EXPLORING CONTROVERSIES IN SMART CITIES- WORKSHOP SESSION APRIL 5TH 2019, FUTURE CITY FOUNDATION, AMERSFOORT

INTRODUCTION

Recently, 'smart city' business, policy and design visions have gained considerable traction. Smart cities aim to improve services and liveability through ICTs and supporting infrastructures and are rapidly gaining foothold in cities worldwide. These smart city visions have however received vehement criticism, amongst others regarding the ill-defined notion of 'smartness' and a-political technocratic nature.

As a result, the planning and implementation of smart city initiatives leads to "controversies". Controversies emerge from the coexistence of conflicting viewpoints about a certain issue that leads to debate or dispute. The implementation of technology in the urban fabric is particularly prone to controversies. Different stakeholders of society frame urban issues differently and perceive the implications of technology in dissimilar ways. In particular, social desirability of certain projects in smart cities is contested like the implementation of video-cameras in public areas, or the need to live in a data-driven society that focuses on optimizing and making more efficient urban processes.

At this project stage, we explore controversies in smart cities to understand how, in this context, technology is currently challenging and reshaping societal values. Our premise is that to gain insights into the impact of technology on societal values, it is necessary to understand where the potential frictions or tensions occur. To achieve our goal, we designed a workshop approach and

involved stakeholders that belong to different sectors of society (government, the private sector, citizens and academia) in different exploratory sessions.

This report includes the preliminary results from a workshop session hold at the Future City Foundation on April 5th, 2019. More than 40 participants attended the session, being part of different sectors of society namely: students from educational institutes, public servants working for municipalities and the provincial government and companies involved in smart city developments.

THE WORKSHOP

To explore the controversies in smart city, we developed a workshop approach to trigger participants to think about the potential tensions arising while thinking of their ideal smart city. The approach consisted of 4 main steps:

Step 1: The main goal of this step is to give participants insights into the current data collected in smart cities We probed participants with a visual that showed public space and the type of data that private and public organizations collected. Displaying this visual, we asked participants (1) the first thing they noticed, (2) the most surprising element of the visual, and (3) any other additional comments.

Figure 1 Example of visual used in workshop sessions displaying a commercial street

Step 2: In this step, participants needed to think of their ideal smart city. To facilitate participants' thinking process, we provided some preconditions, namely: (1) all data can be available, (2) people involved in smart city development have good intentions, and (3) everything that needs to be properly secured is secured. Apart from the existing data collection and usage as shown in the visualizations, we provided participants with tech-cards including the description of technology such as virtual reality, block-chain, drones or augmented reality. The main goal of the tech-cards was to broaden participants visions about dream smart cities scenarios, beyond sensors and data-driven solutions. To register what participants considered an ideal smart city, they had to fill 3 cards that stated:

"In a smart city, it would be wonderful….."

"In a smart city….."

"In a smart city, I would use technology and data to…"

Step 3: In this step, participants could vote for each other's ideas. They got 3 green stickers to vote for the best dream scenario according to them. They had to explain why they were voting for this scenario to each other. At the end of this step, the top 3 scenarios were selected to continue with step 4.

Step 4: At this stage, participants received templates to write down potential downsides of the top 3 dream scenarios. What risks or undesirable consequences could there be? This way, it was possible to discuss controversies or points where tensions or potential disagreements exist. The main goal is to identify instances in which people find a situation ideal whereas others perceive is as undesirable.

Figure 2 Some impressions from the workshop

At the end of the workshop, participants shared with the other groups the highlights of the session, describing the main scenarios they identified, their potential downsides and the discussions that originated from this.

RESULTS FROM THE WORKSHOP: DREAMS AND NIGHTMARES IN A SMART CITY...

After a first preliminary analysis, the dreams of the workshop participants related to 8 main topics:

1. Quality of life
2. Participation
3. Energy transition
4. Solidarity
5. Life as a service
6. Interoperability
7. Personalized city
8. Individual values

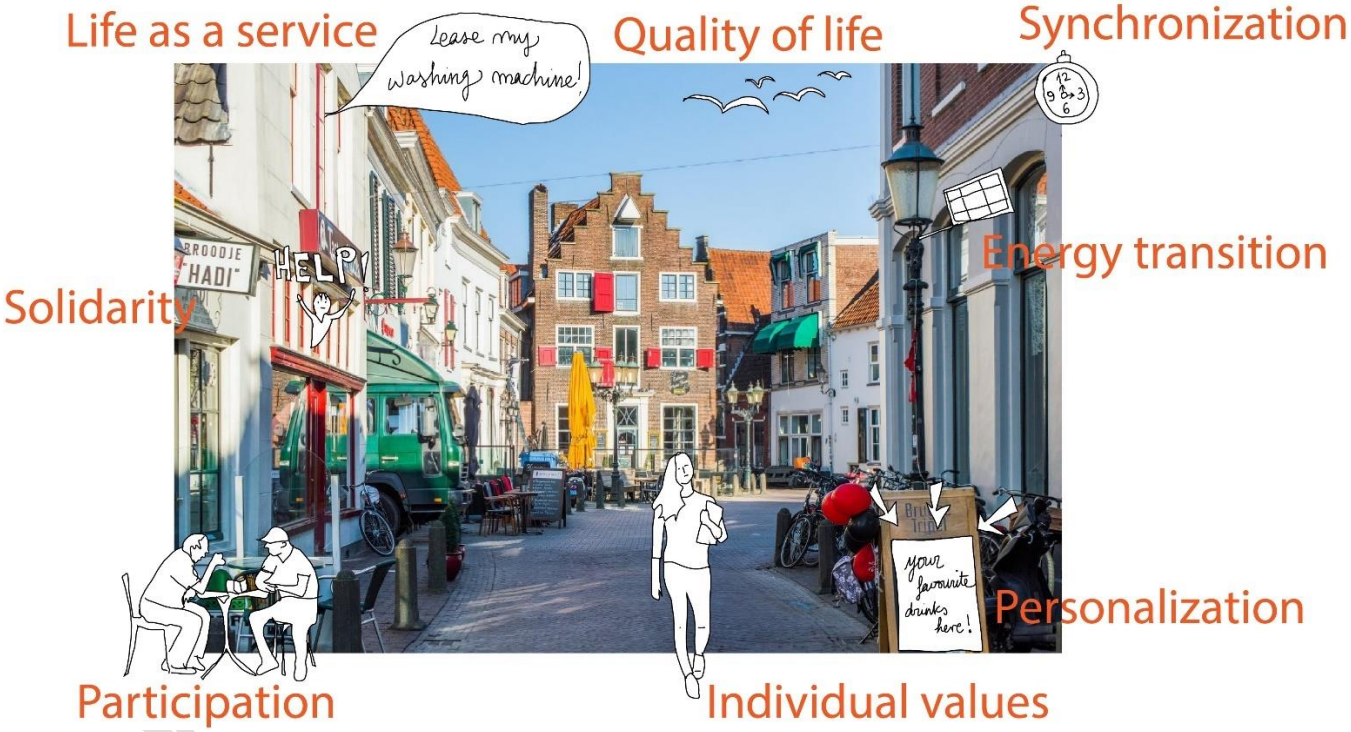

Figure 3 A street in Amersfoort and participants' dreams

Below, we elaborate on the dreams as explained by participants, as well as the associated nightmares they discussed within their groups.

Dreams and nightmares in a smart city… (1/2)

DREAMS

1. Quality of life

Technology is used to make **people** feel safe, happier, have more meaningful interactions, **experience the city better**.

Technology makes sure that people are not overstimulated.

Data collection helps to improve air quality, reduce traffic congestion, reduce criminality.

2. Participation

In a smart city, technology allows for the collection of **citizen's opinions** to incorporate them to their policies.

Data from citizens' opinions influences policy decisions.

In a smart city, society is participatory and everybody's voices are heard.

3. Energy transition/sustainability

Data provides better insights to **accelerate the energy transition**:

- by providing more investment opportunities and portfolios
- involve multiple stakeholders to achieve their goals
- capitalize the potential of the energy grid

In a smart city, technology encourages the sustainable behavior of people.

4.Solidarity

In a smart city, technology is used to **help people in need** where and when they need it.

NIGHTMARES

1. Quality of life

- Lack of autonomy and manipulation: decisions are made for you.
- Control of technology: Who determines what quality of life is?
- Mediocrity and rigidity because society moves towards standard frameworks and rules.
- Discrimination and punishment if you don't comply with what is expected from you.
- Private interests might prevail over public interest.

2. Participation

- Privacy concerns since your opinions are recorded
- Exclusion because of thinking differently
- People do not change their opinion
- Delayed decision making
- Peer pressure
- Digital literacy becomes a problem
- Imperfection is not possible anymore
- Minority groups might feel excluded since it is evident they are different

3. Energy transition/sustainability

- Control of technology: Who defines what sustainability is?
- Privacy concerns regarding use of energy
- Financial and technical feasibility
- Security concerns with risk of hackers jeopardizing energy services
- Losing control over devices
- Commercial interests and monopoly

4.Solidarity

- Who defines what "in need" means?
- Privacy concerns
- Discrimination: you may need help but don't get it, or you need help and people discriminate you because of it
- People become too dependent on the system, losing autonomy.

Dreams and nightmares in a smart city… (2/2)

5. Life as a service

DREAMS

In a smart city, "life as a service" exists. Society moves from product ownership to service and lease-facilities. These facilities are integrated for a **one-service driven life**: everything at your own personal preference when and where you like it.

NIGHTMARES

- Overflow of services and subscriptions, making you lose control of what you have.
- Passivity, loss of autonomy, too focused on consumption
- Algorithms determine your choices

6. Interoperability

DREAMS

Technology allows for the connectivity of cities because every city uses the same software and infrastructure. There is **uniformity**. It is possible to measure mobility and follow it, safety can be safeguarded in simple ways.

In a smart city, all data systems are interconnected for symbiosis. **Services are synchronized** to provide a seamless experience for citizens. No more waiting.

NIGHTMARES

- Everything is so efficient that there is no room for boredom
- Control of technology: who defines the which systems and processes are connected?
- Vulnerable to hacks
- No creativity nor innovation since everything is optimized and arranged in predefined processes
- People live in their own bubble
- Making everything interchangeable reduces its authenticity leading to mediocrity

7. Personalized city

DREAMS

- The data collected from citizens is used to provide a personalized city experience, with **targeted services and activities** depending on your preferences.
- You can interact with people with similar interests.

NIGHTMARES

- Commercial interests, misuse of information
- Conflict of interests: personalizing the city for some might be detrimental for others.
- People live in a bubble which may cause polarization

8. Individual values

DREAMS

In a smart city, citizens can be autonomous and decide where they want to participate (or not). Citizens can **opt out**.

In a smart city, citizens can **be themselves.**

NIGHTMARES

- Society turns very individualistic
- Difficult to achieve this in a data driven society where everything is aggregated.
- Who determines the rule of the values to be incorporated
- Privacy concerns due to excessive transparency
- Dangerous people can do dangerous stuff without others noticing
- Violation of human rights
- Discrimination and privacy concerns since everything is transparent
- Data becomes currency and you cannot opt out

Figure 4 Word-cloud based on the frequency these concepts were mentioned as important for participants

REFLECTION

Our preliminary analysis indicates that the use of technology in smart cities aims at fulfilling wishes about what we want our society (and its members) to *be, do* and *feel*. We dream of using technology to help us feel happy and healthy, adopt more sustainable habits in our energy consumption, or be supportive of others. Smart cities enable citizens and organizations to undergo major transformations towards becoming safer, healthier, or more efficient. The dream scenarios of the workshop participants revolved around the 8 themes below:

1. Feel happy and healthy
2. Feel heard and included
3. Act in a sustainable way (do)
4. Be supportive of others
5. Do whatever you want, whenever you want
6. Be efficient
7. Feel unique
8. Be yourself

Fulfilling these wishes and experiencing these transformations come with trade-offs. As a result, controversies occur. Controversies are not black and white dichotomies between two opposing poles. They surface tensions that emerge when fulfilling specific wishes puts pressure on public values. As a result, controversies lead to disagreements regarding what should be prioritized and why it should be prioritized.

In the workshop, participants discussed the main downsides of their dream scenarios. Although their ideal use of technology aimed at achieving agreed upon goals (like helping people in need), reflecting about downsides triggered a debate about the implications of implementing those initiatives; and how they could potentially threaten public values. Apart from the "usual suspects" that tend to appear in debates about the use of technology in smart cities (i.e. privacy, security), our first preliminary analysis shows that the concerns that participants mentioned more often related to (1) control of technology, (2) justice, (3) autonomy, and what we call (4)"unbubbeling".

1. **Control of technology**:

While addressing important issues such as quality of life, sustainability or helping people in need, the main controversy originates from the power that some members of society might have over others while setting definitions or goals. For example, we can all agree that using technology to help people in need is a noble goal. However, the main question remains: who determines what "being in need" means? This black-box and imbalance of power can lead to situations in which people that need help are not part of the system (hence, not being helped).

2. **Justice**:

While providing means to participate in public debate helps citizens to have an influence in policymaking, it impedes citizens to opt out. To influence policy decisions, citizens need to be actively involved and be part of the system, whether they want it or not. If they don't participate, their opinions will be excluded, raising concerns about justice.

Furthermore, optimizing urban processes entails evolving towards a more standardized society where being different and not fitting in might be punished; leading to exclusion. Participants emphasized the importance of considering the "right to be imperfect" in smart cities. If we move towards perfectly shaped standards, important values such as uniqueness will be left out.

3. **Autonomy:**

Focusing on consumption and achieving immediate services, citizens might make decisions without being aware of their consequences. By empowering algorithms (or the developers of algorithms) to decide what our actions will be, we might become passive consumers of what others decide we would like to have. This is already evident in optimized traffic, where we tend to follow our GPS blindly, without, sometimes, even looking at the road. The convenience and comfort provided by technology in smart cities might lead to deep changes in how autonomous we are individually and as a collective.

4. **"Un-bubbeling":**

We tend to use technology to achieve our individual goals: follow the most optimal route home, meet people with similar interests within our community, avoid wasting time at the city hall. Aiming at reducing time wasted in our chores or having access to the information we are interested in can make our daily life pleasant but, at the same time, it reduces the exposure to different perspectives. Staying in our own bubble can potentially lead to polarization and

isolation. Society comprises stakeholders from multiple spheres having diverse perspectives that enrich the city. As a result, we might end up forgetting the importance of unexpected city encounters which is, in the end, one of the main reasons for people to live in cities in the first place.

CONCLUDING REMARKS

We dream of what we want to *be*, *feel* and *do* in smart cities; and the ways in which technology can help us fulfill these wishes. Fulfilling certain wishes entails transformations that put public values under pressure. These tensions lead to controversies. To tackle controversies, stakeholders should debate and anticipate how these transformations occur, and how our interactions with the city and within the city evolve. Encouraging constructive dialogue to anticipate the effect of technology is essential to make an inclusive use of it.

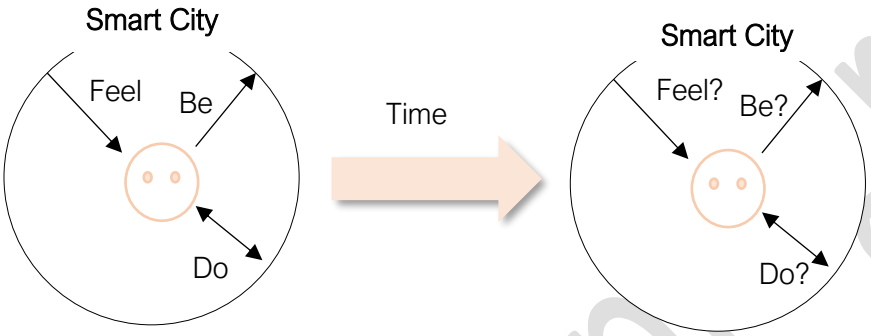

Figure 5 Transformation we and our cities experience [1]

Note: Figure 5 represents the transformation that results from the use of technology in smart cities. We use technology to fulfill certain wishes. By using technology, the ways in which we *are, feel and do* things in the city an fundamentally change. These changes need to be anticipated.

Notes/parking lot for next version:

- Involving stakeholders to ask "what if" and reflect about future scenarios (futurism, speculative design).
- Revisiting our goals while using technology, reflecting not only on wat we want to achieve, but also why and how we want to achieve it.
- Wishes and values about what we want our society to be, do and feel.

[1] This figure shows:

- The smart city is developed in a way to make me feel…. (from the city to stakeholder)
- In a smart city, I want to be….. (from stakeholder to the city)
- A smart city offers me the opportunity to do… (reciprocal relationship)