism

*Readjusting the balance of power between citizens,  
large tech corporations and government*

## Hybrid Network of City Stakeholders

Bilateral Urbrandism will not be dominated by a few large tech corporations (Google, Amazon, Airbnb, Uber...). Branded applications are still part of the city structure, but are now under supervision or made by small scale companies. Citizens vote the companies, and residents of a district select branded and localised applications.

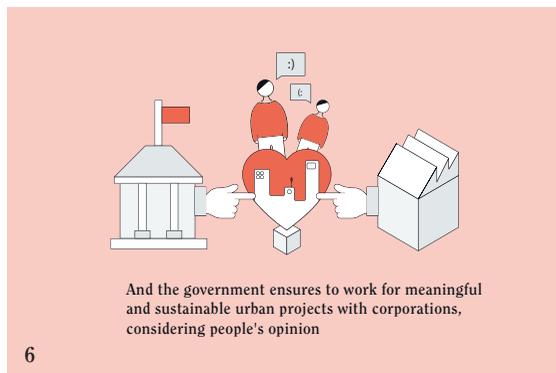
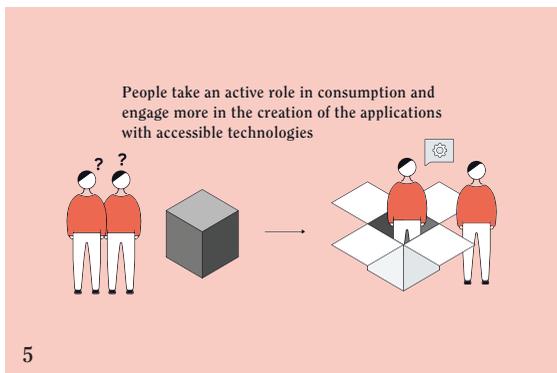
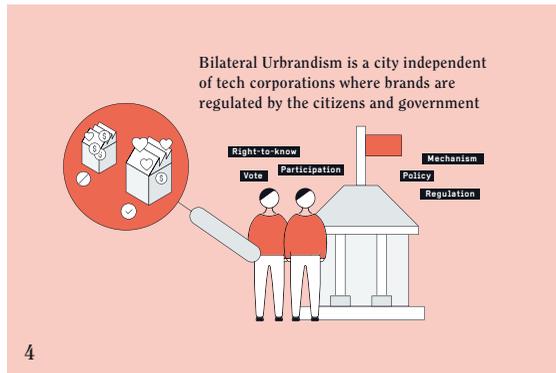
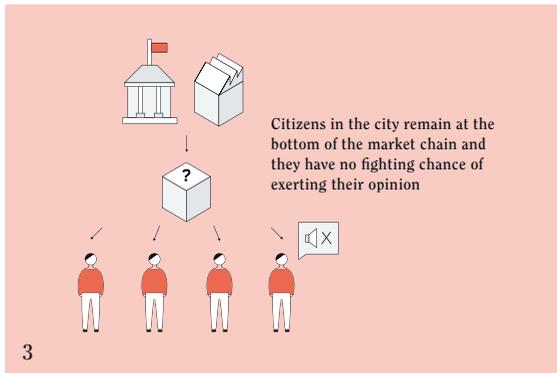
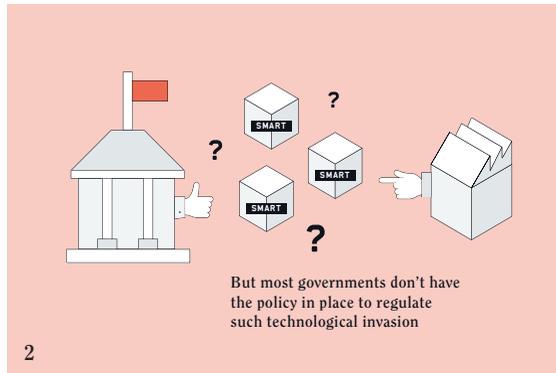
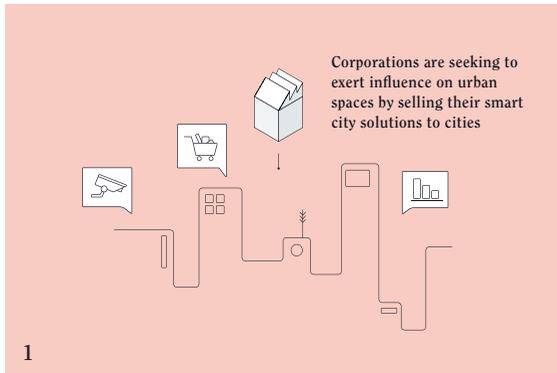
## Involved Consumption

As citizens, people take back the ownership of their data and the control over the technology. As consumers, people engage more in the creation of the applications, thanks to maturing ICT technologies. Creative communities of citizens emerge and create social businesses. The government is supporting and fostering social entrepreneurship.

## Cautious Collaboration & Responsible Brands

The government makes sure big brands work together to realise meaningful and sustainable urban projects. And profit-driven brands start to embrace more socially responsible business models.

Figure 4.11 - 4.16: Story boards explaining what Bilateral Urbrandism is...



# Bilateral Urbrandism

Cautious Brand Urbanism | Readjust the Balance of Power



## Global Brands

Tech & Platform Corporations

### From Profit-Driven to Mission Driven

Embrace more socially responsible business models

### Reclaim Rights

- Vote for companies to settle in
- Select branded applications
- Call for legal framework
- Take back control of data



### Cautious Collaboration

- Negotiate rules and criteria
- Set up new legislation
- Run policy trials
- Work on meaningful projects

## Citizens



## Government





### Involved Consumption

- Influenced by peers
- Leverage ICT technologies
- Engage more in the creation
- Consumption as a political tool
- Community-based production-consumption initiatives

### Social Brands



### Collaborately Regulate Brands



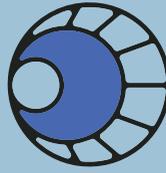
### People Business

- Facilitate social entrepreneurship
- Provide funding

### From Non-Profit Organizations to Social Businesses

Creative communities create social businesses co-funded by the government and crowd-funding

Figure 4.17: Collages for Bilateral Urbrandism



# Un-Commons

*Opening up and braiding the resourcefulness of urban commons into a holistic experience*

## Rise of Commons Economy

Un-Commons is a socially inclusive city, embedded with open technologies. Things are no longer owned privately and lose their commercial value. Commercial brands start to fade away. Instead, the commons stands out and is integrated into the economy and everyday life. The government also transforms itself into a city-making facilitator, and commons guarantor.

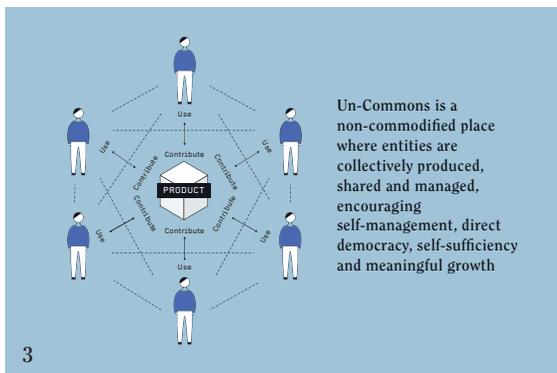
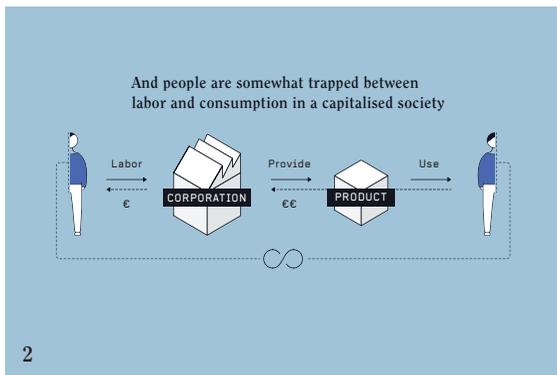
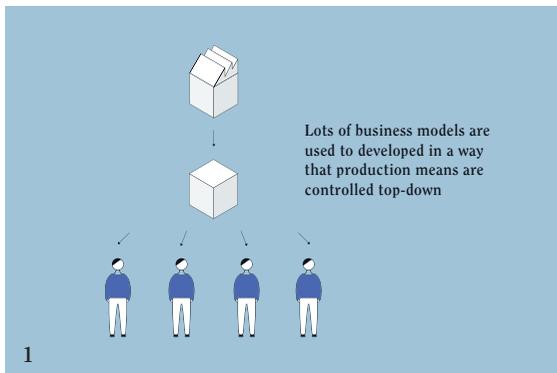
## City as Communal Resource

Therefore, Un-Commons is organised as a communal resource. With the help of digital platformisation, social communities are empowered to cooperate together for managing shared urban assets.

## Value-Driven Lifestyle

Citizens in Un-Commons are not concerned with making a living but rather with enjoying alive. They seek value from social participation over materialisation where they do those things which give them a sense of accomplishment. People become active producers of and contributors to the city.

**Figure 4.18 - 4.23:**  
**Story boards explaining what Un-Commons is...**

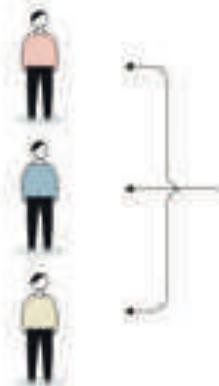


# Un(lock)-Commons

Resilient Distributed Commons | Braiding City Resourcefulness into a Holistic Experiences

**A horizontally organized world when commons stand out and are integrated into the economy and everyday life.**

A citizen's identity is defined by what one believes and where one wants to go. Through meaning-seeking practice, they build new value-based connections.



**Individuals will choose their community by passion and value, and willingly contribute to collective well-being for a better, more prosperous social and natural environment.**



## Commons Network

Fosters a spirit of generosity and reciprocity to make things

## Citizen Community Network

A network of communicating and negotiating social practices

## City Space

Constitutive social relationality

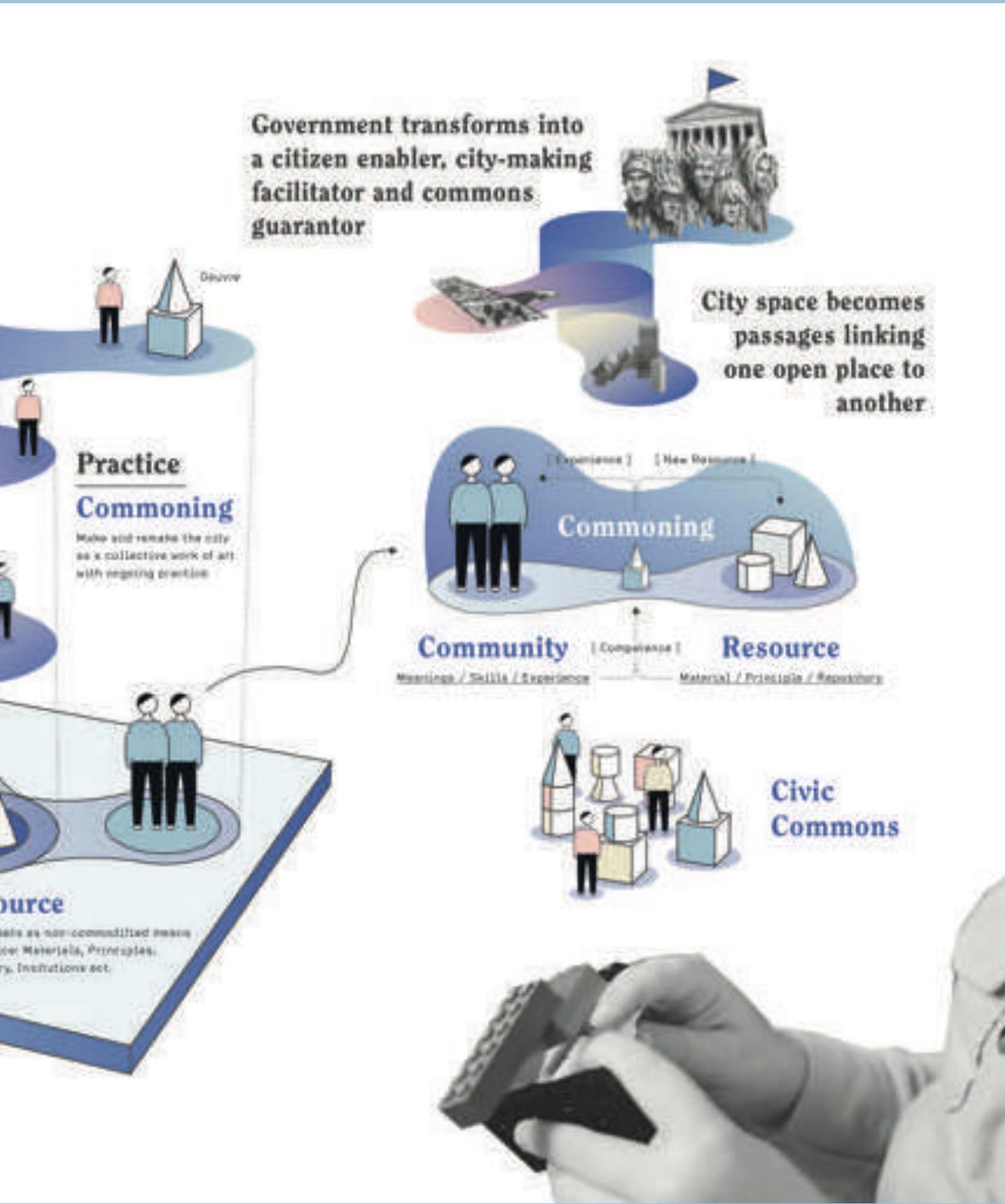
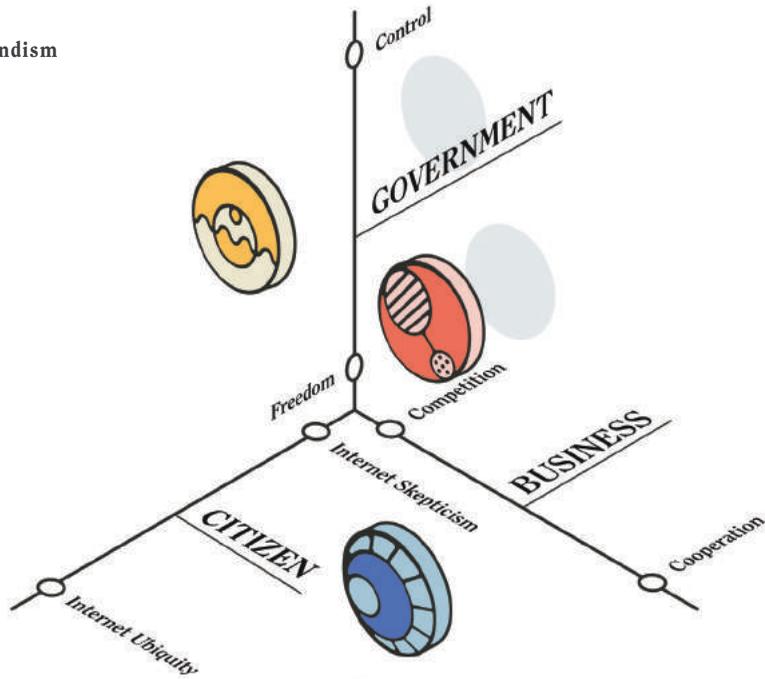


Figure 4.24: Collages for Un-Commons

 Versity

 Bilateral Urbrandism

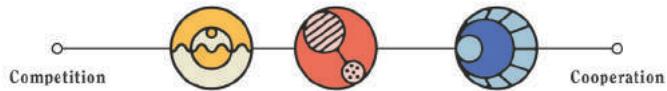
 Un-Commons



[ GOVERNMENT ]



[ BUSINESS ]



[ CITIZEN ]

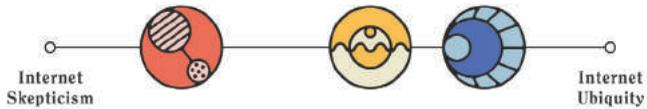


Figure 4.25: A Political Compass of three future cities

## 4.3 Future Mapping

### 4.3.1 Future Hinting Workshop

The future cities are created, yet in a rather abstract and macro form. In order to design within these futures, more concrete and detailed aspects should be added to the worldviews. Therefore a “Future Mapping” workshop with designers and developers focusing on the three future cities is conducted.

#### Goal & Purpose

The purpose of conducting the workshop is to collectively translate the fuzzy futures into a design canvas thus opening up space for further conceptualisation. The ultimate goal is to collect insights & inspirations and also boundaries & critiques for shaping design directions and design cues further which can help stimulate ideation. Importantly, to hold workshop motivates me as the author of the future cities to first dig deep my thoughts behind, distill the value and translate them into a more actionable form (Figure 4.9). This process could be seen as the first iteration of shaping design directions. While the workshop then calls for a group of creative minds to work and build on them as a second iteration. It is also a kind of evaluation as a side-show when participants are discussing and questioning the proposed future cities during the process.

#### Date & Place

12 June, 2018, 16.30 - 19.30  
@ info.nl Lab, Amsterdam

#### Participants

7 participants join the workshop which are comprised of 4 professional designers and developers from creative technology agency info.nl. Creative practitioners such as designers and developers have the capabilities to map out concepts of future context by making scenarios or stories. Feeling comfortable dealing with ambiguity and fuzz front, they are better candidates who can bring futures alive in a short time comparing with other people. Meanwhile, they also remain their identity as citizens.

#### Method

The workshop is done in a similar process to the Future Mapping toolkit developed by Kihara (2016) as a Master student. Future Mapping is defined as a toolkit which makes the fuzzy far future tangible and raises discussion about the social influence of a specific technology in the future (Kihara, 2016). Future Mapping toolkit is originally developed for everyone to construct future in a playful way. By building “diegetic prototypes” which is the deliberate use of fictional products and characters to envision future scenarios (Starling, 2012), participants

can make up scenarios with Lego and sketches and share their relationships (Figure 4.26).



**Figure 4.26: Example of concept made in Future Mapping workshop**

Based on the original setting of Future Mapping, some changes are conducted in order to tailor it for this workshop. First, participants are targeted on creative practitioners which is explained above. Secondly, concepts are used to enrich the future cities instead of building them, that is to say all the concepts created in this workshop should follow the proposed worldviews. Thirdly, technology is not considered as the main enabler in this workshop but as a second-order influencer while the worldviews are the ultimate guide. Finally, the scope of ideation is pre-defined on urban mobility and the reason is aligned with Chapter 3. In short, the workshop is positioned as a reflection-based ideation supported by developed toolkits.

### Set Up

Participants are divided into three teams, with each team focuses on one future city. Every team is provided with a set of toolkits which can help them ideate and provoke thinking. The toolkit is presented in Figure 4.27:

A: Workshop manifesto for each future city including a narrative and design guide;

B: Service map for creating mobility concepts;

C: Storyboard for displaying scenarios;

D: Ideation Cards:  
 Mobility Forms depicting various forms of moving; Social Practice showing what social impact can mobility arouse; Technology providing feasibilities for concepts and Information addressing the ethical issues and social concerns (Figure 4.28);

E: Lego for building up concepts.

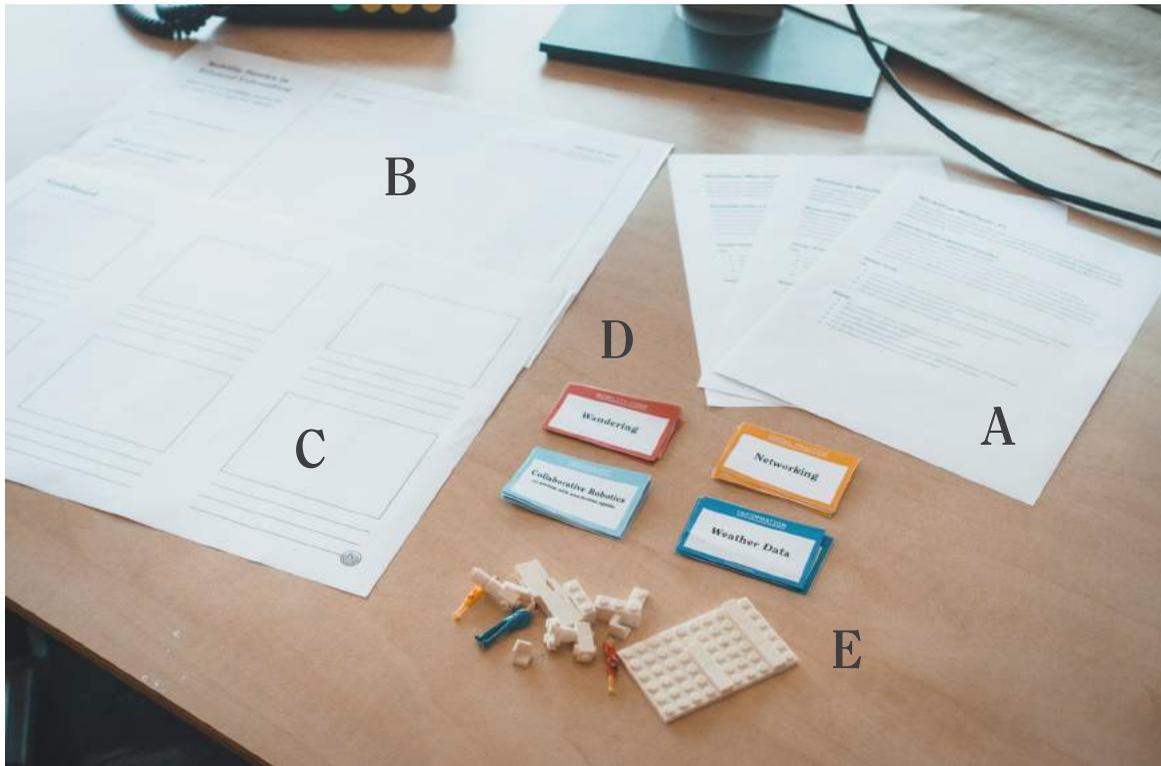


Figure 4.27: Toolkit set for the workshop

<b>MOBILITY FORM</b> Migration	<b>MOBILITY FORM</b> Commuting	<b>SOCIAL PRACTICE</b> Conversation	<b>SOCIAL PRACTICE</b> Encounter	<b>INFORMATION</b> Traffic Data	<b>INFORMATION</b> People Flows Data	<b>TECHNOLOGY</b> Deep Linking <small>everything becomes accessible</small>	<b>TECHNOLOGY</b> Collaborative Robotics <small>co-participate with non-human agents</small>
<b>MOBILITY FORM</b> Business Travel	<b>MOBILITY FORM</b> Medical Travel	<b>SOCIAL PRACTICE</b> Working	<b>SOCIAL PRACTICE</b> Networking	<b>INFORMATION</b> Public Transport Data	<b>INFORMATION</b> Air Quality Data	<b>TECHNOLOGY</b> Ambient Interface <small>any place can become an interface</small>	<b>TECHNOLOGY</b> Being Agentive <small>things can make decisions on behalf of you</small>
<b>MOBILITY FORM</b> Tourist Travel	<b>MOBILITY FORM</b> Wandering	<b>SOCIAL PRACTICE</b> Observing	<b>SOCIAL PRACTICE</b> Sharing	<b>INFORMATION</b> Weather Data	<b>INFORMATION</b> User Data <small>(Identity, History)</small>	<b>TECHNOLOGY</b> Voiceprint <small>voice becomes identity and interface</small>	<b>TECHNOLOGY</b> Responsive Infrastructure <small>digital facilities give offices</small>
<b>MOBILITY FORM</b> Nomadism	<b>MOBILITY FORM</b> Delivery	<b>SOCIAL PRACTICE</b> Thinking	<b>SOCIAL PRACTICE</b> Building	<b>INFORMATION</b> Surrounding Data	<b>INFORMATION</b> Location Data	<b>TECHNOLOGY</b> Blockchain <small>being decentralized and distributed</small>	<b>TECHNOLOGY</b> Peer-to-Peer Network <small>small and trustlessly community</small>
<b>MOBILITY FORM</b> Leisure Travel	<b>MOBILITY FORM</b> Mobility System	<b>SOCIAL PRACTICE</b> Personalization	<b>SOCIAL PRACTICE</b> Ritual	<b>INFORMATION</b> Route Data	<b>INFORMATION</b> Energy Data	<b>TECHNOLOGY</b> Internet of Physical Things <small>network of physical / autonomous</small>	<b>TECHNOLOGY</b> Accessible 3D Printing <small>quick and affordable building</small>

Figure 4.28: Part of the ideation cards

## Procedure

### 1. Introduction

The aim of the introduction is to explain the three future cities and to convey the core value behind them. The process of the whole project is briefly mentioned as contextual information for better understanding. When introducing the future cities, lots of dialogues are opened related to the plausibility and transition which offers great insights.

### 2. Mind-mapping

After the introduction, each group is asked to make a mind-map of a specific future city according to their comprehension. Any relevant aspect is encouraged and by doing so group members conduct a second round of discussion immersing into the world view. While the mind-maps as outcomes can serve for the concept ideation as inspiration.

### 3. Service Concepts Ideation

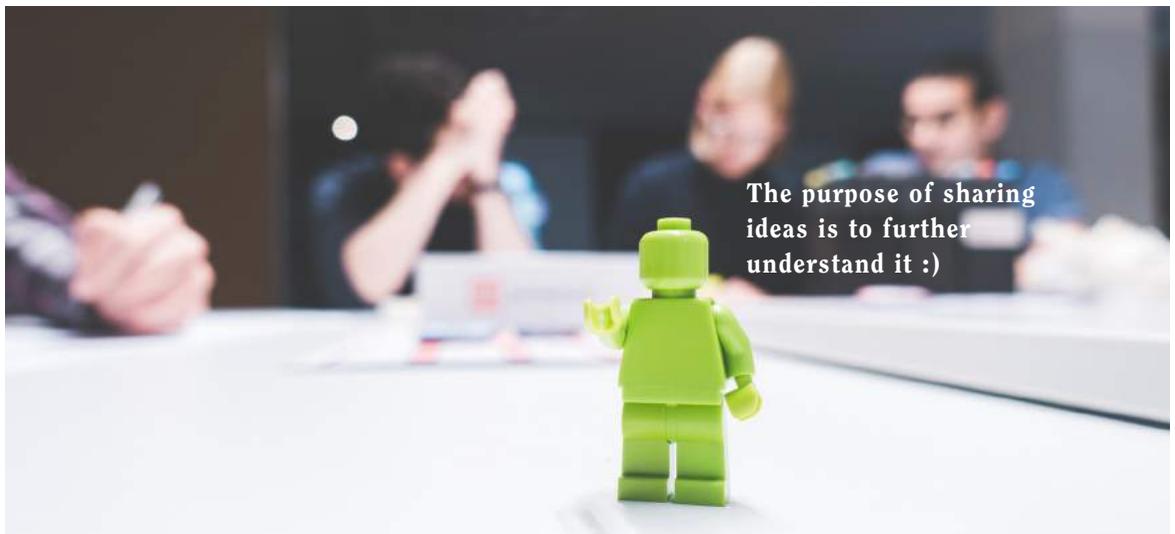
Participants by their own conduct the ideation. They first review the ideation cards and mind-map to foster creative thinking. After that, service map and storyboards are used for creating the concepts by sketching and listing bullet points.

### 4. Legolisation

In this session, participants use Lego to build up their service concepts which ends up with Lego scenarios. This adds tangibility to the concepts while in a rather playful way which participants enjoyed a lot.

### 5. Presentation

As a final step, participants present their own concepts mainly by role playing with Lego. While others ask questions to clarify unclear points.



*Figure 4.29: Future Hinting Workshop*



◀ *Figure 4.30: Team doing mind-mapping*



◀ *Figure 4.31: Participants ideating concepts*



◀ *Figure 4.32: Participants build up concepts with Lego*



◀ *Figure 4.33: Participants presenting their concepts*





◀ **Figure 4.37: Mind-map of Versity**

**Figure 4.38: Mobility service concepts of Versity (The Global Bro! & Look up, Let's Talk)**

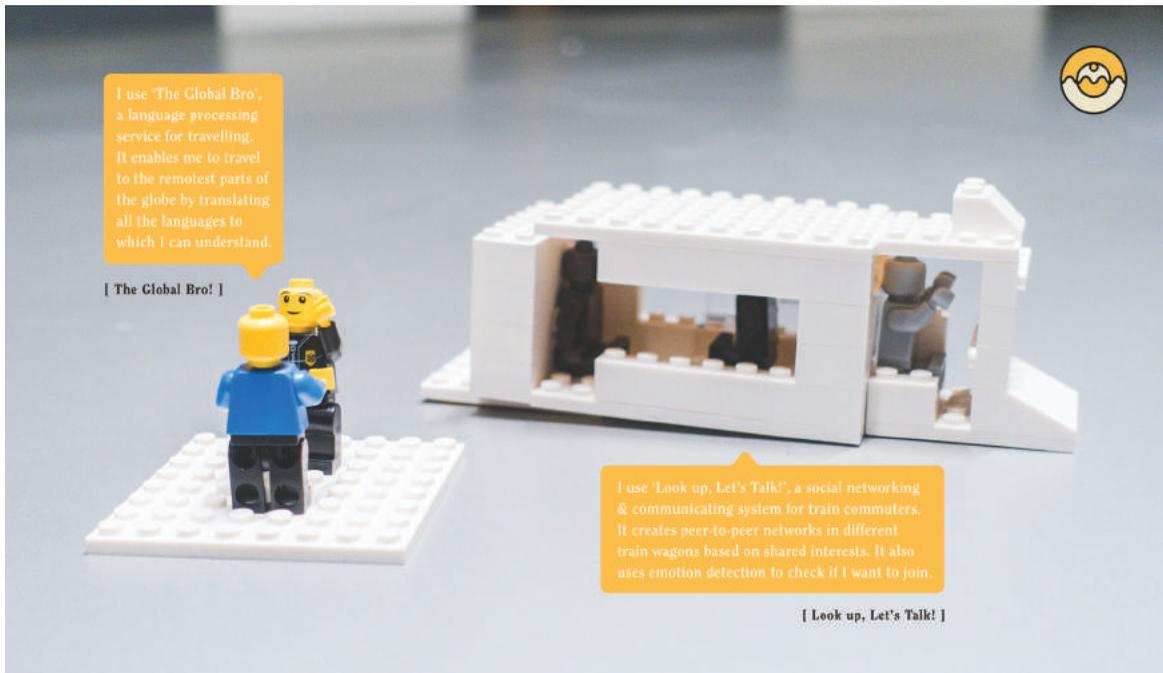


Figure 4.39: Mind-map of **Bilateral Urbandism**

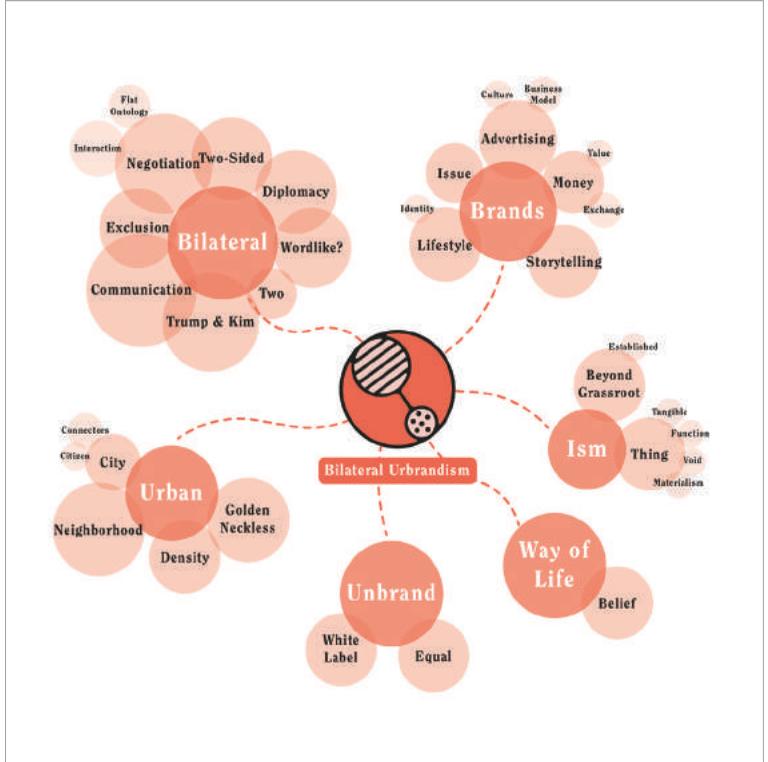
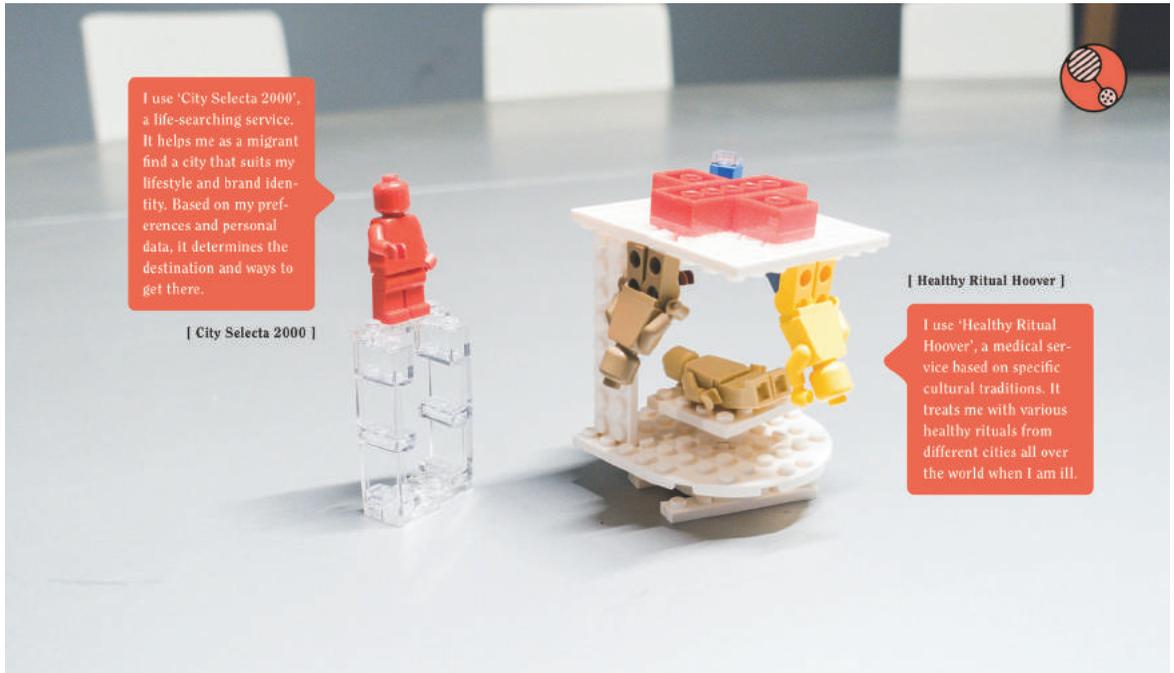


Figure 4.40: Mobility service concepts of **Bilateral Urbandism** (City Selecta 2000 & Healthy Ritual Hoover)

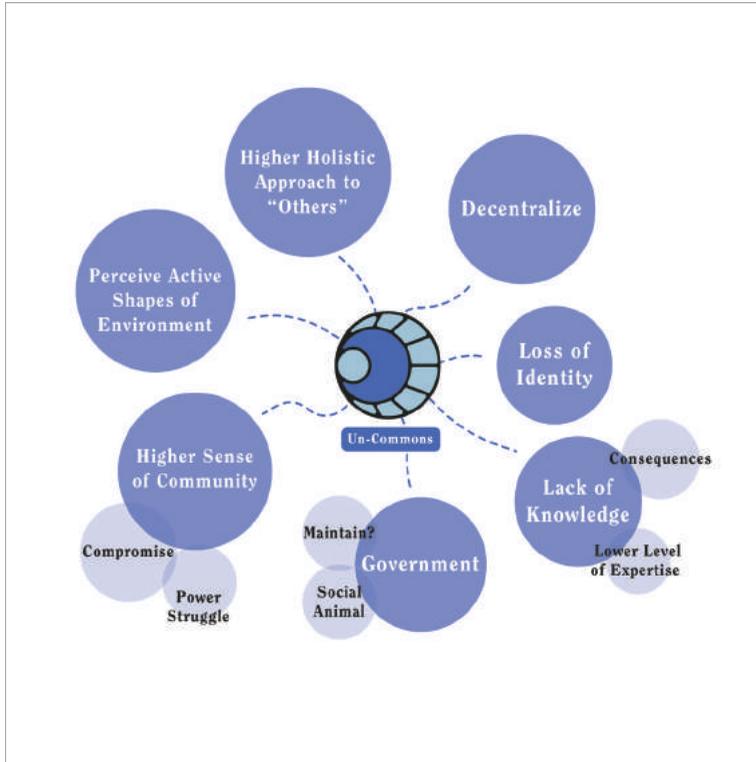


I use 'City Selecta 2000', a life-searching service. It helps me as a migrant find a city that suits my lifestyle and brand identity. Based on my preferences and personal data, it determines the destination and ways to get there.

[ City Selecta 2000 ]

I use 'Healthy Ritual Hoover', a medical service based on specific cultural traditions. It treats me with various healthy rituals from different cities all over the world when I am ill.

[ Healthy Ritual Hoover ]



◀ **Figure 4.41: Mind-map of Un-Commons**

**Figure 4.42: Mobility service concepts of Un-Commons (Personal Software for Transportation Convenience & Apples Wandering)**



### 4.3.3 Discussion: Design Directions

As mentioned, the underlying goal is to collect insights & inspirations and also boundaries & critiques for shaping design directions and design cues further which can help stimulate ideation. Thence after the workshop, learnings are derived and the concepts are reviewed by assessing their alignment with the value provided by the proposed future cities. Figure 4.43 illustrates that what insights would be added to the original features of the future cities.

#### Versity

Versity proposes a city focusing on investigating in *productive inefficiency* of urban life with aspects like *conviviality and novelty from play*. In the workshop, participants mainly focus on comfortable and no-forcing networking as a way to open up new possibilities. Being socially open with meaningful communication is considered to be important. To extend it further, dwelling like a poet needs *imagination and participation*, every mindful action people take will contribute to the *microclimate* of the city, which implies that *individual experience can be added upon each other* and benefit from that accumulation. Like what Iain Sinclair said, "As you withdraw energy from the city, you are also giving energy back." Thus focusing on leveraging the ICT technology for *linking urban experience* would be a direction.

#### Bilateral Urbrandism

The essence of Bilateral Urbrandism is to rethink the *relationship between citizens and corporations*: how citizens being consumers can have more control of themselves, how government would *guarantee the civic movement* and how brands would be like in

that *cautious and skeptical environment*. In the workshop, the identity of being a citizen is pointed out as people usually pursue brands for gaining social identity. This provokes a dialogue on future brands considering how branding would be appealing in a *socially responsible* way and how cultural aspects can be embedded in a global way. More importantly, as citizens dwelling in Bilateral Urbrandism, the means of self-fulfilling as consumers will also change *from materialised to belief driven*.

#### Un-Commons

Lots of comments are made on Un-Commons, which is thought to be a bit utopian and provocative. The idea of this future is a systematic scaling of commons into urban level, thinking city as a common and embedding such mechanism into *economy and everyday practice*. One mentioned point illustrates the operational problem of the city and the role (existence) of government. Since city resources can be freely used for conducting practice based on community

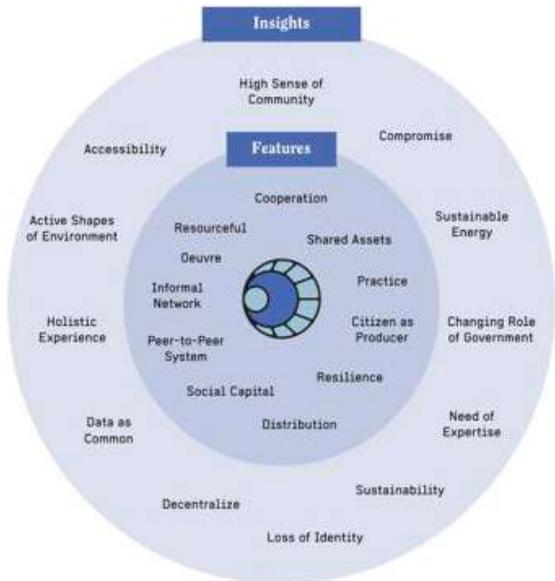
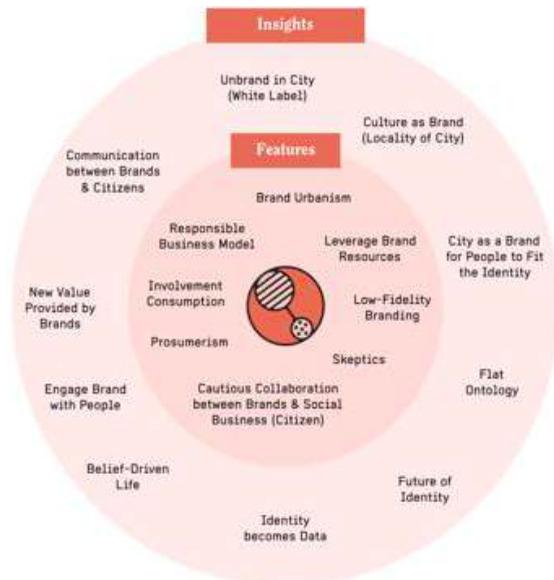
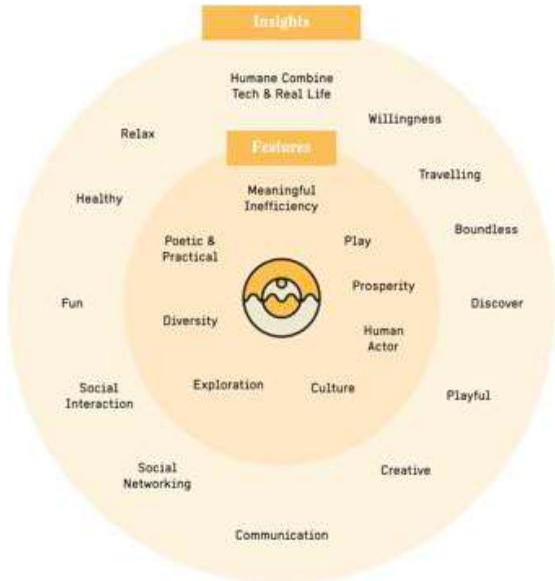


Figure 4.43: Insights derived from the features of future cities

needs or belief, there should be a strong system at the backside to guarantee all these practices are following rules and not doing crimes. *A commons system* is also mentioned in one concept during the workshop. While for this issue, *urban platformization* could be a way. Platforms like Airbnb and Uber helps people set up their business by providing modules and guidelines. Similarly, a public platform could exist to facilitate the formation of commons-based economies.

Another point revealed relates to the possibilities of improving urban experience raised by *higher accessibility of city resources*, which is a good direction to explore the formation and impact of such open city structure, like *open hardware* and *modular design* with artificial intelligence.

#### 4.4 Conclusion

The underlying motivation behind the project is the conviction that it is important to look at how future citizens will dwell in the city in order to make their lives better, rather than simply looking at which technologies will be in place at that moment. Shares the same mindset, Civic Futures as a design practice is introduced as a framework for effectively digesting the results from research and directing further steps. After reviewing the current state of smart city, future citizenship and lifestyle are generated and themes of future context are also synthesised (Chapter 2).

All these materials are organically combined in this chapter for making future cities. The idea is to purpose alternative worldviews that logically convey the value derived from Vivid Dwelling supported by contextual assumptions from future themes. A workshop with creative practitioners is conducted later to enrich these micro-futures with insights and inspirations. Design directions are then made out aims at cueing for conceptualisation for next chapter.





5

# Hinting Civic Futures

This Chapter explains the process of conceptualization where design directions are translated into actionable design cues for concept ideation. The three selected mobility concepts are presented in detail and the way they hint the future lives is also addressed.



# 5.1 Conceptualisation

## 5.1.1 Design Cues

Based on the design directions made in Chapter 4.3.3, further steps are taken to get more inspirational cues. A layer with extended imagination is added onto each of future city wheel as a wild exploration combining extra literature review and case study. Triggering “What if” questions are made by combing insights from all three layers with consistency, in order to generate concrete ideas. Figure 5.1 shows how design cues come out.



*Figure 5.1: Process of generating design cues*



# Bilateral Urbrandism

- What if branding is not universal anymore but is defined by crowd territorially (brands have different personality in different neighbours)?
- What if consumers can leverage brands' resource for social benefits?
- What if brands can support citizens and communities on city-making by overseeing and regulating their resources (instead of enforcing, inform)?
- What if citizens can join brands in the city and become co-branders?
- What if brands value modest presence?
- What if brands can adopt low-fidelity branding rather than pushing consumption?

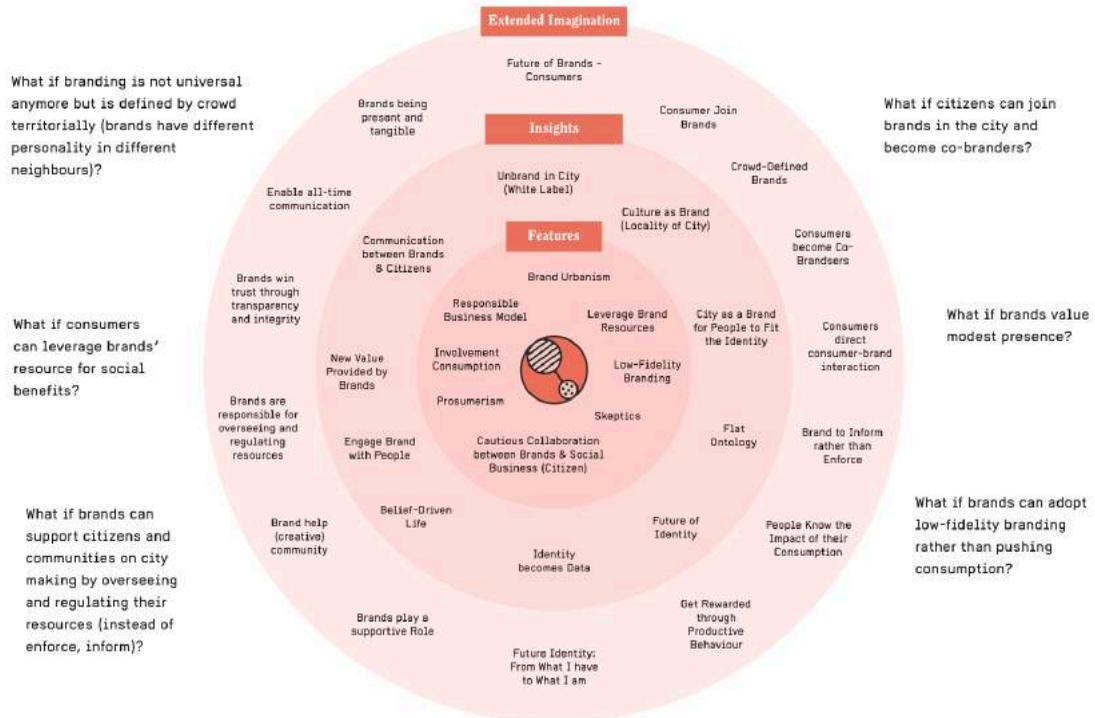


Figure 5.3: Design cues for Bilateral Urbrandism

# Un-Commons

- What if the meaning of space is defined by practice rather than pre-definition?
- What if practice is globally shared, that global ideas can be brought to local?
- What if institutions are decomposed into micro-assets that can be used by anyone?
- What if cities become locally productive and globally connected?
- What if networks take the place of organisations?
- What if anything produced in commoning practice also becomes commons?

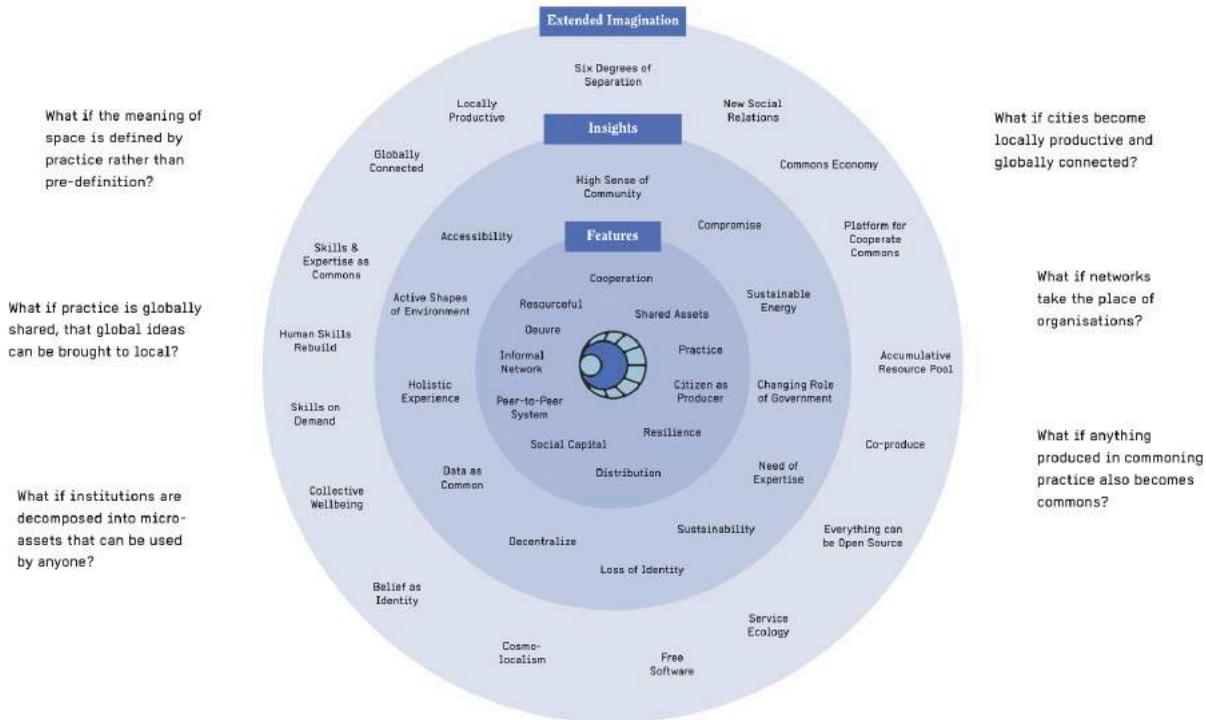


Figure 5.4: Design cues for Un-Commons

Besides, the four themes under Vivid Dwelling considering as value incentives are mapped out for each city which creates an overview of the value proposition that each city would provide. The concepts should also follow the same direction so as to be consistent with the prior results.

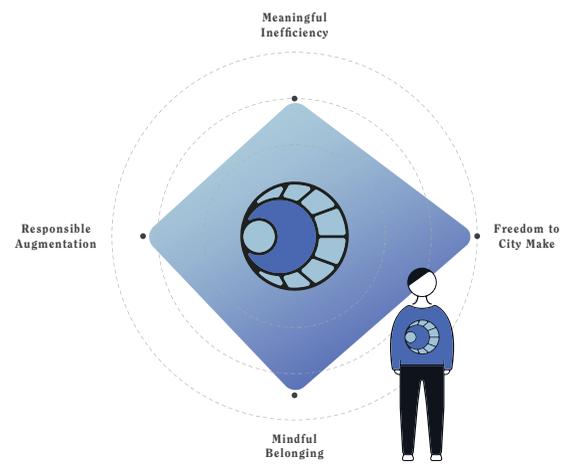
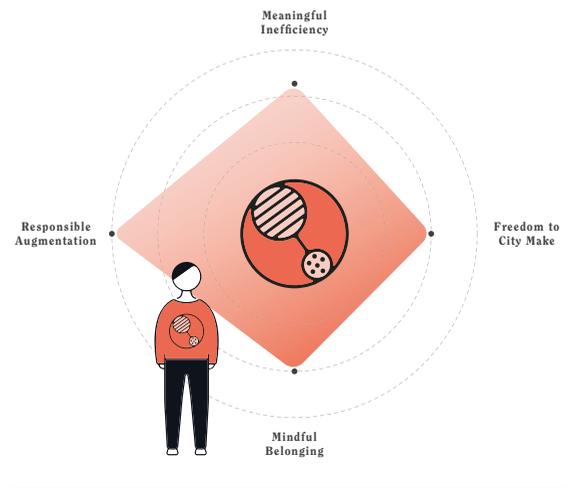
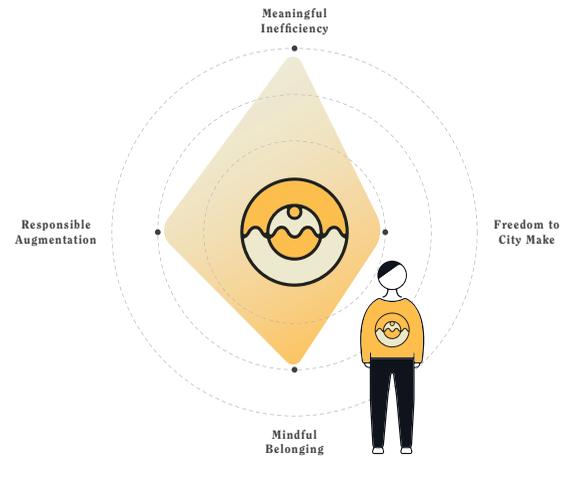


Figure 5.5: Value mapping for future cities

### 5.1.2 Concept Creation

Following the design cues, mobility concepts are ideated considering the use of agentic tech (Chapter 2.1.5) within the defined scope (Chapter 3.3) for all three future cities. The goal is to create three mobility concepts, each in the context of one future city.

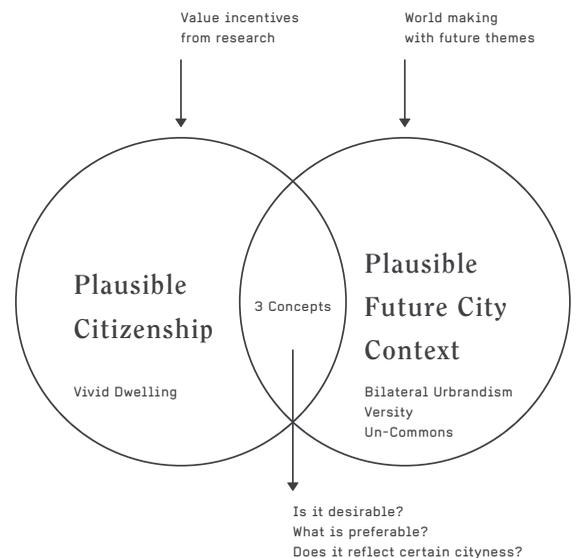


Figure 5.6: Concept ideation with sketch, Lego and scenarios

### 5.1.3 Selection & Development

One concept is chosen per future city and two concepts are related chronologically. The selection is based on its alignment with the proposed future cities, to what extent can they fit into the worldview and at meantime reflect the underlying value of Vivid Dwelling. Concepts are ideated with a focus on linking mobility experience with the system behind: what people can get from the mobility service and how the system can enable this experience while remain socially responsible for the city.

There was a debate on selecting feasible concepts which people are likely to believe it will exist or plausible ones which people may find out of the norms but provide discursive space. And the later ones are chosen since the entire project is not about giving shape but giving sense (Figure 5.7).



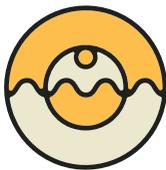
**Figure 5.7: The positioning of the three concepts**

## 5.2 Final Concepts

Three concepts related to the mobility realm are created with each one hinting one future city. The concepts focus on linking the multiple aspects between systemic and individual level in order to fit into the predefined city context immersively. While the goal of creating such concepts is not to provide viable solutions but to open up space for re-imagination of possible changes and provide an incentive for actually putting the necessary ones in effect.

### Nomad

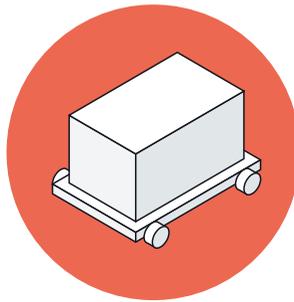
Gaming System for Walk



Versity

### Vehicle 1.0

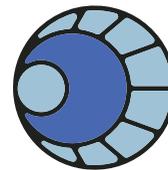
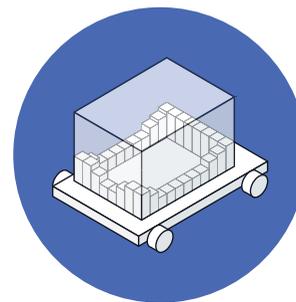
Collaborative Vehicle  
Incubator



Bilateral  
Urbrandism

### Vehicle 2.0

Open Modular  
System for Mobility

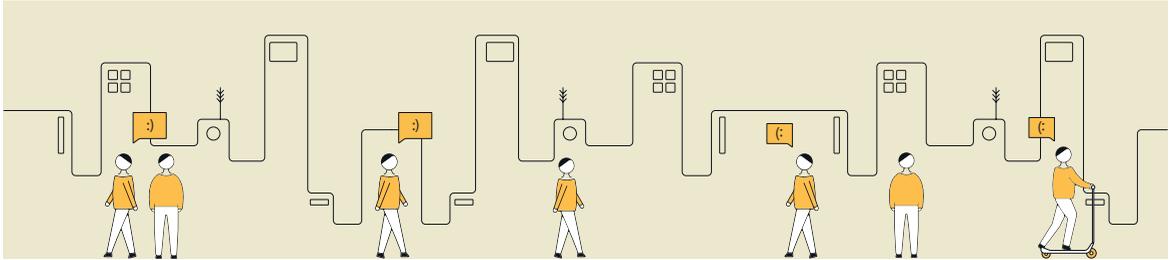


Un-Commons

Figure 5.8: Badges for each concepts

# Nomad | Gaming System for Walk

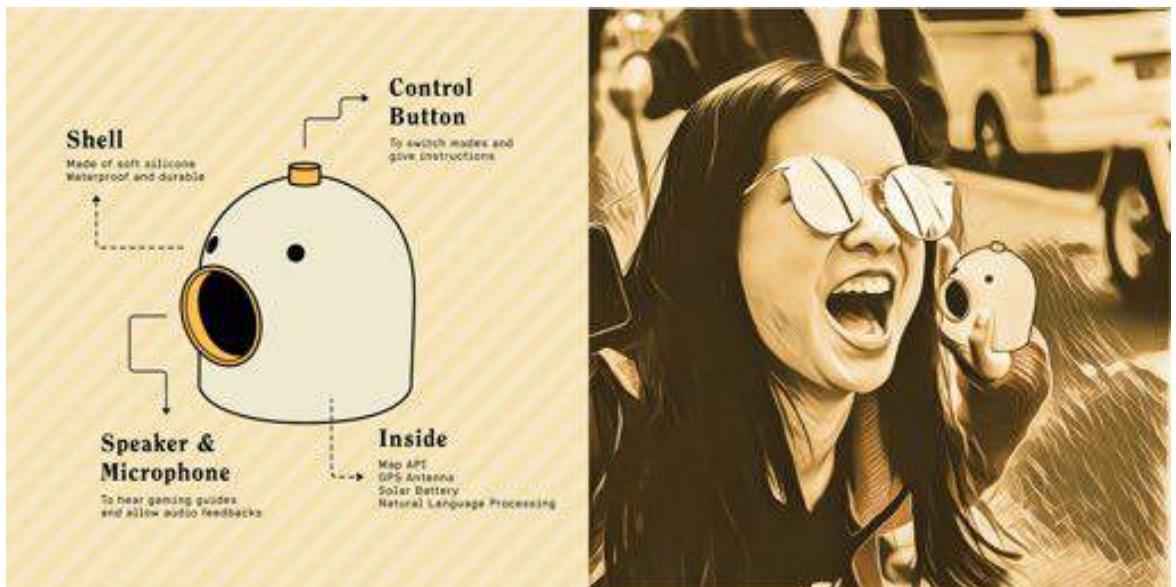
*“A mobile gaming system using city paths as the medium to enrich walking experience”*



## Introduction

Nomad is a walking gaming platform, which is connected to the growing city open data and adopts voice as the main way of interaction. It uses walking, the most common form of mobility as a gaming practice. Streets and paths in the real world become the game venue. Nomad aims to improve the relationship between people and public space in a joyful way.

Nomad device is designed in an intuitive way for people to play with in urban space

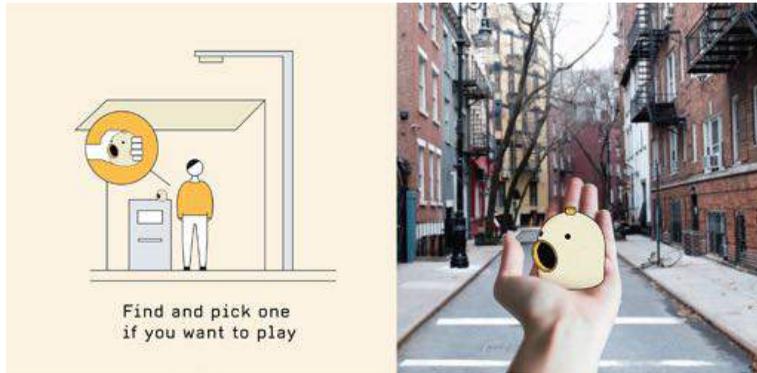


*Figure 5.9: The device of Nomad*



How does it work?

1



2



3



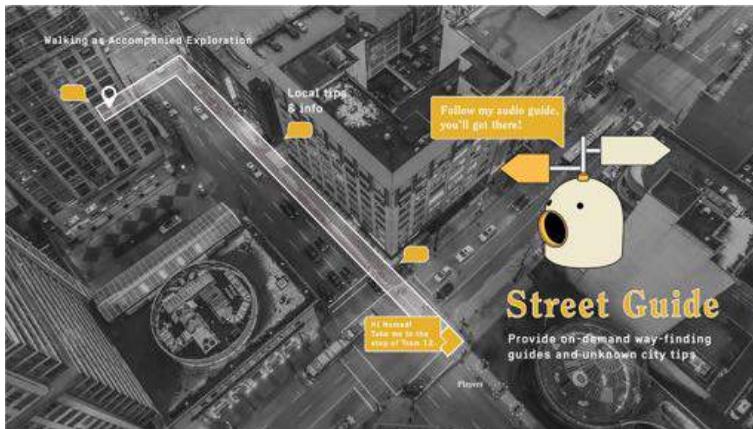
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Figure 5.10: Storyboards explaining the process of playing with Nomad in Versity

Figure 5.11: Three play modes that Nomad provides

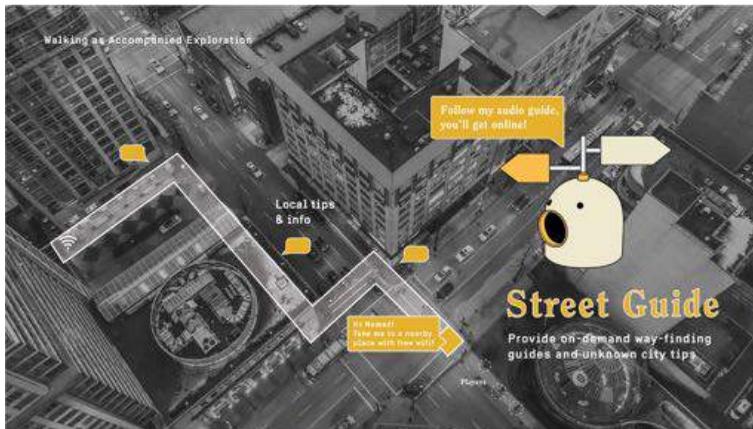


Three play modes: 'Street Guide', 'Street Vote' and 'Street Quiz' are provided which gives a different meaning to the simple act of walking in the streets. While way-finding becomes an exploration, forked intersection becomes voting options, and road network becomes a series of adventure.



Street Guide

Walking as Accompanied Exploration



Besides the traditional way-finding function, people can also make their own demands with their imagination, such as 'quiet sitting place', 'building for sketch' etc.

Figure 5.12: Scenarios of Street Guide



## Street Voting

### Walking as Playful Democracy

Forked intersections become different options and people make their choices by walking into one direction. The topics can be light or heavy, trivial or deep even political.



The data Nomad collected will be visualised in public space, this allows citizens to know how the people around them think or feel. This creates a sense of community and an informative culture.

Figure 5.13: Scenarios of Street Voting



## Street Quiz

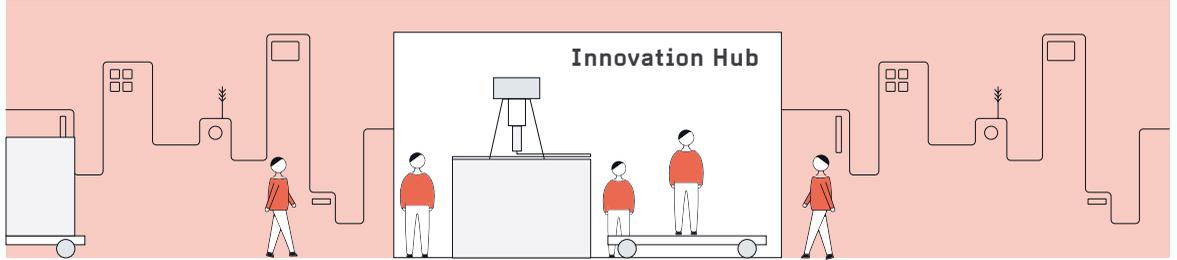
### Walking as Gentle Adventure

Nice game for ramblers and group walkers which people can challenge themselves and see if they can get a reward arranged by Nomad :)

Figure 5.14: Scenarios of Street Guide

# Vehicle 1.0 | Collaborative Vehicle Incubator

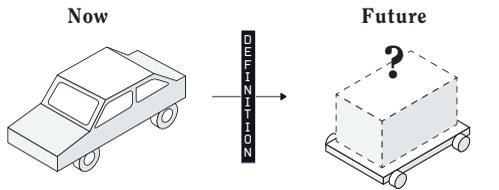
*“An urban vehicle incubation service that forms a collaboration between citizens and corporations”*



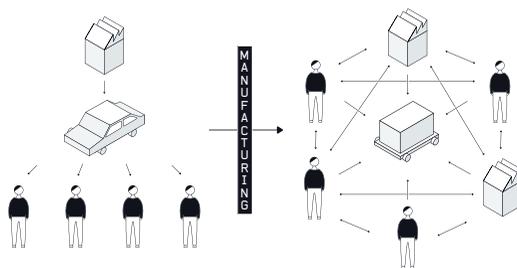
**Introduction**

In Bilateral Urbrandism, citizens are internet skeptical and government is cautious about collaborating with corporations. Influenced by such environment, the context within which the urban vehicle is also developed. Vehicle emerges as a prelude which describes the context that citizens are supported by corporations to create their own vehicles.

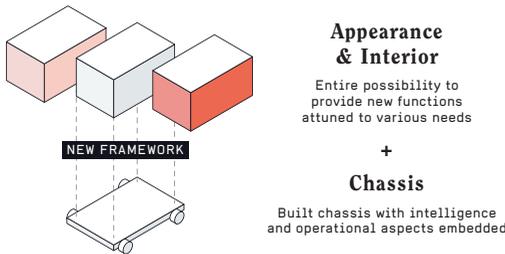
**How does Vehicle 1.0 come into being?**



Vehicles will drive themselves in the near future. This disruptive technology will change almost everything about the current automotive industry. How would a vehicle be if it doesn't have to be car-like anymore?



Current mobility ecosystem is centralised and heavily regulated to manage risks of all types of drivers on the road. The moment our mobility is autonomous, all vehicles are connected and will result in an almost 100% safe system. The role of vehicle will change, and the manufacturing process will change too.



**Appearance & Interior**

Entire possibility to provide new functions attuned to various needs

+

**Chassis**

Built chassis with intelligence and operational aspects embedded

A vehicle can be divided in a framework with all intelligence and operational aspects. The appearance of the vehicles can be versatile made of various material with accessible digital fabrication. In this way, the upper part of the vehicle can be composed by citizens.

Figure 5.13: Background of Vehicle 1.0

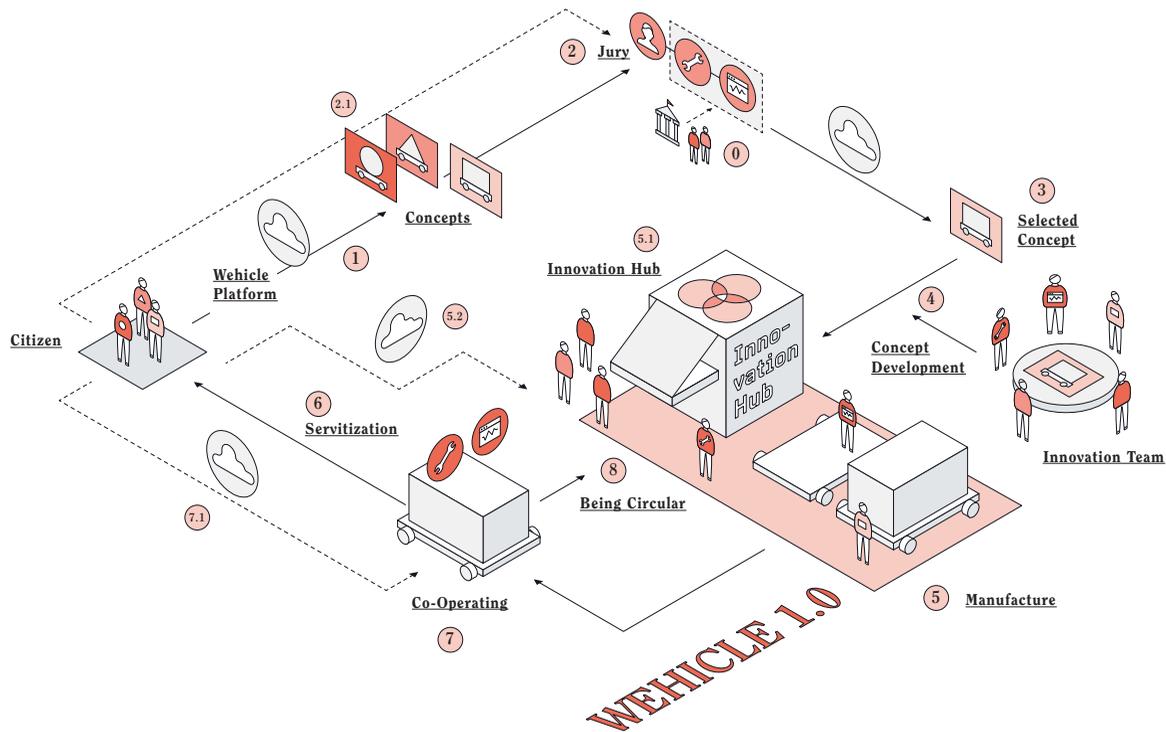


Figure 5.14: System map of Vehicle 1.0

#### How does Vehicle 1.0 work as a system?

- 0 First, to join the Vehicle project, mobility brands need to pitch themselves and they will later be selected by government together with its citizens in the pilot neighbourhood.
- 1 A Vehicle platform is built to facilitate the online participation, where citizens can submit their concepts based on local needs.
- 2 The concepts are then evaluated by the jury composed of citizens and brand team.
- 3 While the selected concept will be further developed by a hybrid innovation team including the brand design team, the concept owner, the Fablab member and the local maker.
- 4 After the concept is polished to be ready, it will be processed by the Innovation Hub, a workspace that is collective built by local institutions, brand labs and government.
- 5 With brands providing autonomous chassis, the innovation team will manufacture the upper part by digital fabrication with recyclable material.
- 5.2 The whole process is transparently updated online and is open for visit.
- 6 The built vehicles are utilised for servitization, where they act as mobile citizens that earn money on their own for maintenance.
- 7 While at the back stage, they are co-operated by brands who are responsible for system optimisation.
- 7.1 And citizens who can give their feedback for service improvement based on their experience and online open data.
- 8 Besides, vehicles are repaired and maintained by innovation hub. They can also be recycled for next generation use.

What is the experience to participate in Vehicle 1.0?



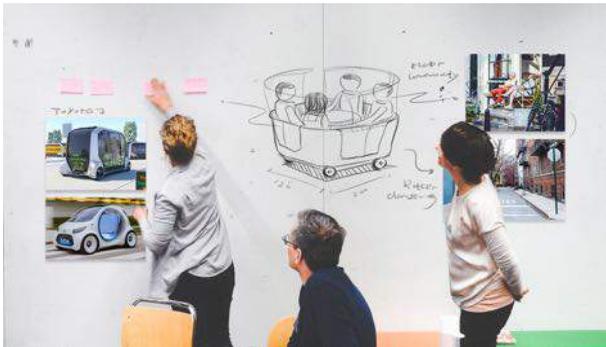
### Submitting Concept

A citizen is submitting his concept through the online platform.



### Innovation Team Building

People are on their way to apply for joining the innovation team.



### Concept Development

The innovation team is developing the selected Vehicle concept.



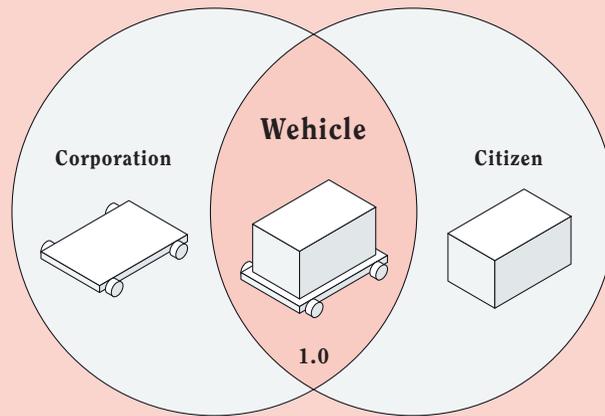
### Manufacture

A Vehicle is being manufactured in Innovation Hub.

*\*original picture from Space 10*

Figure 5.15: Scenarios for Vehicle 1.0

Figure 5.16: Relation map of Vehicle 1.0

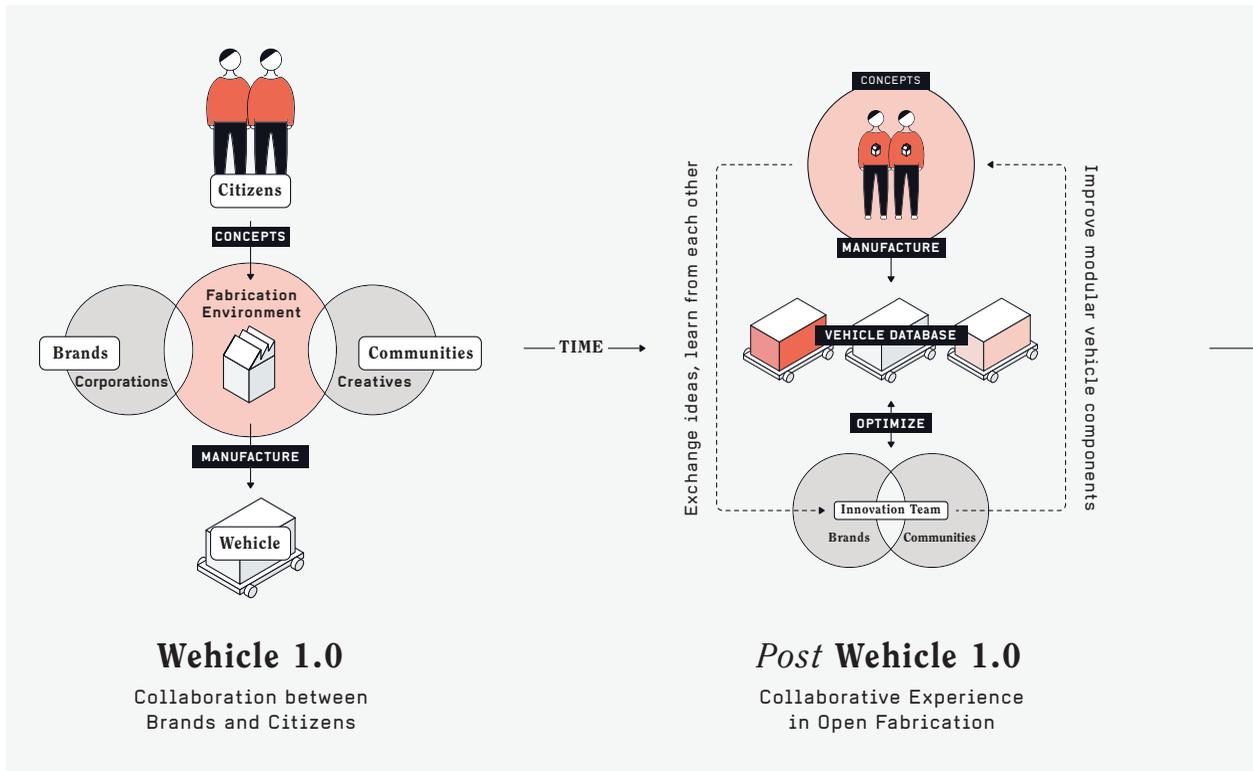


### Together, We Make Vehicle

Vehicle 1.0 imagines an idea that mobility could be collaboratively provided within a network, in which citizens acting as prosumers are supported by the government to collaborate with corporations and local communities through a digital platform for city making on mobility. This suggests a social context that functions from local networks with balanced power.

Vehicles profile themselves as dynamic puzzles that are developed from a dialogue between citizens and brands. Because of the improved construction, they can be easily adapted to the different demands and needs of the local. And this will form a new culture, starting with mobility.

**\*How does Vehicle 1.0 evolve? / Story behind the transition**



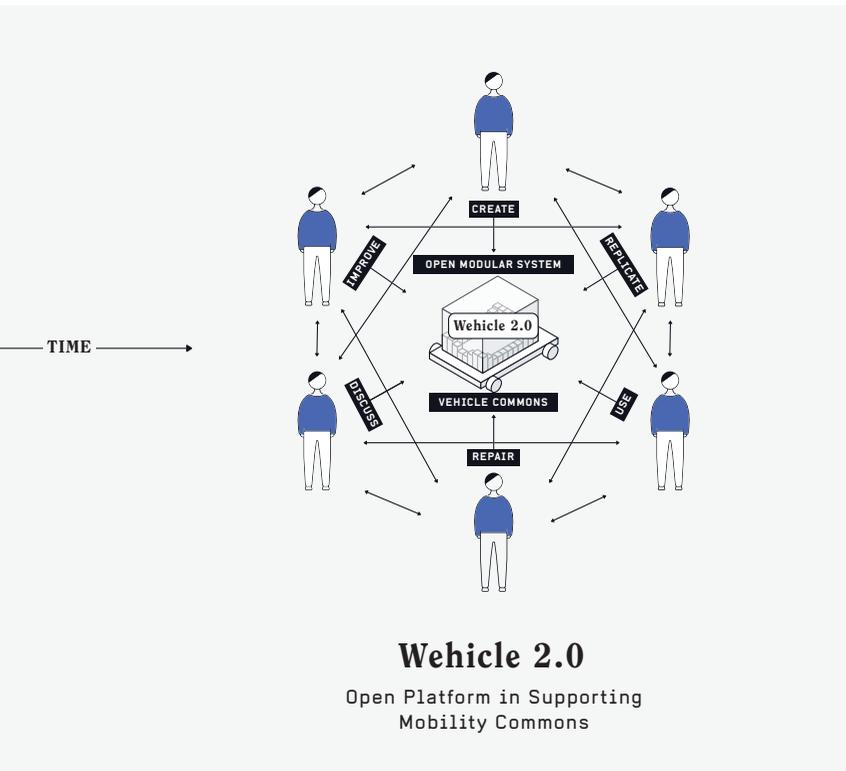
**Initial Phase**

During the initial phase of Vehicle, the 1.0 version, the goal is to bring a social paradigm shift on vehicles and arouse participatory attention. The vehicle innovation is in small scale by a hybrid team in a fabrication environment. Citizens are encouraged to provide insightful ideas since they know there's chance that their ideas can come true. People can also vote for their favoured ideas which creates a kind of mobility democracy. Besides, Vehicle also wants to create an open atmosphere where citizens can learn from (and teach) experts.

**Evolution**

As time goes by, citizens become familiar with the manufacture flow and witnessed the successful implementation of grassroots concepts. They are now more confident and motivated to engage in the creation part of vehicles. Through the Vehicle platform and social media, they find like-minded people and join communities. The fabrication place turns into a public institution (just like a library) where people can book for access. All the created Vehicle concepts are licensed as creative commons and remain open for replication and redesign. While the experts now are mainly responsible for developing concepts for the shelf of modules to lower the threshold of fabrication.

The growing expertise and continuous interaction of hardware & software in Vehicle will form an open and networked mobility culture in Un-Commons.



*Figure 5.17: A transition map showing how Vehicle 2.0 emerges from 1.0*

## Second Phase

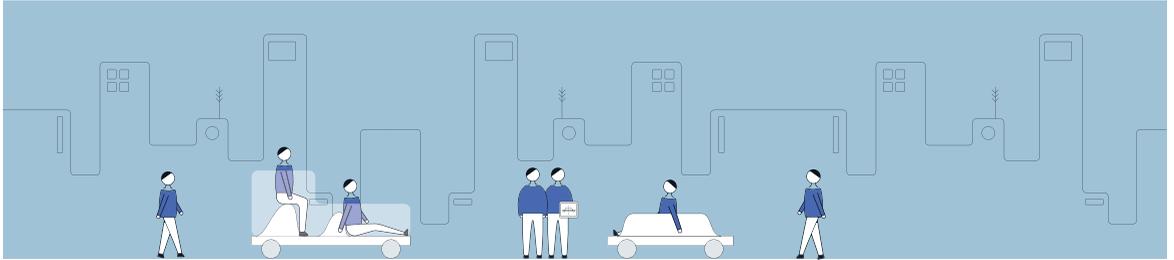
During Vehicle 1.0 in Bilateral Urbrandism, citizens as prosumers gained expertise on technological and management issues and learn to cooperate together.

Most commercial brands faded away since people now can provide what they need by themselves. Some of the brands dissolved into value-driven communities. Together with other passionate people, creative communities are formed for promising social innovations.

The government works more like a city manager. To facilitate the formation of Commons-based economies, a universal digital platform is established to provide resources as well as guidelines. Manufacturing is decentralised for being locally productive and globally connected.

# Vehicle 2.0 | Open Modular System for Vehicle Fabrication

*“An open modular system for vehicle fabrication which transforms mobility into a Commons serving various needs”*



## Introduction

Through development, people upgraded their skills and mindset; technology is becoming open and supportive. Vehicle 2.0 is one of the results from such evolution. It introduces an open modular system for generating vehicles on a Commons platform. Vehicle 2.0 leverages smart manufacture and open hardware for building a networked environment, where people can together make and enjoy their contribution. And this brings about inclusive and adaptable urban mobility.

## What is the supportive technology for Vehicle 2.0 to work?

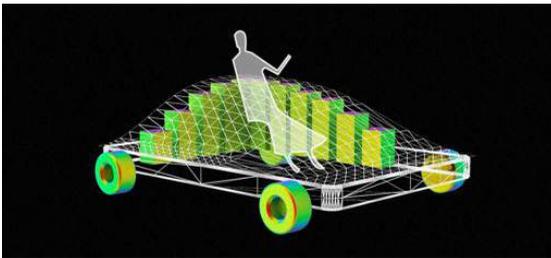
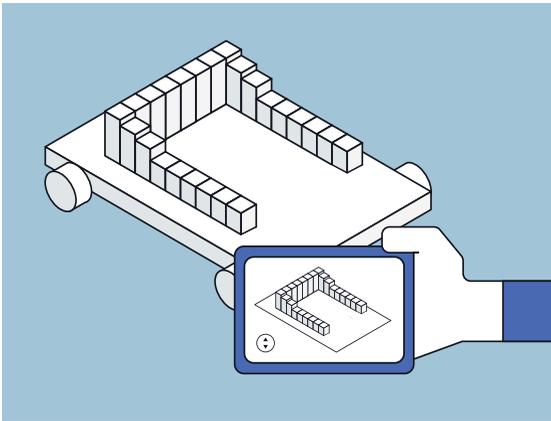


Figure 5.18: The chassis module of Vehicle 2.0

## Technological Support

In Bilateral Urbrandism, the expert innovation team was striving to lower the threshold of vehicle fabrication. The direction was to develop open vehicle modules and this is the final outcome.

## Versatile Interior

The interior of a vehicle will be able to display dynamic shapes and forms with algorithmic needles (powered by programmed geospatial data). Thus, the inner space of a vehicle becomes a deformable landscape which can adapt to almost any needs.

## Programmed Manufacture

Such technology perfectly combines hardware with software. It enables communities to create their own Vehicles physically without 3D printing, but through simple programming.

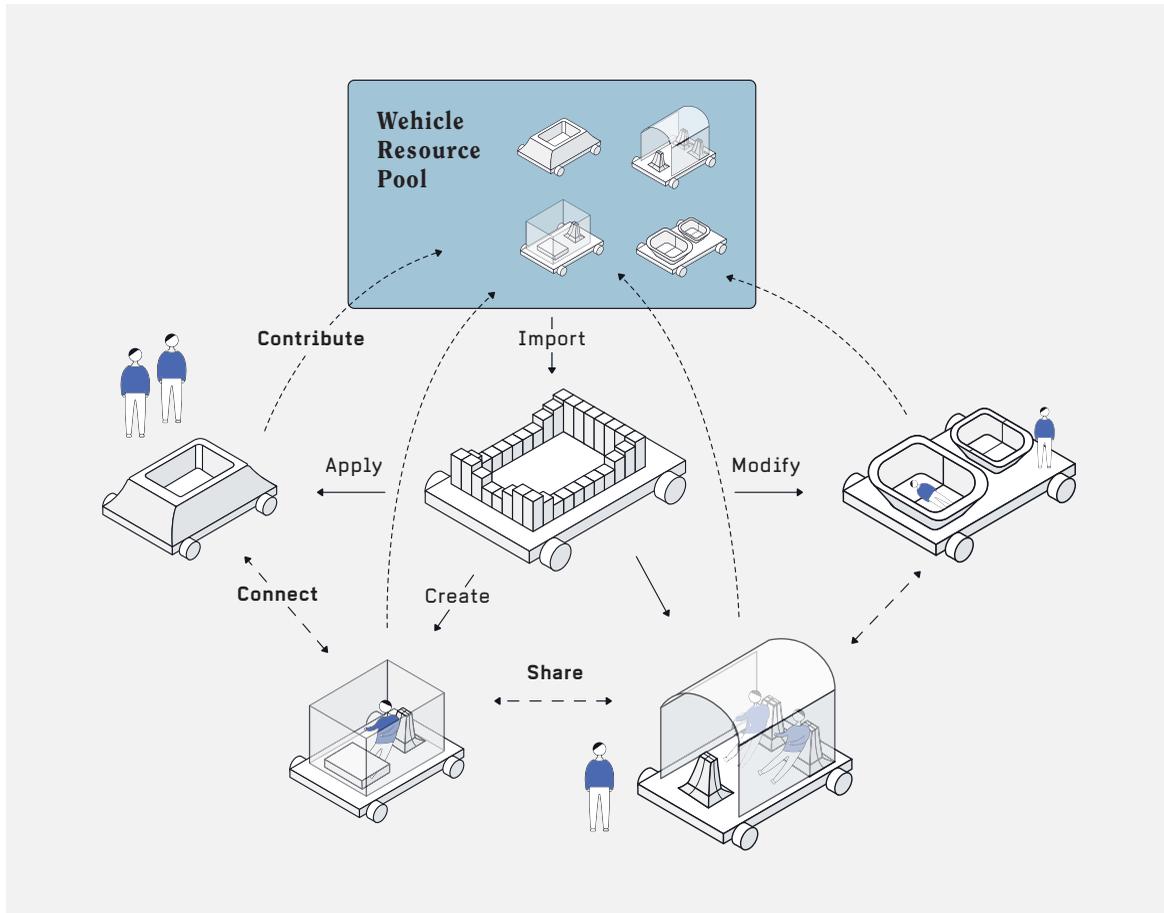


Figure 5.19: The mechanism behind Vehicle 2.0 shows how it works

### What is the mechanism behind Vehicle 2.0?

#### Open Modular System

The capability of programming vehicle thanks to the module makes it possible to form an open modular system. The deformable chassis becomes a shared grid, upon which different entities can design and create different parts and components. Since everyone follows one standard, creations are compatible with one another, introducing variety within modularity. This fosters an open and networked mobility culture that vehicle becomes a form of relations rather than a singular entity.

#### Commons Platform

The created designs contribute to the Vehicle Resource Pool, a github-like repository storing all the design codes, functions, materials etc. Platform members have access to all the information and can apply for use. In this way, whoever uses the platform contributes to the platform while supporting other groups.

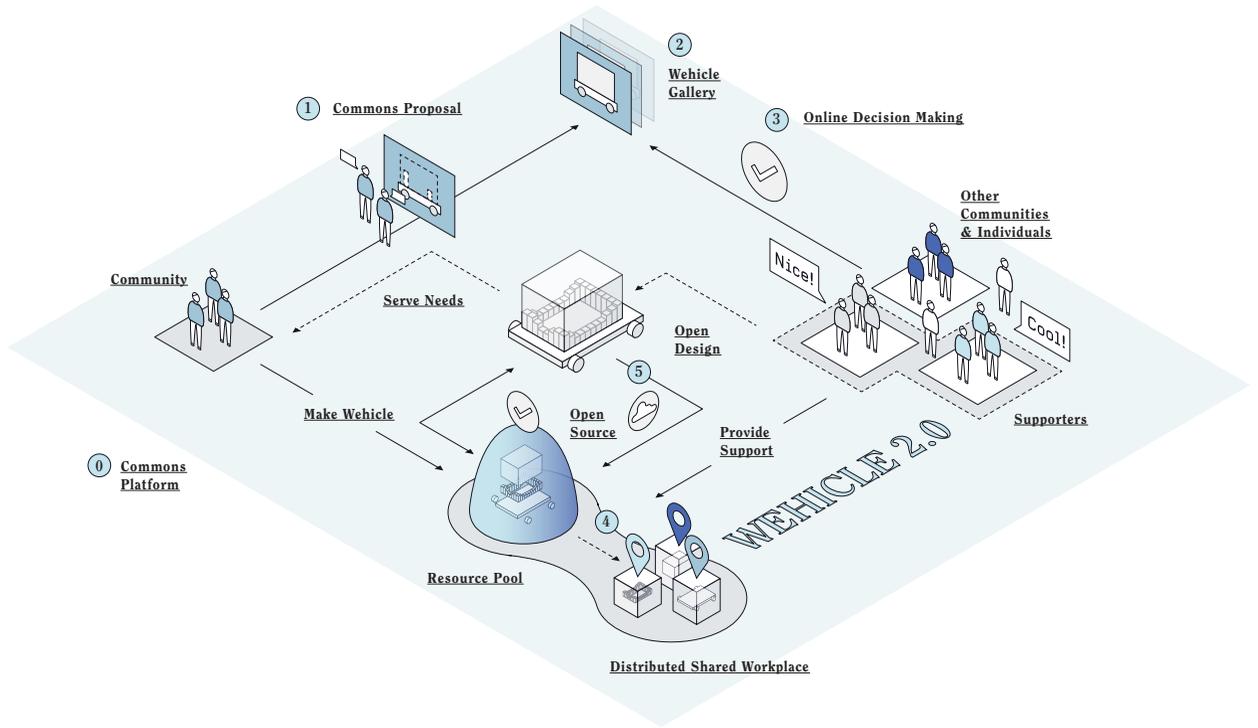


Figure 5.20: System map of Vehicle 2.0

**How does Vehicle 2.0 work as a system?**

- ① ② Communities can make common proposals which add to the design gallery where other people can share opinions.
- ③ Other communities and individuals will join the online decision making process to decide whether the proposal should be implemented. The proposal may be revised iteratively.
- ④ If the proposal reaches the consensus. The initiator community together with the supporters can get the necessary material from the commons resource pool. And they can create a new Vehicle in shared workplace.
- ⑤ The new Vehicle concept will become open sourced and is free for other people to replicate, hack and improve for adaptation.

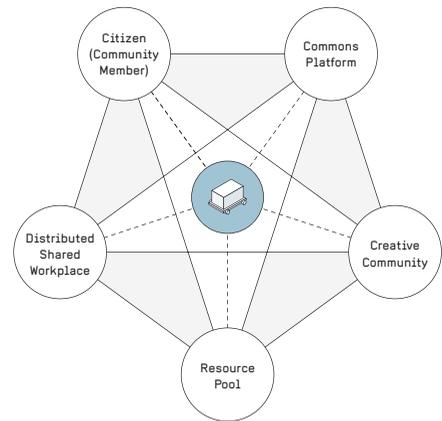
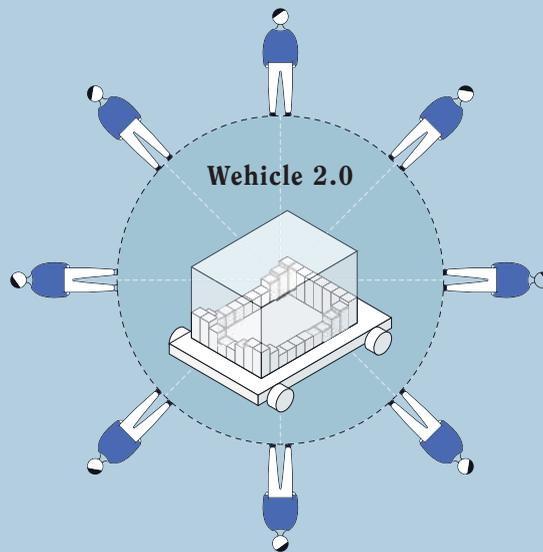


Figure 5.21: Value Constellation of Vehicle 2.0

Figure 5.22: Relation map of Wehicle 2.0



### Mobility for Me / We / Everyone

Wehicle 2.0 is built upon the Commons platform focusing on providing responsive vehicles. It aims at facilitating existing community groups to connect and new ones to form around the topic of mobility.

Instead of creating a personal vehicle, Wehicle 2.0 enables the personal use of shared (physically & digitally) vehicles with supportive modular technology. Personal or community needs can be fulfilled through personalizing the vehicle, which meantime adds to collective resource for further use. The fabric of urban mobility is shaped by creating, sharing and iterating. And a new solidarity economies can unfold in this way.

---

## 5.3 Conclusion

This chapter describes the process of ideation, conceptualization and selection.

Three final concepts are presented with general introduction (meaning, value), systemic settings (working process), user experience (journey, scenarios) and summary of features. The concepts strive to align the value that they provide with the context of future cities that they belong to. And this will also be evaluated in the next chapter.





6

# Now & Then

This Chapter describes the process of evaluating the final concepts and future cities. The results are studied and generated into insights both on the concepts and on the project itself. Two key results are illustrated: the redefinition of “cityness” and Civic Futures as a new design framework.



# 6.1 Evaluation

## 6.1.1 Goal

The goal of this evaluation was to examine the future cities and mobility concepts and learn about the desirable value of cityness and practical steps to realize it.

## 6.1.2 Method

### Hinting Civic Futures Website

It is necessary to present the whole project in a clear and understandable way for the sake of evaluation. Since this project is a bit speculative and creates imagination, the initial idea was to curate a small exhibition with printed materials and physical artefacts. While due to the limited time and considering the project focus, website was eventually chosen as the medium to present the project because of its flexibility and feasibility for reviewing.

The website ([hintingcivicfutures.com](http://hintingcivicfutures.com)) was created to pack the project into a complete

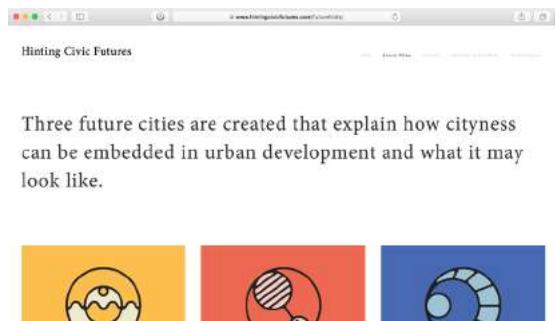


Figure 6.1: A page of the project website

story using cityness as a link among different parts: from context explanation to project introduction and future cities with mobility concepts. Lots of illustrations were added to the narrative for a better reading experience. For explaining the concept, videos and scenarios were used to give a sense of reality. In addition, the website was revised iteratively based on peer feedback and suggestion.

### Participants

Experts specialized in urban design, civic technologies, smart city and related areas were targeted and the reasons are followed:

First, part of the goal of this evaluation was to learn about the essential steps needed to implement the desirable cityness. This requires a specific knowledge base as well as related experience. In addition, some systemic and socio-technological issues were embedded in the project which are more familiar to people who have worked with these aspects to make precise comments.

### Procedure

Since the evaluation was during a common vacation time and experts have a busy schedule, questions were listed in google form and were sent to a list of experts.

The questions were made to guarantee the sharpness as well as simplicity. Taking inspiration from “Colour cards” (Voss et al., 2015) which covers feelings, personal change and outside change in discussing speculative design concepts, the questions focus on how people feel about each future city and what they think are the most important factors or drivers that will influence such future to happen or not. So besides personal preference, the gaps between imagination and current state could be addressed. *Besides evaluating “what if”, it also addressed “how to”.*

Here is the overview of the questions:

---

#### Direction 1: Preference of Future Cities

- 1.1 How do you like this future?
- 1.2 What are your gut feelings about it?

#### Direction 2: Gaps & Bridges between Future & Now

- 2.1 What do you think are the most important factors or drivers that will influence such future to happen or not?
- 2.2 What changes would you make to your own life now if this scenario might be in your future, or part of it?

#### Direction 3: Focused Suggestions

- 3.1 What do you think would be the barriers for Nomad to engage people for participation? (Nomad)

3.2 Do you believe we can make a real productive marriage between public & private sectors? How? (Bilateral Urbrandism)

3.3 What problems do you think may occur in Wehicle 2.0 when mobility becomes a commons managed by everyone? (Wehicle 2.0)

3.4 How to incentivize people to contribute to the public good when they don't necessarily need to? (Un-Commons)

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### 6.1.3 Results

Four feedbacks from experts were received eventually, with one skype meeting, two filled google forms and one written comments. Three of them were focusing on the concepts while the other one was focusing on the process.

The results were studied qualitatively with transcribtion, simple coding and analysis.

## 6.2 Results Study

### 6.2.1 Versity & Nomad

**Versity:** A city where playfulness is embedded in daily lifestyle and meaning making is prioritised in urban planning

**Nomad:** Gaming System for Walk

#### Preference

All participants who discussed Versity support the playfulness of Versity as its central urbanity. Nomad, the gaming system for walk in Versity received opposed opinions from different perspectives.

From the experience perspective, Nomad as a piece of infrastructure could generate sentiment data rather than pure amusement (Pokemon Go) and broadcast it back to citizens. In this way, Nomad brings intriguing augmentation to Versity. Besides, its ability as a large urban scale game to engage people to participate in deciding the city's future was appreciated. Since Nomad mainly focuses on individual interaction, it was suggested to scale up and provide availability to masses. Privacy issues were not addressed though since Nomad does not collect high-fidelity data.

From the system perspective, one participant pointed out that Nomad requires the compliance of user which actually follows a central idea. Regarding the guidelines and play modes provided

by Nomad, he noticed that play also means to jump out of the preset and not following instructions all the time, which is not addressed by Nomad.

#### Gaps & Bridges

Speaking of whether Versity and Nomad will happen or not, participants all mentioned the threshold of changing the fixed and practical life living would be a big challenge. This includes fulfilling day to day obligations (requires efficiency) and the habit of using existing technologies and platforms. In order to make this future happen, people need to have the mindset ready for the new appropriation. Besides, one participant highlighted the importance of incentives: rewards of participation which need to be clarified and amplified. And city as suggested could take its role to sponsor a "Nomad day" that encourages all citizens to be involved. Otherwise Nomad would fail to arouse attention among the competition of all the existing apps, initiatives and viral market campaigns.

#### Suggestion

The main suggestion from the participants is to scale the concept up including the future impact over the years that Nomad would bring, opening up the interaction with larger groups and how the city can embrace and publicize it (through festival etc.).



## 6.2.2 Bilateral Urbrandism & Vehicle 1.0

**Bilateral Urbrandism:** A city that ensures a cautious collaboration between public sectors and branded corporations for responsible city making

**Vehicle 1.0:** Collaborative Vehicle Incubator

### Preference

On the macro level, one participant considered the future cities as different zones with two directions: one without taxes but conflicts need to be solved locally and one with high taxes but everything is policed supported by large corporations. While the three future cities exist in such a dimension.

Participants did not show particular preference for Bilateral Urbrandsim. But the caution on the fact that what corporations claim is not what they exactly do was mentioned. So there should be a mechanism for dealing with such ambivalence between responsible private sector projects and their usurpation of public space, a mechanism for (re)negotiation for every city. One participant was skeptical on the absolute technological promises such as “100% safe system” for Vehicle 1.0 where concerns on placed in the safety factors.

### Gaps & Bridges

To realise the vision of Bilateral Urbrandism, besides guaranteeing a

meaningful project one participant mentioned, citizen should also have enough sovereignty to kill a harmful project that the corporate partners want to introduce. Ecological considerations will also be a restraint for collaborating with corporations according to one participant.

Speaking of Vehicle 1.0, the collaborative vehicle incubation service, one participant thought regulations and supply chains would be the most important factors that decide the realisation. Regulations on issues like safety will be useful when new urban concepts come out in a mixed world working with the old components. While the hyper localisation suggested by Vehicle 1.0 will significantly affect the current composition of economy which depends on global supply chains. So the process to make such a shift would be “slow and bumpy”.

### Suggestion

The Vehicle concept was suggested to be explored more on the meaning it will bring instead of focusing on ancillary uses. The diversity of the Vehicle platform was not clearly displayed, therefore future work should lay emphasis on bringing the core value of the concept to life beyond only text and diagrams.



## 6.2.2 Un-Commons & Wehicle 2.0

**Un-Commons:** A city whose resources are collectively managed as commons and individuals contribute for the public good

**Wehicle 2.0:** Open Modular System for Vehicle Fabrication

### Preference

Most of the participants considered commons as the central urbanity in this future. One participant described Un-Commons as a place without taxes and citizens themselves need to solve a lot of conflicts themselves. “Gated communities” was mentioned as an example when scaling down this future. Another participant, however, found this future far-reaching and quite dramatic because it contains much more latent information than what the website presents. Lots of incentives in today’s status quo become irrelevant in Un-Commons like “status”, “hero”, “celebration”, but such changes in social impacts were reported not being mentioned.

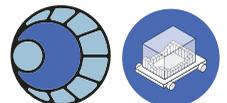
The concept within this future, Wehicle 2.0 is suggested by one participant not the most straight-forward example of urban commons with its limit on technical and safety requirements. Participants got the mechanism of such system but were not sure about the exact process for this systemic collaboration to work.

### Gaps & Bridges

Since commons is about collaboration, one participant pinpointed the issue that such collaborative localisation creates challenges for outsiders who have adapt to. Also, two participants stated that thresholds exist in such systemic commoning practice regarding with technical support (if the infrastructure could provide enough safety and efficiency as a base), participation requirement (if the participant should be technical literate) and workflow (if the contributions that people make can be compiled to determine whether they work as intended). Another gap is people’s willingness to participate and contribute when they can just enjoy what others have done, one participant believed that getting community-based governance right is the key.

### Suggestion

It is suggested by the participants to explore the social impacts of Un-Commons about how the today’s social norm, sense of value would change. This will bring about more immersive feeling of how this future would look like.



## 6.2.4 Project

### Notion of Cityness

“Cityness” as a term appeared several times during the evaluation. One participant considered it as a similar word to “urbanity”. While another participant felt that cityness shows change and evaluation as a good thing. He believed that the current business is ready for such a term since big brands and providers now understand the importance of “people” as a key component of the smart city. And companies tend to be user-centred when they “have trouble finding other sources of money”. So cityness could become a standard or criteria to foster the business innovation in a good way. It can also be supported by other citizen-focused angle. And in order to do so, it was suggested to break down “cityness” in properties which can be quantified, detected and compared.

### Project Process

Speaking of the project itself, one participant provided focused opinion on the process and methods used, while other participants also somewhat mentioned several pieces during the evaluation. And some missing links were found regarding to the process:

#### 1. Missing link between people’s imaginary and the designer’s imaginary

For a project with speculation that creates new imaginary based on the designer’s interpretation, it is hard to directly let other people create the same imaginary especially non-design related people who hold totally different mindset and are unfamiliar with all the professional terms. Tools are needed to help people transcend the inertia of existing imaginary and jump start the new one of the project. For this project, words and diagrams were the main tools for provocation, however two participants pointed out that this did not necessarily make an immersive experience or fully showcase the proposed value, but instead trigger further design thinking. Therefore, it is important to choose the right audience and make sure what the outcome of the project will be. (This explains why experts were chosen as participants for the evaluation)

Tackling the experience problem, it was suggested to decide the carrier of the project, make it tangible for body storming through practice instead of brainstorming. For instance, a 1:1 scale Vehicle model could provide a more experiencing atmosphere.

#### 2. Missing link between speculation and thesis

Speaking of the future cities, one participant was curious about the theory or literature that can back up these



proposals. It was explained that understanding the origins academically can help narrow down the information scope that the speculation provides, which in a way creates a focus.

### **3. Missing link between paradigm shift (belief system) and dark matters**

Since all the future cities proposed new realities with paradigm shifts from the current state. Some of them are quite intense because the shift may require complete changes in dark matters (economic entities, industrial value chains, social norms etc.) which may make the future “far reaching” and “dramatic”, thus making it hard for participants to bring into the role. It was suggested that the social impacts caused by the paradigm shift as well as the changing incentives could be explored or stated to provide the contextual feeling.



## 6.3 From Hint to Clue

*“In dreams begins responsibility.”*

*William Butler Yeats*

Backcasting the overarching research question that initiated this project “How do people want to dwell in what kind of city in the future”, several outcomes can be drawn from the whole project: first, a redefinition of “cityness” is conducted which is made into a new manifesto for city making considering the interaction of living desirability and environmental functionality. Besides the process and approach of doing this project is translated into a design framework “Civic Futures” which can help designers explore future opportunities from the massiness.

### 6.3.1 New Definition of Cityness

#### Initiation

Italo Calvino wrote in his famous work *Invisible Cities* that people take delight not in wonders, “but in the answer it gives to a question of yours.” City as a dense combination of various things is such a versatile entity which can satisfy different people. This should be a basic condition of being a city. While in the current smart city, people lose their sovereignty of their lives for irresponsible urban development. People even cannot ask “questions”, let alone get “answers”. The emergence smart city is another chapter in the urban renewal, and cityness could be a new standard in this smart age to help change such situation.

The meaning of cityness discussed in Chapter 2.2.3 refers to all kinds urbanity that a city could provide. However, it was

mostly discussed before the prevalence of smart city considering the old urban settings. City is evolving together with the its meaning as a whole. We need a fresh perspective that is able to grasp the massiness of different stakeholders meantime highlight the essence of being a morden city. Hence a redefinition of cityness is conducted with all the insights collected during the project.

### Cityness as a Representative of Urban Qualities

In *Divining a Digital Future* (Dourish & Bell, 2011), it is mentioned that “the city is not just a concentration of humanity; it is a nexus of technological infrastructure, on which it depends for its continued existence.” A city has its social and technical dimension and to balance them in a right way is an important topic for city making, especially when a lot of attention is only biased on the technical infrastructure.

Cityness in such a “smart age” resides in the interplay of living desirability and environmental functionality. What a city provides more than anything else is choices and opportunities. Cityness illustrates a city’s capability of empowering its dwellers to fulfill their own goals, being able to facilitate and experiment with every interest and potential that citizens might have. But cityness does not emerge only in one-way. City exists to serve its citizens and it also needs culture, feedback, initiatives and even fight in return for shared prosperity. In this way, people does not only live in the city but also for the city as they add up to new civic possibilities with their actions.

*Simply, cityness fathoms the pleasantness of urban lives and the responsiveness of urban construction, and illustrates the co-performance between them for sustained improvement.* This way, cityness becomes a representative of the urban qualities that a city holds.

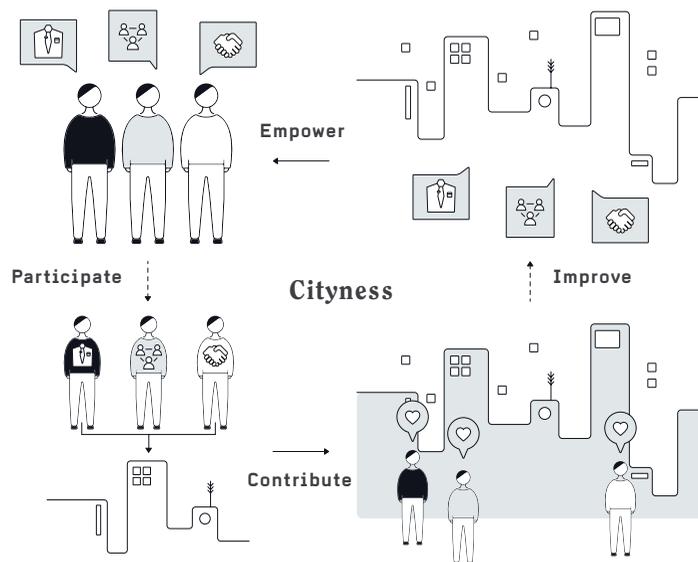


Figure 6.2: Illustration explaining where cityness emerges

### Cityness as a Model for Collaborative City Making

A cityness model (figure 6.3) was developed to illustrate the composition of collaborative city making. It describes a new perspective to understand what composes a city and how they relate to each other. Also it provides a canvas for suggesting (or hinting) how we (companies, government, communities and citizens) can make city in a reciprocal way. Cityness model is more a thought-experiment than an explanatory one and it encourages further development and interpretation. The cityness model took the Hackable City model (de Waal et al., 2018) as the reference and got inspired from the project process and insights collected alongside.

The model is composed by two main parts: “dwelling incentives” refers to the pleasantness of urban lives that the city dwellers could enjoy; while “urban capabilities” refers to the responsiveness of urban construction that the city could provide to its citizens. The essence of the cityness model is to bilaterally link the desirability and functionality of urban life as a seamless loop (Figure 6.4 & 6.5). It considers that individuals and collective, public and private sectors all play a vital role in the collaborative city making, where citizen behaviour and organisational settings should be closely related. How the loop works is explained on the next page.

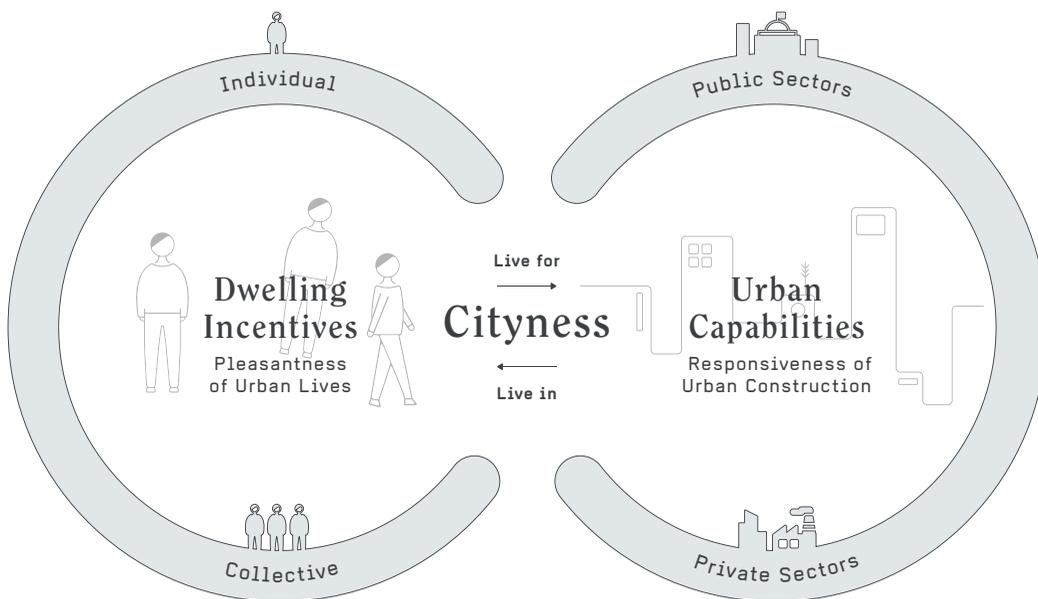
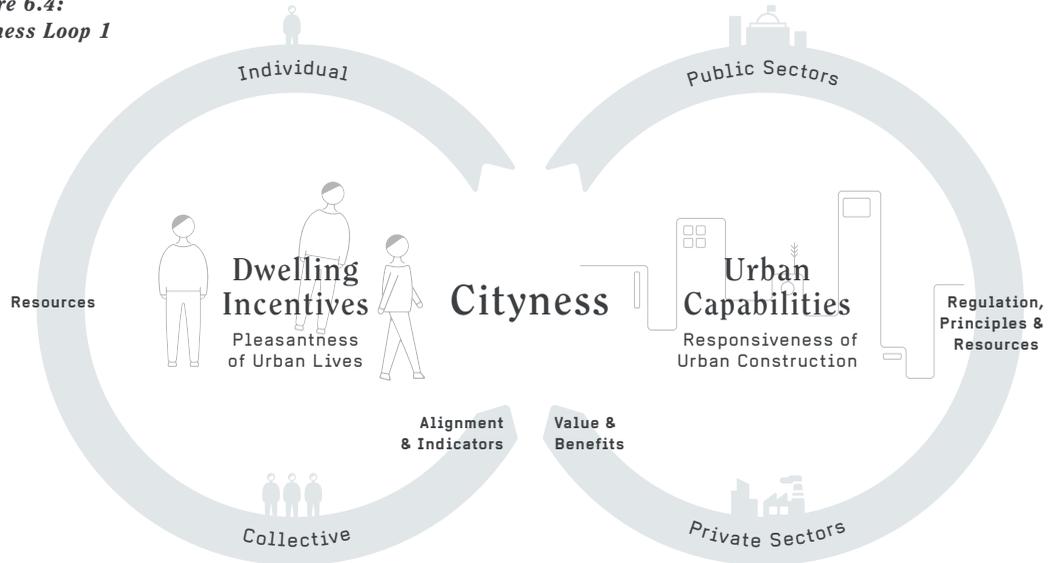


Figure 6.3: Cityness Model

**Figure 6.4:**  
**Cityness Loop 1**

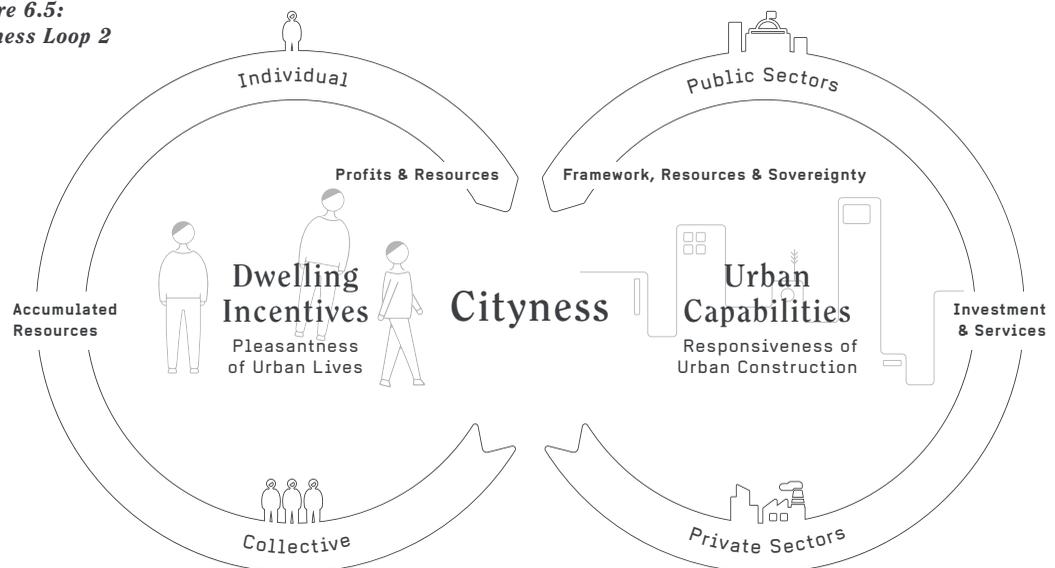


Cityness promises to provide the space and means for the personal fulfillment as well as for the social interaction. Individuals through their participation contribute all forms of social resources to the city which the accumulation in return will benefit or reward them. It is believed that every one has the power to make the city and every encounter has a meaning.

Cityness strives to create a healthy loop between people and institutions. Individuals need to build the literacy on technology and they should have the sovereignty to protect their data and rights. Public sectors should offer them the tools to exert their influence on urban issues. While both public and private sectors need become more responsive to deal with the missions that are collectively stated.

Cityness considers that public and private sectors are not opposed entities. By flexibly providing regulation and principles as a mature mechanism, public sectors could ensure private ones to innovate within legal and responsible frameworks. In this way private sectors shift to more social roles and compete in a good direction. Private sectors with their abundant resources can be strong city makers.

**Figure 6.5:**  
**Cityness Loop 2**

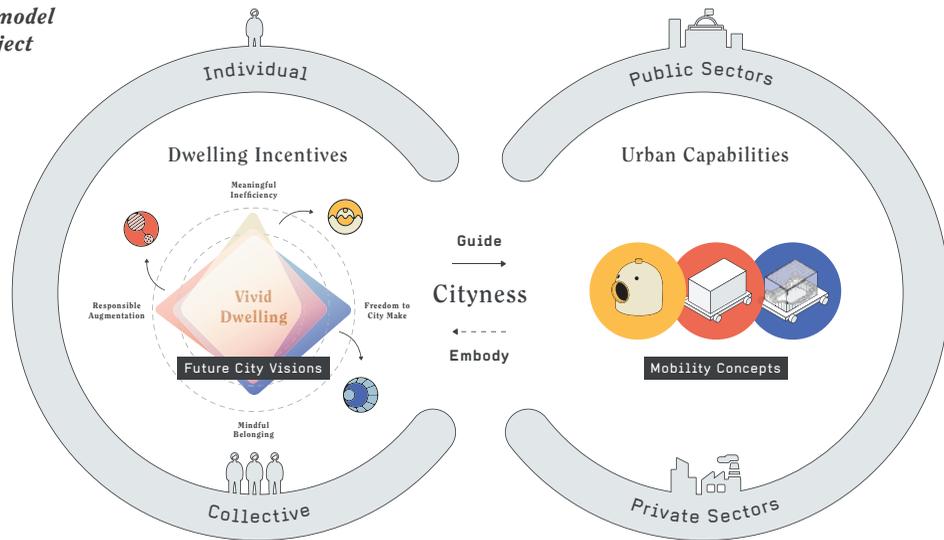


**Cityness simply explains why people  
choose to live in a city**

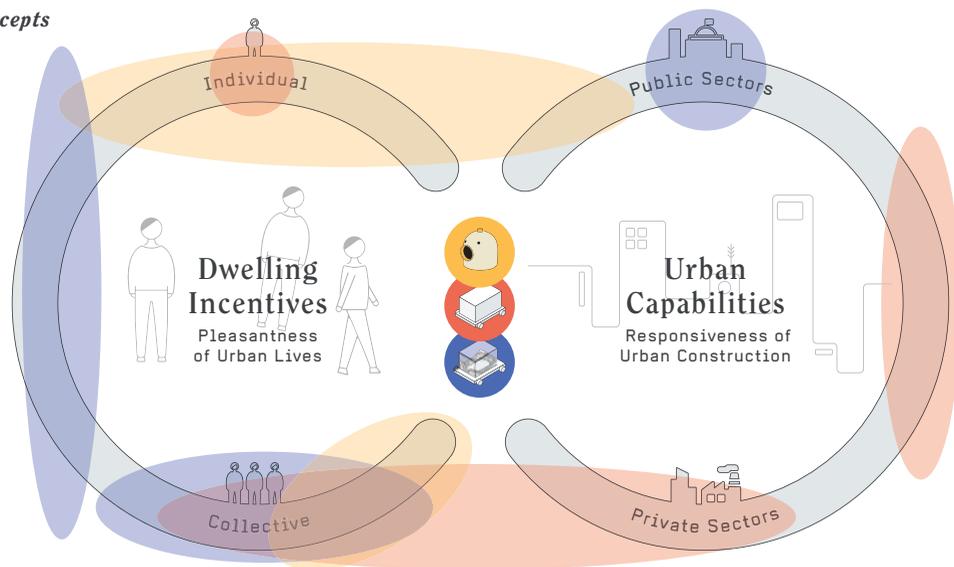
### Applying Cityness as a Backcast

To self-evaluate the cityness model, a backcast was conducted to see how the whole project could be applied to the model and how each concept could cover the related aspects. As Figure 6.7 shows, the project started from exploring the dwelling incentives which is Vivid Dwelling with its four values. Based on that, three future cities were created as visions in the form of worldview which guided the design of urban capabilities on mobility. As a result, three mobility concepts were developed with a focus on different aspects of cityness (Figure 6.8).

**Figure 6.7:**  
*Applying model to the project*



**Figure 6.8:**  
*Applying model to the concepts*



### 6.3.2 Design Framework “Civic Futures”

#### Process

Design is used to be conducted under the Sun, where everything is visible: the ergonomics of a product, the pixel perfection of an interface or the value proposition of a service. While these are constrained by other invisible counterparts, alleged dark matters which, usually emerge from the organisational settings, the applied business models, the regime and policies of the regulatory context. Same in the context of smart city as explained in Chapter 2.1.3, lots of emphasis in the development is laid on technological advancement which is actually a by-product of city serving for its citizens. Problems are usually isolated to a scale and scope that are solution-friendly, lacking a transitional perspective at multi-level.

During the project, “Civic Futures” design practice originally from Dash Marshall was adopted as a guided approach in order to tackle such problems: social and technical aspects in the future context were considered as important guidelines; system feasibility and user experience were aligned. Drawing on the essence of the original practice, “Civic Futures” in this project was eventually tailored into a framework that can improve the process of urban development from the perspective of cityness, and provide future-proof values.

Civic Futures comes into being alongside the ongoing project. By applying the Design-led Future Technique, the detailed steps building upon such approach help compose this new framework. And the project therefore becomes a design practice attached to Civic Futures.

## The Framework

### What is Civic Futures as a design framework?

Civic Futures is a future visioning technique for dealing with ambiguous, fuzzy and uncertain topics such as urban service, policy prototyping, organizational change and etc. from multiple levels and within a future scope. It is meant to help researchers or designers to gain insights from radical expansions of the current purview and provide tools (triggering thinking pieces, actionable insights & methods, design process) that can be applied at the current stages. It can also involve related stakeholders and open up space for collective discussion on provocative topics.

### Why conduct Civic Futures?

Civic Futures is more about making sense than making shape. Instead of designing for the future going from the specific to general, Civic Futures first creates micro-futures, designs in them and backcasts. Moving from the general to specific, this zooming-in process provokes interrogation which can help us understand anew our current state through the design of future worlds and services. More importantly, Civic Futures is not afraid of tackling the complexity of institutions, systems or value chains. By designing concrete concepts from multiple levels (like value, system, human), it aims at dissolving silos and enabling meaningful links between different sectors. And this explains why it is called "civic".

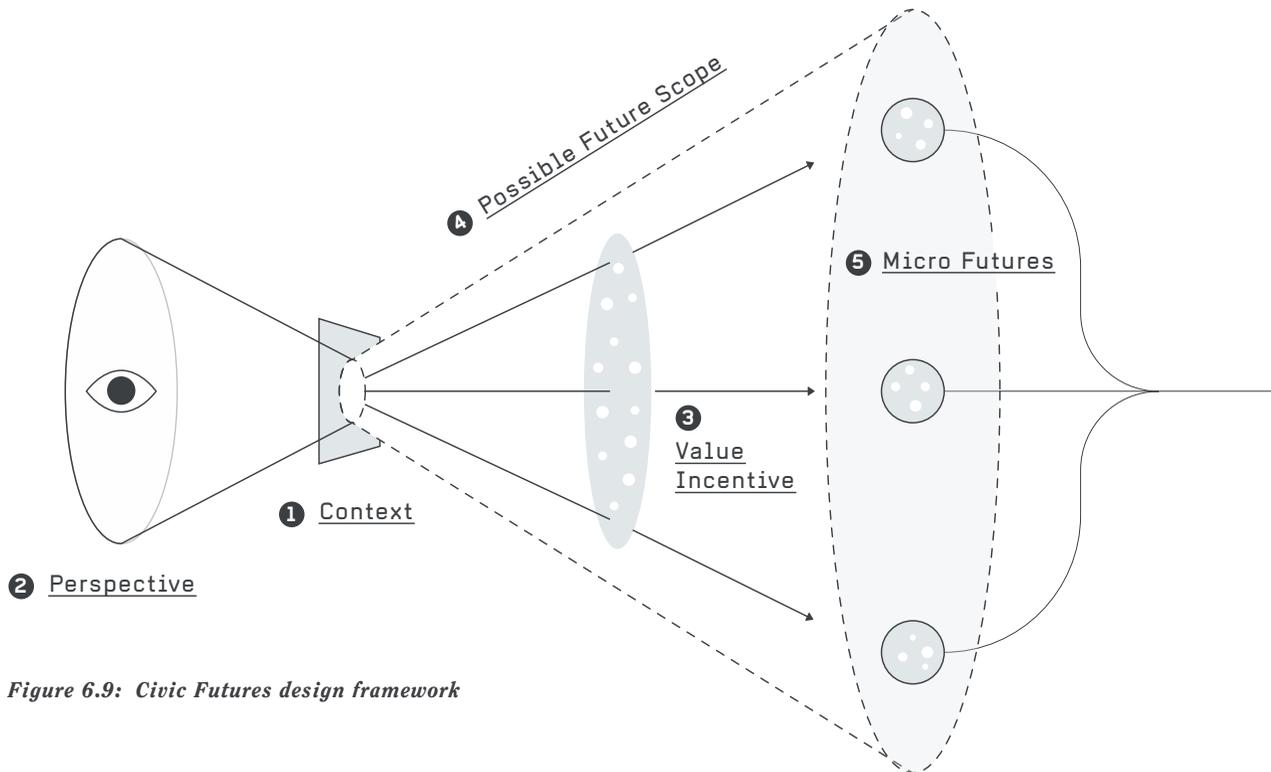


Figure 6.9: Civic Futures design framework

**How to conduct Civic Futures?**

**1. Context**

Define the specific context of your project: what the project is about, what the stakeholders are, what the current situation is etc.

**2. Perspective**

Decide through which perspective you would like to review your project context. This can be social, technical, economic, political etc. or combined ones.

**3. Value Incentive**

Identify the incentives that would bring meaningful values. This could be done through a session or workshop to define the desired outcomes you would like to have.

**4. Possible Future Scope**

Set a time frame based on your plan. Then research on the future through user studies, scientific research, conferences and anything that can help identify trends that are affecting the world at large. Be wide but related.

**5. Micro Futures**

Create multiple (suggest three) future worlds based on your research material. The futures should align with the time frame and have a distinct focus for stimulating thinking.

**6. Design with Lenses**

Lenses are used as design scope through which we can create concrete concepts to embody the futures

**7. Presentation**

Define your audience and goal first, then choose a way to make up stories to explain your concepts. The experience should be highlighted for immersive understanding.

**8. Evaluation**

Evaluate your project with the audience. Set your questions, objectives, structure first.

**9. Backcasting**

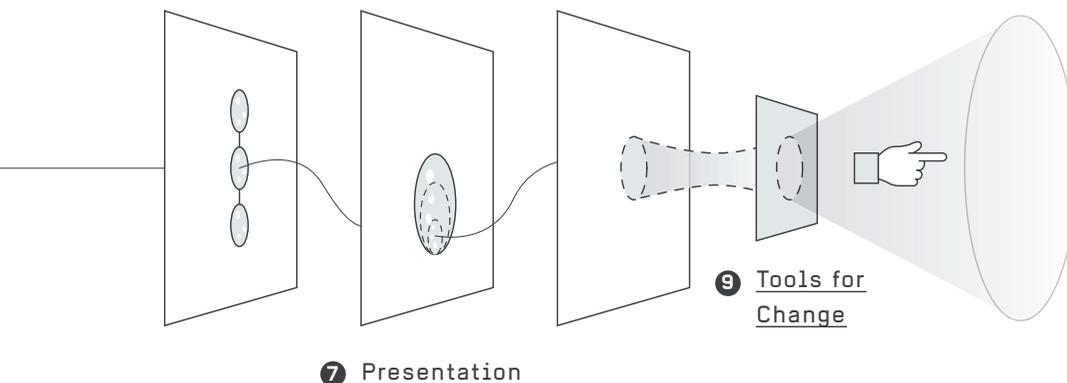
Study the results and generate insights to see how they could be applied to the current state for positive changes.

Future Scanning / Design in the Future / Present the Future / Backcasting

1 2 3 4      5 6 7      7 8      9

6 Design with Lenses

8 Evaluation



**Application**

Figure 6.10 illustrates how the whole project applied Civic Futures. Starting from critically reviewing smart city as the current problematic state from a socio-technical perspective, the project then speculatively explores alternative futures for the cities. By designing mobility concepts in the proposed futures from the level of value constellation, systemic settings and human experince, tangibility was added to the future context. The whole project was presented through a website calling for expert evaluation. After that, results were analysed and insights generated which strategically connect the current state with preferable directions, by providing the redefinition of cityness as a new model for city making and Civic Futures as a design framework.

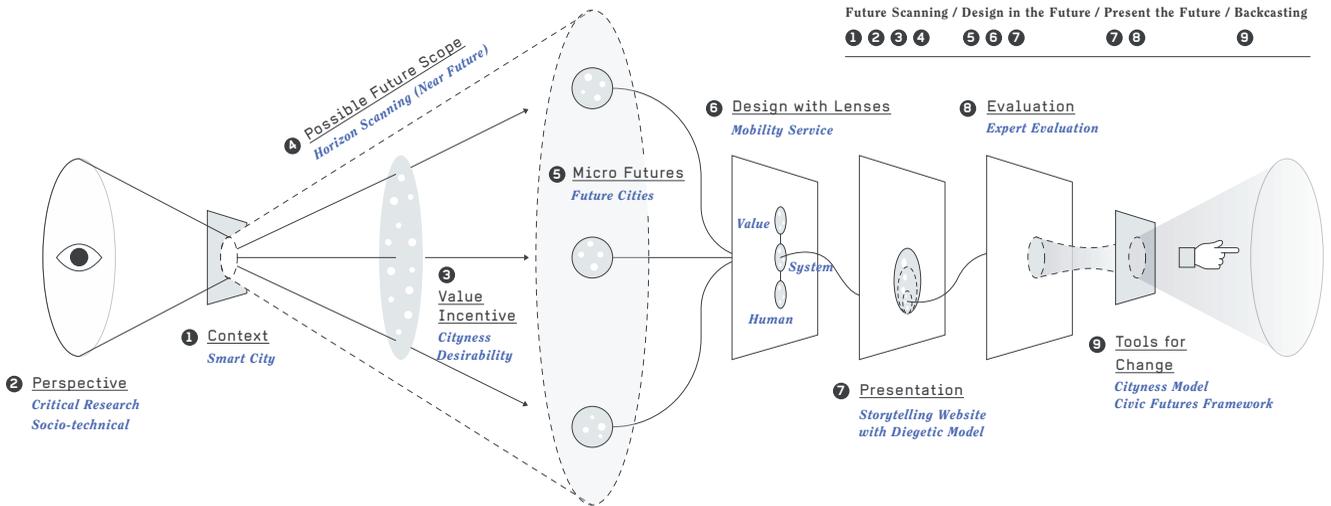
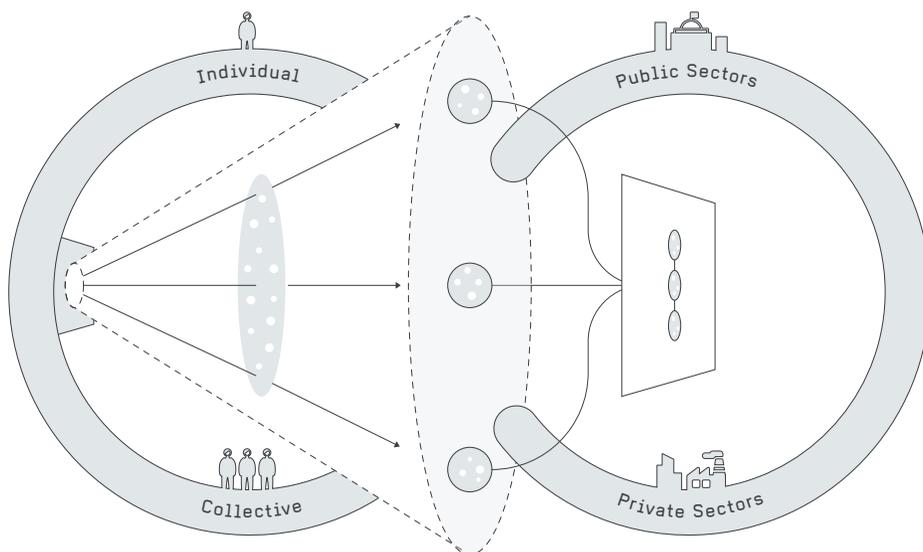


Figure 6.10: Applying Civic Futures to the project

Figure 6.11 shows how this project fits into the cityness model. The value incentives that the project defined was the desirability of cityness. While the concepts designed in the mobility lense illustrates the urban capabilities. And they together embodied the cityness of the future cityness.

Going beyond this project, Civic Futures is suitable for applying to the topics such as urban service design, policy prototyping, orgnizational change. More possibilities are expected to be explored further.



**Figure 6.11: Civic Futures in Cityness Model**



7

# Discussion

This Chapter shares conclusions, reflection and final thoughts on the project. Limitations of the project are discussed as well as the recommendations for further study.



# 7.1 Conclusions

Hinting Civic Futures is a design practice that explores the alternative futures for cities in the smart age, concerned with interrelatedness of social and technical aspects. It stimulates a re-envisioning of urban solutions beyond the concept of traditional smart city.

Briefly, it strived to explore how people want to dwell in what kind of city in the future. It can be broken down into two questions: “what will future cities look like?” and “how will citizens dwell in them” in order to find the connection between a city’s desirability and capability. Three future cities with micro focus were proposed to show new realities. Mobility was used as a perspective/lense to depict citizens’ life in these future cities. Concepts were created with experience prototyping to embody the futures. The whole project was then packed into a storytelling website and evaluated by experts in specific fields.

As a result, “cityness” with its redefinition and model was presented as a new perspective and manifesto towards modern citymaking, suggesting a reciprocal combination of dwelling desirability and urban capability. In addition, a design framework “Civic Futures” was provided summarizing from the project process. It aims at offering

designers and researchers an actionable future visioning approach to deal with ambiguous, fuzzy and uncertain topics.

# 7.2 Reflection , Limitations & Recommendations

## Reflection

The whole project is reflected regarding the process and other specific parts.

Since this project is a self-initiated one, it took quite a long time to clarify the topic. Too many buzz words and general terms were used at first which made it hard to define the design direction.

During the literature research, I was sometimes immersed in a pop-up topic which I found may be interesting and this may interrupt the main line.

During the meeting, I spent too much time presenting the results while left less space for my supervisor team to give feedback for improvement.

Last but not least, too often I found myself spending too many efforts on visualization and I was too much detail-oriented. This took the branch for the root.

For the concept presentation, too much attention was paid to the systemic feasibility while less on the experiencing part which made the concepts a bit complex to understand. This resonated with the missing link of system and individuals.

## Limitations

The project involved a lot of voice from the academic and institutional parts while but the representatives from companies were less involved. This may result in a knowledge gap on the business side.

The project conducted a future study by applying the horizon-scanning method. Usually horizon-scanning requires a small team to carry out for a long period of time in order to get enough and diverse collections. Due to the limited time and condition, the exploratory span was a bit narrow comparing with a professional one.

Paragraphs and diagrams were mainly used to present the design concepts which was found hard to fully showcase the diversity and create an experience.

## Recommendations

For applying projects like Hinting Civic Futures, it is recommended to recruit a team with multidisciplinary members (for research, synthesis and prototyping) and involve stakeholders from all related fields. It will be also nice to have two versions of project presentation with one professional and one for common understanding to connect the public.

## 7.3 Final Remarks

My personal goal for conducting this project is to explore the purview of being strategic. As I wrote in the project brief, “the essence of Strategic Product Design is to do the right thing, while this project aims at exploring the alternative definitions of being right. It dedicates to offer another path for strategic thinking as an activator to seek dynamic futures informed by various values, rather than just a booster towards one-size-fits-all business vision”. I am glad and still feeling excited to have this project conducted.

And this project provides a hint.

Strategy often relates to the future. After dealing with future quite some, I realize that another big thing needs a lot of small things: some of which are actually embedded in the everydayness of life composing our living experience and mindsets; while others remain invisible like incentives, organizational culture, value chains and other issues which actually shape our environments and create missing links when a “strategy” focusing on the visibles wants to make change. To be strategic yet to be realistic, we should focus on bridging these gaps between imagination and will, value and worth, system and individual, speculation and solution, considering both the bright and dark components. By doing so, we may have the chance to make this wicked transition, towards our civic futures :)



# References

- Albino, V., Berardi, U., & Dangelico, R. M. (2015). Smart cities: Definitions, dimensions, performance, and initiatives. *Journal of Urban Technology*, 22(1), 3-21.
- Boyer, B. (2017). Exploring Civic Futures: <https://medium.com/dashmarshall/exploring-civic-futures-55f5141a5477>
- Bradbury, A. S. C. (2006, June). Transport, mobility and social capital in developing countries. In *Proceedings of the Institution of Civil Engineers-Engineering Sustainability* (Vol. 159, No. 2, pp. 79-86). Thomas Telford Ltd.
- Caragliu, A., Del Bo, C., & Nijkamp, P. (2011). Smart cities in Europe. *Journal of Urban Technology*, 18(2), 65-82.
- Catapult Future Cities. (2017). Smart city strategies a global review 2017.
- Couldry, N., Stephansen, H., Fotopoulou, A., MacDonald, R., Clark, W., & Dickens, L. (2014). Digital citizenship? Narrative exchange and the changing terms of civic culture. *Citizenship Studies*, 18(6-7), 615-629.
- Cuhls, K., Erdmann, L., Warnke, P., Toivanen, H., Toivanen, M., van der Giessen, A. M., & Seiffert, L. (2015). Models of horizon scanning. How to integrate horizon scanning into European research and innovation policies.
- de Waal, M., & Dignum, M. (2017). The citizen in the smart city. How the smart city could transform citizenship. *it-Information Technology*, 59(6), 263-273.
- de Waal, Martijn, Michiel de Lange & Matthijs Bouw (2018). *The Hackable City Cahier #1*.
- Dourish, P., & Bell, G. (2011). *Divining a digital future: Mess and mythology in ubiquitous computing*. MIT Press.
- Dunne, A., & Raby, F. (2013). *Speculative everything: design, fiction, and social dreaming*. MIT press.
- Fernanda Marin. (2017). From 'smart cities' to 'smart citizens': when technology meets activism: <https://www.ouishare.net/article/from-smart-cities-to-smart-citizens-when-technology-meets-activism>
- Foth, M. (2017). Some thoughts on digital placemaking. In *Media Architecture Compendium: Digital Placemaking* (pp. 202-213). Avedition.
- Glasmeier, A., & Christopherson, S. (2015). Thinking about smart cities.
- Hill, D. (2012). Dark matter and trojan horses: A strategic design vocabulary. *Strelka*.
- Hollands, R. G. (2008). Will the real smart city please stand up? Intelligent, progressive or entrepreneurial?. *City*, 12(3), 303-320.
- Hong, W. T., Risch, M., Stoerzinger, K. A., Grimaud, A., Suntivich, J., & Shao-Horn, Y. (2015). Toward the rational design of non-precious transition metal oxides for oxygen electrocatalysis. *Energy & Environmental Science*, 8(5), 1404-1427.
- Hugen, L. (2018). *Things as Citizens: A study on the mingling of IoT with agency in everyday urban culture*. Master Thesis, TU Delft.
- Kihara, T. (2016). *Future Mapping: Speculative Design Toolkit for Everyone*. Essay, TU Delft.
- Lefebvre, H. (2003). *The urban revolution*. U of Minnesota Press.
- Lefebvre, H., Kofman, E., & Lebas, E. (1996). *Writings on cities* (Vol. 63, No. 2). Oxford: Blackwell.
- Lockton, D. (2016). *Transition Lenses: Perspectives on futures, models and agency*.
- Lyster, C. (2016). *Storage Flows:: Logistics as Urban Choreography*. *Harvard Design Magazine: architecture, landscape architecture, urban design and planning*, (43), 10.
- Manzini, E. (2013). Resilient systems and cosmopolitan localism—The emerging scenario of the small, local, open and connected space. *Economy of Sufficiency*. Wuppertal Special, 48.
- McFarlane, C. (2016, November). *Towards more Inclusive Smart Cities? Digital Fragments in the Slum*. In *Beware of smart people! Redefining the smart city paradigm towards inclusive urbanism: Proceedings of the 2015 "Beware of Smart People!" symposium* (p. 89). Universitätsverlag der TU Berlin.

- Mejia Sarmiento, J. R., Hultink, H. J., Pasman, G. J., & Stappers, P. J. (2016). Concept Cars as a design-led futures technique.
- Mommersteeg, B. (2014). Space, Territory, Occupy: Towards a Non-Phenomenological Dwelling.
- Moss Kanter, R., & Litow, S. S. (2009). Informed and interconnected: A manifesto for smarter cities.
- Nam, T., & Pardo, T. A. (2011, June). Conceptualizing smart city with dimensions of technology, people, and institutions. In Proceedings of the 12th annual international digital government research conference: digital government innovation in challenging times (pp. 282-291). ACM.
- Neuman, M., & Hull, A. (2009). The futures of the city region. *Regional Studies*, 43(6), 777-787.
- Pollastri, S., Dunn, N., Rogers, C. D., Boyko, C. T., Cooper, R., & Tyler, N. (2018). Envisioning Urban Futures as Conversations to Inform Design and Research. Proceedings of the Institution of Civil Engineers-Urban Design and Planning, 1-27.
- Ratti, C., & Claudel, M. (2016). The city of tomorrow: Sensors, networks, hackers, and the future of urban life. Yale University Press.
- Resnick, M., Berg, R., & Eisenberg, M. (2000). Beyond black boxes: Bringing transparency and aesthetics back to scientific investigation. *The Journal of the Learning Sciences*, 9(1), 7-30.
- Rosati, U., & Conti, S. (2016). What is a smart city project? An urban model or a corporate business plan?. *Procedia-Social and Behavioral Sciences*, 223, 968-973.
- Sassen, S. (2005). Cityness in the urban age. *Urban Age Bulletin*, 2, 1-3.
- Sassen, S. (2010). Cityness. Pensamentos errantes sobre construir e vivenciar o urbano. *Ex aequo*, (22), 13-18.
- Schuler, D. (2016). Smart Cities+ Smart Citizens= Civic Intelligence?. In *Human Smart Cities* (pp. 41-60). Springer, Cham.
- Sharon, C. (2015). The return of the city-state in 2050: <http://socialcities.org/blog/the-return-of-the-city-state-in-2050/>
- Söderström, O., Paasche, T., & Klauser, F. (2014). Smart cities as corporate storytelling. *City*, 18(3), 307-320.
- University of Kansas. (2013). What Is VMOSA? Retrieved from <http://ctb.ku.edu/en/table-of-contents/structure/strategic-planning/vmosa/main>
- Urry, J. (2007). *Mobilities*. Polity.
- Vanolo, A. (2016). Is there anybody out there? The place and role of citizens in tomorrow's smart cities. *Futures*, 82, 26-36.
- Vigar, G., Graham, S., & Healey, P. (2005). In search of the city in spatial strategies: past legacies, future imaginings. *Urban Studies*, 42(8), 1391-1410.
- Voss, G., Revell, T., & Pickard, J. (2015). *Speculative Design and the Future of an Ageing Population Report 2: Techniques*.
- Wilson, R., Cornwell, C., Flanagan, E., Nick Nielsen, N. & Khan, H. (2018). Good and bad help How purpose and confidence transform lives.

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# 1 Interview Guides

## Interviewee 1

*My project is to design new mobility services and systems that play out at an urban scale, are beneficial to the city & people, and are plausible in near future. For this, I wanna create a series of micro-futures of smart city and then design mobility services in them as a lens to depict and reflect the world within it.*

You think a lot about the design and use of civic media to empower and inspire democratic innovation and social transformation. What is exactly civic media based on your understanding? And how do you define the meaning of being 'civic'?

In a smart city context, someone believes that technology will change the world and society will follow, while others think new configurations of society, organizations, and government will drive progress and then technology will follow. What do you think of these two ways of city-making and how would you combine them (with civic media)?

For AI as an integral element of the smart city, how will the AI-powered smart things (mundane) influence the rhythms and routines of our lives, and furthermore change our cultures, beliefs, and preferences? How should we deal with it?

I'm also curious how you would describe the relationship between things and media.

*Speaking of the stakeholders in smart city, there are mainly three of them: government, business and citizens.*

Local governments are turning over entire tracts to leading technology brands, how could companies integrate a responsible mindset in their business strategy to help build a civic society and guarantee common good? Since big business will always demand the ability to extract some value in return.

How can we design civic system that could be beneficial to individuals while also enable collective benefits when scaling up, in other words, how can we design a more symbiotic relationship (mutual beneficial)? (like private car)

*For my research so far, I'm trying to seek the possible overlaps of Civic Qualities of Citizenship and Smart City Capabilities. Now I find four opportunities for cultivating civic citizenship: Meaningful Inefficiency, Freedom to City Remake, Mindful Belonging and Responsible Augmentation.*

From your perspective, how citizenship will shift in future smart city? What are the rights and obligations people hope to have in the future? Will there be a smart citizenship?

Relatively speaking, what kind of civic empowerment do you think a smart city should provide to its citizens?

In what way can we encourage citizens to take a more informed and active role in city-making in their everyday life? How to empower individual choices to add up to new civic possibilities?

What do you think is the future of democracy if each citizen is capable of contributing to making smarter decisions for the city?

## Interviewee 2

*My project is to design new mobility services and systems that play out at an urban scale, are beneficial to the city & people, and are plausible in near future. For this, I wanna create a series of micro-futures of smart city and then design mobility services in them as a lens to depict and reflect the world within it.*

You think a lot about the paradigm shifts in economic, political and social beliefs. What are the most important insights you have gained in your research so far, about how cities will shift towards a smart city? What are the possible futures from your point of view?

From your perspective, how citizenship will shift in future smart city? What are the rights and obligations people hope to have in the future?

In the future, how do people want to dwell in cities? (future perspectives)

Technology becomes a integral part of the smart city. How those high-end technologies will influence the rhythms and routines of our lives, and furthermore change our cultures, beliefs, and preferences?

What according to you are the drivers or weak signals to which design of smart cities should be paying attention? From a technological, as well as social and cultural perspective?

*Speaking of the stakeholders in smart city, there are mainly three of them: government, business and citizens. While I learned that you have rich experience of trend research in advertising and marketing.*

Since local governments are turning over entire tracts to leading technology brands, how could companies integrate a responsible mindset in their business strategy to help build a civic society and guarantee common good? Since big business will always demand the ability to extract some value in return.

What would be a preferable future from your perspective and why? What measures could we take to pursue it?

What do you think is the future of democracy if each citizen is empowered by technologies to get involved in the progress of city making?

How do you do futuristic studies? What is the value by doing so?

## Interviewee 3

My project is to design new mobility services and systems that play out at an urban scale, are beneficial to the city & people, and are plausible in near future. For this, I wanna create a series of micro-futures of smart city and then design mobility services in them as a lens to depict and reflect the world within it.

You think a lot in eliciting human values in the design process of meaningful interactive media and technology. There are academic voices asking 'If smart city is the answer what is the question?' I guess the potential of enhancing human values maybe one question. Based on your experience so far what kind of values are you trying to bring to light in the smart city context? And what kind of (new) values do you think may be important in the future?

Technology has become an integral part of the smart city. Among which the automatization and robotization are a big trend now. How do you think these kinds of technology which make people decentralize their agency to algorithmic things, may give rise to the emergence of new types of interactions or services in cities? And how do you think people's concerns about losing their authority to algorithms should be addressed?

Last November Google's daughter company Sidewalk Labs announced that it will develop Toronto's Eastern Waterfront into the city's newest neighborhood. What is your attitude towards this kind of urban development, in which a tech company can shape the urban environment to a large extent?

Speaking of the stakeholders in smart city, there are mainly three of them: government, business and citizens. While I learned that you also researched into making use of technology for meaningful brand experience.

First, what is the dimension of 'meaningful' according to your perspective?

Since technology brands such as Google and Amazon, and platform brands like Uber and Airbnb are taking more power and resources in the city. How could companies integrate a responsible mindset in their business strategy to help build a civic society by providing what you mean meaningful experience? What would change in the future the ways of advertising and consuming?

Besides the bottom-up participatory approach and top-down authoritative control, do you think there are other ways for city making? What do you think is the future of democracy if each citizen is empowered by technologies to get involved in the progress of city making?

## Interviewee 4

My project is to design new mobility services and systems that play out at an urban scale, are beneficial to the city & people, and are plausible in near future. For this, I wanna create a series of micro-futures of smart city and then design mobility services in them as a lens to depict and reflect the world within it. For this interview, topics will be around smart city through different lens (living, business, policy etc.)

### **City Dwelling**

For Waag Society, you said it has a meaning of ‘scales for society’. Speaking of a society in the smart city context, what do you think are the important scales for social appraisal?

There’s quote saying citizens should not only live in the city but also for the city. In what way can we encourage citizens to take a more informed and active role in city-making through their everyday life? What paradigm shift do we need for people to take more responsibility?

What will be the new ecological systems then?

### **City Making**

In the Urgentcity interview, you chose ‘commons’ as the vocabulary for the urban assets. How do you consider the value and role of commons in smart city development? What’s crucial with it?

When designing service systems at urban scale, there’s always a missing link between the system and individuals. To tackle this problem, how can we design systems that could be beneficial to individuals (decrease exclusion) while also enable collective benefits when scaling up (symbiotic relationship) as for public and society?

Do you have any example?

Someone believes that technology will change the world and society will follow, while others think new configurations of society, organizations, and the government will drive progress and then technology will follow. What do you think of these two ways of city-making? Do you see any new way aside from them?

### **City Brands**

Local governments are turning over entire tracts to leading technology brands, brands are also expanding while getting more resources around the city, can they be socially just city makers?

How could companies integrate a responsible mindset in their business strategy to help build a civic society and guarantee common good?

# 2 Emerging Issues & Trends from Horizon-Scanning

## Emerging Issues

Emerging Technology	Domain	Resource
Peer to peer technology	Create	Waag Society
Things as citizens	Define	PACT
Network of smart infrastructure	Create	Dash Marshall
Robots will have personalities (Hardware Gets Even Warmer)	Create	Frog
Social groups in Virtual Reality	Relate	Facebook
Collection of low-fidelity data	Create	Frog
Nano-technology	Create	Pop-Up City
5G Networking	Connect	Ericsson
use large-scale industrial 3D printing to build inexpensive and environmentally friendly houses	Create	Space 10
Open source for city making	Create	Space 10
Biodegradable objects	Create	Space 10
In-Body sensor	Connect	SENSORY-MINDS GMBH
Proprietary, Homegrown AI Languages	Create	2018 Emerging Tech Trends Report, Amy Webb
A Bigger Role For Ambient Interfaces	Connect	2018 Emerging Tech Trends Report, Amy Webb
Deep Linking Everywhere	Connect	2018 Emerging Tech Trends Report, Amy Webb
Making AI Explain Itself	Define	2018 Emerging Tech Trends Report, Amy Webb
Religious AI	Define	Simone Rebaudengo
Natural Language Understanding	Create	2018 Emerging Tech Trends Report, Amy Webb
Machine Reading Comprehension	Create	2018 Emerging Tech Trends Report, Amy Webb
Voiceprint	Connect	2018 Emerging Tech Trends Report, Amy Webb
None-visual user interface replace visual ones	Connect	2018 Emerging Tech Trends Report, Amy Webb
Smart Dust	Create	2018 Emerging Tech Trends Report, Amy Webb
Predictive Machine Vision	Create	2018 Emerging Tech Trends Report, Amy Webb
Personality Recognition and Analytics	Connect	2018 Tech Trends For Journalism and Media, Future Today Institute
Software as a Service	Create	2018 Tech Trends For Journalism and Media, Future Today Institute
Drone Surveillance	Create	2018 Emerging Tech Trends Report, Amy Webb

Biometric Data	Define	2018 Emerging Tech Trends Report, Amy Webb
Self-Assembling Robots	Create	2018 Emerging Tech Trends Report, Amy Webb
Collaborative Robotics	Connect	2018 Emerging Tech Trends Report, Amy Webb
Brain-To-Vehicle Interfaces	Connect	2018 Emerging Tech Trends Report, Amy Webb
Robot Vision	Create	2018 Emerging Tech Trends Report, Amy Webb
Real-Time Language Translation	Connect	2018 Emerging Tech Trends Report, Amy Webb
Responsive Infrastructure	Connect	103 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
<b>Potential Policy Issues</b>	<b>Domain</b>	<b>Resource</b>
Integrated branded platforms will define the very fabric of city experience	Consume	The Future Laboratory
Companies integrate a responsible mind-set in their business strategy	Create	Raft/Waag/Interview/The Future Laboratory
City residents will increasingly be asked their opinion of civic matters	Relate	The Future Laboratory
Access become a basic human right	Define	The City of Tomorrow
Environmental tax to combat pollution for citizens	Define	Future Center
Government helps to reconnect people to the natural world with policy and measures	Relate	Civil Society Futures
City as a brand	Define	Droog
Tech Companies replace Banks	Create	Michael K. Spencer
Tech companies take over government	Relate	npr
Platform Capitalism	Consume	Nick Srnicek
Repairability is becoming a matter of public policy	Create	Space 10
Natural Language Generation for Reading Levels	Create	2018 Tech Trends For Journalism and Media, Future Today Institute
Digital anonymity	Connect	2018 Emerging Tech Trends Report, Amy Webb
Universal Basic Income (UBI)	Define	2018 Emerging Tech Trends Report, Amy Webb
Anti-Trust Lawsuits	Define	2018 Emerging Tech Trends Report, Amy Webb
Cautious Capitalism	Define	The Business World in 2025 Four scenarios to stress test your strategy
Regionalized and protected economies	Define	The Business World in 2025 Four scenarios to stress test your strategy
Commons-driven government	Relate	Smart Cities as Democratic Ecologies, Daniel Araya
Nation-as-brand Phenomenon	Relate	Droog
Policy Simulation	Define	Interview with Roy Bendor
People vote for companies	Relate	Interview with Roy Bendor
<b>New Ideas / Concepts</b>	<b>Domain</b>	<b>Resource</b>
People want to live with a diverse group of people	Relate	Space10
Coliving has begun to transform our notions of ownership and habitat	Relate	Christelle Gautreau

Civic Commons become the animating spirit for public spaces and public goods across the city	Define	Dash Marshall
The emerge of No Fixed Address System for Urban Nomads	Connect	NO FIXED ABODE
Inhabitants of urban housing become important and active co-designers of their own environment	Create	MINI LIVING, Salone del Mobile 2018
The Subscription Neighbourhood	Relate	Space 10
New currency within ecosystem / community	Connect	Observation
Humans will lose their authority to algorithms	Destroy	Pop-Up City
Parking could be slashed significantly	Connect	Carlo Ratti
Aggravating urban sprawl generated by autonomous cars	Define	Carlo Ratti
Subscription of relationships	Relate	New Yorker
Local Urban Culture Goes Global	Define	Pop-Up City
DIY Currencies For DIY Communities	Relate	Pop-Up City
Gentrification Through the Sharing Economy	Consume	Wachsmuth, David, and Alexander Weisler
Responsive Crosswalk	Connect	Umbrellium
AI makes the best decision for people	Define	Discussion
Predictive Policing	Create	Beware of Smart People!
Consumption as work	Consume	Ericsson
People don't only get credits for active productive efforts but also for desirable "consumer" behavior	Consume	Ericsson
Government giving credits to citizens for shaping behaviors	Relate	Ericsson
The disappearing of the smartphone in an age of talking things and smart devices	Define	Amy Webb
Human body as interface	Connect	Amy Webb
Upgrade of human skills	Define	Designing Agentive Technology
Decreasing Expertise	Define	Designing Agentive Technology
Repetitive work being taken over by ai	Relate	Observation
Co-performance of people and things	Connect	Elisa Giaccardi et al. (2018)
Meaningful Inefficiency	Define	Eric Gordon
On the grid 24/7	Connect	The rise of Generation C: Implications for the world of 2020
As "off-grid" time becomes more rare, it will become increasingly valued	Relate	The rise of Generation C: Implications for the world of 2020
The opportunity to meet face-to-face will be accorded primarily to top management	Relate	The rise of Generation C: Implications for the world of 2020
Business travel will have declined in the face of costs and alternative meeting technologies	Relate	The rise of Generation C: Implications for the world of 2020
Social networks, which will prioritize accounts and posts that come from credible sources	Connect	2018 Emerging Tech Trends Report, Amy Webb
Ethical Manufacturing	Create	2018 Emerging Tech Trends Report, Amy Webb

Everything you see (and even the things you can't) will become searchable via a distributed network	Connect	2018 Emerging Tech Trends Report, Amy Webb
Future inhabitants of urban housing will be co-designers of their own environment	Create	MINI LIVING, Salone del Mobile 2018
Peer-to-peer organization is the new system	Relate	Ericsson
Problem-solving entrepreneurship	Relate	Ericsson
People are become increasingly aware that consumption is a political tool at their disposal and that they can affect their own society and standard of living depending on how they choose to consume	Consume	Ericsson
Express political views through consumption	Consume	Ericsson
Companies take back control of their data and turn to privacy-friendly companies	Relate	The Business World in 2025 Four scenarios to stress test your strategy
Active citizenry over passive consumerism	Define	Foth, M., & Brynskov, M. (2016). Participatory action research for civic engagement.
Human actors over human factors	Define	Foth, M., & Brynskov, M. (2016). Participatory action research for civic engagement.
Culture over infrastructure	Define	Foth, M., & Brynskov, M. (2016). Participatory action research for civic engagement.
Prosperity over efficiency	Define	Foth, M., & Brynskov, M. (2016). Participatory action research for civic engagement.
Collective Cityn Manifesto	Define	102 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Transportation Psychology	Relate	103 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab

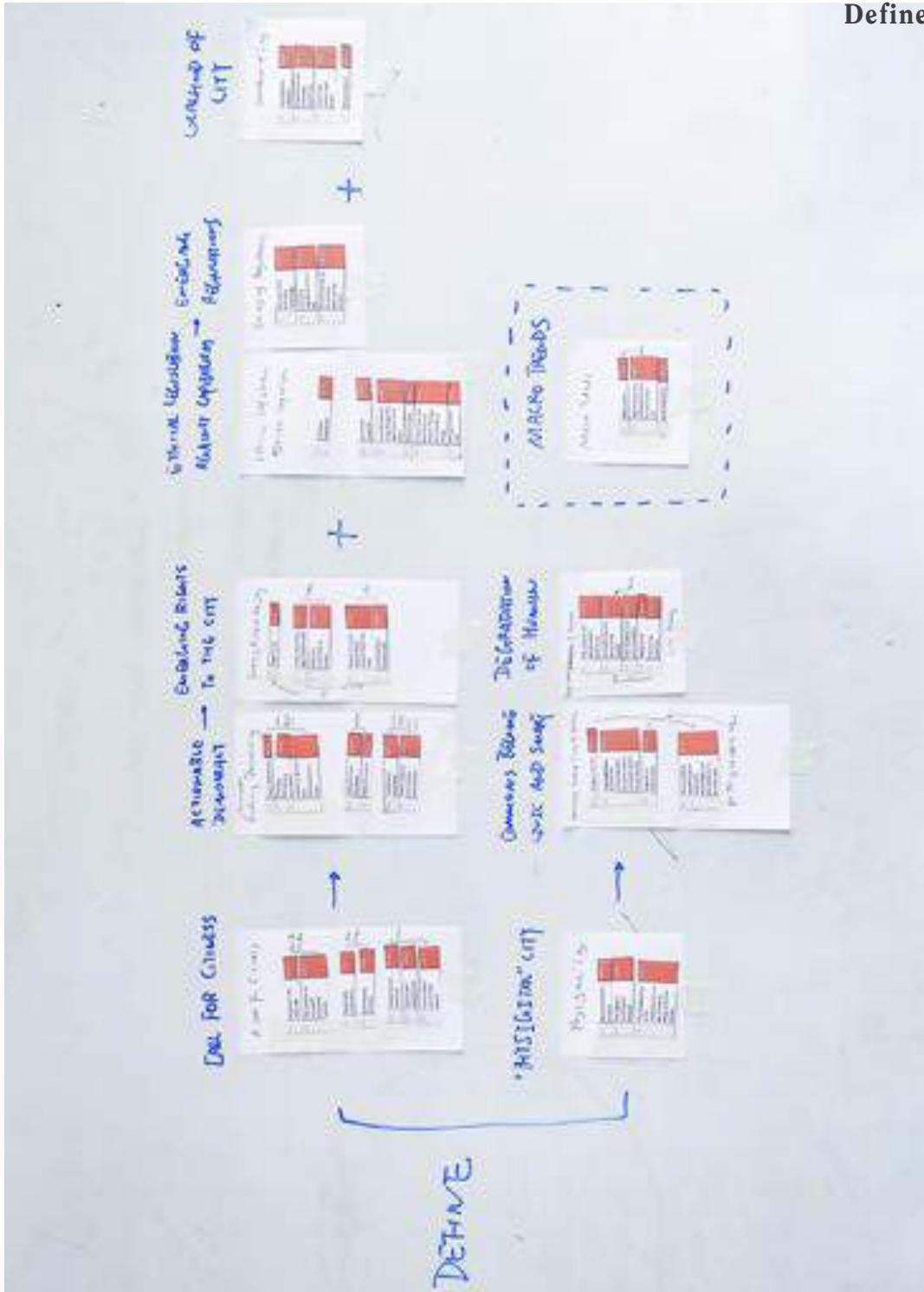
## Trends

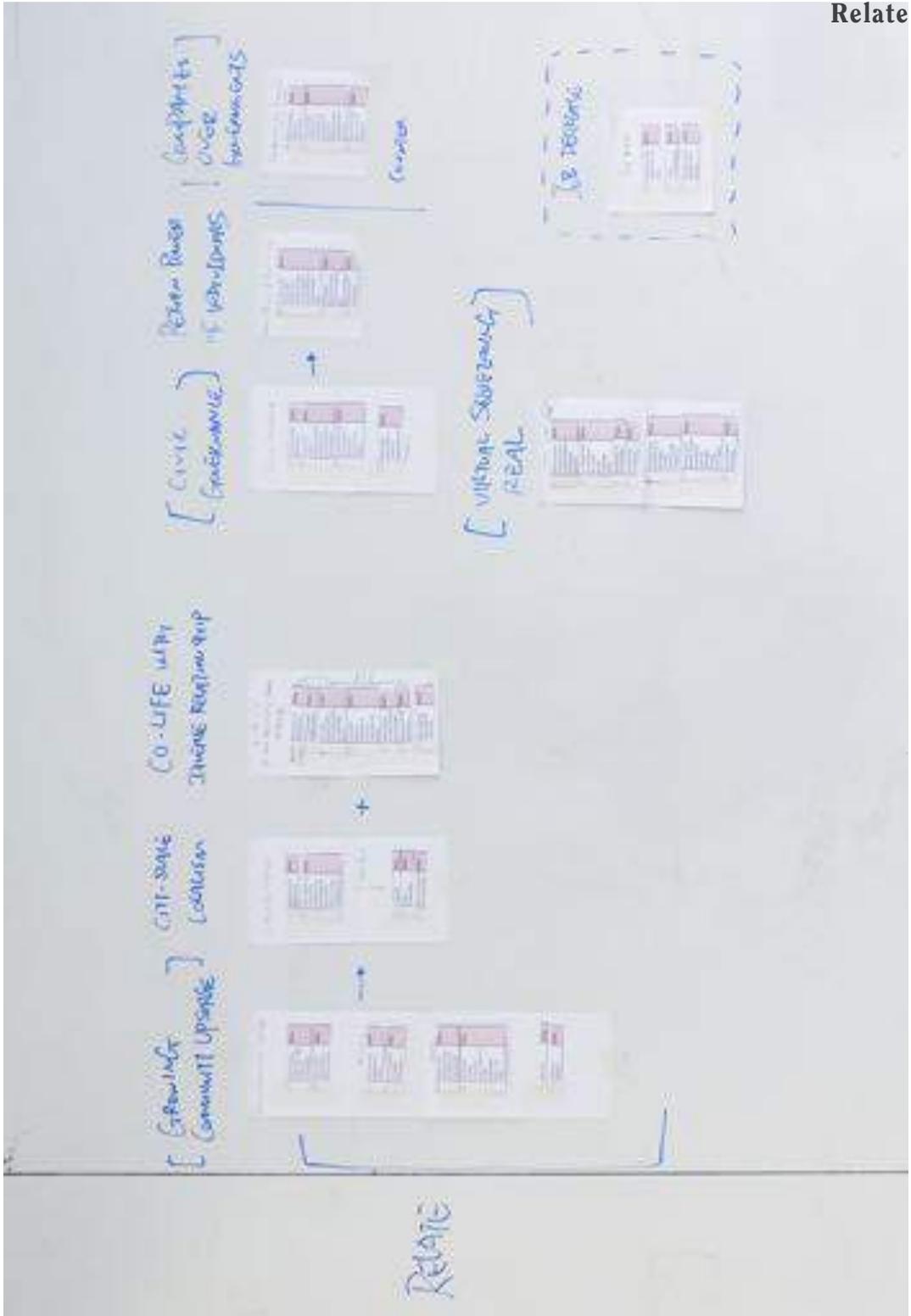
People are being lonely and more socially isolated as urbanization increases	Relate	1	Space 10
People spend much more time on social media	Connect	2	Space 10
The border between public and private space is increasingly blurred	Relate	3	Space 10
States are increasingly competing on their ability to build the most technologically advanced urban environments	Create	4	The Future Laboratory
Local governments are turning over entire tracts to leading technology brands	Create	5	The Future Laboratory
Loss of civic space	Destroy	6	Futures Centre
Score/credits as new currency	Consume	7	Observation
The analytics is moving offline into the physical world	Create	8	Raft Trend Report 2018
The internet will decide what's best for us	Define	9	Raft Trend Report 2018
The digital is crushing the physical	Define	10	Raft Trend Report 2018
Maker movement and grassroots innovations	Create	11	Observation
Topics Democracy	Define	12	Interview
Increased need for social care	Relate	13	Futures Centre
Aging population	Define	14	Futures Centre
More migrants (internally and externally)	Relate	15	Futures Centre
Youth unemployment	Relate	16	Futures Centre
Rising inequality and insecurity	Destroy	17	Futures Centre
Fraying contract between work and pay	Relate	18	Futures Centre
Increased regulation of civic life	Define	19	Futures Centre
Automation of transport (and more)	Connect	20	Civil Society Futures
Rise of community business	Consume	21	Civil Society Futures
Experiences and access to items are more desirable than ownership	Consume	22	Civil Society Futures
Rise of walkable or cyclable communities	Relate	23	Civil Society Futures
Walled garden approach by companies	Connect	24	Dash Marshall
Smart devices are the interface of companies instead of people	Destroy	25	Raft Podcast Let's Fix Things
Citizen experiments in urban space	Create	26	Futures Centre
Ecosystems of Value   Robust subscription services that will be bundled together	Consume	27	Michael K. Spencer
A dramatic rise of nomads	Create	28	NO FIXED ABODE
Receive a human stipend (basic income) from the state	Define	29	Michael K. Spencer
Companies build micro-cities for employees	Relate	30	Interview
Inclusivity goes mainstream	Create	31	Frog
Your voice as an identity and audio as an interface	Connect	32	Observation
Brand urbanism	Consume	33	Golfstromen
Health services are using a 'gamified' approach to patients monitoring their own personal health	Consume	34	Urban Transformations
Localhood	Relate	35	Pop-Up City
Pop-Up activities in cities	Create	36	Pop-Up City
Shift from ownership to access	Define	37	Pop-Up City
New forms of exclusivity emerge in cities across the world as a form of urban lifestyle and a city-making	Relate	38	Pop-Up City
Local Urban Culture Goes Global	Define	39	Pop-Up City
Companies offer customisable manufacturing as a service	Consume	40	Space 10
Platfomised services	Connect	41	Cozy/Flat
Filter bubbles and echo chambers	Define	42	Cozy/Flat
Premium mediocre	Consume	43	Ribbonfarm
Tailored advertising	Consume	44	Observation
Urbanisation	Define	45	Mega Trend

The individual as a co-creator	Consume	46	Ericsson
The individual as an enabler	Consume	47	Ericsson
The individual as an ennobler	Consume	48	Ericsson
The individual as a producer	Consume	49	Ericsson
From accumulative consumption to smart consumption	Consume	50	Ericsson
From authority influenced to peer influenced consumption	Relate	51	Ericsson
Mass customisation	Consume	52	Space 10
Individuals become versatile actors in everyday life	Relate	53	Ericsson
Automation of consumption	Consume	54	Ericsson
The shift from products to services	Create	55	Ericsson
Local cooperatives	Relate	56	Ericsson
Consumption is being organized by grassroots movements	Consume	57	Ericsson
Networks are evolving to meet the demands of new use cases	Relate	58	Ericsson
Social business	Create	59	Ericsson
Repair Movement	Consume	60	Space 10
People increasingly tend to reward the purveyors of ethically, socially and environmentally sound brands with loyalty	Consume	61	Space 10
Internet-of-Services	Consume	62	SENSORY-MINDS GMBH
Predictive Purchase	Consume	63	SENSORY-MINDS GMBH
The community building as city maker	Relate	64	Ten Types of Emerging City Makers
The community garden / playground as city maker	Connect	65	Ten Types of Emerging City Makers
The community platform / group as city maker	Connect	66	Ten Types of Emerging City Makers
The supporting platform / institute (often on a specific topic) as city maker	Connect	67	Ten Types of Emerging City Makers
The network initiative, connection makers (often in a specific geographical area) as city maker	Relate	68	Ten Types of Emerging City Makers
The building with room for events, experiments, artist hosting etc. as city maker	Create	69	Ten Types of Emerging City Makers
The maker space / lab building as city maker	Create	70	Ten Types of Emerging City Makers
The collective entrepreneurs / event building as city maker	Create	71	Ten Types of Emerging City Makers
The bright idea / innovation as city maker	Create	72	Ten Types of Emerging City Makers
The alternative system (monetary, energy, water, food, etc.) as city maker	Connect	73	Ten Types of Emerging City Makers
Blend of physical & digital	Define	74	Fjord
Surveillance technology	Connect	75	Futurism
The ethics economy is booming	Create	76	Fjord 2018 Trends
Digital Assistants Become Ubiquitous	Connect	77	2018 Emerging Tech Trends Report / Amy Webb
Drones include powerful sense and avoid technology, and the ability to fly on their own	Define	78	2018 Tech Trends For Journalism and Media, Future Today Institute
Faceprints as identity	Connect	79	2018 Emerging Tech Trends Report, Amy Webb
Law Enforcement Using Recognition Algorithms To ID Faces	Define	80	2018 Emerging Tech Trends Report, Amy Webb
Vehicle-to-Vehicle (V2V) Communications	Connect	81	2018 Emerging Tech Trends Report, Amy Webb
Crowdlearning becomes an incentive-based learning platform for crowd	Connect	82	Nilesh Padhariya, Kshama Raichura (2014)
Privacy Laws, Net Neutrality and Hackers Threaten the Internet of Things	Define	83	2018 Emerging Tech Trends Report, Amy Webb
Old Laws Clash With New Technology	Define	84	2018 Emerging Tech Trends Report, Amy Webb
Governments Asking Tech Companies To Help Fight the Spread of Misinformation, Propaganda and Terrorism	Relate	85	2018 Emerging Tech Trends Report, Amy Webb
Internet of Physical Things	Create	86	2018 Emerging Tech Trends Report, Amy Webb
A loss of identity	Destroy	87	MINI LIVING, Salone del Mobile 2018
Avoiding big brands	Consume	88	Ericsson
It is becoming increasingly evident that societal energy is a force for good to be mobilised in a wide range of ways	Relate	89	Smart Cities as Democratic Ecologies, Daniel Araya
Open Networks	Connect	90	Waag Society
Open Hardware	Create	91	Waag Society
Cosmopolitan Localism	Define	92	Ezio Manzini
Diffuse Design	Create	93	Ezio Manzini

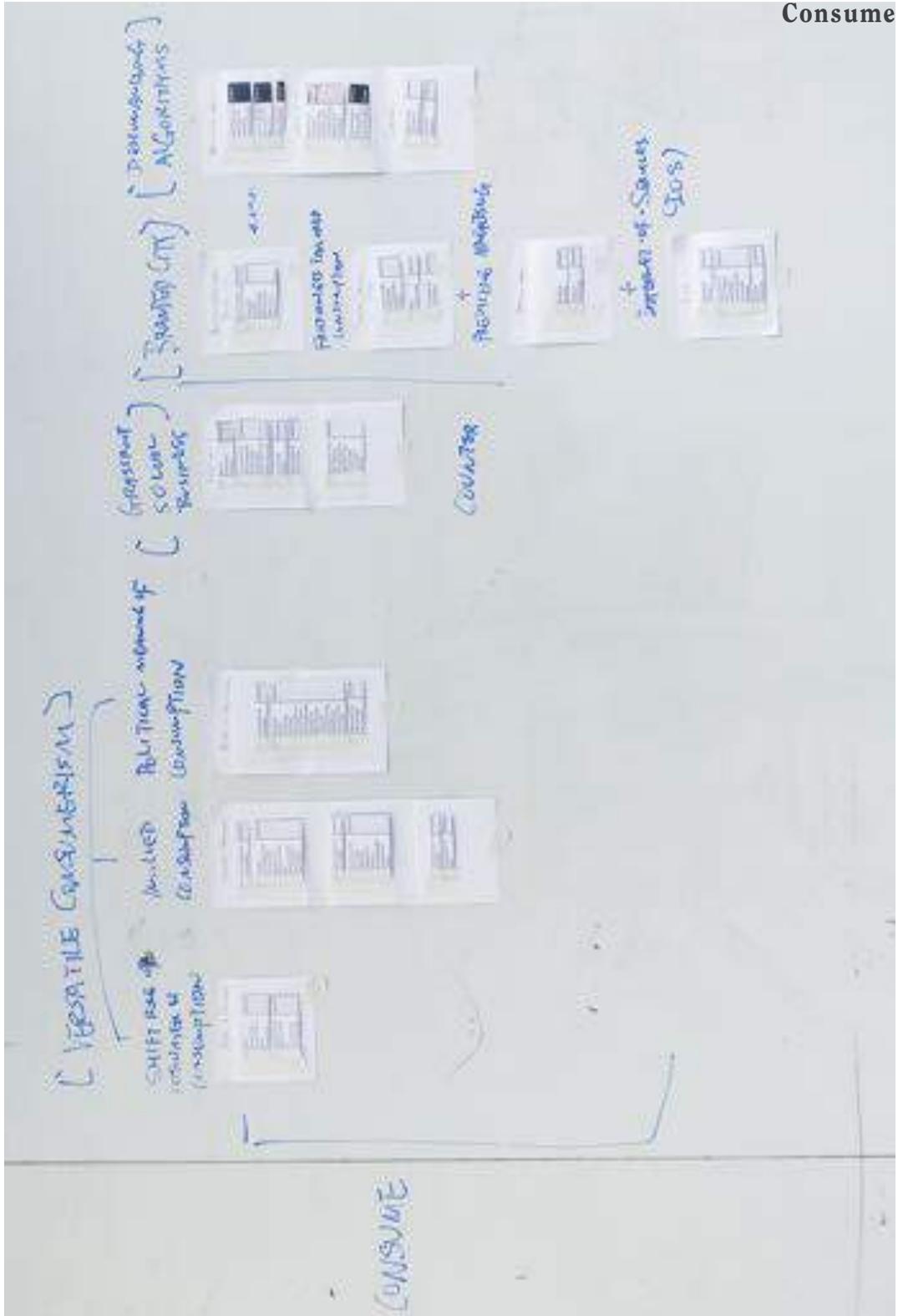
Bike Politics, debate on greater bike infrastructure in cities	Define	94	100 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Altruism	Relate	95	101 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Cityyness in the urban age	Define	96	102 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
The need for an increased emotional cityyness	Define	97	103 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Chameleonic Citizenship	Define	98	104 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Container Architecture	Create	99	105 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Collective Memory	Relate	100	106 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Confronting Comfort	Define	101	107 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Intergenerational Interaction	Relate	102	108 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Everyday Democracy	Define	103	109 Urban Trends: A Glossary of Ideas from the BMW Guggenheim Lab
Right to xxx	Define	104	Observation
Cities, regions and countries are creating strong brand images for themselves in order to compete on a global scale	Relate	105	Droog

# 3 Clusters of Future Synthesis

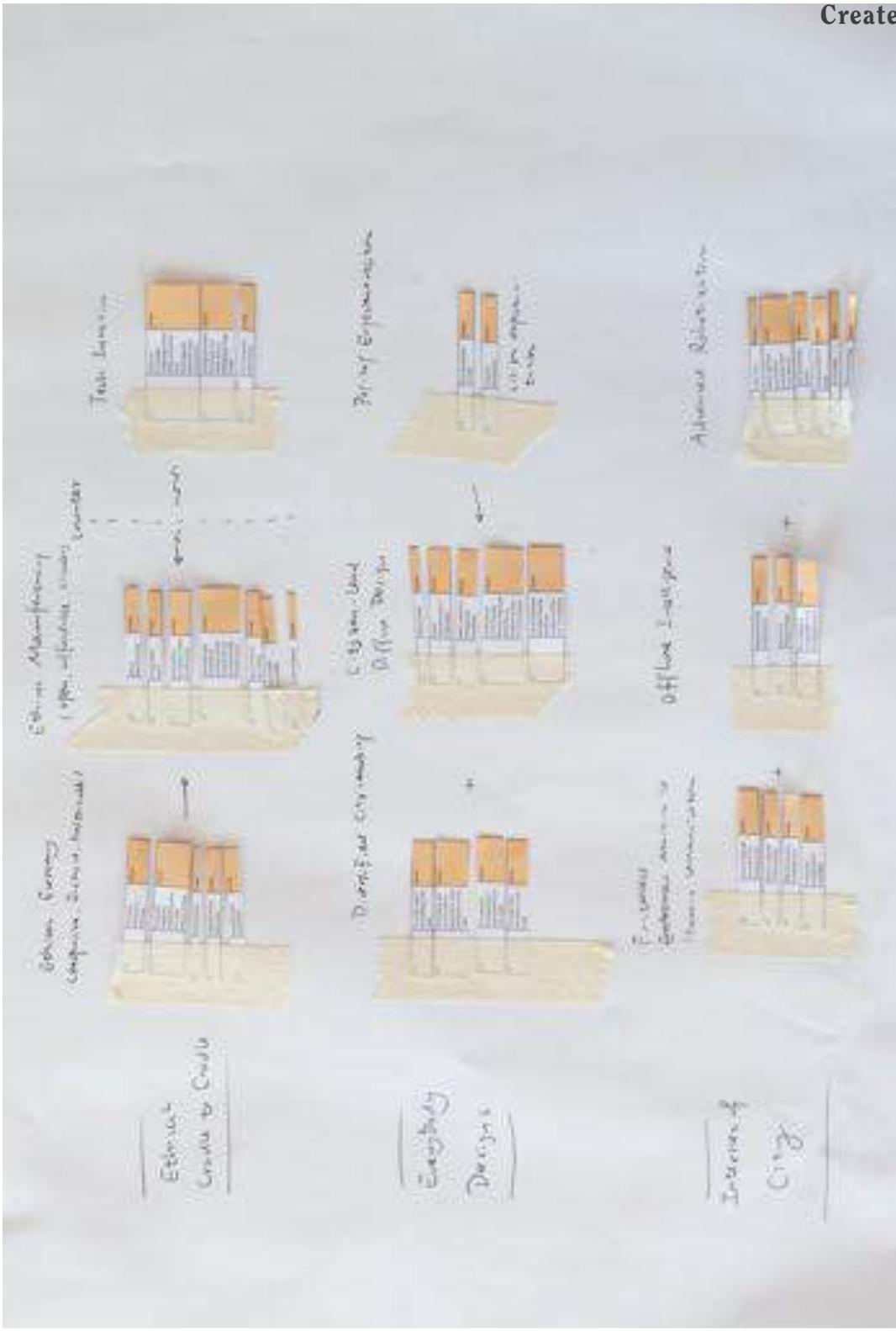








Create



# 4 Future Hinting Workshop Toolkit

## 4.1 Manifesto

### Workshop Manifesto #1

*This is a manifesto which will guide the workshop. It is made based on three future smart city contexts from Sen's project. It is a starting point that describes one possible future. To help accelerate the workshop we will take these as givens and assume that they are true. It's your job to show how they come to life in the everyday experiences of mobility services.*

#### **Amsterdam 2030 is Bilateral Urbrandism**

##### **A city that forms a cautious collaboration with brands**

The city no longer depends on a few large tech corporations for its livelihood. Citizens vote for companies to settle in and residents of a district can select branded applications. As consumers, people engage more in the creation part thanks to the maturing ICT technologies. Creative communities emerge and create social businesses. While the government is now in the people business, supporting citizens to negotiate the rules and criteria with corporations and fostering social entrepreneurship. It also makes sure to cautiously work together with big brands on meaningful urban projects. Under this pressure, profit-driven brands start to embrace more socially responsible business models.

### Design Guide

#### **City**

- How can brands realize the true potential of our urban infrastructure without destroying civil liberties?
- Instead of brands conquering cities, how can we leverage their resources for social benefits?
- Can corporations adopt low-fidelity branding?
- What if brands can collaborate with social businesses and become their teachers?
- How data and technology could contribute to the freedom of citizens?

#### **Mobility**

- What if people can decide and produce their own mobility?
- Different mobility services for different neighborhoods instead of a one-fits-all model?
- A grassroots / decentralized Uber?
- How can different brands help improve urban mobility? (Sports brands encourage walking)
- How will the human motivations behind mobility be different in this future?
- How will artificial intelligence impact on human mobility?

## Workshop Manifesto #2

*This is a manifesto which will guide the workshop. It is made based on three future smart city contexts from Sen's project. It is a starting point that describes one possible future. To help accelerate the workshop we will take these as givens and assume that they are true. It's your job to show how they come to life in the everyday experiences of mobility services.*

### Amsterdam 2030 is Versity

#### **A city that can be explained only by telling a story**

The city is a mixture of the poetic and the practical. Citizens are encouraged to get rid of their fixed and calm lives, but to dwell as poets who are inefficient and yet productive, delightful and engaging. Everyday life becomes 'adventures', urban spaces are built with smart infrastructures for creating new action of citizens and form a sense of community inadvertently. Information is inclusively generated by the play and exploration instead of forcing and nudging with governing or commercial intent.

### **Design Guide**

#### **City**

- How to make society slow down instead of speeding up?
- How can we create meaningful inefficiency rather than meaningless efficiency?
- What if active citizenry over passive consumerism, human actors over human factors, culture over infrastructure and prosperity over efficiency?
- What if play becomes a norm in everyday life?

#### **Mobility**

- How will the human motivations behind mobility be different in this future?
- What is a wasted journey? An ideal journey?
- What is the value of the journey other than seamless efficiency?
- Mobility as a way to explore the city?
- What else are we doing while we travel?
- How can we change commuting habits by mixing digital and physical experiences?
- How will artificial intelligence impact on human mobility?

## Workshop Manifesto #3

*This is a manifesto which will guide the workshop. It is made based on three future smart city contexts from Sen's project. It is a starting point that describes one possible future. To help accelerate the workshop we will take these as givens and assume that they are true. It's your job to show how they come to life in the everyday experiences of mobility services.*

### **Amsterdam 2030 is Un(lock)-commons**

#### **A city that braids its resourcefulness into a holistic human experiences**

The city is horizontally organized as a communal resource where social communities are empowered to cooperate together for managing shared wealth sustainably. Everything is hackable and reconfigurable in some sense. And with peer to peer systems and informal networks, citizens take the roles as active producers of and contributors to the city. A spirit of generosity and reciprocity is encouraged. Institutions (park, library...) are no longer singular entities but city platforms for social practice. Space eventually becomes a form of networked relationships.

### **Design Guide**

#### **City**

- From everyone – for everyone? Moving from creating physical capital to social capital
- How can citizens leverage networks of Commons?
- How to transform our shared civic assets to foster meaningful urban experience?
- How to make connections with communities and enhance social practice?

#### **Mobility**

- What if mobility becomes a common?
- What if we can decompose mobility facilities? (Vehicle, bus, station...)
- How about resourceful mobility offering different values for various groups?
- Think of the network patterns behind mobility, what can we learn and benefit from that relationships?
- How can mobility improve social connections?
- How will the human motivations behind mobility be different in this future?
- How will artificial intelligence impact on human mobility?

## 4.2 Ideation Cards

<p>MOBILITY FORM</p> <p><b>Migration</b></p> <p><small>Hinting Civic Futures</small></p>	<p>MOBILITY FORM</p> <p><b>Commuting</b></p> <p><small>Hinting Civic Futures</small></p>
<p>MOBILITY FORM</p> <p><b>Business Travel</b></p> <p><small>Hinting Civic Futures</small></p>	<p>MOBILITY FORM</p> <p><b>Medical Travel</b></p> <p><small>Hinting Civic Futures</small></p>
<p>MOBILITY FORM</p> <p><b>Tourist Travel</b></p> <p><small>Hinting Civic Futures</small></p>	<p>MOBILITY FORM</p> <p><b>Wandering</b></p> <p><small>Hinting Civic Futures</small></p>
<p>MOBILITY FORM</p> <p><b>Nomadism</b></p> <p><small>Hinting Civic Futures</small></p>	<p>MOBILITY FORM</p> <p><b>Delivery</b></p> <p><small>Hinting Civic Futures</small></p>

<p>MOBILITY FORM</p> <p><b>Leisure Travel</b></p> <p><small>Hinting Civic Futures</small></p>	<p>MOBILITY FORM</p> <p><b>Mobility System</b></p> <p><small>Hinting Civic Futures</small></p>
<p>MOBILITY FORM</p> <p><b>Monitoring Mobility</b></p> <p><small>Hinting Civic Futures</small></p>	

<p>SOCIAL PRACTICE</p> <p><b>Conversation</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Encounter</b></p> <p><small>Hinting Civic Futures</small></p>
<p>SOCIAL PRACTICE</p> <p><b>Working</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Networking</b></p> <p><small>Hinting Civic Futures</small></p>
<p>SOCIAL PRACTICE</p> <p><b>Observing</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Sharing</b></p> <p><small>Hinting Civic Futures</small></p>
<p>SOCIAL PRACTICE</p> <p><b>Thinking</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Building</b></p> <p><small>Hinting Civic Futures</small></p>

<p>SOCIAL PRACTICE</p> <p><b>Personalization</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Ritual</b></p> <p><small>Hinting Civic Futures</small></p>
<p>SOCIAL PRACTICE</p> <p><b>Modifying</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Identifying</b></p> <p><small>Hinting Civic Futures</small></p>
<p>SOCIAL PRACTICE</p> <p><b>Consuming</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Playing</b></p> <p><small>Hinting Civic Futures</small></p>
<p>SOCIAL PRACTICE</p> <p><b>Recording</b></p> <p><small>Hinting Civic Futures</small></p>	<p>SOCIAL PRACTICE</p> <p><b>Hacking</b></p> <p><small>Hinting Civic Futures</small></p>

<p><u>INFORMATION</u></p> <p><b>Traffic Data</b></p> <p><small>Hinting Civic Futures</small></p>	<p><u>INFORMATION</u></p> <p><b>People Flows Data</b></p> <p><small>Hinting Civic Futures</small></p>
<p><u>INFORMATION</u></p> <p><b>Public Transport Data</b></p> <p><small>Hinting Civic Futures</small></p>	<p><u>INFORMATION</u></p> <p><b>Air Quality Data</b></p> <p><small>Hinting Civic Futures</small></p>
<p><u>INFORMATION</u></p> <p><b>Weather Data</b></p> <p><small>Hinting Civic Futures</small></p>	<p><u>INFORMATION</u></p> <p><b>User Data (Identity, History)</b></p> <p><small>Hinting Civic Futures</small></p>
<p><u>INFORMATION</u></p> <p><b>Surrounding Data</b></p> <p><small>Hinting Civic Futures</small></p>	<p><u>INFORMATION</u></p> <p><b>Location Data</b></p> <p><small>Hinting Civic Futures</small></p>

<p><u>INFORMATION</u></p> <p><b>Route Data</b></p> <p><small>Hinting Civic Futures</small></p>	<p><u>INFORMATION</u></p> <p><b>Energy Data</b></p> <p><small>Hinting Civic Futures</small></p>
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<p><u>TECHNOLOGY</u></p> <p><b>Deep Linking</b> everything becomes searchable</p> <p><small>Hinting Civic Futures</small></p>	<p><u>TECHNOLOGY</u></p> <p><b>Collaborative Robotics</b> co-perform with non-human agents</p> <p><small>Hinting Civic Futures</small></p>
<p><u>TECHNOLOGY</u></p> <p><b>Ambient Interface</b> any place can become an interface</p> <p><small>Hinting Civic Futures</small></p>	<p><u>TECHNOLOGY</u></p> <p><b>Being Agentive</b> things can make decisions on behalf of you</p> <p><small>Hinting Civic Futures</small></p>
<p><u>TECHNOLOGY</u></p> <p><b>Voiceprint</b> voice becomes identity and interface</p> <p><small>Hinting Civic Futures</small></p>	<p><u>TECHNOLOGY</u></p> <p><b>Responsive Infrastructure</b> digital analytics goes offline</p> <p><small>Hinting Civic Futures</small></p>
<p><u>TECHNOLOGY</u></p> <p><b>Blockchain</b> being decentralized and distributed</p> <p><small>Hinting Civic Futures</small></p>	<p><u>TECHNOLOGY</u></p> <p><b>Peer-to-Peer Network</b> small and trustworthy community</p> <p><small>Hinting Civic Futures</small></p>

<p><u>TECHNOLOGY</u></p> <p><b>Internet of Physical Things</b> network of objects / infrastructure</p> <p><small>Hinting Civic Futures</small></p>	<p><u>TECHNOLOGY</u></p> <p><b>Accessible 3D Printing</b> quick and affordable building</p> <p><small>Hinting Civic Futures</small></p>
<p><u>TECHNOLOGY</u></p> <p><b>Emotion Detect</b></p> <p><small>Hinting Civic Futures</small></p>	<p><u>TECHNOLOGY</u></p> <p><b>Language Processing</b> break the barrier of human-human and human-machine communication</p> <p><small>Hinting Civic Futures</small></p>
<p><u>TECHNOLOGY</u></p> <p><b>Self-Assembling</b></p> <p><small>Hinting Civic Futures</small></p>	<p><u>TECHNOLOGY</u></p> <p><b>Image Identification</b> sensing the world around</p> <p><small>Hinting Civic Futures</small></p>

### 4.3 Service Map

#### Mobility Service in Bilateral Urbrandism

What form of mobility service do you want to design? For whom?

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What is your design purpose?

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What kind of social practice do you want to encourage?

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What kind of data and technology does your concept require?

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Title / Slogan

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#### Sketch it out!

Draw your ideal. Could be a service map, a scenario, a system diagram, just present it!



## Mobility Service in Versity (City as Verse)

What form of mobility service do you want to design? For whom?

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---

What is your design purpose?

---

---

What kind of social practice do you want to encourage?

---

---

What kind of data and technology does your concept require?

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Title / Slogan

Sketch it out!

Draw your ideal. Could be a service map, a scenario, a system diagram, just present it!



# Mobility Service in Un-Commons

What form of mobility service do you want to design? For whom?

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What is your design purpose?

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What kind of social practice do you want to encourage?

---

---

What kind of data and technology does your concept require?

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Title / Slogan

---

## Sketch it out!

Draw your ideal. Could be a service map, a scenario, a system diagram, just present it!



### 4.4 Storyboard

**Storyboard**



**Title / Slogan** ELITE™  
HEALTHY HOME™

**Sketch it out!**  
Draw your idea! Could be a historical look, a sketch, a video, a diagram, just present it!

**Mobility Service in  
Bilateral Urbandism**

What form of mobility service do you want to design? For whom?

MEDICAL SERVICES BASED ON SPECIAL BUSINESS TRAVELERS

What is your design purpose?

BRINGING SERVICES OF INTEREST TO WORKERS AND BUSINESS TRAVELERS

What kind of social practice do you want to encourage?

NATURE EXCOURSIONS GARDENS HEALTHY PEOPLE

What kind of data and technology does your concept require?

LOCATION  
GPS AND IC  
CONNECTION TO TRAVELERS UNDERSTANDING SERVICES

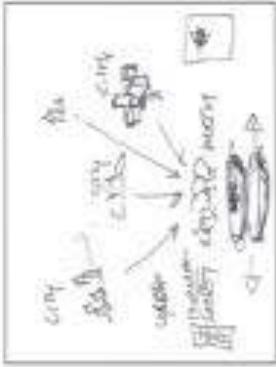
Storyboard



SOMEONE IS GETTING  
REALLY SICK  
WE CAN'T RESUME / CANCELLED



THE HEALTHY HUBBER  
ADDRESS... PLEASE!  
TYPE DOWN & LEAVE



**Mobility Service in  
Bilateral Urbanism**

What form of mobility services do you want to design? For whom?

*Migration: Service for individuals + families seeking a life in the Bilateral Urbanism City*

What is your design purpose?

*Justice for migrants, moving to the city they feel safer + stable [ability]*

What kind of social practices do you want to encourage?

*Thinking (I) helps / Personalisation Working / Consuming*

What kind of data and technology does your concept require?

*USER DATA Information, analysis, sorting, all legal user privacy, ability, long term information*

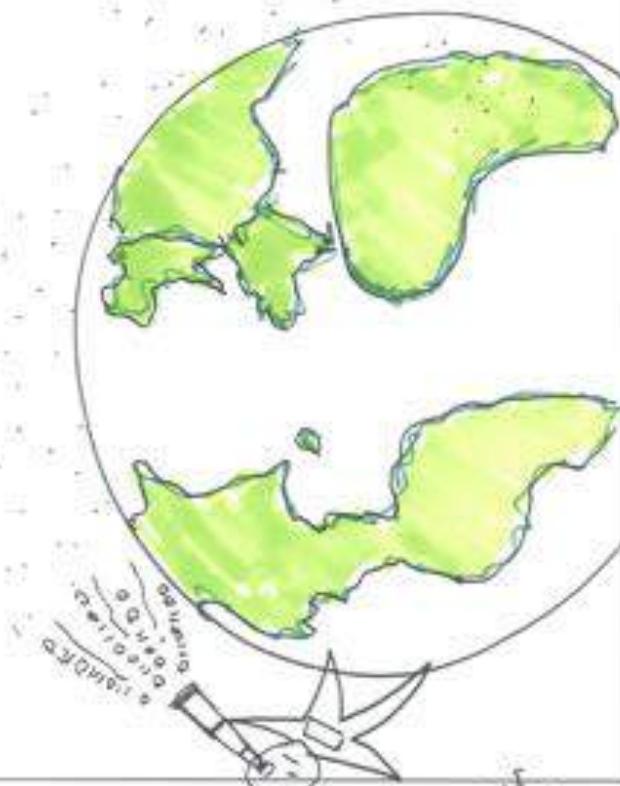
*Algorithm determines location*

Title / Slogan

*City Saluta 2000*

Sketch it out!

Show your sketch could be a service idea, a statement, a system diagram, just present it!



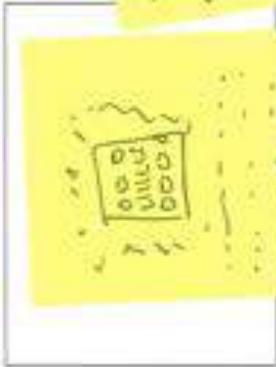
Storyboard



Looking for something both  
your guess, how where?



~~How~~ Moving is determined



Use cases  
- upgrade  
- properties  
- social network  
- analytics

Brand identity  
- design  
- lifestyle choices

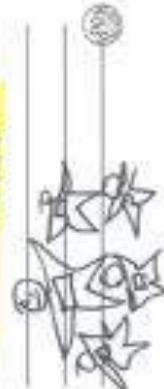


Documents are generated  
and applied for brand  
access to entire history



Determine  
- Best  
- Information Why

How to get there. How to  
move.



### 5.2 Versity



cost of living due to  
less efficiency.  
services will not  
be that efficient.

**Mobility Service in**

Verona (City of Verona)

What form of mobility service do you want to design? For whom?

Language learning  
Wandering

What is your design purpose?  
\_\_\_\_\_  
\_\_\_\_\_

What kind of social practice do you want to encourage?  
Conversation, Observing

What kind of data and technology does your concept require?  
Language Processing, Location data

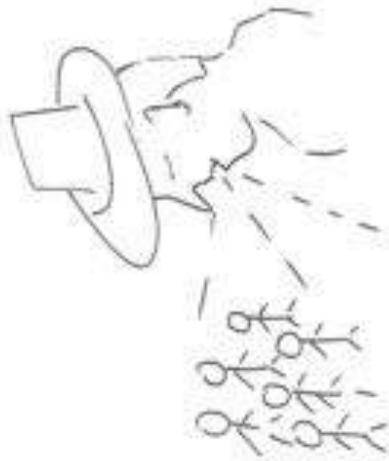
Title / Slogan

The Global Bro!

Sketch it out!

Using your sketch could be a success, but it's essential to explore design, just present it!

It's easy for global bro to travel to the most remote part of the globe because he understands all the languages!



**Mobility Service in**

*Verona (City in Veneto)*

What form of mobility service do you want to design? For whom?

*social networking/communicating system etc. & connecting people by train.*

What is your design purpose?

What kind of social practice do you want to encourage?

*networking, conversation, socialize*

What kind of data and technology does your concept require?

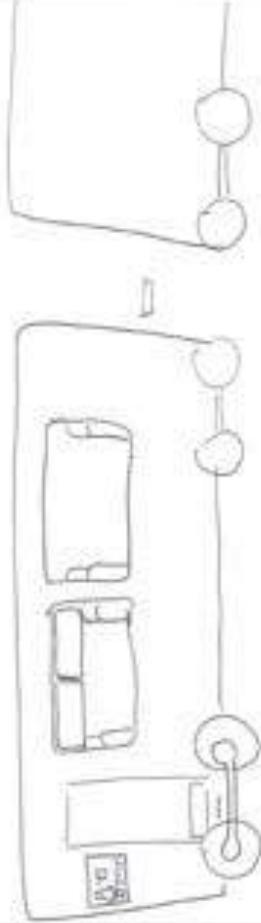
*emotion, detect results, pass-to-peace, analyzing, people flows, data... public transport data, user data.*

Title / Slogan

*Look up, let's talk! (if you can't)*

Sketch it out!

*Draw your ideas (sketch) for a service or make a network, a system diagram, just present it!*



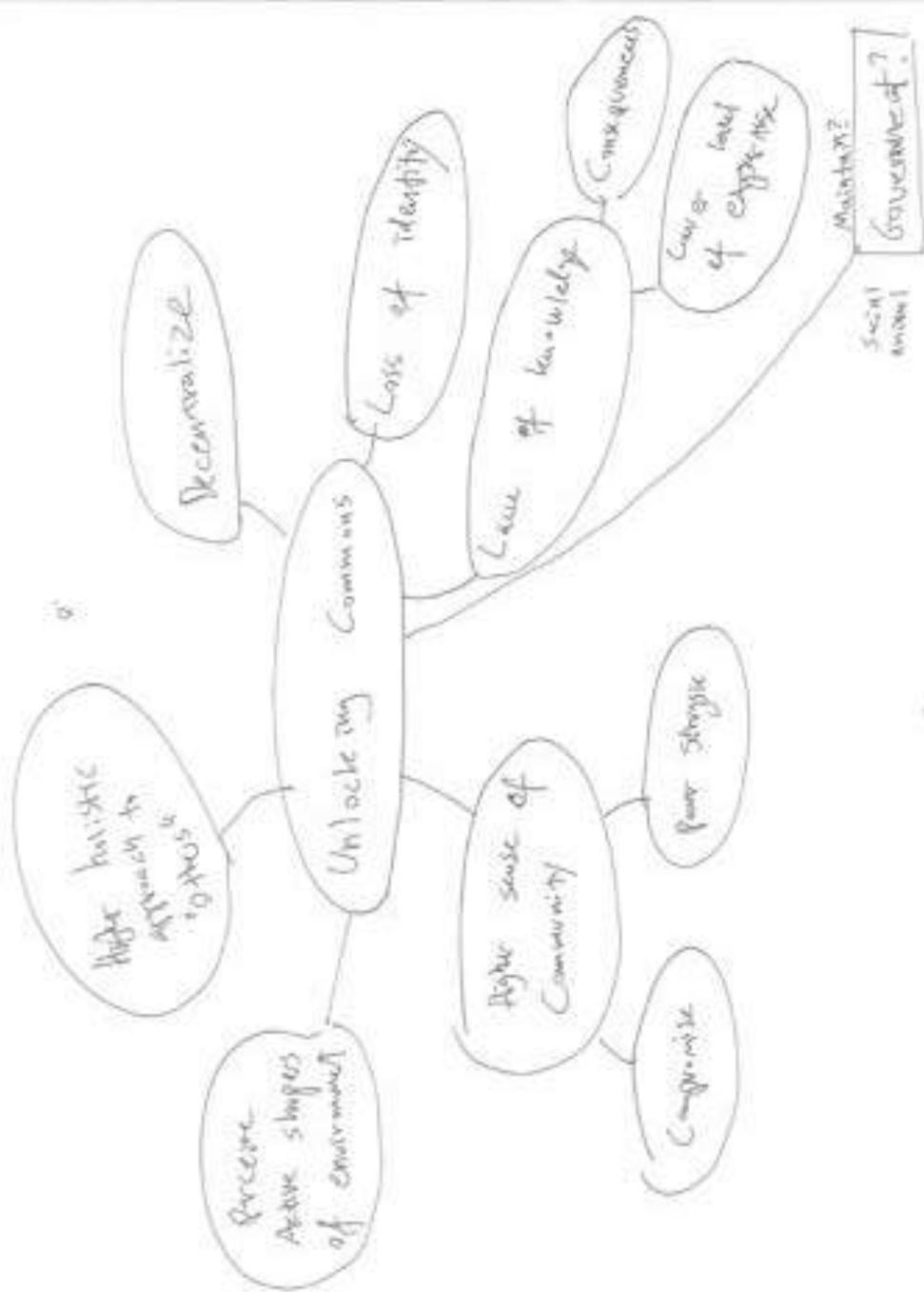
*commuting? no time for joining network events next to other responsibilities. commuting can take a lot of time: you could spend it by scrolling through social media or actually be social & talk or interact with other commuters. Creating small face-to-face networks in the different train wagons based on shared interests. Every wagon shows the previous or topic/shared interests. It can show you how much time is left by using traffic data... and...*

*if you don't really feel like it, pe you having a bad day?*

*No worries! The emotion detector will notice, and you will not be shown as a participant (or sit at the silent wagon). Or, to loose the user autonomous... turn it off manually!*



5.3 Un-Commons



### Mobility Service in Un-Commons

What form of mobility service do you want to design? For whom?

Use experience, efficiency  
90 km's service  
every one

What is your design purpose?

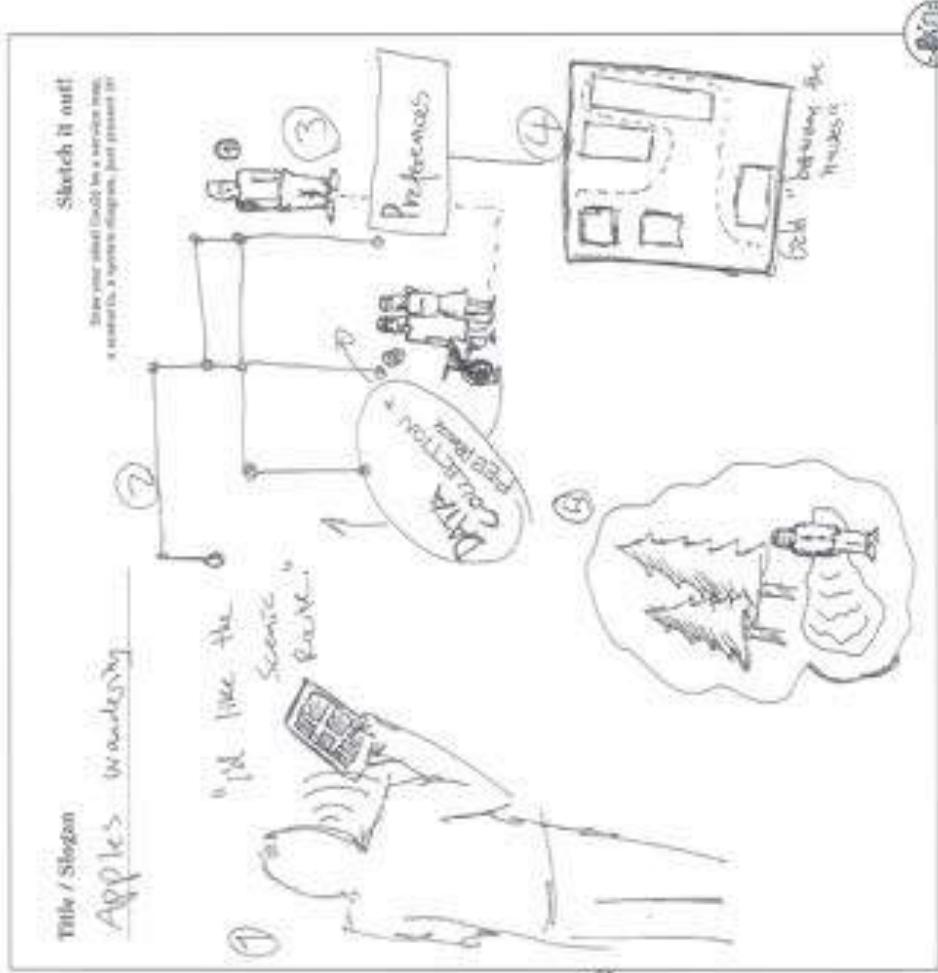
Person's safety, higher level of accessibility - making it more Google maps

What kind of social practice do you want to encourage?

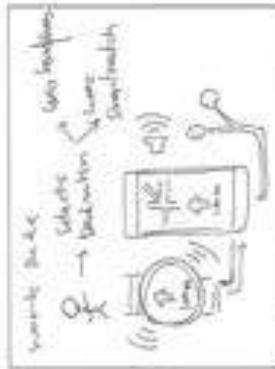
Academic and research (Apple) of the city.

What kind of data and technology does your concept require?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Storyboard



Start of the journey



We see the data points surrounded by cost-gps or points or data



Follows the path without needing for much attention



Send protected data and calculate consumption and savings



**Mobility Service in Un-Commons**

What form of mobility service do you want to design? For whom?

Personal - mid to class

What is your design purpose?

Personal Software for transportation convenience

What kind of social practice do you want to encourage?

Public - efficient - ecological transportation

What kind of data and technology does your concept require?

- transport efficiency and consumption
- User usage of platforms (transport)
- Personal device that is easy to use and interact with

**Title / Slogan**

**Sketch it out!**  
 Draw your ideal Could be a service map, a scenario, a system diagram, just present it!

**points to?**

- use account
- Allows to block undesired payments
- Allows to easily pay everything
- Allows to manage your budget
- Makes recommendations using Anonymous data
- Sends back information to transport companies to improve their performance
- Helps to create specific situations like car-pooling and redirects or helps to reduce traffic.
- Avoids bottling, distributors better transportation
- Decreases travel time.

**not my intention**

- All the data can be used to prepare the distribution of the transport and detect improvements
- decreases interaction for common paths or if the user doesn't need them
- SEAMLESS → clear indications



# 6 Evaluation

## 6.1 Evaluation Form



### Versity

In Varsity, efficiency is deprioritized in some occasions where 'inefficiency' - the process of meaning making is emphasised for fostering civic learning, reflection and awareness.

How do you like this future? What are your gut feelings about it?

\*

Your answer

What do you think are the most important factors or drivers that will influence such future to happen or not? \*

Your answer

What do you think would be the barriers for Nomad to engage people for participation?

Nomad is a walking gaming platform in Varsity

Your answer

What changes would you make to your own life now if this scenario might be in your future, or part of it?

Your answer



### Bilateral Urbrandism

In Bilateral Urbrandism, public sectors collaborate cautiously with private corporations for social good and citizens have the ability to influence and input into the process.

How do you like this future? What are your gut feelings about it?

\*

Your answer

What do you think are the most important factors or drivers that will influence such future to happen or not? \*

Your answer

What changes would you make to your own life now if this scenario might be in your future, or part of it?

Your answer

Do you believe we can make a real productive marriage between public & private sectors? How?

So this future is a wish or an imagination, but in the current state, public sectors and private companies have diametrically opposed goals, like private companies always want to gain profit and retain ownership.

Your answer



## Un-Commons

Un-Commons is a socially inclusive city embedded with open technologies. The city is organised as a communal resource shared and managed by people for city making.

**How do you like this future? What are your gut feelings about it?**

\*

Your answer

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**What do you think are the most important factors or drivers that will influence such future to happen or not? \***

Your answer

---

**What problems do you think may occur in Vehicle 2.0 when mobility becomes a commons managed by everyone?**

Your answer

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**How to incentivize people to contribute to the public good when they don't necessarily need to?**

In Un-Commons, citizens who haven't contributed also profit from the commons made by others. For instance in Vehicle 2.0, a community can just use other vehicles for serving their own good.

Your answer

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## 6.2 Evaluation Replies

Participant 1

### Versity

#### How do you like this future? What are your gut feelings about it?

play is a central to urbanity (or cityness), so I would support this. It, however, does not necessarily strike me as an antithesis to the efficiency-centered smart city paradigm. Nomad follows a central idea and requires compliance of users, functioning infrastructure such as network connectivity. Play also means not following instructions, not accepting assumptions, and using things differently than intended.

#### What do you think are the most important factors or drivers that will influence such future to happen or not?

People being ready to appropriate existing technologies and platforms and give them new meaning

#### What do you think would be the barriers for Nomad to engage people for participation?

the competition with all the existing apps, initiatives, viral marketing campaigns...

#### What changes would you make to your own life now if this scenario might be in your future, or part of it?

I walk a lot and with open eyes, so I would enjoy such a scenario.

### Bilateral Urbrandism

#### How do you like this future? What are your gut feelings about it?

it addresses the ambivalence between useful/playful private sector projects and their usurpation of public space (e.g. app-driven shared electro-scooters). the caution: it is easy to claim something is for the social good, and all corporations do it. But what that exactly is cannot be taken for granted.

#### What do you think are the most important factors or drivers that will influence such future to happen or not?

e.g. whether the role of the citizen is strong enough to kill a harmful project that the corporate partners want to introduce. also, ecological considerations need to be foregrounded.

#### What changes would you make to your own life now if this scenario might be in your future, or part of it?

I would have to maintain a skeptical eye on what the city is up to.

#### Do you believe we can make a real productive marriage between public & private sectors? How?

every city is in such a marriage, but its terms need to constantly re-negotiated.

### Un-Commons

#### How do you like this future? What are your gut feelings about it?

the commons is a central aspect of urbanity

#### What do you think are the most important factors or drivers that will influence such future to happen or not?

building a communal vehicle is perhaps not the most straight-forward example of urban commons - not everyone is technically literate enough, and the safety of the vehicle is also a question.

#### What problems do you think may occur in Vehicle 2.0 when mobility becomes a commons managed by everyone?

I would see the challenges mostly on the governance of land dedicated to mobility - to make a functioning and sustainable mobility system unfortunately requires a focus on efficiency.

#### How to incentivize people to contribute to the public good when they don't necessarily need to?

traditionally, less than 5 percent contribute actively to Wikipedia etc. getting community-based governance right is important.

**Participant 2**

I like the idea of cityness, with IoT everything becomes a relation. It also shows change and evolution as a good thing as cityness is always evolving.

The current business reality is ready for such a term because even the big brands and providers understand now that their smart city will only be there if there are services people are willing to pay for. As usual, they are interested in 'people' when they have trouble finding other sources of money, but that is a given and it itself not a problem. The timing is right. But in order for the term to really become productive and powerful, it needs to be broken down in properties that are quantifiable, detectable and can be compared by others.

Cities will then want to have the highest level of cityness and believe it or not rankings are still the way to get things going. You have made a beginning with your three cities and that makes sense. But that means going away from the current reality; you envisage zones where people can choose to live: IKEA land, a Commons and your un-commons version, a kind of China today. That is clever and if you scale that down you find that things like this exist in gated communities, one of the fastest rising forms of building globally. I like the idea of zones very much: a zone without taxes and then a lot of conflicts that we have to solve locally, and a zone with very high taxes but everything policed and paid for by Coca-Cola and zones in between.

So I think you are doing two things that you should take apart now.

One: define cityness so that it can be applied and can become a real standard. That is boring but if it works it will catch on and can become pretty big because of the all-encompassing citizen-focused angle now.

Two: with your definition, you can construct your three archetypes: no taxes/free flow — fully taxed and branded and a kind of pragmatic cybernetics like there is in China now and maybe find a builder for it on a gated community scale.

The key is to realize your own fallacy (we all have that) of keeping things constant where you assume other things are shifting

The government makes sure big brands work together to realize meaningful and sustainable urban projects

Why should 'the government' even still exist in this city?

**Versity****How do you like this future? What are your gut feelings about it?**

Perhaps the most provocative element of this proposal is that an urban game is used to generate sentiment data, rather than pure amusement such as with Pokemon Go. That this sentiment is broadcast back to the citizens of the city through bus adverts and similar is intriguing. The images show a contemporary city that has been augmented by Nomad, but what would that same city look like after 20 years of living with Nomad?

**What do you think are the most important factors or drivers that will influence such future to happen or not?**

Elements of this future are already here. The influence of Pokemon Go, for instance, is clear in Nomad. However the notion that you could engage people in large scale games to create a deeper connection to the history of a place (or to participate in deciding its future) is interesting. Can it go further? What if a city sponsored a "Nomad day" where all citizens were encouraged to play the street quiz? What happens when it's not just an individual interaction, but something available to masses?

**What do you think would be the barriers for Nomad to engage people for participation?**

The challenge for proposals like this is how you overcome day to day obligations. For instance, taking a path that is out of my way may be fun and whimsical, but if I'm struggling to pay the rent I am unlikely to give up the extra time on my way to/from work. The rewards of participation may need to be clarified and amplified.

**Bilateral Urbrandism****How do you like this future? What are your gut feelings about it?**

I encourage you to be skeptical of statements such as "100% safe system" when it comes to technology. If we accept that premise, I'd like to see more exploration of what it means to have "vehicles." Does the driving experience change? The site hints at new vehicle types or "platforms" but it focused on ancillary uses such as mobile parks. That's good, but I think you want to address the "core" mobility needs as well, so the reader can see the diversity of the platform you're proposing. This also means that Detroit's version of a 6-person shuttle should be different from Beirut's or Berlin's. How can you bring this diversity to life in the text and diagrams?

**What do you think are the most important factors or drivers that will influence such future to happen or not?**

Regulations and Manufacturing supply chains. As above, I would be skeptical that the technology is 100% safe, and even if it is, Vehicles will exist in a mixed world that also has old cars, so they will still need some safety factors. This will complicate the Vehicle vision, but I think in useful ways. Similarly with the supply chain, the Vehicle concept depends on the current global supply chains of vehicle production to be hyper localized. I believe this will happen, but it may be a slow and bumpy process to get there because of the level to which vehicles and associated economic activity represents a significant % of the economy.

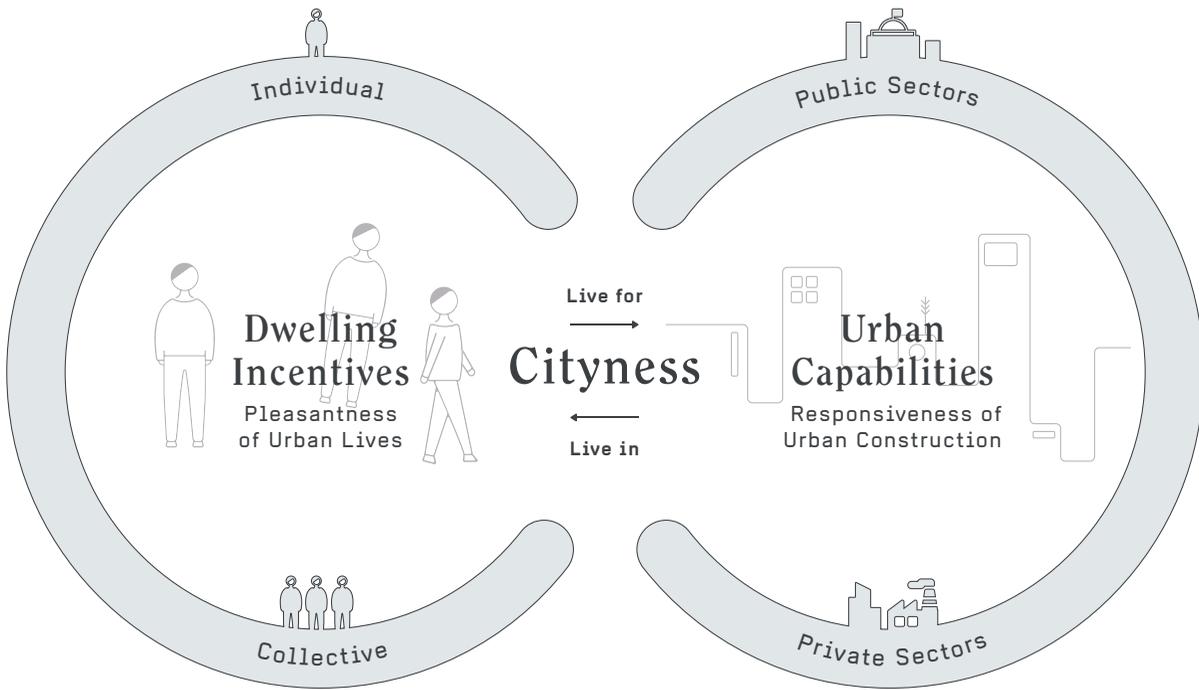
**Un-Commons****How do you like this future? What are your gut feelings about it?**

I don't have any major comments on the scenario overall. It's far reaching and quite dramatic, much more so than the clean and polite representation lets on. Would be interested to see you explore the social impacts of such a city/society. When there is no private property, how does status work? Who are the heroes in this city? What are they celebrated for? Does a world where everything is collaboratively produced create challenges for outcasts or margin dwellers who have a radically different vision but lack the clout to have their visions realized? What incentives in today's status quo become irrelevant in your future city? Which new ones emerge?

**What do you think are the most important factors or drivers that will influence such future to happen or not?**

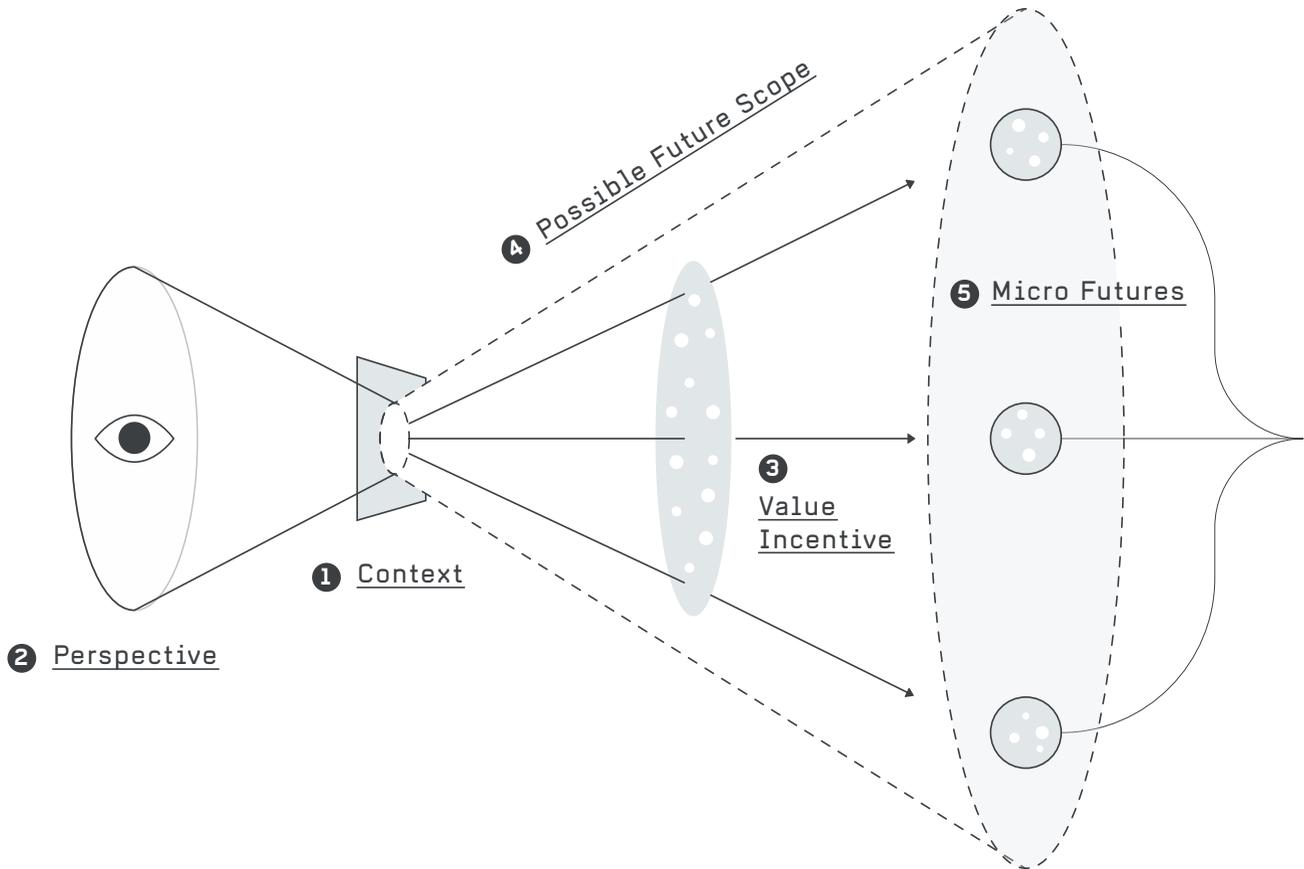
The big question mark for me is how collaboration works in this city. It's one thing to collaborate on a piece of code, as in Github, where multiple people make contributions and they can be compiled/executed to determine if they work as intended. But how do we find the same level of efficiency when co-designing an education system? Or an urban plan? These are not such simple problems.... if you can develop the ideas further to show how those kinds of discussions/collaborations could be augmented in your scenario I think that would be a huge contribution. Put another way, what does politics look like in your future scenario?

# 7 The Cityness Model



# 8 Design Framework

## “Civic Futures”

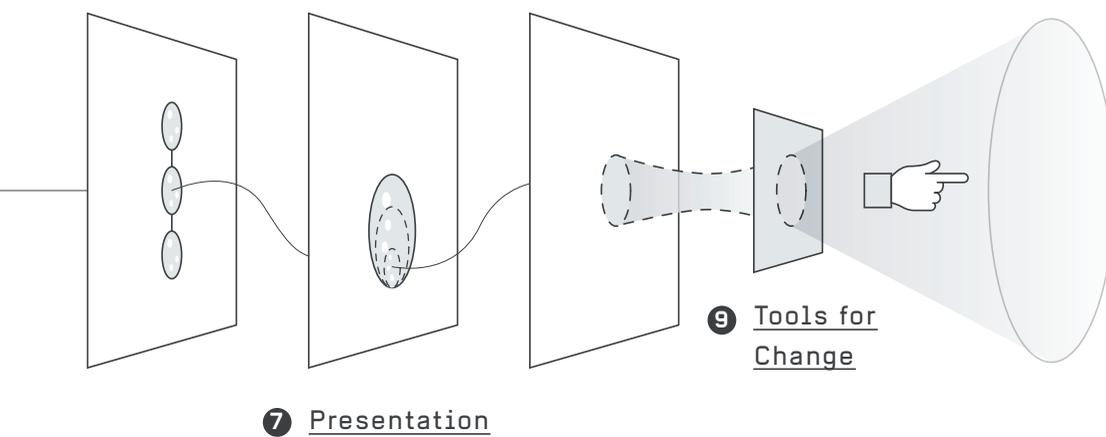


Future Scanning / Design in the Future / Present the Future / Backcasting

① ② ③ ④      ⑤ ⑥ ⑦      ⑦ ⑧      ⑨

⑥ Design with Lenses

⑧ Evaluation



# 9 Graduation Project Proposal

## IDE Graduation Assignment (version 2017.09.21) incl. the student's study progress (Appendix 3)



<i>To be completed by the student</i>		
<i>Please save your assignment as (format): IDE Graduation Assignment_family name, name_student number_dd-mm-yyyy</i>		
<i>Place the proper document name on each page of your assignment in the headline, number the pages</i>		
	<b>Name student</b>	Sen Lin
	<b>Student number</b>	4577388
	<b>Address</b>	Choorstraat 23A
	<b>Zip- code, City</b>	2611 JD, Delft
	<b>Telephone</b>	+316 4217 2997
	<b>E-mail address</b>	S.Lin-2@student.tudelft.nl
	<b>Start at IDE ...2016... (year)</b>	<b>Start at TU Delft ...2016... (year)</b>
<b>Bachelor <sup>1</sup></b> <input type="checkbox"/> TUD Bachelor IO <input type="checkbox"/> TU/e or UT Bachelor IO <input type="checkbox"/> TU Delft non-IO BSc <input type="checkbox"/> Other Dutch University Bachelor <input type="checkbox"/> HBO Bachelor <input checked="" type="checkbox"/> Foreign Bachelor	<b>Master <sup>1</sup></b> <input type="checkbox"/> IPD <input type="checkbox"/> DfI <input checked="" type="checkbox"/> SPD <input type="checkbox"/> ..... = 2nd non-IDE master <input type="checkbox"/> Individual programme, date of approval <sup>2</sup> ..... <input type="checkbox"/> Master Honours Programme	<b>Specialisation <sup>1</sup></b> <input type="checkbox"/> Medisign  <b>Annotation <sup>1</sup></b> <input type="checkbox"/> Techn. in Sustainable Design <input type="checkbox"/> Entrepreneurship
<b>Name Chair</b>	...Elisa Giaccardi...	
<b>1. Check study progress</b>		
<i>To be completed by the Shared Service Centre O&amp;S after approval of the assignment by the chair. The study progress will be checked for a 2<sup>nd</sup> time just before the green light meeting.</i>		
Bachelor degree:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
		<input type="checkbox"/> N.A.
Missing 1 <sup>st</sup> year Master courses	1. .... 2. .... 3. ....	4. .... 5. .... 6. ....
Master electives, no. of EC credits accumulated: .....		
Name:	Date: .... / .... / 20....	Signature:
<b>2. Formal approval Graduation Assignment by the Board of Examiners</b>		
<i>To be completed by the Board of Examiners</i>		
Approval of the content of the Grad. Assignment:	<input type="checkbox"/> Approved	<input type="checkbox"/> Not Approved
Procedural approval:	<input type="checkbox"/> Approved	<input type="checkbox"/> Not Approved
Comments:		
Name:	Date: .... / .... / 20....	Signature:

<sup>1</sup> Tick where appropriate.

<sup>2</sup> Date of approval of your individual programme by the Board of Examiners.

## IDE Graduation Assignment

### GENERAL INFORMATION

<b>Title Graduation Project</b> <sup>3</sup>	Agentive Humanism: Designing Future Mobility Service with Agentive Things		
Chair of Supervisory Team <sup>4</sup>	Elisa Giaccardi		
Department / Section	Department Industrial Design, Section Human Information Communication Design		
Mentor of Supervisory Team <sup>4</sup>	Iskander Smit		
Department / Section	Visiting Professor, Connected Everyday Lab		
Project commissioned by <sup>5</sup>	<input checked="" type="checkbox"/> Faculty	<input type="checkbox"/> Company	<input type="checkbox"/> Other, e.g. entrepreneurial
Project type <sup>5</sup>	<input checked="" type="checkbox"/> Design	<input type="checkbox"/> Research <sup>6</sup>	<input type="checkbox"/> Other, e.g. entrepreneurial
Company name, if applicable			
City & Country			
Company Mentor			
Start date	<b>March 26<sup>th</sup>, 2018</b>		
End date	<b>August 28<sup>th</sup>, 2018</b>		

### CONTENT

*Ascertain that the text of your Graduation Assignment clearly meets and reflects the general and specific requirements for your specific IDE master. <sup>7</sup>*

*Write your assignment in a neutral form.*

*When inserting images or schedules in colour, make sure a print in black and white is still readable.*

#### Introduction

*Give a sketch of the context of your assignment. Historical developments, if applicable relevant published scientific research results, new trends, status quo; materials, technologies, usage, etc.*

- In case of a faculty project: describe how your assignment reflects the research portfolio of the IDE Faculty <sup>6</sup>.*
- In case of a company project: provide company information.*
- If other, e.g. entrepreneurial: describe the future enterprise and how your assignment will be of value to the enterprise.*

*Include an illustration or visual which depicts the context of your assignment.*

*In case one or more extra parties are involved in your project, indicate which role they play.*

This graduation assignment contributes to the *Things as Citizens* research project as a parallel branch to PACT<sup>1</sup>. The aim of Things as Citizens is "to develop novel methods and tools for understanding and demonstrating how intelligent things can act together with people and connect to existing data and cloud services" [19]. With the rise of IoT and Artificial Intelligence, intelligent things as new actors with high agency will be involved in the digital modernity of cities towards a future vision so-called smart city. However, current implementations are often limited to sensing only and urban innovation stops at collecting data, visualizing it on an app, and opening it for insights. But how fast could the city adapt if things in the real world could respond to data? If they could not only sense but also act? **Among all the cutting-edge technologies, Agentive Tech emerges as a type of technology that can bring fruitful possibilities. It's a new mode of interaction enabled by recent advances in narrow AI (artificial intelligence), in which 'agentive' means the technology does something on behalf of the user, persistently and in a hyper-personalized way [1]. In short, like an agent.** This special characteristic stimulates new dialogue to occur such as co-performance [2] and has lots of potential. In pace with the technology booming, companies are busy developing new services powered by intelligent things. In this case service continues to expand in novel and unforeseen ways, and will deeply permeated everyday life along the backbone of agentive tech, giving rise to a new digital humanism [3]: agentive humanism. For tackling this issue, a service-design mindset which takes a comprehensive view of all the related actors, their interactions, supporting materials and infrastructures would be a suitable approach. The holistic perspective can help shift the attention from G-D to S-D logic [16], arousing more insights and discussion into a wider social and action context.

<sup>1</sup>PACT (Pure Air for Cities of Things) is a research program settled by Elisa Giaccardi and Iskander Smit in collaboration with the Amsterdam Institute of Advanced Metropolitan Solutions. It is a direction under the research theme Things as Citizens of Connected Everyday Lab at IDE Faculty.

<sup>3</sup> Keep the title compact and simple. Do not use abbreviations.

<sup>4</sup> Avoid team members from the same section. In case a non-IDE mentor is preferred over an IDE-mentor, the Chair should request so for approval by the Board of Examiners (including a motivation letter and c.v. of the proposed non-IDE mentor).

<sup>5</sup> Tick where appropriate. See the IDE Graduation Manual, paragraph 2.5. If necessary, explain at Introduction.

<sup>6</sup> See webpage <http://www.io.tudelft.nl/en/research/>

<sup>7</sup> For general master specific requirements, consult article 4 of the Master Teaching and Examination Regulations, and the IDE Graduation Manual, especially paragraph 2.4 and 3.1.4.

**Problem definition**

*Indicate clearly, what should/could be improved compared to the present situation. When executing a research project: indicate the knowledge gap. What opportunities exist, what contradicting demands should be addressed, etc.*

Companies often focus on the narrow goals of the users as it relates to the business that exists today or near probable future with a belief in Technological Utopianism [4] which may lead to a limited view of opportunities. Speculative research has been conducted to push the boundaries of smart things against those bias and fixation. However, the emphasis now is usually laid on the thing itself and its relationship with human from an HCI perspective. The ongoing digitalisation of cities and societies means that the previously separated parts are drawn together [5]: AI empowers things with agency and IoT intertwines things with digital services. As an extension of the product, service has the potential to bring about larger impact from everyday life to urban context [8]. In the domain of mobility, agentive things like autonomous vehicles will trigger new services and changes that reshape the way we work, travel and live. Further more it will also transform existing business models enabling new relationships between enterprise and customers. At present lots of effort is put on developing ever more intelligent things while missing the essential element of knowing who will use it and why [9]. Not much is known how service delivered by intelligent things like autonomous vehicle should be shaped. What will be the possible vision(s) of future mobility? If the agents [6] within the service ecology are not human anymore, how would things deliver the promise from the service providers to achieve the vision? Current design process does not adequately address what's required to understand and build services of agentive technologies [1]. This thesis therefore raises the main question: "How to design the future mobility service with agentive things?"

The question will be followed by two parts: how Agentive Tech could empower mobility service, and based on that what the mobility service in the future context would look like and why. The first part explores the possibilities and opportunities enabled by Agentive Tech as an emerging technology in the domain of mobility service. Here Agentive Tech acts as a catalyst to ignite excessive imaginings and audacious dreams for how life could be [7]. Using a forecasting approach, the second part starts to conceive the alternative futures with the evidence collected and build mobility services upon that world. To make the concepts concrete and accessible, the project will use future commuters in Amsterdam as target users. This helps narrow down the scope of mobility service and enable context-based solutions. While this part will also challenge the current approach of service design.

**Assignment**

*Briefly and to the point, describe what you are going to design, create or generate to solve (part of) the problem. In case of a Specialisation and/or Annotation, address specifically how this is/these are included in the assignment.*

In general, the assignment is to arrange the agentive empowerment of technology and different human values in the future mobility ecosystem and leverage it for better humanism within business world through service design.

Service design here is not seen as a fixed practice for problem-solving, but a mindset for investigating and communicating about emerging technologies from different layers in a social and discursive frame. The target audience in this project will ideally be citizens, designers and companies which successively represents service experience, service design and service positioning. Considering service from these three perspectives helps build an embodied imagination for these 'stakeholders'.

The following issues are expected to be addressed in the assignment:

- Exploration of the openness and capabilities of Agentive Tech as a kind of mechanism
- Future probe of mobility development based on previous study
- Service ecosystem design of future mobility including ecology map, scenario building and experience prototype
- Insights and conclusions collected from evaluation of different audience (citizens, designers and company)

**Approach**

*What will be the approach to deal with the complexity of the assignment? What has to be done to meet the challenges? Indicate the main methodologies to be used. Indicate the same project phases as you distinguish in your planning. If one or more extra parties are involved in your project, indicate which role they play. In case of a Specialisation and/or Annotation, address specifically how this is/these are dealt with.*

The graduation project will flexibly apply a Design-led Futures Technique (Mejia, Pasman, & Stappers, 2016) incorporating ideas from Transition Design (School of Design at Carnegie Mellon University, 2012) and Speculative Design (Dunn & Raby, 2013). The aim is to understand complexity, understand what agency is possible within the systems we are in, and speculate in an informed way about how things could be different by adopting a more nuanced and exploratory way to tackle the future [10].

The process can be divided into main four phases:

**1. Future-Scanning (5 weeks)**

The objective of this phase is to capture weak signals that are potentially important through a systematic examination (secondary resources) of potential threats and opportunities, with emphasis on new technology and its effects on the issue at hand. Factors as behaviors, trends, outliers, social rules and norms will be collected through horizon scanning [13] and context research to perceive the possibilities outside the myopic view of mobility only.

The research fragments will then be synthesized into specific topics under the frame of *Things as Citizens* [19]. Here *Things as Citizens* works as a hypothetical metaphor of product agency in the future. Based on that, side-effects (immediate effects and longer-term effects) and side-shows (parallel-but-related developments) [11] will be explored around them to gain a more holistic view in the form of Futures Wheel [17]. The outcome of this phase would be narratives and visions of at most three micro-futures [15].

**2. Design in the Future (6 weeks)**

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The objective of this phase is to speculate and ideate service solutions in the explored futures and further develop them through value constellations and service ecology from a socio-technical perspective. The main idea is to design multilevel context-informed service solutions through different layers [18]:

- **Value Creation in Ecosystem** | How company as a service provider could position itself in the ecosystem, and how agentive things should perform to fulfill the value that company wants to create and promise.
- **Value Proposition in Service System** | How service designer could help make the value-worth loop work while injecting more humanism into the service system.
- **Creating Worth from Proposed Value** | How citizens would react on these possible services (if they are willing to be the consumers). And relatively, how agentive things should provide good performance as experience to create worth.

An ideation workshop is expected to be conducted in a co-creating way at the beginning of this phase to gather novel ideas and insights.

### 3. Present the Future (5 weeks)

The objective of this phase is to create a way for an audience to 'experience' the future, through bringing story or scenario to life in a form which can be presented such as diegetic prototypes [12]. The concepts and scenarios will be evaluated by different audience to arouse discussion and get feedback in different layers. The aim is to enable the audience to get a glimpse of this future and place themselves in the frame, while also to trigger some ambiguities and uncertainties in it. Different criteria will be set based on the role of audience as 'stakeholder'.

### 4. Backcasting (5 weeks)

The objective of this phase is to sort out the outcome of Phase C and make conclusion and recommendation for building preferable future mobility services, to see if present design solutions can be informed by long-term visions.

## Graduation Project results

1. Describe the expected results or outcome of your Graduation Project. For instance, a product, a product-service combination, a strategy illustrated through product or product-service combination ideas.
2. Indicate the expected scientific and/or societal and/or commercial significance of the outcome of your project.
3. In case of a Specialisation and/or Annotation, address specifically the relevant results to be expected.

The primary results will be several future mobility service solutions. They are expected to indicate how mobility service could look like and what people prefer to have in the future. The designing process including the methods used could meanwhile suggest new approach to design future services in a reflexive way, as a secondary outcome that contributes to *Things as Citizens* and the research of Thing-Centered Design<sup>2</sup>.

<sup>2</sup>Thing-Centered Design is a new way of researching and designing 'with' things that looks into these possibilities.

## Deliverables

List the *extra* graduation deliverables, if any (apart from the mandatory deliverables being the thesis report, annexes if any, the poster and the representative pictures). For instance, a working prototype or a paper.

The deliverables will include a final report, service prototypes, well documented research results and a presentation.

## Relation and relevance to the domain of Industrial Design Engineering, the chosen master direction and the IDE pillars

Explain the relation of your project with the domain of Industrial Design Engineering and your master direction IPD, DFI or SPD.

1. Relation of you project to the master IPD, DFI or SPD

Furthermore describe the interface of your project with each of the IDE pillars:

2. Business
3. Human Interaction
4. Technology

Problems are often simplified and isolated to a scale and scope that we are comfortable with and can understand in business design, this project however seeks to benefit from radical expansions of our purview. A service-design logic and a more holistic view can help create more sustainable results. When speaking of technology, we tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run according to Amara's law. The project simply seeks to answer how we can create services supporting the human side of emerging technologies in the near future and what these services would look like. The essence of Strategic Product Design is to do the right thing, while this project aims at exploring the alternative definitions of being right. By designing possible mobility services for the explored future contexts, this project offers another path for strategic thinking as an activator to seek dynamic futures informed by various values, rather than just a booster towards one-size-fits-all business vision. In general, the project focuses on how to leverage technology for better humanism within business context. Considering the interdependencies among people, technology and business, the outcome will provide relevant insights.

## Planning

Present your planning in a Gantt Chart, which can easily be made in Excel, see example underneath. Make sure a print in black and white is still readable. Mention the main phases of the project as described at Approach + number of weeks. Indicate only main

activities, milestones, meetings. Take notice: 33 EC = 22 full-time weeks! Indicate periods of part-time graduation project activity and/or periods of not spending time on your graduation project, if any, for instance because of holidays<sup>8</sup>.

Calendar Week	13	14	15	16	17	18	19	20	21	22	23
Project Week	1 (20/3-1/4)	2 (2/4-8/4)	3 (9/4-15/4)	4 (16/4-22/4)	5 (23/4-29/4)	6 (30/4-6/5)	7 (7/5-13/5)	8 (14/5-20/5)	9 (21/5-27/5)	10 (28/5-3/6)	11 (4/6-10/6)
Tutorial Meetings								Midterm			
1. Future Scanning											
Literature Research		Secondary Resource Research on Agentive Tech, Mobility & Smart City									
Generative Session: Future Synthesis			Workshop with IDE Students								
How Drivers of Change Collection					Collecting Trends & Emerging Issues						
Expert Interview						Interview & Evaluation					
Synthesis & Micro Futures Drafting							Making Visions & Narratives				
2. Design in Future				20-23 in Milan							
Workshop: Mobility Service in Future									Preparation & Workshop		
Service Conceptualisation											Ecology Map
Calendar Week	24	25	26	27	28	29	30	31	32	33	34
Project Week	12 (11/6-17/6)	13 (18/6-24/6)	14 (25/6-1/7)	15 (2/7-8/7)	16 (9/7-15/7)	16/7-22/7	17 (23/7-29/7)	18 (30/7-5/8)	19 (6/8-12/8)	20 (13/8-19/8)	21 (20/8-26/8)
Tutorial Meetings					Greenlight	Holiday					
Service Conceptualisation	Value Constellation										
Experience Design	Service System Experience										
3. Present the Future											
Scenario Making											
Service Prototyping		Experience Prototyping									
Evaluation Session											
4. Backcasting											
Feedback Analysis							Qualitative Coding				
Refinement & Conclusion								Conclusion & Reflection			
Finalization									Report		
Presentation											Final

Presentation will be on the week of 27/08 to 31/08

Brief explanatory remarks on the planning, if any.

**Further comments and information**

In case your Assignment needs further comments, please add any information you think is relevant.

1. Christopher Noessel, Designing Agentive Technology AI That Works for People, 2017
2. Lenneke Kuijer & Elisa Giaccardi, Co-performance: Conceptualizing the Role of Artificial Agency in the Design of Everyday Life
3. Christy Pettey. Embracing Digital Humanism (2015). <https://www.gartner.com/smarterwithgartner/embracing-digital-humanism/>
4. Howard P. Segal, "The Technological Utopians", in Joseph J. Corn (Ed.), Imagining Tomorrow: History, Technology and The American Future
5. Knutsen, Jörn, et al. "Investigating an "internet of hybrid products": Assembling products, interactions, services, and networks through design." Computers and Composition 28.3 (2011): 195-204.
6. Polaine, Andy, Lavrans Løvlie, and Ben Reason. "Service design." From Insight to Implementation (2013): 202.
7. Dunne, Anthony, and Fiona Raby. Speculative everything: design, fiction, and social dreaming. MIT Press, 2013.
8. Aspen, Jonny, Et Al. "Challenges of the 'Urban Digital': Addressing Interdisciplinarity and Power in the Planning and Design of the Digital City."
9. Knut Landsverk, IoT is about services and experiences (2015). <https://www.liveworkstudio.com/monthly-magazines/iot-is-about-services-and-experiences/>
10. Lockton, Dan. "Transition Lenses: Perspectives on futures, models and agency."
11. Ranner, V., et al. "Plans and Speculated Actions." Workshop at DRS. 2016.
12. Kirby, David. "The future is now: Diegetic prototypes and the role of popular films in generating real-world technological development." Social Studies of Science 40.1 (2010): 41-70.
13. Cuhls, Kerstin, et al. "Models of horizon scanning. How to integrate horizon scanning into European research and innovation policies." (2015).
14. National Academies of Sciences, Engineering, and Medicine. Preparing for Future Products of Biotechnology. National Academies Press, 2017.
15. Lockton, Dan. Play Lab: Exploring Ambiguity (2016). <https://medium.com/@danlockton/play-lab-exploring-ambiguity-f70caaf296f7>
16. Rittmeyer, Nicolas. The differences between value propositions following GD and SD logic: A multiple case study. BS thesis. University of Twente, 2016.
17. Elliott P. Montgomery & Chris Woebken. Extrapolation Factory - Operator's Manual, 2016.
18. Ng, Irene CL. Creating new markets in the digital economy. Cambridge University Press, 2014.
19. Things as Citizens - General Presentation, <https://thingsascitizens.org/>

<sup>8</sup> Only by approval of the Board of Examiners, a not yet passed course may be combined with the Graduation Project. In such case, show the approval to your Chair and indicate the period of not spending time on your Graduation Project for this reason.

**APPROVAL BY CHAIR**

Date of approval	
Signature of Chair	





