





# New methods of citizen participation based on digital technologies

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# Abstract

The current thesis presents research about new methods of citizen participation based on digital technologies. The focus on the research lies on decentralized methods of participation where citizens take the role of co-creators. The research project first conducted a review of the literature on citizen participation, its origins and the different paradigms that have emerged over the years. The literature review also looked at the influence of technologies on participation processes and the theoretical frameworks that have emerged to understand the introduction of technologies in the context of urban development. The literature review generated the conceptual basis for the further development of the thesis.

The research begins with a survey of technology enabled participation applications that examined the roles and structures emerging due to the introduction of technology. The results showed that cities use technology mostly to control and monitor urban infrastructure and are rather reluctant to give citizens the role of co-creators. Based on these findings, three case studies were developed. Digital tools for citizen participation were conceived and introduced for each case study. The adoption and reaction of the citizens were observed using three data collection methods.

The results of the case studies showed consistently that previous participation and engagement with informal citizen participation are a determining factor in the potential adoption of digital tools for decentralized engagement. Based on these results, the case studies proposed methods and frameworks that can be used for the conception and introduction of technologies for decentralized citizen participation.



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- I. Carvajal Bermúdez, Juan Carlos, and Reinhard König.  
“The Role of Technologies and Citizen Organizations in Decentralized Forms of Participation. A Case Study about Residential Streets in Vienna.”  
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# 0

## Introduction

### 0.1 MOTIVATION

The use of digital tools to engage citizens in urban development offers fascinating possibilities for the future of cities. At the core of this vision is an urban paradigm that gives citizens the role of protagonists in urban development and allows them to actively shape their neighbourhoods and cities according to their vision. Democratising, i.e., decentralising design processes that steer urban development, is a key step in shaping cities in consonance with the actual needs of its citizens. Here, digital tools can play a central role by establishing new channels of communication that blur the divisions between the administrative apparatus and citizens. A shift towards decentralised and ubiquitous participation methods could significantly change hierarchical or top-down structures that govern many cities and generate dynamics of alienation that inhibit participation. Such a transformation would allow for new hybrid models where self-governance could play a central role in cities.

This vision — using digital tools to create more horizontal structures in cities that allow for self-governance — operates at the intersection of opposed paradigms regarding urban and technical developments. For example, it assumes that technology can be a central piece in the generation of such structures; however, it also proposes that citizens and communities should play a central role in urban transformations. These assumptions oscillate between techno-deterministic and social constructivist paradigms. This research project does not blatantly reject technology or citizens as agents of change but rather looks at how to

best integrate both elements to conceive and introduce new methods of citizen participation based on digital technologies. Instead of trusting blindly in the capacity of technology, planning or communities to transform cities, it proposes technology as a channel to potentially give citizens the capacity to transform their streets, neighbourhoods or cities. This poses a contrast to more technology oriented paradigms, such as “smart cities”, where technology is proposed as a solution, or even as an agent of change in the transformation of cities (Hollands, 2008; Kitchin, 2014).

## 0.2 RESEARCH PROBLEM AND QUESTIONS

In recent years, numerous applications for citizen participation have emerged in various cities. This has already been noticed by different researchers who have analysed from different perspectives the characteristics of such applications (Desouza & Bhagwatwar, 2012, 2014; Ertiö, 2015; Thiel et al., 2016). The analyses have focused on the particularities of the applications, and the kind of engagement and actions allowed by them. However, limited attention has been given to the methods required to design and introduce digital technologies for decentralised models of governance in cities, where citizens, institutions and experts collaborate in the conception and design of urban transformations. The research literature has also not analysed the impact of such applications on citizen participation and what social and technical elements are needed for such platforms to be successful.

Furthermore, there is a latent techno-deterministic paradigm that implies that the introduction of new technologies would bring greater engagement and participation. This raises a critical question regarding the underlying promises of increased engagement and activation of citizens. We also do not know which elements determine the potential usage of digital tools and the hypothetical engagement of citizens in urban development. This presents a gap in the research work which necessitates the evaluation of new methods of citizen participation that establish new dynamics between citizens and institutions through the use of digital technologies. Given the gap in the research literature, this research will address the following main and subsidiary research questions.

- How should digital technologies be conceived and introduced to allow for the establishment of decentralised methods of citizen participation in the context of cities?
  - Which participation methods are emerging thanks to the introduction of digital technologies?

- How does the introduction of technology affect citizens' interest in initiating interventions in their cities?

### 0.3 AIMS AND OBJECTIVES

The main goal of this research is *to research new methods of citizen participation based on digital technologies that allow decentralised forms of participation as well as new dynamics between citizen institutions and other stakeholders*. To achieve this, this work will look first into existing applications for citizen participation, examining in particular the roles and dynamics that emerge due to the introduction of such technologies. Second, it will develop and test new methods of citizen participation, observing the degree to which the introduction of digital technologies changes the engagement of citizens. This will be achieved through case studies focused on particular methods of engagement. The case studies should generate new understandings about the implementation of technologies for decentralised citizen participation and the elements needed for such technologies to work.

The research will take into account both technical and social aspects, such as experience with technologies, previous experiences of engagement to effectively measure the effects of technologies in the individual motivation of citizens to participate in the development of their cities. To achieve the primary objective, other intermediate goals should be completed.

- Review current applications of citizen participation to learn about the methods of participation being offered and the degree to which such applications enable citizens to transform their cities.
- Develop case studies based on existing opportunities of engagement that allow for the evaluation of the impact of digital technologies in citizen engagement and participation.
- Evaluate whether the introduction of digital tools increases citizen engagement. This will be achieved through the data collection methods described below.

### 0.4 METHODOLOGY

The project will first conduct a review of the literature concerning citizen participation and technology enabled citizen participation in the context of urban planning. The literature review will identify existing frameworks to understand citizen participation and will lay the

theoretical framework for the project. Next, it will conduct a survey of existing applications in the context of citizen participation. This survey will investigate the methods and dynamics emerging due to the introduction of digital technologies for citizen participation. This will be achieved by observing the actions and roles being created through the introduction of digital technologies. The literature and the survey of applications will present the basis to conceive and introduce methods of citizen participation based on digital technologies. Each of the methods constitutes a case study in which digital technologies will be conceived, introduced and observed. The structure of the case studies is described below.

#### 0.4.1 CASE STUDIES

The case studies will observe the interplay of digital technologies, citizen engagement and participation through the introduction of digital technologies that facilitate the conception of interventions in the city. Citizen interactions with digital tools will be observed to learn to what extent these tools encourage citizens to be active or help transform the dynamics of participation in cities.

For the development of the case studies, (figure 1) existing opportunities for participation in cities will be selected. The obstacles and the regulatory framework related to such opportunities will be analysed to conceive digital tools that can potentially facilitate citizen engagement. Next, the tools will be introduced to observe the interactions of citizens with these technologies as well as the way in which they transform the dynamics of citizen participation. The tools will be developed and tested in collaboration with citizen organisations.

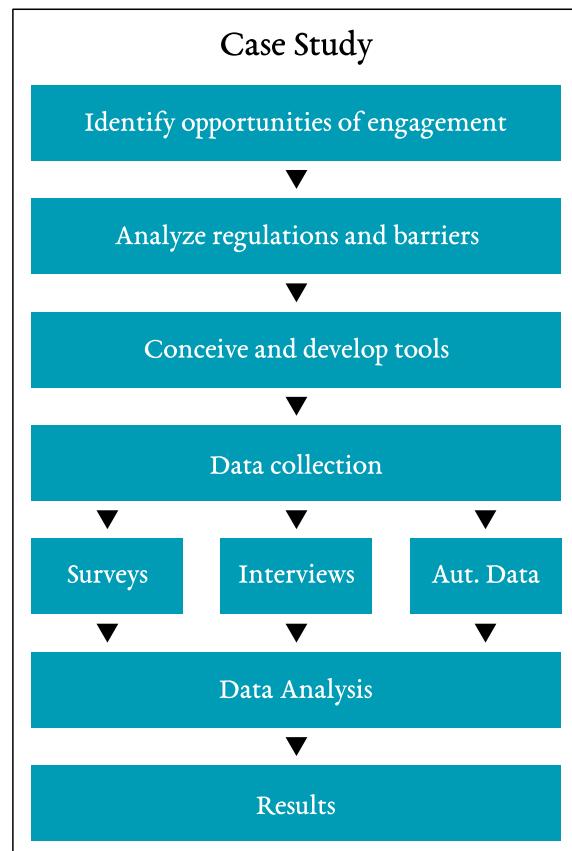


Figure 1: Schema of a case study

Measuring the impact of technology in citizen engagement requires observing variables

such as the previous engagement of people and their social situation. Previous research work on engagement and social structures have already demonstrated the link between the amount and quality of social connections and the engagement of individuals at different levels in society (Coleman, 1988; Lake & Huckfeldt, 1998; Bolino et al., 2002). This was conceptualised as a form of capital, namely social capital, i.e., an intangible resource that nevertheless can play a central role in individual success and engagement.

According to Coleman (Coleman, 1988) social capital can be described as social structures that facilitate action. While this form of capital is intangible as it is made of relations, it is still a resource for individuals that supports them in the achievement of goals. In this sense, such social structures are productive because they can facilitate the advancement of ideas and productive structures in society. In the context of citizen engagement, social capital can act as a facilitator for turning individual agency into collective action. This concept will play a key role in measuring the previous engagement of citizens and evaluate how the tools proposed can change their motivation or engagement.

#### 0.4.2 DATA COLLECTION

The following methods will be used to collect data for the case studies: automated data collection, surveys and interviews. The methods selected will allow us to conduct quantitative and qualitative analyses with the objective to gain a broad view through surveys but also to learn from individual experiences through interviews. With this data, we can measure the interest over time in participation tools and test whether web technologies can truly encourage and motivate citizens to be active in the city.

#### AUTOMATED DATA COLLECTION

To collect the data of visitors to the web-application, an open source web-analytics tool will be deployed. Such tool collects data to assess how the visitors used the digital tools introduced. With a warning about the use of cookies and data collection, the tool automatically collects data from the visitors including, for example, browser type, time stamp, screen resolution, and location. This data will help us understand the profile of the visitors. Additionally, it also allows for an assessment of the evolution of traffic over the observation time.

## SURVEYS

Surveys with citizens using the platform will be conducted. These surveys will enquire whether web-based tools such as potential maps and online forms can encourage citizens to become more active in the city. They will also ask about the expertise of the users with digital technologies and their prior engagement with public spaces. Based on the answers, the participants will be characterised according to their social background and previous engagement levels. The survey questions on social capital will be taken from the integrated questionnaire published by the World Bank ([Grootaert et al., 2004](#)). The surveys will be conducted both on-line and off-line.

## INTERVIEWS

Expert interviews with some users of the digital tools will be conducted. The interviews will be semi-structured, with some questions addressing technical aspects, and others relating to urban development and participation. Some topics will be defined and included as key questions. The interviews will also delve into the citizens' experience with participation processes, any obstacles faced and how technology can potentially support citizen participation. The questions will also seek information on their previous experience in citizen engagement and their perception about the digital tools introduced.

## 0.5 SIGNIFICANCE

The use of web technologies to engage citizens in urban development offers a promising vision for the future of cities in which people get the opportunity to actively shape their surroundings according to their vision. This perspective represents an urban paradigm that puts citizens at the very centre of urban transformation processes. Allowing citizens to shape their cities represents a much-needed change in processes that are often steered in a top-down way, leaving people with very few chances to participate in decision-making processes that have long-term impacts on their lives. The introduction of digital technologies can thus help cities use citizen knowledge about local problems to identify needs and opportunities around themes such as green areas, pedestrian ways, and public transportation, among others.

The proposed research will look at how technology affects citizen engagement, focusing on small-scale interventions. Through temporary experiments in the city, it will attempt to understand the impact that digital technologies have on citizen engagement. The project

will examine whether such technologies can remove some of the barriers to citizen participation by measuring if technology facilitates the access and understanding of policies and regulations. The findings should guide the conception of future tools for citizen participation that can truly change how cities work.

## 0.6 ORGANISATION

The literature review chapter recounts the origins of current methods of citizen participation and identifies elements such as the institutional arrangement and the modernist planning paradigms that contributed to separating citizens from the decision-making processes directly affecting their cities. Different paradigms and limitations related to citizen participation processes are also reviewed. The chapter also explores the relationships between institutions, citizens and technologies, and various conceptual frameworks that have emerged to address this development. The chapter identifies the tensions between various paradigms related to urban planning, participation and the use of technologies in the context of urban development.

The second chapter looks into existing technologies for citizen participation available in the biggest cities of Austria, Germany and Switzerland. A sample of applications was reviewed and analysed using a review matrix with the goal of identifying current roles and methods of technology enabled citizen participation. This analysis should reveal unexplored methods and help in the conception of the case studies. The findings show that applications where citizens report infrastructure problems are the most common while there are far fewer applications that allow citizens to assume the role of co-creators of the city. The chapter concludes that conceiving and evaluating applications that allow citizens to take the role of co-creators by proposing interventions in the city is still a field that can be explored in the context of research projects.

The first case study focuses on parklets in Vienna as a method of participation that lets citizens propose new green areas or sitting spaces in existing parking places. A web application was developed and promoted through social media and also by contacting citizen organisations interested in the construction of parklets. The results show a disjunctive between the perception of the tools and their actual use. While many people acknowledge the potential of digital tools in digital participation, some tools were received weakly. Furthermore, the case study showed that digital tools did not significantly alter current patterns of engagement, thus suggesting that coupling digital tools with engaged citizens can help max-

imise their impact. Based on this conclusion, a model for hybrid networks of engagement was proposed.

The second case study focused on residential streets (*Wohnstraßen*) in Vienna. For the case study, we collaborated with *Space and Place*, a citizen organisation that encourages social interchange in the city and activates public spaces through playful interventions. For the case study, tools such as an interactive residential street map and a residential street quiz were developed. The results showed that the adoption of the tools was greatly facilitated by the cooperation with Space and Place. Based on the results, a model for the creation of hybrid intermediaries for decentralised participation was suggested.

Play streets (*Spielstraßen*) in Vienna were selected as the third case study of the research project. Play streets are a partially formal method of engagement that allow citizens to organise regular street closures where children can use streets to play. The digital tool conceived for the case study highlighted factors that facilitated the organisation of play streets. Additionally, the online tool included a form that facilitated contact with the relevant department of the city of Vienna. The results suggested that previous experience with the organisation of play streets can be a determining factor in the adoption of technologies for engagement. The results suggested that platforms for decentralised engagement need to use the experience of engaged citizens. A model for future platforms for decentralised engagement was suggested.

The conclusions discuss the findings of the research, summarising how the results contribute to the main goals and questions of the current research. The conclusions connect the results to the research questions as well as the literature review to explain the contribution of the current work.





# 1

## Literature review

### 1.1 ORIGINS OF CITIZEN PARTICIPATION

The understanding of citizen participation as a central component of urban planning can be linked to at least two developments. The first is the establishment of institutions that manage various aspects related to urban development such as land use, the distribution of public spaces, and the conception and execution of urban development plans. The second is the emergence of planning as a profession that claims urban development as its area of expertise. These two developments led to a progressive exclusion of citizens from the decision-making and conception processes that steer urban development.

To understand the current dynamics of citizen participation, it is important to analyse the historical developments that led to its appearance in the second half of the 20th century. The following literature review will help clarify and answer central questions such as *a*) why citizen participation is needed in the first place; *b*) which historical developments led to the current institutional configurations and planning paradigms; and *c*) the role of technology in citizen participation processes. The following sections will review both the origins of modern institutions and urban planning as a profession. These two elements show how the gap between citizens and their cities grew to such an extent that citizens had to reclaim their right to participate in the processes that shaped their neighbourhoods and cities.

### 1.1.1 INSTITUTIONAL CONFIGURATION AND ACTORS

Understanding the modern institutional configuration can help us comprehend the origins of participatory paradigms for planning. The historical development of the legal framework of cities led to the separation of public and private entities, including those concerned with urban development. Modern institutions insist on a separation of the public and private interests that directly or indirectly introduces barriers between citizens and the governments of their cities ([Frug, 2001](#)). This process occurred parallel to an intensification of industrialisation processes as well as increasing complexity in the regulations that steer the development of cities. Because of these shifts in the institutional configuration, urban development processes became increasingly restricted to a few actors, while citizens were gradually pushed away. This has led to the alienation of citizens from decision-making processes that directly affect them.

#### PRIVATE-PUBLIC DIVISION

[Frug \(2001\)](#) proposes that the modern separation between citizens and institutions becomes more clear when comparing the current legal framework with that of the Middle Ages. While in contemporary cities, individual rights are strictly separated from sovereign rights, this separation was not clearly defined in the Middle Ages. Various organisations, such as associations, guilds, monasteries and households, played a central role in both city government and in the individual lives of its residents. Guilds, in particular, impacted private and public affairs at the same time. They provided their members with food, organised their training and regulated their career paths from apprentice to journeyman and finally to master. However, guilds also had an important influence in the local governments; for example, they often *a)* controlled prices, *b)* regulated manufacturing and quality standards, and *c)* had their leaders elected as members of the local government ([Mumford, 1989](#)). This conferred on guilds a dual role in society, which affected both private as well as public interests.

In the Middle Ages, the amalgamation of private and public interests resulted in diverse connections between individuals and the city as a whole. The organisation of a medieval city could be interpreted as separate parts that successively formed larger organs. A guild represented a community of master craftsmen, journeymen and apprentices together with their families. The city, in turn, was an association of merchants and craftsmen organised around guilds. The success of the town was directly connected to the success of the guilds — and by extension its members and their families. Such structures blurred the division

between *a*) private and public matters; *b*) private property rights and sovereignty rights, and *c*) individual interests and the interests of the town. In such structure, each member of the community, even if oppressed by a strict hierarchy, understood that maintaining the harmony of the parts had a greater purpose, namely, the autonomy achieved by the town as a whole. Such an organisation in which private, public, political and economic affairs were largely amalgamated, gave the town a higher degree of autonomy, and its residents were able, at least partially, to govern and develop the city in accordance with their own rules. ([Frug, 2001](#)).

However, such an amalgamation was not unproblematic. According to [Frug \(2001\)](#) the medieval town, and later some English and American cities, often played an intermediary role between the parent power and individuals. For example, the hierarchy of a medieval town, with the oligarchs on top of it, was a rather oppressive structure, yet, it also granted the town and its members autonomy from the king. This conflictive role was replicated later in cities by corporations. They behaved as small republics that could challenge state power as well as threaten individual rights. This dual role made them uncomfortable both for states and individuals, who could see such corporations as a threat to the integrity of their power or their liberties respectively.

According to ([Frug, 2001](#)) it was with the introduction of the private and public distinction for cities that they were clearly defined as public entities, and corporations and individual as private ones. The public sector was subjugated to the state power while the private entities were protected from it. This new configuration gave cities a clear role in the organisation of the state; however, it also stripped them of some autonomy as they were forced to work within the legal framework of a parent power. The new division between public and private entities also separated various rights such as property and sovereignty rights. For example, private property was protected and public regulations were assumed by public institutions. It is precisely in this legal division that some barriers for citizen participation began to take root. While individuals obtained protection from the state, they were also cut off from the management of public affairs, including, among others, the development plans of their cities, or the design and architecture of public spaces.

#### TRANSFORMATION OF SOCIAL STRUCTURES

Lefebvre ([Lefebvre et al., 1996](#)) also establishes a contrast with the towns of the Middle Ages to understand the social structures that induced large transformations in cities. From a materialistic perspective, he suggests that the social dynamic of a medieval town was driven

by the use value assigned to urban spaces, rather than the exchange value assigned to products. This was possible because the wealth accumulated in the town was reinvested back into the town. For example, markets and union halls show how artisan and merchant associations invested their wealth in architectural projects. In a similar way, palaces, buildings, embellishments and festivities magnified the success of the town and exalted the power of its craftsmen and merchants. Often, such festivities and prestigious projects were unproductive initiatives that had no other purpose than flaunting the success of their promoters. Nevertheless, such unproductive expenditures shaped the architecture of the town and supported its social life. While such expenditures nourished town life and generated beautiful pieces of art and architecture, many, including Lefebvre, recognise in such projects a justification for an expression of the oppressive system of medieval cities ([Mumford, 1989](#)).

Lefebvre ([Lefebvre et al., 1996](#)) stresses that with the advent of industrialisation, great changes in the distribution of wealth and power also affected the social dynamics of cities. In his view, industrialisation triggered a major shift that reduced the use values given to urban spaces and prioritised exchange values inherent to products. Hence, he sees industrialisation and urbanisation as closely related processes with slightly different dynamics.

While at the beginning, most industries were located outside of urban cores, they were eventually moved into cities because the concentration of resources facilitated better organisation of production and consumption. This created a rupture within the towns of the Middle Ages and triggered a shift in the social dynamics in cities, where the division of labour and the control of means of production played a predominant role. Wealth started to be reinvested in the production means rather than in the city itself. The oppression prevalent in medieval towns began to be replaced with the exploitation of the workforce. This dual process deeply affected existing towns both physically and economically. The urban cores of the Middle Ages were partially destroyed and re-purposed as centres of production, resulting in a new urban reality where the logic of production took a commanding role. Social life thus shifted towards the logic of production and accumulation of capital.

Against this background, Lefebvre highlights the influence of industrialisation and rationalism in the development of cities. He links the segregation of citizens from decision-making processes and urban life to the growing influence of rationalism and industrial production processes in the construction of the city. In his view, urban planning and development fell under the control of three main actors. First, architects and writers who, while following a liberal humanism tradition, are mostly focused on formalism and aestheticism as planning paradigms. Second, the state and public institutions that follow a strongly

technocratic and techno-deterministic form of planning, which mostly trusts technology and science to address urban questions. The third actors are developers who conceive and realise projects openly oriented towards profit and strongly linked to consumerist values and a detachment of urban life (Lefebvre et al., 1996).

#### INSTITUTIONS AND EXPERTS

Jacobs (1992) denounced institutions and experts for their misconceptions and false assumptions regarding planning. One of her central theses is that experts ignored aspects that are essential to generate lively and pleasant cities to live. For example, she emphasises that mixed uses generate traffic and activity throughout the day as different persons carry on different activities. This has a direct impact in the use of parks, streets and neighbourhoods. In her view, an increased flow of pedestrians leads to improved security and avoids urban blight. She contrasts several examples of diverse neighbourhoods with the results of the planned districts and notes that single zone-use policies imposed in the new districts contribute to insecurity and eventually degeneration. She also vehemently criticises various projects typically created by planners, such as deserted cultural centres, promenades that are not articulated with the city, and highways that split the city in parts. In her view, such projects often destroyed neighbourhoods and created monotonous and sterile areas incapable of offering good quality of life.

According to Jacobs (1992), planners have assumed that certain practices and design elements are beneficial for the city without any factual evidence in support of them. Their decisions are based on theoretical foundations suggested by the proponents of Garden or Radiant Cities, among others. Some of these claims are that *a)* open spaces like parks are automatically an enrichment for a neighbourhood; *b)* the city should be organised around functions that should be separated from each other; *c)* high densities represent overcrowding and a low quality of life; and *d)* cities can be freely designed as if they were works of art. Apart from planners, Jacobs also mentions bankers and government officials as the actors that *a)* enabled or promoted large renewal projects, *b)* financed urban renovation and *c)* restricted access to credit to neighbourhoods that were considered as slums but could be still “unslummed”, i.e., recovered without a complete renewal. Within such planning and institutional frameworks, citizens were not included nor consulted about the realisation of such projects; instead, experts and institutions executed their plans with the firm conviction that their assumptions and paradigms were correct.

Jacobs (1992) contrasts the claims of planners with the reality of existing and renovated

neighbourhoods to show that many of their assumptions are not accurate. She explains why the paradigms of planners can lead to overstretched and desolate areas, which are not attractive to their residents, and are eventually affected by the very problems they were trying to eradicate. Finally, she argues that it is possible to recover neighbourhoods with measures such as subsidised housing, public transportation and salvaging low-income housing projects.

## SUMMARY

In this section, the institutional configuration was explored from three different perspectives. One presented the legal developments that led to a separation of public and private matters in cities and consequently, to a distancing of private citizens from the management of urban spaces. The second perspective showed how industrialisation transformed urban development by introducing new social dynamics and new actors such as planners, institutions and developers. Finally, the third perspective showed how an informed citizen denounced the negative impact that experts and institutions had on the city by showing how some of their assumptions about urban development destroyed communities and failed to create the conditions that support active parks, streets and neighbourhoods.

In the three perspectives presented, it is possible to identify a pattern of centralisation or concentration of the power structures that manage cities. The roles assumed by institutions and experts or the concentration of capital show that the distribution of power and resources has been increasingly concentrated, while citizens have lost the ability to shape their urban environments.

However, it is not just the public-private division or industrialisation processes that have widened the gap between cities and their cities. The dislocation between institutions and citizens was exacerbated by the establishment of planning as a profession and the creation of tools to manage urban development. Zoning plans, together with building regulations, triggered a different dynamic in cities, where the development is conceived and carried out by a collaboration between public institutions and experts. The city, rather than being a collage or the overlap of multiple parts, is guided by a plan for the future envisioned by a reduced number of professionals. This conception of the city as the result of a single master plan was strongly influenced by the ideas of modernism.

### 1.1.2 PLANNING

The second development that contributed to establish citizen participation was the creation of planning as a profession that claims urban development as its area of expertise. Some of the most notable paradigms — modernist and systems planning — abstracted the city as a collection of functions or elements that could be freely designed or rearranged according to the vision of a reduced number of experts. In both of these paradigms, the planning and decision-making processes were centralised, while the role of citizens and communities was reduced or neglected.

#### MODERNIST URBAN PLANNING

Two of the fundamental principles of modernist planning are a rationalist and functionalist conception of the city. The principles underpinning modernist planning were discussed in the IV CIAM congress, called *The functional city*. It was during this congress that Le Corbusier presented the four functions that, in his view, determined the functioning of cities: dwelling, work, circulation, and leisure. Additionally, he also suggested *a*) that private property was an obstacle for urban reconfiguration and *b*) that cars and trains have created a new scale for cities as they allow to travel larger distances. The discussions carried during the IV and subsequent CIAM congresses cultivated a rationalist paradigm that relied mainly on technology and scientific evidence to conceive, design and build cities ([Mumford, 2000](#); [Gold, 1998](#)). Such rationalist and functionalist conception was of central importance for the Athens Charter, a document that collected guiding principles for modernist planning practices.

According to the modernist view, rationally designed spaces organised by function should create cities freed from the ills of the industrial cities of the 19th century, which were plagued by overpopulation, poor hygienic conditions and poverty. This paradigm assumed that well-planned infrastructure, an organisation of functions, and sharply designed spaces would suffice to deliver a better quality of life, ignoring the central role that citizens and communities play in the creation of both environmentally and socially sustainable cities. The paradox is that the execution of their plans delivered results that differed significantly from expectations. Brasilia or Pruitt-Igoe have become representative examples of this contradiction: an utterly rational approach towards urban development could generate problems similar to those that it intended to eradicate ([Jencks, 2011](#)).

The controversies regarding Brasilia are symptomatic of the shortcomings of modernist

planning. Brasilia was erected from the ground up at the end of the 1950s. The government had big expectations about the new capital. Brasilia was to symbolise a new beginning for the state, now independent from its former colonial power. The new city would reflect neutrality, federalism and also equality. It would also be a symbol against discrimination, injustice and class distinctions — sensitive topics in a country that emerged from a colony and suffered from systematic segregation against and exploitation of particular ethnic or racial groups. The city also embodied a long-term strategy for the country that would stimulate a more continental development, away from the coasts where most of the population was settled. At the same time, it would showcase the economic power of the country, its social development and its preparation for the challenges of the future.

This development presented a perfect scenario for the realisation of the modernist ideal: a city that could be entirely conceived and planned according to functionalism and freed from constraints such as private property. Within this context and its ambitious objectives, city planner Lúcio Costa and renowned architect Oscar Niemeyer created an equally magnificent vision for the city. They envisioned futuristic and monumental buildings and prefabricated housing that followed the principles of equality. In their plan, they embraced the modernist ideal, and their project clearly divided the city by different functions, including large green areas inspired by the garden city movement. Even if auto ownership was restricted to a small sector of the population, the master plan suggested a transport system based on roadways that would permit free flow of traffic. Such magnificent gestures indicate that Brasilia was conceived as an ideal city with an explicit monumental character that would command the landscape and become a model for future cities.

However, the realisation of the master plans and the prestigious buildings delivered rather different results. The city effectively reflected the ambitions and well-meaning visions of its architects and politicians. It failed, however, to take into account social realities and a monumental scale outweighed the human one. The emphasis on motorised mobility led to an increase in distances and an over-extension of sectors. The oversized public spaces remained empty, the monumental dimensions of the city did not create places for social interchange and encounters. The focus on highways created plenty of space for cars but little for pedestrians. In Brasilia, the new scale anticipated by Le Corbusier during the CIAM congresses showed its negative consequences as it generated desolate areas that repelled pedestrian traffic. Authors such as Roll Italiaander or Simone de Beauvoir pointed out that the city lacked humanity and that it was not a pleasant place to wander about in ([Italiaander, 1967](#)). The concept of place as a space that brought together both the spatial



**Figure 1.1:** Superimposition of Brasília and the master plan.

Source: NASA Earth Observatory image created by Jesse Allen, using EO-1 ALI data provided courtesy of the NASA EO-1 team and the United States Geological Survey.

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and social dimensions of cities was not materialised in Brasília.

Additionally, the housing solutions envisioned in the master plan evidenced a disconnection from the social reality of the country. Already during the construction of the city, temporary settlements emerged to host the migrant workforce that was attracted from other regions of Brazil. Such settlements, however, became permanent after the construction was finished. The core of the city remained reserved for public servants and the upper-middle classes. Groups with lower incomes could not afford to live there and were effectively pushed to the periphery. Hence, the working class started building simpler and smaller houses in the periphery. The city was planned for about 500,000 inhabitants; however, much of the development occurred in unplanned settlements around the city (Figure 1.1). Today, a handful of satellite cities belong to Brasília, with a total population in the metropolitan region of about 3 million. Such settlements demonstrate the shortcomings of modernist master planning, as its focus on functionalism and aestheticism fails to take into account the social dimensions of urban development (Epstein, 1973).

The example of Brasília not only shows the complications that emerge from leaving urban development in the hands of a few experts, but also demonstrates how the combina-

tion of public institutions and the establishment of planning as a profession leaves little room for people to participate in the development of their own cities. The construction and further development of Brasilia excluded citizens both from the planning process and the result itself since many were forced to live on the periphery. Brasilia, praised by some and criticised by others, nevertheless evidences *a*) the context in which citizen participation began to emerge as a central component of urban development, and *b*) the shortcomings of functionalist and rationalist paradigms.

#### SYSTEMS PLANNING

The approach of a master plan had a tendency towards design-determinism, as it assumed that a single plan could control every aspect in the development of the city. This led to the conception of new approaches that could overcome the intrinsic limitations of functionalist planning. For example, system planning provided a slightly different approach towards urban planning, which aimed to guide the course of development by controlling certain elements rather than defining it through a formalistic design. Instead of dictating a fixed course and form for development, systems planning steered it through, for example, public investments and the regulation of private activities. This represented a change from an all-encompassing master plan to a more balanced conception of urban development where the final results emerged from the interaction of various elements and not from a vision fixed in a plan.

[McLoughlin \(1969\)](#) set the conceptual basis for a systems approach towards urban and regional development. Instead of conceiving cities as a set of functions that could be freely reordered by planners, systems planning first understood humans and their activities in the broader context of their ecological settings. In his view, human behaviour and the surrounding environment influenced each other in various ways, often with negative impacts on both the environment and its inhabitants. For example, technologies such as steam engines and mechanised agriculture but also atomic tests had already shown dramatic consequences for the environment. Such examples show that the interactions between humans and their environment could determine a particular course for the development of the ecosystem. Hence, a central notion of system planning is that the outcomes could be predicted and guided if certain elements of the system could be regulated.

This understanding of the environment as an ecosystem allowed for the advancement of a concept of planning that would borrow ideas and methods from other disciplines that studied systems. In particular, cybernetics played an important role, given its focus on sys-

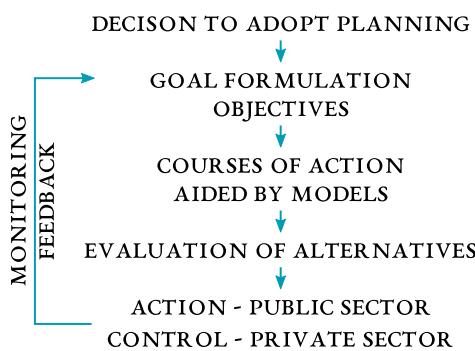
tems that mutually interacted with the environment. The concept of a system able to react to external feedback provided a fresh approach for urban planners. McLoughlin mentioned that a key idea in his book was to understand “the environment as a system and its control by the application of cybernetic principles” (McLoughlin, 1969, p. 75). This involved abstracting elements related to urban planning and generating models that could be adapted to the feedback received from external factors (figure 1.2).

The proposed approach abstracted human activities as parts of the system. The connections between the parts are forms of communication that took place through different channels such as, for example, radio and television, but also modes of transportation. This basic system of activities linked by communications is then situated in a spatial

context where the activities take place. The elements of the system can be described with more precision through types and modes; for example, activities can be recreational or residential, while communications can take place by car or train, each with a particular flow of passengers. The evolution of the system and its goals would be monitored to detect influences of external factors. This would allow for the revision of the parameters of the system and course-correction, where needed. This approach represents the feedback mechanism that allows for correcting the path of development.

The view of cities as a result of different systems led also to the modelling of such systems in an attempt to predict their future behaviour based on previous observations. A model, for example, can predict demographic development and anticipate needs for housing and transport. This presented planners with a powerful scientific tool to define the paths of action with the output of the model. The decisions would be translated into public policies and regulations that contributed to the achievement of the goals defined in the process. For example, investments from the public sector combined with regulations for the private sector can steer development in a particular way. Changes and adjustments could be made based on surveys and monitoring of the actual development (figure 1.2).

Even if the approach proposed by systems planning was in many ways more flexible than



**Figure 1.2:** System planning process according to McLoughlin.  
Based on Hall (2012)

that of the modernist planners, it still suffered from important limitations. Even a well-calibrated model necessarily has omissions to reduce its complexity, i.e., it requires some degree of idealisation. Furthermore, there might be external changes that the model is not able to represent, such as technological leaps that significantly alter the elements of the system. The model is also operated in multi-level regulatory frameworks (local, regional and national) that can complicate or even hinder its suggested path of action. Finally, the values that guide development might in reality change or openly clash against those intrinsically embedded in a model. For example, a model might suggest the construction of a highway that crosses a historic neighbourhood. What can on paper seem like a rational decision can in reality imply the destruction of communities and historical sectors ([Hall, 2012](#)).

Perhaps the major limitation of the systems planning approach is that any omissions or idealisations embedded in a model represent a set of decisions that will necessarily affect the results. This undermines the claims of systems planning to provide a neutral approach to urban development. A given model might prioritise public transport or private mobility with considerably different results for the predicted development. What planners could see as a neutral and scientific result might have already embedded choices and values regarding urban development.

## SUMMARY

In this section, the shortcomings of modernist and systems planning were analysed. Modernist planning followed a functionalist and rationalist paradigm for the development of cities. It proposed that cities could be freely designed and rearranged following a master plan. This conception, however, failed to take into account the social dimension of urban development. The construction of Brasilia exemplified the shortcomings of modernist planning; for example, *a)* it was conceived for motorised traffic rather than pedestrians; *b)* it worked on a scale did not allow for social encounters or pedestrian traffic; *c)* it forced the construction of satellite cities to host the population that could not afford to live in the newly designed sector.

Systems planning, even if it differed from the concept of the design-deterministic vision presented in modernist planning, still had a functionalist paradigm as it aimed to steer various elements to change the behaviour of the whole system. More importantly, it followed the assumption that urban planning was an apolitical task that could be left in the hands of a few experts. While systems planning recognised various elements that influence urban development, it still operated from a configuration of institutions and experts where citi-

zens did not play any role. Systems planning failed to recognise that reconciling or choosing among different values for society is a political task which passes through a treacherous realm of compromises and decision-making. Hence, new planning paradigms calls for a view that went beyond mere engineering ([Friedmann, 1994, 1993](#)) and involves communities started to emerge ([Hall, 2012; Lane, 2005](#)).

## 1.2 CITIZEN PARTICIPATION

The previous section showed the legal, economic and social developments that led to a gradual separation of citizens from the institutions and social structures governing cities. Such changes evolved parallel to the creation of planning as a discipline concerned with the conception, design and execution of development plans for cities. This is the background against which citizen participation emerges. The following section will review some of the approaches that emerged, as well as the limitations of citizen participation processes.

### 1.2.1 APPROACHES TO CITIZEN PARTICIPATION

Citizen participation emerges in the context of a centralisation of power structures and planning practices. As a reaction to the results of modernist and systems planning approaches, citizens started to claim the right to participate in the decision-making processes that were used to decide the future development plans. Government bureaucracies led by experts and technicians had proven insufficient to fully address urban development challenges. Even if guided by praiseworthy ideals, the modernist utopia destroyed communities and failed to generate the settings for an authentic urban life. Instead, it generated sterile urban spaces, both in communist and capitalist countries. Therefore, citizen participation emerged and established itself as a common practice in urban development. The articles of Arnstein ([Arnstein, 1969](#)), Davidoff ([Davidoff, 1965](#)) and Healey ([1996, 1992](#)) presented evidence of an important turn in the conception of planning practices and proposed the interests of citizens and communities as a key element for the conception of cities.

#### CITIZEN POWER

[Arnstein \(1969\)](#) saw participation as a fundamental piece in any democratic system that became uncomfortable when disadvantaged communities also claimed their rights. She argued that disenfranchised communities had been excluded from power structures and saw their participation as a central step in addressing social inequalities and injustices. She

defined participation as a form of citizen power that redistributed economic and political control over processes and resources, for example, in policymaking, tax distribution, and planning projects. Based on this definition, she proposed a framework to classify and understand the different forms of participation, depending on the level of control or power conferred on citizens. Her framework has become a central reference for evaluating citizen participation processes.

She described eight different methods of citizen participation and classified them according to the levels of citizen control or power. The three main levels proposed are *a*) non-participation; *b*) degrees of tokenism; and *c*) degrees of citizen power. In the first level, she mentions therapy and manipulation as methods used to steer participation processes in a predetermined way or induce, “educate”, the participants to agree with the proposed plans. In the second level, tokenism, [Arnstein \(1969\)](#) mentions efforts to inform, consult and placate, which are used to make citizens aware of their rights, ask for their opinions, or include them in public bodies such as planning boards. While these methods allow some participation, they do not give citizens any real power to decide on their own fate. Finally, under citizen power, she mentions partnerships, delegated power and citizen control. Here, she stresses that some partnerships were established mostly because of pressure from citizens rather than the initiative of the cities. For delegated power and citizen control, she offers examples where communities were allocated budgets to select their own planners or to start economic development projects on their own.

Finally, [Arnstein \(1969\)](#) recognises that the idea of citizen power is controversial. Just as cities acted as intermediary powers that could undermine individual freedoms, neighbourhood corporations or other forms of citizen power can potentially exclude or segregate other citizens from resources that are managed by the corporation. Other authors ([Frug, 2001](#)) also recognise that transferring powers to intermediary groups can lead to abuses. Nevertheless, Arnstein thinks that empowering citizens is an effective way to address the grievances of disadvantaged communities, and ultimately, reorganise power structures.

#### THE PLANNER AS ADVOCATE

[Davidoff \(1965\)](#) points out that planning cannot be seen as a neutral activity since it is necessarily linked to political choices regarding the development of the city and society. Defining a course for development will always be a contentious activity in a society with diverse opinions and values. He stresses on the need to understand planning processes as part of a political debate where multiple and opposing proposals must be considered and discussed.

Compromises are essential to such processes, and the planner is called upon to navigate, identify, and balance multiple visions of the city. This could be done, for example, by allowing interested communities or groups to present their alternatives to proposed projects. He argues that this will contribute to an urban democracy, which would give citizens a role, albeit indirect, in shaping public policy.

In his opinion, citizen participation must go beyond hearings and allow citizens to shape the plans that affect their communities. He believes that planning has been restricted to agencies and agency planners operating within a political context where they are often disconnected from the needs of the community. Participation in that context is often reduced to considering alternatives developed by agency planners rather than the communities themselves. Such isolation from the broader context can lead to incomplete analyses that do not consider viable alternatives more aligned with the interests of the communities. To allow for a plurality of viewpoints, he proposes that stakeholders outside the agency be allowed to develop and promote alternative plans. This would relieve the agency of the burden of elaborating on alternatives on behalf of others, and would facilitate a discussion of options that already have the support of the communities. Furthermore, it would force stakeholders to come up with better alternatives rather than just pointing out problems in other plans.

With this proposed method, he aims to balance the plurality of views and interests present in the city — an urgent task in the context of increasingly centralised bureaucracies. [Davidoff \(1965\)](#) also creates a parallel between planners and lawyers. In his view, planners, as lawyers, should assume a representative role and act in behalf of a particular group. The planner will also provide consultancy to the groups involved to inform and assist them in the improvement of their proposals. In this role, the planner will interpret the views of the stakeholders involved, and elaborate upon plans to be presented and defended against other competing proposals. The confrontation of various proposals should enrich the planning process by identifying the strengths and weaknesses of each. This would lead to the generation of a consensus through the evaluation of diverse alternatives.

#### PLANNING AS A CONSTRUCTION OF DISCOURSE

With a pluralistic and deconstructivist approach, [Healey \(1996, 1992\)](#) criticises the rationalist underpinnings of strategic planning and instead proposes planning as a communicative activity where a plurality of actors reach consensus through dialogue. In her view, systems planning ([McLoughlin, 1969](#)) was a reductionist approach that focused mostly on the dis-

tribution of material resources, leaving aside important aspects such as the environmental and social conditions. In her view, there is a need for a new planning approach that emerges through a process of public discourse and dialogue. Through such a process, it is possible to include a plurality of views and balance the various interests that go beyond the distribution of resources.

[Healey \(1996\)](#) argues that values and interests are socially constructed through the interaction and collaboration with others. Hence, there is a need to establish public debates where collective issues and values are also shaped through dialogue. Public debate should aim to include a wide spectrum of views into a process of “inclusionary argumentation”. In the context of planning, a public debate is a method of challenging and transforming the way in which discourse about planning is constructed.

For the generation of a public discourse around planning, she suggests an strategic process to collect, discuss and select ideas for planning proposals. Such strategy needs appropriate spaces “arenas” and modes of discourse that allow the inclusion of multiple participants. The discussion in the arenas should open to planning issues through an inclusive discussion style where different languages are accepted. The results of this initial steps are multifaceted proposals and ideas, which need to be sorted and analysed through further discussions, where the participants themselves get to contrast their point of view against others’. This, rather than identifying problems, would highlight which moral and aesthetic values should be considered in the planning process. Such a process should set the basis for the formulation of a new more inclusive and participatory planning discourse. Since it is not possible to take into account every single perspective, it is important to have mechanisms in place to resolve conflicts and challenges.

## SUMMARY

This section presented some of the approaches that emerged during the second half of the 20th century. Each approach presents a different way in which citizens can be included into planning processes or be granted the power to carry such processes on their own. The work of ([Arnstein, 1969](#)) presented citizen participation as a form of citizen power and proposed a framework to classify different participation methods. [Davidoff \(1965\)](#) presented the planner as an advocate who should work together with communities to generate planning proposals based on their own needs and visions. [Healey \(1996, 1992\)](#) conceptualised planning as a discursive task, which can be accomplished together with citizens to find out which aesthetic and social values should be integral part of the planning process.

These approaches operate within the context of centralised planning bureaucracies and their conception of citizen participation is based on providing access to such structures. Citizens are involved in the planning process either directly or through the mediation of professional planners. With the exception of some examples cited by [Arnstein \(1969\)](#), none of the approaches aim directly to decentralise planning processes and grant communities control over certain aspects or elements in the city. This presents a configuration where institutions and planners continue to decide when and how participation takes place.

#### 1.2.2 LIMITATIONS

After the rise of citizen participation in the second half of the 20th century, its limitations started to become apparent. Even fierce supporters of citizen participation have to admit that it is impracticable to allow people to join every decision-making process. Some information can be too sensitive to disclose and certain topics simply do not interest everyone. More importantly, however, opening planning processes to the public brings planners into the dynamics of political discussion and exposes them to a plurality of actors with divergent or even conflicting views. Processes of participation have thus proven to be prone to manipulation or tended to generate more conflicts than solutions.

#### MANIPULATION AND REPRESENTATIVENESS

[Cupps \(1977\)](#) pointed out that even if involving citizens adds transparency to planning processes, the process introduces a new set of problems. For instance, well-organised groups can start to exercise pressure through public media or lobbying campaigns. This allows citizen organisations and public interests groups to push institutions to react without fully evaluating the consequences of their decisions. Public pressure can lead to administrations reacting erratically and rushing decisions. On certain topics, the long-term gains are not as evident as the short-term pains generated by a project or policy. Stakeholder opposition can sometimes focus on immediate consequences while effectively hindering future benefits.

This leads to the question of the legitimacy and actual representativeness of groups engaged in public participation. It is rather difficult to distinguish between groups guided by special interests and those that actually represent the people that are affected by a given project. External actors can distort the participation processes by exercising pressure while claiming to be legitimate representatives of a community. However, even if a given group is legitimately participating in a decision-making process, it is still the task of the public ad-

ministration to balance the interests of different actors and not just those of the most active ones. The amount of pressure exercised by a group is not necessarily linked to the best policy options ([Cupps, 1977](#)).

Participation, as mentioned by [Arnstein \(1969\)](#) can also be used to manipulate citizens. For example, planners could take the role of educators and enlighten communities about governmental processes and guide communities to make their own decisions. This strategy can also result in the task of convincing communities on why a given plan would benefit them and induce decisions through group dynamics. Since individual choices are strongly influenced by the group to which they belong, planning agencies can trigger behavioural changes by addressing groups and change their views on a project ([Burke, 1968](#)). Both cases involve a certain degree of manipulation from authorities who try to guide or convince communities to align with their agenda.

## OBSTRUCTIONS AND CONFLICTS

Citizen participation can be used to obstruct the successful completion of projects. Urban development projects might affect noise levels, air pollution, access to education or even crime rates. The benefits gained for one group might represent loses for another — a dynamic that is often described as a zero-sum equation, i.e., to increase a value here, it is necessary to subtract it from somewhere else. It is understandable that people legitimately and firmly oppose projects that affect their living environment. Legal actions and delays in procedures can and have been strategically used to obstruct the execution of projects. In a world with scarce resources, citizen participation in planning is bound to generate confrontations not only between citizens and planners but within citizens themselves ([Hall, 2012](#)). The controversies surrounding planning projects can thus often be about different values and priorities instead of about the correct or best solution.

Examples of conflicts abound. For instance, the planning and construction of a new train terminal in Stuttgart was surrounded by controversies. The plan aimed to improve the connectivity between the city centre and the region. This would represent time savings and a vast reduction of more than 500 millions car kilometres per year. Additionally, the city expected to free areas in the inner city and use them for new housing projects. The project would, however, need the intervention of a key green area in the city of Stuttgart and the removal or replanting of about 280 trees. Furthermore, it would impact the historical building of the train station. As a compensation, the project considered planting more than 290 trees and the generation of new green areas. It also generated controversies because of its

costs and the need to invest resources in other equally important plans. Given the advantages or disadvantages, public opinion regarding and support for the project varied over the years and the project was the object of heated controversies and fierce demonstrations. Additionally, legal actions were organised to delay, obstruct or stop the project.

In 2011, after this public and legal pressure, a referendum was held regarding a bill that would determine whether the state of Baden-Württemberg should dissolve its contractual agreements related to the project Stuttgart 21. The bill was rejected with 58.9 per cent of the votes and the state could continue financing the project. Regardless of the results of the referendum, the project continues to be controversial. This example shows the intricate dynamics that can arise when planning projects are brought up for public debate. There were strong arguments both for or against the project and no solution could satisfy all parties involved. In this case, citizens first blocked the project through demonstrations, but eventually voted in favour of its construction (Reuter, 2001; Hansen, 2017).

#### FRAGMENTATION OF LOCALITIES

There have also been changes in the organisation of citizens within the city. Historically, large organisations such as churches or trade unions were effective channels to reach and engage citizens. Membership to such organisations brought material and immaterial benefits, such as help in calamitous situations and support networks for eventualities. Such communities therefore generated a sense of duty and service among their members. However, during the last quarter of the 20th century, the attendance to communities meetings such as sports clubs or labour unions dropped sharply. The chasms in civil society have been further deepened by new channels of communication such as social networks. People are no longer mandated to connect with locals in their own area but can establish links with people living in other parts of the world, based on common interests. This erodes the social basis needed for citizen engagement as local communities have lost some of their relevance to other trans-local networks (Levine, 2015; Putnam, 1995).

The waning of civil society also reflects changes in individual values. Communication networks allow a person to be connected at every moment to people everywhere. This broadens the options of membership for individuals but also undermines the sense of locality. People can belong to disparate groups scattered around the world and shape their interests more freely. Hence, the rise of the networked individual can debilitate the sense of belonging to the local community while strengthening links to communities scattered across the globe. Additionally, increased connectivity can disseminate different sets of aspi-

rations that are not necessarily connected to participation in local development. Individualism and self-realisation have gained more importance as people are increasingly looking to achieve recognition through a networked public, replacing the need to engage with local networks (Santos et al., 2017). When personal goals and aspirations are not connected to localities but can be achieved also through the net, both intrinsic and extrinsic motivations to participate in local development processes diminish (Wellman et al., 2006; Levine, 2015).

## SUMMARY

If former urban planning approaches showed limitations for their utterly formalist or functionalist paradigms, citizen participation also proved to be a conflictive piece in the puzzle of urban development. There are recurring problems with participation such as lack of information, representativeness, legitimacy, apathy or selfishness, organised manipulation and actions to obstruct projects (Callahan, 2007; Frug, 2001; Edwards, 2013). The example of Stuttgart 21 showed how citizen participation can block and delay infrastructure projects. The challenge of opening urban development to citizens remains as yet unsolved despite the various participation methods proposed.

### 1.3 RECENT PARADIGMS OF CITIZEN PARTICIPATION

The previous sections explained the developments that led to establishing citizen participation as a key component in urban planning or development. The shortcomings of urban planning paradigms as well as those of participation processes were presented. The conceptual basis presented in the previous sections allows to advance new concepts regarding the engagement of citizens in urban development.

The relationship between institutions, citizens and places is being transformed by the following developments. The first is the introduction of design thinking and co-creation as a paradigm that balances the approach of the planners and the visions of the citizens. A second development is the many methods of informal engagement such as parklets, pop-up restaurants, and chair bombing that have been appearing in cities around the world. The following sections introduce how design thinking, co-creation, and informal methods of citizen engagement are opening new paths for people to get involved in the development of their cities.

### **1.3.1 CO-CREATION AS NEW PARADIGM IN URBAN DEVELOPMENT**

Modernist or system planning methods were criticised for their lack of transparency against the very people that would benefit or be affected by a project. If planning affects people's lives, then those affected should have the right to help shape such plans. However, opening planning processes to the public exposes them to public sentiments, which would not be driven by the same rationale of the planning process. This presents a deadlock for urban planners, as any option, regardless of whether it includes citizens, can face public opposition either for lack of transparency or over disagreement with the proposed plans. The cause of this problem is that citizen participation takes planning processes into public debates where opposing values are likely to be present. In many ways, citizen participation is prone to conflicts typical of public discussions, with the difference that planners do not have the complicated system of balances and counterbalances of democratic systems. It is fair to say that planners are often ill-equipped to confront a broader public, which in their view can not fully understand the core of their proposals.

### **RATIONALE AGAINST INTUITIVE THINKING**

The clash between planners and citizens has been repeatedly described as a conflict between experts and laymen. People with this understanding lack the skills to fully understand urban development paradigms or the models used by planners. This not only misrepresents the situation, as many citizens might also have a background in architecture and planning, but it also implies a superior position for the planners as the only group adequately educated to be involved in decision-making processes. This problem can be understood under a different proposition, namely, that there is not a difference of expertise but rather two different ways of interpreting the city: planners and institutions are guided by logical-rational methods while citizens read the city based on their knowledge and experiences of it. Because these two different understandings approach the city using different cognitive styles, their visions would naturally differ or clash. This proposition allows a reframing of the problem as a confrontation between logical-rational and intuitive-emotional lectures of the city. Such an understanding dilutes any suggestion of superiority while allowing for a constructive dialogue between various actors, which would be established based on the different ways in which they read and experience the city. The following conceptual basis sets the underpinnings to propose methods of citizen participation that break the bottleneck of experts vs. laymen.

Examples of different perceptions that citizens have of the city abound. In his work Lynch (1960) explored the multiple ways in which people perceive and orientate themselves within spaces. He showed that not only are there multiple strategies for wayfinding, but also that our experience of the world and cities is shaped strongly by our senses. For example, people with dyslexia would resort to polar coordinates to orient themselves in space. Similarly, Landry (2008) describes to a great extent how smells, textures, colours leave an imprint in our memories of the city. Those works suggest that the experience of the city is shaped by elements closer to emotions and intuition. This is a form of knowledge that differs from the understanding provided by other tools such as plans or three dimensional representations. Integrating such understanding of the city with the rational-logical approach described before will be central to propose new methods of citizen participation allowing cities to innovate together with citizens. Here, previous experiences in design can show strategies and methods to achieve such a goal.

Regarding the cognitive styles, Lawson (2006) and De Bono (1971) mention two main ways of thinking that are commonly used. The first is convergent or vertical thinking, which requires deduction and interpolation to solve a task. The second style — divergent or lateral thinking — requires intuition and alternative seeking. For example, to find out how many items can be placed in a cardboard box, convergent thinking is likely to be used. However, to find out which other forms can be created with the same box, divergent thinking would be needed. A rational-logical approach will reach the same conclusions given the same parameters, while creative divergent thinking can reach various results (table 1.1). Logical-rational approaches would follow a linear path with clearly defined goals, while intuitive-emotional method will follow a hunch and explore its possibilities and once a result is achieved, the process would start again to introduce improvements. One approach is thus likely to lead quickly to the expected results but is vulnerable to unforeseen situations, while the other might take longer but can be adapted to new conditions.

## DESIGN THINKING AND CO-CREATION

After analysing the way in which designers work, some authors have identified common practices and steps to be followed to solve problems using an intuitive approach. Some of the steps mentioned in the literature include information gathering, problem analysis, idea generation, synthesis and modelling, and critical evaluation. Such steps do not describe a linear process but an iterative one where a given solution is passed through the steps as many times as needed to make adjustments and iteratively generate a satisfactory solution

Logical (Convergent thinking)	Intuitive (Divergent thinking)
Rational	Emotional
Analysis	Synthesis
Deductive	Paradigms, Platforms
Think it through (Plan)	Rapid prototyping (Think through doing)
Single discipline	Multiple disciplines
Linear	Disperse

**Table 1.1:** Design thinking: different cognitive styles.

Based on [Bason \(2010\)](#); [Lawson \(2006\)](#)

([Pressman, 2019](#)). During the iterations, potential solutions might be discarded and new ones might emerge. This process involves redefining the problem and testing a wide range of solutions that are not constrained by external factors.

Proponents of design thinking also argue that such approaches can successfully articulate the logical approach proper of large bureaucracies or public institutions with the intuitiveness of designers, artists, or citizens ([Lawson, 2006](#); [Brown, 2008](#); [Bason, 2010](#)). Design thinking has been also described as integrative thinking ([Brown, 2008](#)) as it aims to bring together different problem-solving strategies. Various spiral models appear in the literature ([Tomitsch, 2018](#)) as approaches to establish effective innovation processes (Figures 1.3, 1.4). The spirals combine the iterative nature of intuitive thinking with the linearity of logical thinking. Such models aim to show how an iterative process can be designed to let an idea mature into a fully developed proposal or product. For example, the so-called “hunch-and-hack” model (Figure 1.3) starts with just the intuition “a hunch” that is matured through various steps. This concept can integrate elements of project planning such as goals and tasks while allowing flexibility in the development. In the context of urban development, a proposal can be iteratively improved with the input of both planners and citizens.

Another important principle of design thinking is a more human-centred approach, as opposed to technology or organisation-centred ones ([Kimbell, 2011](#)). Including the actual users of a product and letting them test prototypes or make suggestions can deliver unexpected insights into what users need. Through immersion, designers can obtain a bigger picture of the environment for which they are working and identify other aspects that can be improved — a method that is often overseen by top-down planning. By focusing on users rather than technical or policy constraints, it is possible to launch hypotheses about

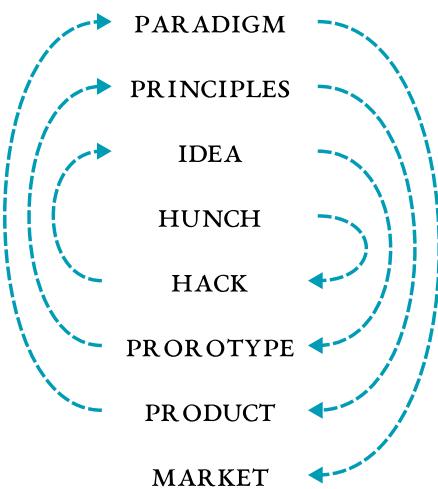


Figure 1.3: Hunch-and-hack or Verplank's spiral

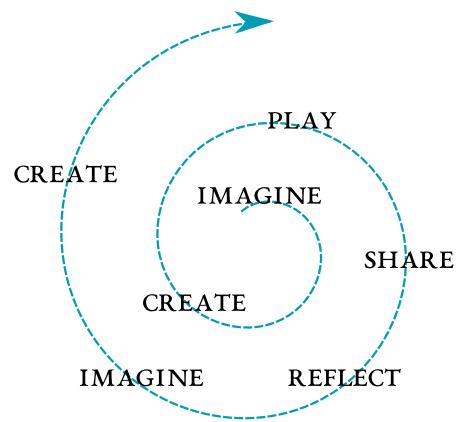


Figure 1.4: Resnick's spiral

future developments even if a fundamental change of a given system or process is needed. This is a broader understanding of design that focuses on the user and allows for innovation at the level of services or policies.

Co-creation processes use both methods and attitudes of design thinking to establish innovation processes. The value of co-creation for citizen participation lies in that it facilitates a change in the conflicting relationship between institutions, experts and citizens described before. Instead of involving citizens in decision-making processes, co-creation engages people in innovation processes that generate ideas from which a decision can be taken. Since citizens are challenged to create, i.e., to make proposals around a common goal, the space for plain or negative criticism is restricted while a debate around ideas is implicit. This allows people to discuss and evaluate proposals rather than enter into conflict over an existing plan. Experts are challenged to immerse themselves in the context and identify needs that could have been included in the first phase. This puts participants on an equal footing as proposals can be discussed and contrasted with insights that come both from the administration and the public. Finally, the iterative process is more suitable to reach a consensus between the participants as it allows for adaptations to be made along the way.

### 1.3.2 CO-CREATION AND INSTITUTIONS

The conceptual basis of co-creation presents a fresh approach to address the conflict between institutions, experts and citizens. However, the approach proposed — using iterative methods for the conception and improvement of urban project — brings co-creation into

a wider and more intricate context. Integrating the concepts of designers and engineers in the controlled scale of product design can be achieved through face-to-face activities such as role-playing, scenarios, journeys mappings, etc. However, accomplishing the same integration in urban development processes raises the question of how to expand co-creation to the scale of cities. Urban planning operates often with large areas and involves a broader plurality of actors. Additionally, co-creation for cities necessarily needs to involve public institutions that are usually not prepared nor designed to host open innovation processes.

Bason (2010) describes obstacles for innovation within the public sector that can be translated into the context of planning and participation. First, governmental institutions are not arranged to innovate or be part of open innovation processes involving citizens. In fact, they are often created to preserve order in society, not to facilitate rapid changes and tests within the city. Second, public institutions are themselves part of political struggles which lower the motivation to share expertise and responsibilities. Internal competitions for power obstruct effective collaboration. Third, institutions often focus more making administrative processes more efficient, leaving the actual needs of the citizens as an afterthought. Finally, public institutions hardly ever have innovation strategies in place, let alone expertise on open-collaborative processes (Harris & Albury, 2009).

#### PRINCIPLES FOR CO-CREATION

To introduce co-creation processes to rigid institutions Bason (2010) proposes some principles or “credos” that can open the space for creativity and innovation. The first is to see everything as an experiment. Public institutions and servants are usually afraid of the consequences of their decisions. For them, it is often more comfortable to avoid taking any risk and oppose the realisation of projects that might compromise, for example, the safety of the citizens. This is a quick path to cripple innovation efforts. Presenting innovation as experiments rather than systemic changes can lower the barriers and soothe fears of public servants or managers. Public institutions would more likely embrace small-scale experiments and, based on the results, scale them up and turn them into permanent solutions.

The second principle is to challenge the status quo and explore possible scenarios and their possibilities without being constrained by the boundaries proper of institutions. For example, the public sector can be effective in finding the right way to provide a service. Therefore, a finely tuned bureaucracy can be reluctant to change. However, by bypassing institutional constraints, co-creation can shift the focus from the principle of doing things efficiently to creating the right solutions for society. If this implies changes in the service

design or policies, then the process can show which changes are needed.

The final principle is valuing the citizen in a way that involves creating alongside people and not for them. This means placing the citizens at the centre of creative processes and getting insights directly from them. Here, [Bason \(2010\)](#) mentions that this can uncover subjective and qualitative aspects that are not possible to discover with purely quantitative planning tools. For example, the social or aesthetic value of a particular place can only be discovered through first-hand experience. This last principle affirms the concept presented before that proposes a different way of communication where citizens can contribute with their experiences of the city while planners bring a perspective based on data, models and quantitative tools. By engaging citizens and getting their insights, planners can observe immaterial dynamics of the city such as social nodes or potential heritage issues.

While the principles suggested by [Bason \(2010\)](#) could support the introduction of co-creation into the public sector, the challenges of expanding design thinking and co-creation to a larger scale are rather big. However, the fundamental proposition of integrating citizens and institutions through innovation processes opens new modus operandi for citizen participation. Here, both informal methods of engagement and the emergence of communication networks can make the scaling up of co-creation possible by opening new channels between citizens planners and institutions.

### 1.3.3 INFORMAL CITIZEN PARTICIPATION

Over the last few years, informal interventions spontaneously initiated by citizens have become increasingly popular. “Guerrilla”, “tactical”, “pop-up” and “DIY” urbanism are some of the terms coined to describe this trend ([Finn, 2014](#); [Iveson, 2013](#); [Lydon et al., 2015](#); [Hou, 2010](#)). There are some few links between such projects. First, the interventions are commonly organised by voluntary groups or even single citizens, often without support from the city administration. Secondly, projects also fill deficits in the city such as a lack of sitting spaces or green areas that the administration fails to solve on its own. Finally, they are beneficial to the public as they can be used by anyone and, except for businesses such as food trucks or pop-up shops, they are mostly non-profit oriented ([Finn, 2014](#)).

Even if the trend of informal interventions has grown considerably in recent years, the methods and values can be associated both with the ideas of Lefebvre regarding the “right to the city” and movements such as the Situationist International ([Lefebvre et al., 1996](#); [Iveson, 2013](#)). A notable difference is that contemporary practices have a moderate approach and distance themselves from radical movements ([Douglas, 2014](#)). The interventions are

seen as contributions to the city that can perfectly fit within public policies. However, citizens initiate them on their own because they see either that administrations fail to reach the degree of granularity needed for local change, or because public bureaucracies are too slow and involve unreasonable costs for projects that can be achieved with small budgets. Hence, terms such as “urban acupuncture” aim to describe the highly local and small-scale character of citizen-initiated interventions while stressing on the healing effect, i.e., benefits for the city (Hasler et al., 2017).

This renewed interest shows that interventions in public spaces continue to emerge as a reaction to planning practices that fail to address the human and social dimensions of cities. Short-term and low-cost constructions offer people the opportunity to appropriate and re-purpose urban spaces for their own needs and eventually lay the groundwork for long-term transformations. Provisional constructions not only enable circumvention of burdensome bureaucratic apparatuses but are themselves public showcases for urban paradigms that have citizens at the core of urban development. Priority is given to the enjoyment of public spaces, highlighting hidden potentials for sitting, relaxing, playing and interacting with others. While this could not be completely seen as a radical form of urban democracy and development, it still has the potential to generate different forms of governance in the city that allow for such forms of participation to flourish (Iveson, 2013).

## TACTICAL URBANISM

Lydon et al. (2015) stresses that interventions in cities should go beyond a merely superficial level and have an underlying goals. For example, yarn bombing has a rather decorative character that might involve a degree of appropriation but not a long-term change. Lydon et al. (2015) coined the term “tactical urbanism” as a way to describe scattered interventions that nevertheless have underlying long-term visions to transform the city. His idea is that small-scale actions do contribute to achieving a larger purpose, however, with a dynamic that is radically different from that of public departments, which often act in a slow and isolated manner. Tactical urbanism then refers to a dynamic democratisation of city making processes where citizens are the protagonist in the development and testing of solutions. Contrary to planning, which necessarily involves a high degree of conception and evaluation before execution, tactics allow for the building and on-site testing of the viability of an idea.

If tactical urbanism offers a form of democratising city making, a critical question emerges on how these dispersed and volatile interventions can fit within legal and admin-



Figure 1.5: Tactical urbanism. Based on [Lydon et al. \(2015\)](#)

istrative frameworks. There is also the question of how such activities can truly contribute to common goals such as reduction of pollution and noise, or the generation of pedestrian-friendly areas. As mentioned by [Douglas \(2014\)](#), many activists would collaborate with the authorities if they could establish a dynamic that could match the speed of bottom-up initiatives. To answer such questions, [Lydon et al. \(2015\)](#) proposes a model for tactical urbanism that aims to connect different actors to act tactically at various points in the city (Figure 1.5). This model, which resembles co-creation spirals, shows how different actors can collaborate to grease the wheels of city making while still keeping common and long-term goals in the process.

Informal or tactical urbanism evidences the amount of bottom-up agency available in the city. However, if agency can be considered a resource, it is being abundantly wasted as cities fail to connect with citizen-led initiatives. If planners struggle to know what people want or believe that participation is a complicated method to make people feel better about themselves ([Edwards, 2013](#)), informal methods of citizen participation are a public showcase of the ideas available in the collective intelligence of the city. Institutions can guide or orchestrate citizens towards larger, long-term strategies that are open for input from everyone. For example, finding locations where trees are needed can either be done through a long and costly analysis or by testing such locations with the collaboration of citizens. It is in the tension between formality and informality where cities should align their long-term goals with informal methods.

Tactical urbanism has explored and partly established grey areas to allow citizen-led interventions to grow. The middle ground between citizens and institutions opens an interface between the modern division of private and public interests, allowing private initiatives to shape public spaces. The temporary character, while criticised, is the key element to lower the resistance of institutions. At the same time, informal methods of engagement show the disposition and willingness of people to participate in the development of their cities. The problem might lie in that institutions, guided by a logical rational perspective, have not been able to understand the logic underlying such methods.

#### 1.3.4 SUMMARY

This section presented recent concepts and methods that are relevant for citizen participation. First, the conflicts between experts and laymen were reframed as a conflict between two different understandings of the city. Planners have a rational-logical approach, while citizens understand the city through their intuition and emotions. Based on this understanding, approaches such as co-creation emerge as a viable method to integrate rational and intuitive approaches. Finally, informal citizen participation emerges as a collection of methods that represent the intuitive actions initiated by citizens to transform their cities.

#### 1.4 DIGITAL TECHNOLOGIES AND CITIZEN PARTICIPATION

The introduction of digital technologies has also transformed the way in which institutions, citizens and experts interact. Some of the aspects that have led to this transformation are the increased availability of data, especially open data; the ubiquitous connectivity through physical or wireless networks; the increase in computational power in both desktop or mobile devices; and finally the standardisation of protocols and data structures that allow for the development of applications focused on urban development. Although slowly, cities have adopted or developed technologies that allow citizens to exercise control or express their point of view in public discussions.

Such changes have inspired new concepts and proposals for the government of cities, where the structures are more horizontal, decentralised and allow greater citizen involvement. Various authors have proposed frameworks to understand how technologies are influencing daily life in cities, or how platforms are transforming the very conception of city and society. This section will provide an overview of some concepts and frameworks that are central to proposing new methods of citizen participation based on digital technologies.

#### 1.4.1 HUMAN-COMPUTER INTERACTION AND PARTICIPATION

The growing technologisation of urban spaces has changed the interactions between citizens and also between citizens and institutions. Given that digital technologies are increasingly used to involve citizens in urban development, these technologies are transforming the dynamics and methods of citizen participation processes. For example, various applications allow citizens to report problems with the infrastructure or join discussions about planning projects. This has often been presented as a viable solution to address some common limitations of citizen participation processes, such as lack of information, experience or time (Desouza & Bhagwatwar, 2014, 2012; Höffken, 2015). Therefore, thanks to the introduction of digital technologies, the interaction between citizens and institutions is overcoming centralised models of government and progressing towards decentralised paradigms such as co-creation. In this context, Foth (2017b) proposes four ways in which technologies transform interactions among citizens, or between institutions and citizens. The concepts for his framework come from the fields of human computer interaction and urban planning and development.

#### INTERACTIONS BETWEEN FAMILIAR STRANGERS

The first mode “residents” refers to the everyday interactions in cities characterised by the anonymous encounters of people who actively distance themselves from each other to keep interactions neutral (Goffman, 2009). For some sociologists, anonymity plays a central role in the mental life of cities as it lends more freedom but also puts more pressure on people who struggle to maintain their individuality in a seemingly anonymous environment. (Simmel & Levine, 1971). Nevertheless, there are “familiar strangers” that people meet regularly yet do not approach, for example, at a bus stop or in a local shop. An example of how technology can register such interactions are wireless devices that record whenever other similar devices are in close proximity and inform users of such interactions (Paulos & Goodman, 2004).

#### SERVICE DESIGN AND CITIZENS

The second mode “consumers” understands citizens within a service-delivery context, for example, in public transport systems. Here, technology is seen as a service that should be designed to deliver a satisfactory experience for the citizens. For example, an important task in this context would be evaluating different forms of visualisation to find out which is

	Paradigm	City Government	Citizens
Decentralized	Open innovation	Collaborator	Co-Creators
↑	Participative	Facilitator	Participants
↓	Neo-liberal	Service provider	Consumers
Centralized	Modernist	Administrator	Residents

Table 1.2: Relationship between cities and citizens, based on [Foth \(2017b\)](#), [de Lange & de Waal \(2019\)](#)

more effective to orientate citizens within public transport. The involvement of the citizens in the development of such technologies is reduced to customer satisfaction surveys. The city is effectively seen as a service provider that should select the best possible experience based on own criteria. An alternative approach to designs utterly focused on efficiency and productivity would be applications that allow people to discover alternative pathways and reenact the idea of a flaneur through digital tools.

#### PARTICIPATORY DESIGN

“Participants”, the third mode, builds a parallel between the evolution of human-computer interaction and participation in urban planning. Human-computer interaction evolved from thinking about human factors to human actors, and later to involve future users through participatory design practices ([Bannon, 1995](#)). Similarly, urban planning was forced to change paradigms and practices to become more inclusive of the people that would live in the proposed projects. In both areas, the conception evolved from abstracting humans as mere receptors of results to one where people are invited to participate in the design process through different participation mechanisms. Such mechanisms, however, are largely conceived and steered by institutions, establishing clear boundaries for the role of the participants and the scope of their influence within the projects. An example of this concept are applications for citizen participation, in particular, voting and problem reporting applications.

#### CO-CREATION AS PARTICIPATION METHOD

The last mode, “co-creators” introduces a method of participation where citizens are not just called to give opinions about a pre-existing project but rather are allowed to conduct interventions in places that explore alternatives directly in the city. This idea proposes a collaborative approach towards urban development that encourages citizens to experiment

with their surroundings to find solutions that work for the future of their cities. Examples include interventions such as yarn bombing, guerrilla gardening or restaurant day. Here, urban development is not steered by the city administration through master plans; rather, it is collectively constructed through local interventions. Examples can include restaurant day or parking day — both supported by various platforms that announce the activities planned. Such temporary interventions permit testing of things for the city and present an alternative where authorities can cooperate with citizens to generate, develop and realise ideas for future developments.

The different forms of interaction presented do not only show the progression from a centralised approach to a decentralised one, but can also be related to the evolution of citizen participation presented before. The modernist division of the city in spaces to work, live, play and transit, conceived citizens also as residents that transited between the different functions ([Mumford, 2000](#)). The conception of cities as systems of infrastructures that could be optimised would also match a conception of residents as consumers or evaluators of optimised systems. Participants can be related to the initial moments of citizen participation where the city largely steered the participation process. Finally, the co-creation approach is also closely connected to a comprehensive idea of urban development where communities are actively included in the conception of their cities ([Bovaird & Loeffler, 2012](#); [Bovaird, 2007](#)).

This evolution also indicates a process of decentralisation that goes from the master plan, usually with single authorship, to a model where citizens can actively modify public spaces and experiment in the city. Modernism or systems planning conceived the city as a group of infrastructures that could be centrally steered either through blueprints or centralised planning. Informal interventions are by no means centrally steered but instead emerge from disparate citizen initiatives. The question still remains on which kind of technologies or development strategies can match the distributed and often volatile nature of informal methods of citizen participation. Decentralisation takes a particular form in the case of technologies as people appropriate, modify and hack existing tools for purposes different to those originally intended.

#### 1.4.2 CITIZEN PARTICIPATION IN THE PLATFORM SOCIETY

Another important development in the context of technologies and citizen participation is the emergence of digital platforms, which, regardless of their digital nature, have a direct impact in the organisation of cities. Such platforms have their origin in the so-called sharing

economy, yet they quickly evolved towards a complex business ecosystem that circumvents local regulations and affects both individual citizens and cities as a whole.

## ORIGINS OF PLATFORMS

It can be argued that current platforms have their origins in the sharing-economy “sharing economy”. Several factors, most of them technical developments, contributed to the emergence of these platforms. First, the representation of various physical items in digital form, for example, music, video, and most importantly, currencies have been converted to digital formats that can be streamed, copied, traded, or even stolen over the networks. Second, the exponential increase in computing power has allowed portable devices to have hardware capabilities such as GPS, network access, and touch interfaces. Such capabilities make them portable computers that allow ubiquitous access to online applications. Finally, the infrastructure that supports the internet has matured, allowing for the development and deployment of increasingly powerful applications that can meet the demands of millions of users across multiple languages and countries ([Sundararajan, 2016](#)).

It did not take long for the sharing economy to spawn powerful platforms that have transformed social transactions and dynamics. Platforms to rent flats, hail a ride, take online courses or even find partners have caused profound changes in the way people travel, establish contracts, or move around the city. Such platforms describe themselves as enablers that merely connect people, for example, hosts with guests, passengers with riding services, or teachers with students. This definition, however, is controversial, as many see platforms as intermediaries that *a)* circumvent local regulations; *b)* undermine fair competition and *c)* deprive workers of social security. The consequences for individuals and businesses are noticeable; for example, drivers are forced to work without insurance and the accommodation industry has seen their market undermined by an unfair competition which avoids taxing and personal costs. Platform operators benefit from this indefinite status as it allows them to escape regulations while continuing to operate profitable digital markets. However, the market price and the profits from such platforms make it clear that they are much more than facilitators. Therefore, their role has been questioned in many countries, leading to transportation services being banned or forced to follow the same regulations as taxi drivers. ([Dijck et al., 2018](#)).

Such conflicts are symptomatic of the transformative power of platforms. The combination of networks and information technologies have created a new space where virtualised goods are traded, currencies are exchanged, flats are rented and drivers are hired. Key areas

of urban development such as mobility and housing have been disrupted and partially absorbed by a business environment that escapes regulations and, in many cases, challenges them. In such a platform ecosystem, the rules are written by private actors and governance is delegated to algorithms. Nevertheless, the transformative power of platforms is not inherently negative. The concept of the city as a platform also has the potential to transform cities into open virtual spaces where ideas and visions are discussed and constructed, projects are discussed and the administration find new ways to organise itself.

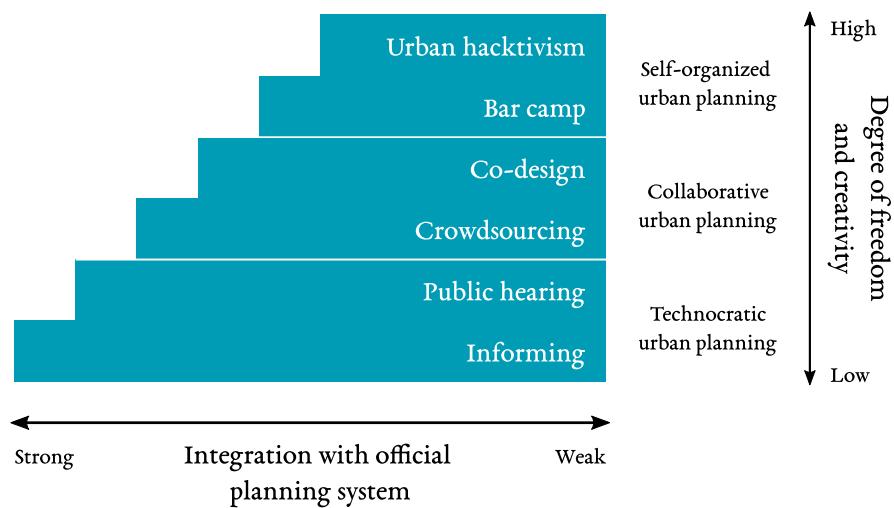
#### THE CITY AS A PLATFORM

In the context of cities, technology was initially used to streamline administrative processes and make its internal workings more efficient. The adoption of technologies occurred in a fragmented way with each department adopting different and often incompatible solutions. Later, technology started to be integrated into the infrastructures in the form of transport systems or as part of energy-efficient buildings. Enhancing infrastructure, however, can be seen as an overly techno-deterministic approach that fails to exploit the potential of technology to change the governing structures of cities.

[Anttiroiko \(2016a\)](#) proposes instead that digital platforms have the potential to transform the governing structures of cities. He suggests that cities are evolving from isolated silo structures towards open platforms where institutions and citizens can engage in dialogue and find solutions. The increased connectivity and the availability of open data has given citizens access to a plethora of data that changes their understanding of the city and opens new opportunities to participate in public discussions. New multi-directional communication channels allow for new dynamics, for example, through push notifications or crowd-sourcing of ideas. He proposes that cities should overcome centralised models of government and progress towards decentralised structures of governance.

[Anttiroiko \(2016a\)](#) understands platforms as any physical, technological or social base where social, economical and technological developments happen. The value of platforms lies in their capacity to stimulate collaboration and innovation among its members. This is facilitated by connecting different stakeholders, stimulating individual and group creativity, and allowing innovative ideas to progress towards decision makers and policy makers. Hence, he sees platforms as catalysts for innovation, both in the private and public sectors.

It is in the context of the city as a platform where [Anttiroiko \(2016a\)](#) proposes a new concept for citizen participation based on the idea of the city as an open platform where innovation emerges through the collaboration of multiple stakeholders such as urban activists,



**Figure 1.6:** Different levels of integration with planning systems vs. freedom and creativity. Based on [Anttiroiko \(2016a\)](#)

policy-makers and also public servants. Based on the work of [Arnstein \(1969\)](#), he proposes a framework for participation in the platform city that compares the level of integration with the planning system with the degree of freedom and creativity offered by various participation strategies. For example, urban “hacktivism” operates completely independent from institutions and has a high degree of freedom. On the other extreme, he sees formal participation methods such as public hearings and information activities where institutions control most of the process (Figure 1.6).

#### 1.4.3 THE HACKABLE CITY

Given the growing technologisation of cities, there is a growing recognition that transforming the city will necessarily require a transformation of the systems and platforms used to monitor and steer the city. Not only in the context of urban development, but also in broader public discussions, hacking as a form of activism is earning significance as a form of participation. For example, [Schrock \(2016\)](#) describes how data-driven political activists use data as a tool to participate in public debates. In his view, data activism encompasses various strategies and actions related to data such as requesting, digesting, contributing, modelling and even contesting governmental data by establishing alternative crowd-sourced databases ([Schrock, 2016](#)). In the context of cities, this has given rise to a hybrid form of participation where citizens assume the role of civic hackers to create, modify or appropriate both data and technologies used by cities.

In this context, [de Lange & de Waal \(2019\)](#) establish a parallel between the practices of citymaking and hackers, pointing out various common strategies and values. Just to mention some, both hackers and citymakers aim to open up systems and make them available to a broader public. This implies a democratisation of not only knowledge but also of resources available in the city such as public space. Also, hackers, as citymakers, operate independently from institutions, often within decentralised and horizontal networks that function in an opposite way to the rigid hierarchies of institutions. Finally, both citymakers and hackers propose new forms of governance and citizenship where institutions provide a framework for action instead of a set of instructions or regulations.

#### HACKING VS. TECHNO-DETERMINISM

According to [de Lange & de Waal \(2019\)](#), hacking the city happens in the context of an increasingly techno-deterministic paradigm where technologies are introduced to centralise control over the city, often following the interests of technology providers, rather than those of the citizens. In such tendency, technology is a means to control or monitor the city while citizens are increasingly subjected to surveillance in real-time ([Kitchin, 2014](#)). Furthermore, such technologies are often controlled by private actors, such as platform operators, who define by themselves the governance structures as well as sanctions or rewards that users should accept. Finally, such governance is often carried out automatically through the use of algorithms or models, which are also designed by the platform operators.

In their book [de Lange & de Waal \(2019\)](#) argue that hacking the city is not a miraculous solution for the conflicts raised by the technologisation of cities, but rather an opposed perspective that serves to understand the tensions between different centralised or decentralised, top-down or bottom-up approaches related to the use of technology in cities. Hacking the city serves as an opposed paradigm where citizens appropriate and shape technologies that directly affect them. Hackers are critical or even empowered citizens that refuse to simply adopt pre-made solutions and instead opt to shape technologies and cities to their own needs.

According to [de Lange & de Waal \(2019\)](#), civic hacking in the context of platform society still faces the challenges of overcoming the status of a marginal practice and establishing mechanisms that allow strategic change. [Iveson \(2013\)](#) sees similar challenges for citymakers as the scattered and sporadic nature of their interventions is not yet suitable to generate strategic processes of urban transformation. Finally, [de Lange & de Waal \(2019\)](#) raise the question of how digital activism can go beyond community efforts to allow such efforts to

be integrated within the institutional framework of cities.

#### 1.4.4 SUMMARY

This section presented conceptual frameworks to understand the introduction of technologies in the context of urban development. The first framework borrows concepts from human-computer interaction and links them to paradigms of urban development. The second framework proposes the city as a platform powered by data and networks. Such a platform should serve to open institutions and establish an open dialogue between citizens, experts and other stakeholders. Finally, the hackable city establishes parallels between hackers and citymakers. There are a series of common practices and methods, such tactics to appropriate, transform and open systems.

### 1.5 CITIZEN PARTICIPATION IN THE PLATFORM CITY

The previous sections provided an overview of the evolution of citizen participation and the influence of digital technologies in the context of urban planning and development. The review made it possible to identify three controversial issues related to planning, participation and the role of technologies. The first is the tension between centralised and decentralised models of governance, planning and control of technologies. A second issue emerging from the review is the tension between a rationalist-logical and an intuitive-emotional approach towards urban planning. Finally, the increasing influence of digital technologies in cities has oscillated between centralised, decentralised, rational and intuitive approaches, with some seeing technology as a tool for absolute control and surveillance while others seek to appropriate and open up the city through the use of digital tools (Figure 1.7).

There are many ramifications and overlaps between these three tensions. The clash between rationalist and empirical perceptions of the city overlaps with the centralisation of urban development, as rationalist approaches favoured the concentration of planning decisions in the hands of few experts while proponents of citizen participation aim to open up planning processes to a larger number of participants. With the introduction of digital technologies, rationalist approaches towards urban planning have been replicated and re-enacted through digital platforms to control and monitor cities. Such technologies also reflect a concentration of power, as they aim to steer the city through centralised systems.

On the opposite side of rationalist and centralised approaches are decentralised interventions in the city that follow the intuition of citizens to generate improvements or solutions

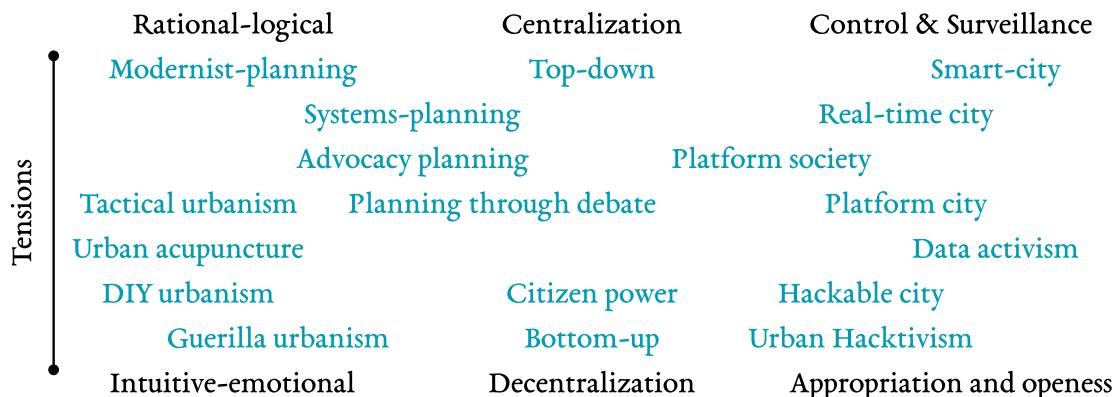


Figure 1.7: Tensions between approaches and concepts

for local areas. Here, there are also plenty of connections. For example, decentralised citizen participation has been compared to hacking, given the similarities between the strategies and methods of citymakers and hackers. Such approaches seem to follow intuitive methods to explore the possibilities available in the city or computer systems.

Finally, the criticism raised regarding some of the approaches mentioned also shows the overlaps and connections between them. The use of technology to centrally monitor and steer cities have been criticised for the lack of transparency and the trust in models or algorithms to decide on behalf of the citizens. Such critiques resemble the arguments raised against systems or modernist planning approaches.

### 1.5.1 TOWARDS DECENTRALISATION

The first sections showed the developments in the institutional configuration and planning paradigms that led to the centralisation of urban development. Legal and economic developments such as the division between public and private competences or the influence of industrialisation in urban development served to concentrate planning processes and urban development in the hands of few experts, institutions and private developers. This was vehemently criticised by various authors, who called out the misconceptions of rationalist planning, suggested new roles for planners or proposed planning as a communicative task that should seek a consensus instead of letting a few experts steer planning processes.

While planning and institutions steered urban development in a highly centralised manner, there is a strong trend reversal that aims to decentralise the way in which cities are conceived, designed and built. The sporadic nature of approaches such as guerrilla, tactical or DIY urbanism illustrates the efforts of citizens to act independently from the institutions

that govern the city. At the core of informal citizen engagement, it is possible to identify a tacit claim to decentralise governance in cities and allow citizens to shape on their own their streets and neighbourhoods. This does not imply a frontal conflict with institutions, but rather a search for methods that can overcome the slow and bureaucratic peace that characterises large bureaucracies. However, this has not yet crystallised into an effective and practicable method of urban development that can go beyond temporary interventions and aim for long-term impact.

Informal interventions often merge regardless of the regulatory framework or other constraints. Tactical urbanism actively explores grey areas and challenges to the status quo to expose the hidden potential of cities. This goes from simple actions such as placing benches in public spaces through to tearing up pavements and installing traffic-calming measures as in the case of the *woonerven* (Dutch for residential streets). The degree of transgression or conformity with the norms can vary but the underlying purpose remains the same — exploring alternatives and uncovering potential. An initial impetus can lead to larger processes; for example, in the case of the residential streets, the original and rather radical actions led to the enactment of a now exemplary traffic-calming measure.

Some proponents of informal citizen participation have already identified a need for conceiving decentralised participation as a coordinated “tactical” effort, rather than just sporadic and scattered interventions. This would require the formulation of urban policies that allow for more self-governance or hybrid models where citizens and institutions can collaborate on the design and development of elements such as streets, walkways, and bicycle paths, among others. Additionally, a new form of decentralised governance for cities requires the articulation of various actors or even the institutionalisation of methods that allow citizens to initiate urban transformations.

### 1.5.2 TOWARDS CO-CREATION

Recent paradigms of citizen participation demonstrate a tendency against rationalist approaches. Citizens seemed dissatisfied with the sterile results of modernist urban planning, or the technocratic methods proposed by systems planning. This led to the creation of mechanisms to involve citizens into planning processes. Such methods, however, were not unproblematic. Reaching a representative amount of citizens has proven to be a challenging task, and could open the door to manipulation of participation processes by minorities or special interest groups. Furthermore, given the limitations of resources, participation processes could lead to conflicts between citizens and planners or also between citizens.

Such conflicts have led planners to question if participation processes are worth the effort.

The conflicts have been commonly been framed as a clash between experts and laymen. This review framed the problem in a different way, namely as a conflict between two different understandings of the city — one guided by logical-rational thinking, and the other by an intuitive-emotional one. Based on this conceptual framework, this review established connections with methods such as design thinking and co-creation as these methods aim to enable innovation by integrating intuitive and rational approaches. This framing also serves to remove claims of superiority, and instead encourages a discussion based on proposals. This framing also serves to understand recent methods of citizen participation as an intuitive approach where citizens aim to uncover design alternatives for their cities.

The methods and principles of tactical urbanism have various contact points with the concepts behind design thinking and co-creation. The temporary character paraphrases the idea of seeing everything as an experiment without excluding the possibility of triggering long-term change. Circumventing bureaucratic hurdles is a way of challenging the status quo and looking for solutions that would require systemic change in the city. Finally, the interventions are citizen-led and hence also human-centred. Such coincidences hint that informal citizen participation can be understood as a form of co-creation through which citizens can manifest their visions for the city. The methods, also aligned with co-creation strategies, are oriented towards experimenting by doing and solution finding, rather than deep and elaborate but infertile discussions.

An argument emerging from the literature review is that informal methods are aligned with an intuitive-emotional cognitive style. The question of how a place can be improved requires an exploration of alternatives and a creative approach to propose improvements. Such exploration demands divergent rather than convergent thinking. Analytical and logical reasoning could help but often are not the right approach to uncover the potential of areas in the city. Places can greatly vary, and while some could be adopted as green spaces, others might be better suited for sitting and relaxing. Here, the capacity to visualise and identify those transformations with the greatest benefits is of key importance. Hence, it is safe to say that citizen-led interventions represent the divergent thinking in the equation of co-creation in the city.

### 1.5.3 TOWARDS APPROPRIATION AND OPENNESS

The previous sections explored the roles and uses of technologies in the context of urban planning and participation. Here, frameworks such as *smart cities* or the *platform society*

present technologies as a means of control and surveillance or as agents that undermine protective mechanisms established by society. These uses and roles serve to connect technical developments with existing paradigms of urban development. The use of technology to monitor, control and steer cities echo the modernist and systems planning approaches. On the other hand, the use of technology to open up and appropriate the city are well connected to recent methods of citizen participation that aim to generate transformations by experimenting directly in cities.

The introduction of technology is also connected to formal and informal methods of citizen participation. While some authors see the potential of communication technologies to transform institutions and break silo structures, technologies can also be used to accommodate formal participation processes where institutions and experts define the scope and goals of participation processes. This would present an augmented version of established participation methods, while current planning structures and institutions remain unchanged.

The proposed framework allows for an analysis of technologies according to their use to find out which roles and dynamics are emerging due to the introduction of digital tools and platforms. The introduction of technologies for participation oscillates between a centralised and decentralised approach. In the previous approach, institutions decide which actions and roles are given to citizens, while in the latter, citizens themselves use data and platforms to join public debates or visualise opportunities to take action.

## 1.6 TOWARDS NETWORKED CO-CREATION

The literature review created the conceptual basis to propose methods for engagement in cities that establish dialogues between institutions and citizens based on their different understandings of the city. This framing proposes the articulation of the rational understanding of institutions with the intuition of citizens to co-create future plans for the city. The aim is to reach a consensus not through guided participation processes, but by integrating ideas from citizens and experts while adjusting the output through iterative processes. Here, technologies act as a supporting platforms that allow for a decentralisation of co-creation processes throughout the city. This suggest a form of networked co-creation — a decentralised form of co-creation enabled by digital platforms (Figure 1.8).

Citizens should be able to propose, both through interventions and ideas, alternatives for the city based on their experience of urban spaces. Their particular understanding of the

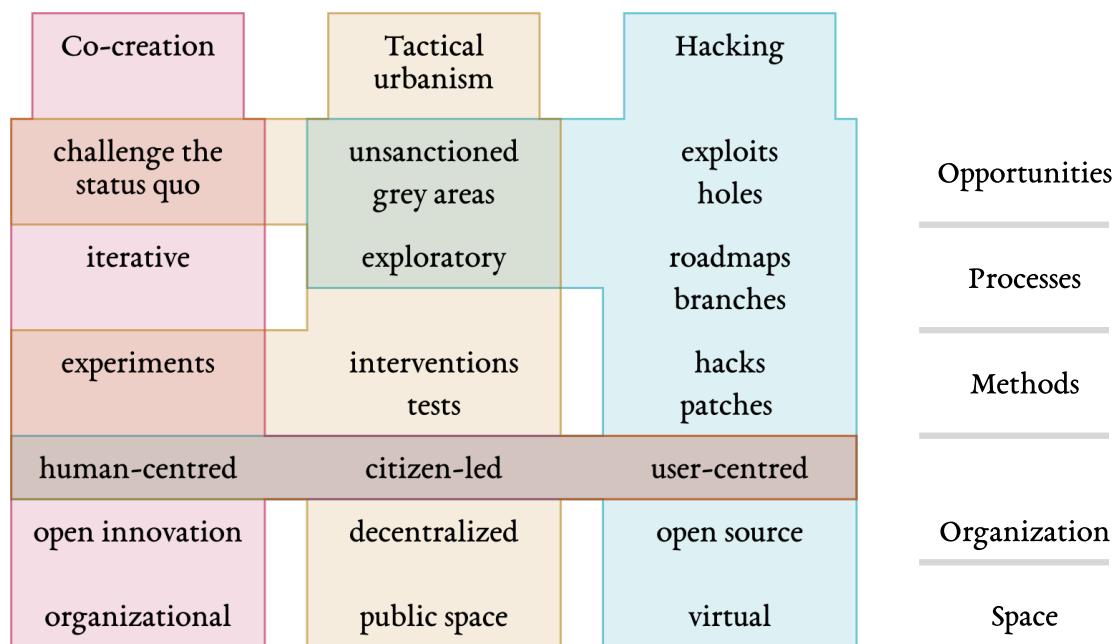


Figure 1.8: Parallels between co-creation, tactical urbanism and hacking.

city can generate solutions at a local level that can not be identified with master plans. This concept is similar to the urban acupuncture (Houghton et al., 2015), but is enhanced by a better understanding of public spaces, which is provided by technology. Here, platforms can open up the city by making regulations accessible by facilitating the contact with the authorities and expediting any formalities if necessary. The vision is a new dynamic for cities where citizens have an enhanced understanding of their opportunities of engagement and use them accordingly. Thanks to tools such as online maps, the legal framework of cities can be opened up, encouraging people to activate their streets and make active use of public spaces.

Institutions can establish new channels of communication, and more importantly, new methods for the engagement of citizens that are still in line with long-term goals. In line with the idea of treating everything as an experiment, cities should allow citizen-led interventions as a method to collect ideas from citizens and to generate long-term transformations. Here, it becomes possible to harmonise, at least to some degree, a top-down approach with bottom-up initiatives. For example, the transition towards sustainable mobility or the generation of new green areas in the city can be better achieved with active support from the citizens. Establishing policies that allow people to transform the city on their own can direct individual agency towards common goals. Additionally, by including citi-

zens in innovation processes in the city, the nature of discussions can be transformed from a clash between institutions and citizens to a dialogue among citizens, and between citizens and institutions.

On the question of what societal and organisational changes can be brought with networked co-creation, two directions should be highlighted. Networked co-creation is both about decentralising and guiding agency in the city. This differs from decentralising power, as providing citizens with temporary opportunities to change their environment does not represent empowering people to force long-term transformations. Decentralising agency means that institutions find a middle ground of experimentation that is shared with the citizens. At the same time, such middle ground can be steered towards goals such as making cities more walkable, reducing pollution or balancing environment and development.



# 2

## New roles for citizens? Technology-enabled participation in German-speaking countries

In the contexts of urban planning and development, citizen participation is seen a complicated element. Participation processes are often affected by lack of representativeness and manipulation, among other obstacles. Through the introduction of digital technologies, new channels of communication are being opened with the aim to change the dynamics between institutions and citizens. The research presented in this paper inquires into the roles and kinds of interactions being generated between citizens and institutions through the introduction of digital platforms. For the study, a sample of applications for citizen participation was analysed. The sample focuses on German-speaking countries, given their similar administrative systems and a stronger role of the public sector in planning processes. The results show that the adoption of digital platforms have mostly replicated former roles and mechanisms of engagement.

Keywords: urban informatics; citizen participation; urban development

## 2.1 BACKGROUND

### 2.1.1 CITIZEN PARTICIPATION IN URBAN DEVELOPMENT

The emergence of citizen participation in the context of urban planning is linked to paradigms that excluded citizens from decision-making processes that directly or indirectly affected their living environment. For example, planning paradigms such as modernist or systems planning abstracted the city as a mere organisation of functions or elements that could be freely designed or re-arranged (Mumford, 2000; Hall, 2012; Jencks, 2011; McLoughlin, 1969). The conceptual frameworks of modernist or system planning did not consider the role of citizens or communities, let alone their participation, as a fundamental piece of urban development. This, together with the creation of modern institutions, led to the progressive separation of citizens from planning processes that define the future of their cities.

Such planning paradigms led to the emergence of a strong awareness about the role of citizens in planning processes during the second half of the 20th century. Various voices defended vehemently the right of the citizens to take part in decision-making and planning processes. A central figure in the turn towards participatory approaches was Arnstein (1969), who defined citizen participation as a form of citizen power that could be classified and studied according to the level of power conferred to the citizens. Other authors (Davidoff, 1965) proposed new roles for planners, for example, as advocates of the communities that would be affected by planning processes. According to him, planners should work together with communities, understand their views and generate proposals based on their expectations and needs. Finally, the works of Whyte (2010), Lynch (1960) and Jacobs (1992) also offer evidence of an increased focus on individual perception, the social life of cities, and the way in which citizens understand and navigate the city.

Since its introduction, citizen participation has become a complicated piece in the puzzle of urban development as motivating and engaging citizens into planning processes has proven to be a challenging task (Roberts, 2016). Some of the complications mentioned in the literature are that *a)* it is not always easy to reach a representative number of citizens as many people do not have the time to join planning meetings or workshops *b)* the lack of representativeness makes participation processes prone to manipulation either by special interest groups or by external actors *c)* participation activities are often seen as a cost- and time-intensive activity that is not guaranteed to deliver satisfactory results, and finally *d)* planners are not always able to use inputs from citizens in their planning processes (Callahan, 2007; Cupps, 1977; Edwards, 2013; Frug, 2001; Irvin & Stansbury, 2004; King et al.,

1998).

Even if cities decide to start engagement processes, there are other points of criticism regarding participation. First, planning departments can also manipulate citizens to achieve particular outcomes. For example, planners can take the role of educators that convince communities about why a particular option is “better”. Controversial decisions can be induced through group activities where the acceptance of such decisions is increased through the group dynamic (Burke, 1968). Finally, participation processes can trigger conflicts, not only between planners and citizens, but also between citizens themselves (Hall, 2012).

Even if making planning processes more inclusive and democratic is seen by some as a social imperative (Arnstein, 1969), the limitations of citizen participation processes have led some cities and planners to see such activities as time- and cost-intensive tasks that generate more conflicts than solutions. Engagement activities can lead to futile confrontations or be seen as empty processes that only serve to give citizens a false sense of empowerment (Edwards, 2013). This presents planners with a dilemma as both involving and not involving citizens can lead to criticism for either not being inclusive and democratic enough or because of the disagreements triggered. In this context, finding new methods of discussion and collaboration is of central importance to establish inclusive and democratic planning processes that balance the roles of planners, institutions and citizens.

#### 2.1.2 TECHNOLOGY ENABLED PARTICIPATION

In the context of citizen participation in urban development, the introduction of digital technologies has been changing the dynamics between citizens, institutions and experts (Foth et al., 2011a). Network technologies allow for multi-directional and ubiquitous communication that are being used to create new forms of communication and interaction in cities. Furthermore, digital technologies allow the transmission and localisation of a broad spectrum of data such as audio, image, text and videos. According to the proponents of technology enabled participation, the introduction of digital technologies for participation should facilitate the interchange of information between planners, institutions and citizens and also help overcome some of the limitations related to citizen participation processes (Bekkers & Homburg, 2007; Foth et al., 2011a,b).

This development is corroborated by the emergence of multiple platforms for citizen participation. An early example is FixMyStreet (Foth et al., 2011b; Somerville, 2007), an application that allows citizens to report problems with the infrastructure of the city. The concept of FixMyStreet was to make the administration *a)* more efficient by avoiding dupli-

cate reports and *b*) more transparent by showing the progress made on the issues reported. The success of the platform led other cities and regions (Pak et al., 2017) introducing their own problem-reporting platforms; for example, the city of Zürich and Norway were among the early adopters of the FixMyStreet code-base. Currently, at least 15 regions use the code for their platforms, while other cities, such as Vienna and Singapore, have embarked on the development of their own problem-reporting applications.

Digital technologies have been also used to consult citizens about issues or project proposals. For example, the city of Barcelona leads the development of the “decidim” platform, which conducts consultations and online discussions about topics such as planning processes, regulatory issues or policy drafts, among others (Aragón et al., 2017). The platform has also been adopted by other cities and regions. It has been used in Helsinki, Nantes or Mexico City to carry out consultations on subjects like heat islands, road safety, bicycle infrastructure and participatory budgeting.

## 2.2 STUDIES ABOUT TECHNOLOGY ENABLED CITIZEN PARTICIPATION

The use of technology in the context of citizen participation has been extensively analysed in the research literature. One of the first concepts to address this area was Public Participation Geographic System (PPGIS). This is broadly defined as the use of geospatial technologies to allow the public to participate in processes such as mapping or decision-making (Tulloch, 2008). A wide range of projects have been created or classified as PPGIS. The proposed methodology, however, leaned towards mere data collection and could not evolve towards generating interactions between institutions and citizens. This was noted as a major limitation of the concept (Brown, 2012; Brown & Kyttä, 2014). A similar concept, Soft-GIS, uses Geographical Information Systems to collect localised experiences and generate a “Soft” layer of the city (Kahila & Kyttä, 2009). Such a layer stores localised knowledge as well as the perceptions of citizens of local areas in cities with the objective to bridge the daily experiences of citizens with expert knowledge, and thus inform planning processes. A study found, however, that planners found it difficult to integrate the contributions collected using softGIS (Kahila-Tani et al., 2016; Kahila & Kyttä, 2009; Rantanen & Kahila, 2009). A recent conceptual framework suggests the city as a platform where former isolated silo structures are replaced by an open dialogue supported by digital technologies (Anttiroiko, 2016a).

In the case of the USA, Desouza & Bhagwatwar (2014, 2012) suggested a typology for ap-

plications based on the data source, the developer motivation and goals of the application. Their review showed that the availability of open data motivated developers, most of them within the private sector, to create applications addressing topics such as transportation, transparency, corruption, health, recreation and housing, among others. Their work observed that applications aim to *a*) make public administration and services more efficient, *b*) raise awareness about social issues, *c*) report and allow public discussions about local problems, or *d*) complement government data with citizen-generated data. They also noted that many applications play an intermediary role between citizens and governments as they are not directly developed and managed by the city administrations. Given that private developers can only assume the role of intermediary, it is valid to question whether such applications can have any impact on local government or whether such participatory processes are futile.

Other researchers ([Ertiö, 2015](#)) focused on the possibilities offered by mobile applications available in various countries, arguing that the use of such applications would help to overcome obstacles like the ones mentioned before. The framework suggested for the study was based on three dimensions: information flow, empowerment of citizens and the kind of data collected. The results, which identified eight types of applications, pointed out that there are more applications focused on problem reporting than on planning processes. Cities seem to prefer tried-and tested-methods and are rather cautious in implementing or testing new methods of participation. Another study in Europe ([Certomà et al., 2020](#)) reviewed publications, funded projects and local initiatives related to the crowd-sourcing and urban governance. The study suggested three imaginaries *Hyperconnected city*, *Receptive city*, *Do-it-yourself city* which describe different ways in which technologies are being adopted to communicate with citizens and create new forms of governance.

The current research literature has focused on *a*) the characteristics of the applications, *b*) the topics that they address and *c*) the degree to which technology can be used to reach a representative group of the population. However, little or no attention has been given to how the introduction of technologies has altered the roles and dynamics between institutions, citizens and experts. In fact, some of the studies mentioned that public institutions were often not involved in the development or operation of the applications. Here, we see an opportunity to research the roles assigned to citizens and institutions through the introduction of digital technologies. Such analyses should reveal whether public administrations are embracing digital technologies; which methods are being proposed and whether such methods change the dynamics between citizens and institutions.

Another problematic aspect in the current literature is that the reviews conducted have included applications developed by private actors, often across different regions and countries. This does not allow for an objective comparison of the roles that public institutions and citizens are given, firstly, because the public sector is often not involved at all, and secondly, because the administrative landscape can vary from one country to the other (Newman & Thornley, 1996; Garau, 2009). A study limited to similar administrative and legal systems can shed more light on how and whether the public sector is adopting new methods of participation based on digital technologies, and also the degree to which technology is transforming the interplay between institutions, citizens and places.

### 2.3 RESEARCH FRAMEWORK

Arnstein's seminal paper "A Ladder Of Citizen Participation" (Arnstein, 1969) presented a pivotal framework to observe and evaluate citizen participation processes. In her view, engagement processes can be classified according to the degree of power conferred to citizens. The upper rungs of the ladder are described as "Degrees of citizen power", the middle rungs as "Degrees of tokenism" and the lower ones as "Nonparticipation". This understanding has been central to study citizen participation, and other studies (Desouza & Bhagwatwar, 2014; Hasler et al., 2017) focusing on participatory platforms have mapped their frameworks to Arnstein's ladder noting, however, that the ladder is not well suited to evaluate methods based on new communication forms and data formats (Hasler et al., 2017).

There are at least two reasons why Arnstein's ladder might not be a suitable tool to review new technology enabled participation methods. Firstly, because it is based on the not-unproblematic idea of citizen power, which necessarily implies a form of group power. This idea has been deemed as dangerous by some authors (Frug, 2001) because group power is prone to abuse and can unleash dynamics of mutual exclusion in cities, for example, through unchecked regulation of citizen-controlled resources. Secondly, the classification of participation processes around the idea of citizen power fails to take into account new forms of interaction and communication that have become possible thanks to the introduction of technologies. For example, FixMyStreet allows a form of interaction where citizens can support the preservation of infrastructure without being granted any form of power; furthermore, it allows communication not only between institutions and citizens but also between citizens themselves.

This does not mean that technology enabled participation leans towards tokenism and

	Paradigm	City Government	Citizens
City 4.0	Open innovation	Collaborator	Co-Creators
City 3.0	Participative	Facilitator	Participants
City 2.0	Neo-liberal	Service provider	Consumers
City 1.0	Modernist	Administrator	Residents

Table 2.1: Relationship between cities and citizens, based on [Foth \(2017b\)](#), [de Lange & de Waal \(2019\)](#)

manipulation. Instead, it suggests the hypothesis that technology has opened new forms of interaction between citizens and institutions that do not fit within the established frameworks used to evaluate participation. For example, [Anttiroiko \(2016a\)](#) conceptualises the city as a platform where institutions and citizens engage in public co-creation processes in which problems and solutions are discussed and constructed. Other proponents suggest that engaging citizens through technology could lead to hybrid models of governance where citizens play an active role in decision-making processes ([Canigueral, 2017](#)). Regardless of how promising such visions may be, it has not yet been critically analysed whether the introduction of technology can transform city dynamics. It is unclear to which degree public institutions are involved and which roles are conferred to citizens. This raises an interesting research question, namely, which new roles and interactions between citizens and institutions are being created through the introduction of participatory digital platforms?

In this regard, Foth ([Foth, 2017b](#)) proposed four models of interaction that are characterised by the role assumed by city governments and citizens. Each of the models also implies a paradigm of administration that has been added for this text (Table 2.1). The categories give citizens particular roles, such as being familiar strangers in a bus station, clients of public transport, participants in engagement processes or co-creators of self-initiated interventions such as guerrilla gardening. This classification is interesting because it links roles with dynamics (interactions) between institutions and citizens. The different levels of engagement present a tendency towards models of governance where citizens and institutions engage in co-creation processes, where people are given more possibilities to shape their cities.

To identify which new roles and interactions are emerging, we suggest a framework that takes into consideration the actions that each application allows, the directionality of the communication, and the feedback mechanisms (Table 2.2). The goal of the proposed method is to identify the roles that both citizens and institutions assume based on the actions that are allowed by each application. This method builds on previous literature that

also use actions as the element to qualify participation processes (International Association of Public Participation, 2015; Rucker, 2015; Thiel et al., 2016). Additionally, the framework suggested will observe the degree to which public institutions interact with citizens by looking at the directionality of the communication and the feedback mechanisms of each application. The goal is not to classify applications into rigid categories but rather to identify trends and observe the interactions proposed by the applications. Other studies (Ertiö, 2015) already note that there is some overlap between applications, making categorisation difficult.

The actions proposed for this study are based on the previous literature that already identified goals for the applications and the models of participation presented before (Desouza & Bhagwatwar, 2012; Foth, 2017b). For example, problem-reporting applications facilitate *control* over aspects of the city and give citizens the role of an inspector while institutions assume the role of a supervisor collecting reports and overseeing solutions. *Discussion* might include, for instance, discussion forums or any other form of public online dialogue. Here, citizens are participants and the city acts as a moderator of the discussion. Another action included is *suggest*, which can be associated with idea platforms. In this case, the city acts as manager and citizens are seen as consultants, contributing ideas for the city. Finally, *initiate*, defines a role where citizens can initiate interventions within the city, for example, parklets. Here, the citizens take the role of co-creators and the city orchestrates the process (Bason, 2010; Finn, 2014; Lydon et al., 2015). Applications that only *inform* were excluded from the survey since they do not offer any form of participation. Other aspects observed are the directionality of communication and the feedback method. This last aspect made it possible to identify the extent to which institutions are open to interacting with citizens.

### 2.3.1 SCOPE AND DATA COLLECTION

In the reviews presented in the previous section, it can be noticed that the public sector often did not participate in the development of participation platforms. In fact, many of the applications were created by independent developers at their own risk. This alone speaks against the hypothesis that technology is changing the dynamic between citizens and institutions because public institutions were not directly involved. Therefore, to seek an answer to the research question, it is necessary to look at the regions where public entities are directly involved. Here, the German-speaking countries emerge as an interesting case study as their administrative system more strongly involves the federal and local governments in planning (Figure 2.1) (Garau, 2009; Newman & Thornley, 1996). Based on this criteria, the

Actions available in the application		Roles
Inform	The application informs citizens about a particular topic. (Not considered for this study)	Receivers - Emitters
Control	The application invites citizens to report problems about any aspect or elements of the city. (Problem reporting)	Inspectors - Supervisors
Discuss	The application invites citizens to engage in public discussions about any topic (Discussion platforms, forums).	Participants - Moderators
Suggest	The application invites citizens to suggest solutions or improvements to issues in the city (Idea platforms).	Consultants - Manager
Initiate	The application has a functionality that let citizens initiate and carry out on interventions in the city (Co-creation).	Co-creators - Orchestrators
Directionality of communication		
CC	Citizen to Citizen	
CG	Citizen to government	
GC	Government to citizen	
Feedback method		
Acknowledge	The input from citizens is publicly acknowledged by the administration, for example by publishing the input online.	
Reply	The administration publishes answers comments from the citizens without the option for a further reply. Implies acknowledgement.	
Dialogue	The answers published by the administration can be further discussed, for example through comments. Implies reply.	
Report	The comments from the citizens are evaluated and a report is published online.	

Table 2.2: Criteria included in the framework.

sample included applications that a) addressed urban topics and b) are still accessible and c) were active during the last three years in the five largest German-speaking cities of Germany, Austria and Switzerland<sup>i</sup> (Berlin, Hamburg, Munich, Cologne, Frankfurt am Main, Vienna, Graz, Linz, Salzburg, Innsbruck, Zürich, Basel, Bern, Winterthur, Lucerne, Table 2.3). For the sample, we excluded applications where public institutions or public companies were not involved in the operation. Applications supported with public funds but carried out without the participation of any city department are also considered independent and were therefore excluded.

The main source for examples of relevant applications that are the focus of this study were queries completed online in the main search engines. Additionally, we consulted portals such as the open data of Zürich ([data.stadt-zuerich.ch/showcase](http://data.stadt-zuerich.ch/showcase)), the open data of Austria ([data.gv.at](http://data.gv.at)) or the code for Germany ([codefor.de](http://codefor.de)). Some cities also maintain an index of applications they have directly developed or commissioned. For cities where such sources did not yield any results, we contacted the local authorities by email asking about available applications. For the review process, we visited the online presence of the platforms and observed the characteristics and interactions offered according to the criteria explained before. We also reviewed secondary material that shed some light on the characteristics of the process, for example, reports on the participation process, and newspapers or other publications about the applications. This helped us identify the role taken by institutions, processes that were unidirectional and those where institutions provided feedback to the participants.

## 2.4 RESULTS

The sample includes a total of 24 applications that were active during the last three years in German-speaking countries (Table 2.4). For the sake of completeness, we also provide a list with some applications that were excluded and the reason for the exclusion (Table 2.5). Germany had 46% of the applications, Austria 38% and Switzerland 17%.

### 2.4.1 ROLES AND INTERACTIONS FOR CITIZENS AND INSTITUTIONS

Regarding the actions allowed, *control* was the most used, with 58% of the applications allowing some form of problem reporting. This is followed by *discuss* with 42% and *sug-*

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<sup>i</sup>Switzerland has four different official languages. Two cities (Geneva and Lausanne) were excluded as they are considered French-speaking.



**Figure 2.1:** Legal and administrative families of Europe. Based on the graphic by ([Newman & Thornley, 1996](#))

gest with 38%. Finally, for *Initiate* only one application could be classified in this category, which amounts for 4% of the sample.

## CONTROL

Under *control*, it is possible to classify all the problem-reporting applications, which, unsurprisingly, have become widely popular. For example, Zürich Wie Neu (Zürich like new), Schau auf Linz (Take care of Linz), Sag's Wien (Say it Vienna), Der Mängelmelder (The problem reporter), Salzburg:direkt (Salzburg:Direct), Stadtmelder (City reporter) can all be classified in this category. Problem-reporting applications, arguably, do not offer citizens a new role as they are just an extension of service lines such as 311 or 115 in Germany. The role of the city is effectively that of a supervisor that oversees reported problems and the status of the solution. The advantage of such applications is enhanced efficiency and transparency as they aim to avoid duplicate reports and also provide citizens with feedback about the issues reported. This is corroborated by the design, where the interface usually presents a menu with a selection of topics that people can report about, for example, traffic lights, waste, and damaged infrastructure. The user should provide the location of the issue either using GPS or manual entry, and submit a picture of the problem. City administrations internally find the department in charge of the issue and solve the problem if possible. The current issues are usually displayed over a map of the city.

While useful in the context of public administration, giving citizens the role of inspec-

tors can turn citizens into complainants and not necessarily problem solvers. Therefore, these apps have often been criticised because they can also encourage intolerant civil behaviour. The newspaper Süddeutsche Zeitung ([Theile, 2016](#)) nicknamed such apps “Nörgler-apps” which translates to “niggler app”, others call it “motz-app” which has a similar meaning. This could be corroborated through the observation of the platforms, where some citizens complained about insignificant things. Finding the right balance between offering meaningful reporting options and motivation for niggling can be tricky. On the one hand, the citizen inputs can help administrations maintain and improve public spaces and infrastructure, but on the other, cities should also foment constructive critique and tolerance among citizens.

#### DISCUSS AND SUGGEST

While the framework defined two different actions to *discuss* and *suggest*, the sample showed that there a significant overlap between the two. Often, idea platforms are paired with discussion functionalities that let other citizens give their opinions about the published proposals. Discussion forums are also often used to suggest ideas or solutions for the problems discussed. This effectively assigns citizens a double role of consultants and participants as they can both suggest and discuss with the city or with other citizens the viability and the potential benefits of the ideas. Some platforms use the number of interactions among citizens to identify ideas that should be further discussed by the administration. Here, it is possible to make a slight distinction between applications that use topics as the base for a discussion and others that are focused on the location of the contributions (topic-based vs. location-based).

Among the applications that start discussions around a particular topic are Berlin wird Leiser (Berlin turns quiet), Partizipation Wien (Participation in Vienna) and Innovationshauptplatz (Innovation main square). These applications offer focused discussions about topics such as open data, the internet of things, noise in the city and social programs, among other things. Citizens can submit their ideas and discuss them with authorities as well as with other citizens. Most of them have a voting system that helps identify the most popular suggestions. Some of them have a limited time frame after which the results of the process are presented in a report; for example, Berlin wird leiser, published a detailed report commenting on the contributions with the most positive votes.

Applications that initiate discussions around a particular location include Agenda Währing (Agenda of Währing) and the participation processes of the Hamburg Geoportal. Citizens

are encouraged to submit and discuss their ideas and proposals for particular areas of the city. Both applications require providing a location for the contribution and also assigning a topic like traffic, social issues, and housing. Ideas are published on a map of the area, and other citizens can vote or comment on them. In the case of Hamburg, participation is directly related to planning processes and has a limited time frame. After the process is complete, the city organises the ideas and writes a report.

Here the participation of public institutions is of central importance. Some of the applications presented aim to identify and promote ideas and projects that will be effectively realised. In such cases, online platforms serve to connect citizens and institutions to establish partnerships that allow the development of these ideas. Here, the city goes beyond the suggested roles of moderators and manager, and assumes the role of promoter or accelerator for innovative ideas in the city. This kind of engagement stimulates creativity and solution-oriented thinking, and presents a way of engaging citizens that demands constructive critique instead of only complaints.

## INITIATE

In the framework we included the action *Initiate* to evaluate if the proposed new roles of citizens as co-creators are also being reflected by online participation platforms. Only one application, Wien gibt Raum (Vienna gives space), could be classified in this category. The application allows private citizens to initiate and get permits for certain activities such as markets, kiosks and small events. Services for business are also available; for example, it is possible to request permits for advertisements, the use of parking spaces for restaurants, construction sites and markets. Other services are being developed or will be developed in the coming years. The goal of the application is to coordinate the use of public spaces, identify in early stages potential conflicts, and encourage citizens to use opportunities of engagement offered by the city.

Wien gibt Raum can be seen as a pioneer project in the area of technology enabled citizen participation. Nevertheless, it is the only application that encouraged citizens to initiate projects in public spaces. This shows that cities are rather reluctant to grant citizens the role of co-creators and allow self-initiated interventions in cities. This might not be surprising, given that even without applications, some cities make significant efforts to shut down spontaneous pop-up interventions ([Finn, 2014](#)). The absence of applications that allow citizens to initiate and execute projects on their own reflects the resistance of public administrations to adopt other models of governance where citizens are given more opportunities

to co-design their cities.

#### 2.4.2 FEEDBACK MECHANISMS

Feedback mechanisms show the extent to which administrations engage with citizens. *Acknowledge* represents minimal involvement, *discuss* and *reply* shows that the city is open to open a dialogue about some issues. *Report* shows that the administration had systematically evaluated the contributions of citizens. Most (92%) — yet not all the applications — acknowledge the contributions by publishing them online. About 71% of the applications post replies to the input of the citizens, 42% allowed discussions of the replies published online. Only 21% of the processes evaluated the contributions and published a report summarising the views of the city. When looking at the distribution of the interactions, it becomes clear that cities prefer to keep interactions with citizens at a minimum. Acknowledge demands a minimum effort, while reply, discuss and report requires the direct engagement of public servants. Hence, the tendency towards minimum interaction also shows a reluctance of cities to engage in discussions with citizens.

Although a majority of the applications acknowledge contributions by publishing them online, some did not provide any of the mechanisms defined for the study. The lack of such a mechanism impacts central concepts, such as added transparency and efficiency, used to promote the implementation of such applications. Citizens cannot know if a problem has been already reported or solved. Hence, the same issue might get reported multiple times, reducing the productivity of the administration. In such cases, the added value of technology enabled participation is reduced to online accessibility.

### 2.5 DISCUSSION

The introduction recounted some problems related to citizen participation and argued that digital technologies provide new means to address them. It also argued that such platforms are changing citizen roles and the relationship between people, places and institutions. The central argument is that these platforms are expanding how citizens and governments communicate, expanding democratic processes and allowing citizens to take on new roles. A central argument is that digital platforms allow more decentralisation and even hybrid models of governance, where citizens are enabled to become co-creators of the city. This should allow citizens to overcome apathy and engage in the maintenance of public spaces, participate in public discussions and finally contribute with ideas to generate a future vision for

the city.

The sample showed that the public sector in German-speaking countries is involved in the conception, development and operation of technology enabled citizen participation platforms. Some cities seem to be more involved in the introduction of online tools; for example, Frankfurt, Berlin and Vienna can be considered forerunners as their online presence offers a wide range of engagement opportunities and is integrated with other departments of the city. Such results present a contrast to previous research work that showed private actors acting as intermediaries between public institutions and citizens. Hence, the stronger involvement of the public sector in German-speaking countries allowed for an assessment of the roles given to institutions and citizens through the introduction of digital platforms.

The survey showed that cities are effectively opening new channels, and some are institutionalising participation platforms. For example, meinBerlin and Frankfurt frag mich have various methods integrated into the platform, including comments, online consultations, multi-stage processes and map-based idea gathering. Such methods are integrated on demand with ongoing projects. While the technical production is often carried out by private companies, the cities are responsible for their operation and are directly involved in the process. This establishes a new form of public service “participation as a service” which cities can use to complement and enhance the development of projects. This development also shows deeper transformations within cities as they learn how and when to use the palette of available engagement methods.

The results also showed a tendency of cities to see citizens as inspectors and limiting interactions with citizens. It is worth noting that this role is not new, as it was previously offered through service lines. Nevertheless, it is a rather limited form of participation where citizens merely help preserve infrastructure but are not allowed to suggest transformations. The administration manages the reports and assigns them to the responsible authorities. Other applications give citizens roles such as participants and consultants, for example, to discuss proposals or suggest ideas. These roles replicate the dynamic of meeting and face-to-face consultations where the administration controls when, what and how the participation take place.

The sample also unveiled the reluctance of cities to allow citizens to initiate localised transformations and grant them the role of co-creators. Only one example “Wien gibt Raum” explored this potential. The same technologies that allow citizens to report problems can be used to allow them to propose and discuss improvements to their neighbourhoods, for example, new green areas, pedestrian zones, bicycle paths, among others. Such

applications could expand further the engagement potential of citizens, as the future of the city can be guided by a flow of ideas and situated interventions initiated by people residing in the vicinity. Such input is a form of co-creation, where the citizens can test their ideas in the city, while the administration can consider if such ideas are aligned with long-term goals. This was the main reason to introduce actions such as “suggest” and “initiate” in the research framework; however, the results suggest that the potential of this concept is not yet fully explored.

## 2.6 CONCLUSIONS

The study showed that while the public sector of German-speaking countries is involved in the conception, development and operation of participatory digital platforms, the roles given to citizens are quite restricted. The predominant roles mimic those of pre-existing services or methods such as service lines or public consultations. The focus remains largely on the identification of problems and the discussion of issues, but not on the creation of new opportunities. Such results suggest that the introduction of digital platforms have not yet significantly transformed the dynamics of participation in cities. Cities reproduced established methods and mechanisms. Yet, they have not explored hybrid models of governance through digital technologies. Hence, the concept of the city as a digital platform where institutions, citizens, and experts discuss and construct solutions for the city has not been yet materialised, at least in German-speaking countries.

It can be concluded that the presumed potential of open data and digital technologies has not been sufficiently explored. Further investigation can explore how decentralised models of governance can be supported through the use of digital platforms. This can be investigated both in the context of research projects or in the praxis, for example, by introducing digital tools that let citizens transform their vicinities, suggest transformations and engage in the design of their cities. Such research should also evaluate the technical quality and the actual user engagement of such applications.

## 2.7 LIMITATIONS

The methodology used in this study was created to observe the kind of interactions and roles that are emerging due to the introduction of digital technologies in the context of citizen participation. The methodology was not suitable to observe other issues such as

the growing digital divide or which new barriers are associated with technology enabled participation platforms. Such issues can be addressed through further research work.

Rank	City	Population	Region
Germany			
1.	Berlin	3.520.031	Berlin
2.	Hamburg	1.787.408	Hamburg
3.	Munich	1.450.381	Bavaria
4.	Cologne	1.060.582	Northrhine-Westphalia
5.	Frankfurt am Main	732.688	Hessen
Austria			
1.	Vienna	1.867.582	Vienna
2.	Graz	283.869	Styria
3.	Linz	203.012	Upper Austria
4.	Salzburg	152.367	Salzburg
5.	Innsbruck	132.236	Tyrol
Switzerland			
1.	Zurich	396.955	Zurich
3.	Basel	169.916	Basel
4.	Bern	131.554	Bern
6.	Winterthur	108.268	Zurich
7.	Lucerne	81.295	Lucerne

Table 2.3: Cities included in the study. Ranked by population.

Sources:

Germany: Statistischen Ämtern des Bundes und der Länder. [www.statistik-portal.de](http://www.statistik-portal.de). Status 2015-12-31

Austria: STATISTIK AUSTRIA, Statistik des Bevölkerungsstandes, Statistik der natürlichen Bevölkerungsbewegung, Wanderungsstatistik. Created: 23.05.2017.

Switzerland: STATPOP. Informationszentrum, Sektion Demografie und Migration, 058 463 67 11, info.dem@bfs.admin.ch. © BFS - Statistisches Lexikon der Schweiz

Name of the project	Country	City(ies)	CC	CG	GC	Control	Discuss	Suggest	Initiate	Acknowledge	Reply	Dialogue	Report
Ordnungsamt-Online	DE	Berlin	x	x	x					x	x		
meinBerlin	DE	Berlin	x	x	x		x	x		x	x	x	x
Berlin wird leiser	DE	Berlin	x	x	x	x	x	x		x	x	x	x
züri wie neu	CH	Zürich	x	x	x					x	x		
Brunnen und Denkmäler - Bei Anruf Licht! - Spielplatzmeldung	DE	München	x		x								
meldeplattform- radverkehr	DE	Frankfurt	x	x	x					x	x		
Frankfurt frag mich / Ideenplattform	DE	Frankfurt	x	x	x		x	x		x	x	x	x
Der Mängelmelder	DE	Frankfurt	x	x	x					x	x		
innovations hauptplatz .linz.at	AT	Linz	x	x	x		x	x		x	x	x	
Schau auf Linz	AT	Linz	x	x	x	x				x	x	x	
Stadt Salzburg:direkt	AT	Salzburg	x		x					x			
Bauleitplanung	DE	Hamburg	x	x			x	x		x			
Geoportal Hamburg - beteiligungs Prozesse	DE	Hamburg	x	x	x		x	x		x			x

Name of the project	Country	City(ies)	CC	CG	GC	Control	Discuss	Suggest	Initiate	Acknowledge	Reply	Dialogue	Report
Bürgerhaushalt dialog.	DE	Köln	x	x	x		x	x		x	x	x	x
sbahnkoeln.de	DE	Köln	x	x	x		x			x	x	x	
Sag's Wien partizipation wien	AT	Wien		x	x	x				x	x		
Agenda Währing	AT	Wien	x	x	x		x	x		x	x	x	
Wien gibt Raum	AT	Wien		x	x				x	x	x		
Bürger- meldungen	AT	Innsbruck	x	x	x	x				x	x	x	
Stadtmelder	CH	Winterthur		x	x	x				x	x		
Schau auf Graz	AT	Graz		x		x				x			
Schadensmelder	CH	Bern	x	x		x							
EWB	CH	Bern	x	x		x				x			
Störungsmelder													

Table 2.4: Applications included in the survey and the criteria evaluated.

Name	Country	City	Reason
Bürger baut Stadt	GER	Berlin	Not maintained
FixMyBerlin	GER	Berlin	Only informative
Kiezradar	GER	Berlin	Not released
Shared Mobility Flows	GER	Berlin	Only informative
UrbanX	CHE	Zürich	No public institutions
München MitDenken	GER	München	Only informative
München Transparent	GER	München	No public institutions
perspektive.muenchen-mitdenken	GER	München	Inactive

Name	Country	City	Reason
Smartcity Graz	AUT	Graz	Older than 3 years
Beteiligung in umweltfragen	GER	Berlin	No public institutions
Gieß den Kiez	GER	Berlin	No public institutions
Nexthamburg	GER	Hamburg	No public institutions
Wegeheld	Multiple	Multiple	No public institutions
Radfahren in Berlin	GER	Berlin	Older than 3 years
Frankfurt } Deine Stadt	GER	Frankfurt	Inactive
Frankfurt macht Schule	GER	Frankfurt	Inactive

Table 2.5: Applications excluded from the survey.





# 3

## Case Study: Can digital technologies for city making engage citizens to build parklets in Vienna? Citizen participation in the context of the platform city

This article presents the results of research conducted to observe the impact of digital tools on citizen engagement. For the research, parklets (temporary constructions in public space) in Vienna were selected as a case study. The following digital tools for city making were developed to carry out the experiment: basic information, a parklet potential map, a design tool and a form to request the necessary permits. The tools were advertised among citizens' organisations and through social media channels. Three methods were used to collect data: automated data collection, a survey and expert interviews. The results show that technology has limitations when it comes to motivating citizens to build parklets. While the tools could inform people about the possibilities in the city, other aspects, such as previous engagement, play an important role in the perception of new tools and their potential adoption.

Keywords: Public space, Digital platforms, Citizen participation, Parklets

### 3.1 BACKGROUND

#### 3.1.1 CITIZEN PARTICIPATION

Current methods of both formal and informal citizen participation are a relatively new phenomenon in the history of urban development. It was first during the second half of the 20th century that citizens started to reclaim their right to participate in decision-making processes that affected their vicinities and cities (Frug, 2001; Jencks, 2011; Gold, 1998). Arguably, citizen participation emerged as a reaction to planning paradigms and institutional configurations that excluded citizens from urban design and power structures that govern the city. Modernist or systems planning conceived the city as a collection of functions or elements that could be centrally designed or reorganised without the involvement of the citizens (Mumford, 2000; Hall, 2012; McLoughlin, 1969).

It was through the creation of new planning tools, standards, and laws such as zoning plans that the gap between inhabitants and the development of their city grew to the point where people were no longer able to fully understand the logic of their own cities. The designation of urban planners as key decision makers and the creation of planning departments generated conditions where citizens started to be excluded from urban development and decision-making processes. Citizens are often unable to grasp the many layers of regulations and administrative processes that regulate public spaces and cities. Hence, they feel unable to participate in the development of their surroundings. This relegates them to the role of spectators that merely observe how the city is being developed without their involvement (Jacobs & Appleyard, 1987).

Even though it was guided by praiseworthy ideals, the modernist utopia destroyed communities and failed to generate the settings for an authentic urban life. Government bureaucracies led by experts and technicians proved inadequate to fully address urban development. Instead, they often generated sterile and gigantic spaces without opportunities for encounters or social interchange (Jencks, 2011). Furthermore, planning sometimes led to the same problems it intended to eradicate. For example, the construction of Brasilia generated informal, unplanned settlements for the people who could not afford to live in the planned area (Epstein, 1973). Another controversial project, Pruitt Igoe, was demolished after the social situation became unsustainable (Bristol, 1991; Comerio, 1981).

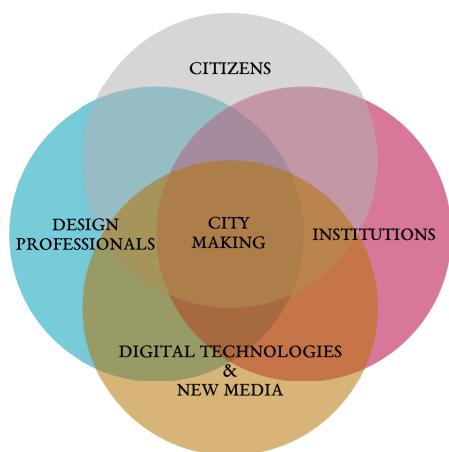
Citizen participation arose against such a background and became consolidated as a common practice in urban development. The articles of Arstein (Arstein, 1969) and Davidoff (Davidoff, 1965) record an important turn in urban development practices and propose

the interests of citizens and communities as a central element for the conception of cities. Together with the formal methods of citizen participation described by Arstein ([Arstein, 1969](#)), different conceptual approaches towards planning began to gain traction. Thinking about cities both as physical and social spaces became fundamental to addressing the challenges of urban development. Instead of thinking about abstract spaces, many started to observe in detail the social dynamics of the city. The writings of Jacobs ([Jacobs, 1992](#)), White ([Whyte, 2010](#)), and Lynch ([Lynch, 1960](#)) show the relevance that human and social dimensions of cities earned as a crucial element for successful urban development. Sterile spaces that failed to attract people were in stark contrast to the bustling life of unplanned cities, so planners and scholars began to understand the dynamics of city life as a fundamental element within urban development.

### 3.1.2 NEW METHODS OF PARTICIPATION

The shift towards different paradigms led to the formulation of new approaches in urban development. A manifesto written by [Jacobs & Appleyard \(1987\)](#) proposes, among others, the following “goals for urban life”: *a) Identity and control:* People should get a feeling of belonging to a place, which also involves having some degree of control over the place itself. *b) Access to opportunity imagination and joy:* Cities should also fulfil the human needs for diversity, stimulation, and joy. Sterile and monotonous spaces are not the ideal scenario for this. *c) Authenticity and meaning:* The city, its layout, and its administration should be understandable so that the people can understand the opportunities offered by it. *d) Community and public life:* Gigantism and fragmentation have deeply damaged life in public places, leading to a feeling of alienation in the city, hence people should be encouraged to take part in public life ([Jacobs & Appleyard, 1987](#)).

These goals set a particular course for cities with a strong focus on citizens and the different ways in which they interact with the city. In particular, the focus on community and



**Figure 3.1: The hackable city - Based on [Ampatzidou et al. \(2014\)](#)**

public life presents a strong contrast to the formalist approach of modernist planners. More recent informal methods of citizen participation are examples of this tendency. Citizens, practitioners and designers have developed mechanisms that allow them to take part in the community and public life, and ultimately be an active part in the development of their neighbourhoods. Instead of aiming for an overall solution, such methods focus on local problems and community efforts to find viable, localised solutions. Pop-up, guerrilla, tactical, or DIY urbanism address the shortcomings of planning, in particular with regard to the social dimension of cities (Lydon et al., 2015; Finn, 2014; Iveson, 2013). The focus lies on the creation of places that, contrary to abstract spaces, generate a sense of community and belonging.

While the apparition of informal participation can be seen as fresh approach towards participation, informal methods are still confronted with the same large bureaucratic apparatuses and complex regulations. The search for loopholes, grey areas, unused spaces and the temporary character of many interventions show that citizens are often forced into tricking the system in order to reclaim the city (Ivenson 2013, Douglas 2014). For example, the Rebar Group, creators of the first parklet, paid two hours of parking space to create sitting opportunities and a small green area (Group, 2009). The strategy, which is quite ingenious, is also representative of the problem described before: citizens have had to go so far as to rent public spaces so that they can create a temporary sitting place in the city. In this context, the use of digital technologies can help in overcoming such bottlenecks and creating new dynamics between institutions and citizens that enable and support the sporadic and decentralised character of informal citizen participation. The following section reviews some of concepts and approaches that can help in understanding participation in the context of digital platforms.

### 3.1.3 PARTICIPATION IN THE CONTEXT OF DIGITAL PLATFORMS

The strategic use of loopholes by citymakers have led scholars to establish parallels between city-makers and hackers. The methods used in pop-up, guerrilla, or tactical urbanism resemble the strategies used by hackers to reshape technologies for purposes different from those originally intended. For example, hacking often involves *a)* the appropriation of technology, *b)* the operation within complex systems and *c)* an agile approach towards problem solving. In the context of citymaking, the exploration of legal grey zones to intervene in the city presents a playful appropriation of public spaces to achieve individual or collective goals. It is also a way of circumventing incomprehensible bureaucratic apparatuses and

creating pathways of action within the city. Additionally, such methods of citizen participation present agile alternatives to the utterly rational planning methods, which do not easily allow the introduction of changes, let alone adjustments of the whole process.

Furthermore, both hacking and citymaking operate at the intersection of top-down institutions and bottom-up initiatives. Within this position, they raise questions or pose soft challenges to the status quo. Such challenges do not openly break the law but instead bend, i.e., *hack* it for different purposes, often benefiting communities rather than individuals. Since they benefit the public, the interventions are often tolerated and not blatantly rejected. Instead, their positive outcomes have sometimes even led to a formalisation of such practices. Finally, both hacking and citymaking take a strongly practical approach that looks for solutions by doing rather than theorising without taking action. Hence, iterative patching, i.e., design-thinking replaces utterly rational and logical plans ([Ampatzidou et al., 2014](#)).

However, there are not only similarities between hacking and citymaking. With the growing technologisation of cities, such practices are converging into hybrid methods that combine the use of digital platforms with informal methods of engagement. This convergence between hacking and citymaking also reflects a coming together of urban and technology studies where technology is increasingly influencing the conceptualisation of cities as hybrid spaces in which digital layers interact and often influence other spheres of the city (see Figure 3.1). The basic premise here is that data and data platforms are increasingly mediating the interactions between citizens, institutions, and urban spaces ([Dijck et al., 2018](#)). For example, dating, ride, or geolocation services change how people interact with each other, establish contacts, and orientate themselves in the city. At the same time, our interactions with authorities and also with facilities of the city itself are being transformed by digital platforms that allow — or prevent — the performance of certain actions in the city.

In this context, ([Anttiroiko, 2016a](#)) proposed the city as a open platform where multiple actors interact to co-create solutions and participate in the formulation of plans and policies. In his view, platforms allow the administration to go beyond isolated silo structures and establish open models that permit the integration of multiple actors. Such transformation entails a decentralisation process where citizens are an active part in innovation or conception processes. Such process, completely opposed to the centralised conception of modernist planners, resembles much more open innovation methods used for developing software, where a core team curate the contributions of multiple developers. Adopting such a model for the city would perfectly match the scattered and sporadic dynamics of

citymakers who make localised “contributions” instead of conceiving overall master plans. Some authors describe the decentralisation as urban acupuncture to stress the local and healing effect of localised interventions (Houghton et al., 2015). The administration, rather than initiating such interventions, would curate the contributions that emerge from local initiatives and select those which can have a long-term impact on the city.

It is in this background where the current research is positioned. The convergence of platforms and citymaking methods can lead to the generation of hybrid practices that use digital technologies to enable and support urban transformation processes. The research presented in this paper explores the impact and the interactions between citizens and digital technologies that support situated interventions in the city. This should help identify which elements are needed to effectively set hybrid transformation dynamics in motion and the degree to which the introduction of technology would change the engagement patterns of citizens. Hence, the purpose of this research project is to observe how far technology can engage citizens in processes of urban transformation, looking in particular at informal methods of participation.

### 3.2 CASE STUDY: PARKLETS IN VIENNA

It is in the context of the city as a platform that it becomes interesting to observe emerging dynamics between citizens, temporary interventions, and digital tools. The current research explores how digital tools can *a)* change the roles assumed by or given to institutions and citizens; *b)* generate new dynamics between people, institutions, and places; and *c)* turn individual agency into collective action. For the current study we focus on “parklets”, i.e., temporary constructions that transform parking places into green areas or sitting places. In contrast to other participation methods, parklets can be initiated by anyone and require less effort and resources. Hence, parklets are an ideal case for carrying out the current research project as they can be built in many public parking lots with relatively few resources. This



Figure 3.2: Parklet in Vienna. ©Juan Carlos Carvajal Bermúdez

provides a suitable framework for observing the impact of digital tools on citizen participation.

### 3.2.1 PARKLETS

Parklets originated in San Francisco in 2005 and have been replicated in different cities. The benefits and the potential of parklets as a tool for urban transformation have been recognised and even institutionalised by different cities. For example, the city of San Francisco promotes the installation of parklets through the initiative Pavement to Parks. According to their website, each Pavement to Parks project is a laboratory to test new ideas for public spaces. A study ([Pratt, 2010, 2011](#)) carried out by the city to monitor the impact of parklets showed an increase in pedestrian traffic. Similarly, the city of New York allows citizens to create a Street Seat for working, reading, eating, etc. Again, research ([New York City, 2011](#)) conducted by the Department of Transport of NYC showed a positive reception of the project both by businesses and communities. While there have been valid critiques regarding the use of parklets ([Littke, 2016](#)), the adoption and replication of this method in different cities ([Lazarova et al., 2018; Patton, 2012; Saffron, 2011; Berg, 2010](#)), speaks volumes about its success as a tool for the revitalisation of communities, the generation of places and in general, for the achievement of some of the goals described by Jacobs and Appleyard ([Jacobs & Appleyard, 1987](#)).

Following the example set by other cities, the government of Vienna has also allowed the installation of parklets in many of the parking places in the city (see for example figure 3.2). With this initiative, the municipality raises an essential question about which use of public space is better for the city. Citizens can now choose between parking one car or building a green area with sitting places to read, work, eat, etc. This debate is of greater relevance in a city where the high accessibility to public transport and an expanding network of bicycle paths often renders private car ownership unnecessary. Nevertheless, a large amount of public space has been allocated to parking places. Due to this and also the high population density in the inner districts, some zones show a notable deficiency of green areas (see table 3.1). This policy and the opportunity that it offers for citizens to create new green areas in the city present an interesting case study to research the impact of digital tools and web technologies in citymaking methods such as parklets.

**Table 3.1:** Green areas in Vienna by use and districts 2018 Source: MA 18 – Real use mapping 2016. Note the unbalanced distribution of green areas between districts.

District	Total ha	Green area use				
		Agriculture	Parks, green areas <sup>a</sup>	Forests	Meadows	Sport, leisure areas
Vienna	18668,65	5704,26	1756,26	8168,92	2251,4	787,81
1. Innere Stadt	27,27	–	27,27	–	–	–
2. Leopoldstadt	674,48	14,79	97,95	302,89	65,69	193,16
3. Landstraße	110,71	2,33	78,8	3,96	13,42	12,2
4. Wieden	17,73	–	12,14	–	–	5,59
5. Margareten	8,78	–	8,43	–	–	0,35
6. Mariahilf	3	–	3	–	–	–
7. Neubau	3,67	–	3,67	–	–	–
8. Josefstadt	2,04	–	2,04	–	–	–
9. Alsergrund	22,17	–	20,82	–	–	1,35
10. Favoriten	1416,02	889,96	212,15	110,78	109,92	93,21
11. Simmering	925,91	414,95	306,86	102,48	71,69	29,93
12. Meidling	101,22	5,55	73,98	1,51	12,01	8,17
13. Hietzing	2651,62	23,04	169,01	2073,88	367,36	18,33
14. Penzing	2022,43	34,76	84,93	1678,18	199,21	25,35
15. Rudolfsheim.	33,51	–	23,16	–	–	10,35
16. Ottakring	261,22	9,91	29,47	197,79	8,97	15,08
17. Hernals	602,68	20,03	26,5	470,32	59,7	26,13
18. Währing	171,09	3,77	50,79	91,01	17,05	8,47
19. Döbling	1191,96	356,4	65,44	645,02	101,95	23,15
20. Brigittenau	50,9	–	31,19	2,41	6,97	10,33
21. Floridsdorf	1802,42	1112,73	133,59	261,91	220,47	73,72
22. Donaustadt	5607,68	2635,66	219,48	1686,94	872,05	193,55
23. Liesing	960,14	180,38	75,59	539,84	124,94	39,39

<sup>a</sup> Includes graveyards.

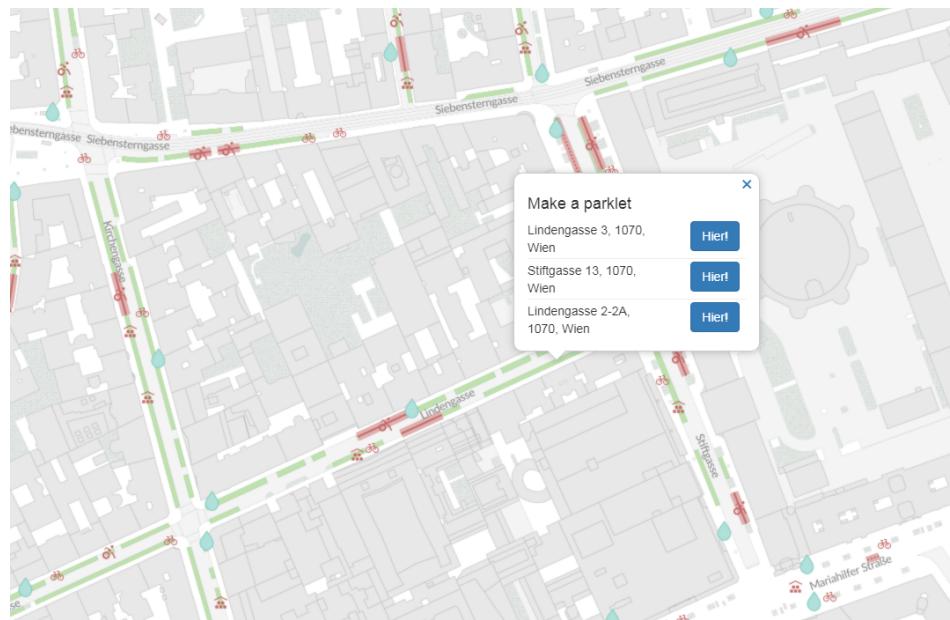
Note: differences in rounding are not compensated.

### 3.2.2 CONCEPT

The research presented in this document observes the interplay between digital tools and informal methods of engagement, in particular the construction of parklets in Vienna. We suggest the hypothesis that a particular set of digital tools that facilitate engagement — for example, by making regulations accessible and speeding up the issuing of permits — would consequently change the engagement patterns of citizens. Based on this hypothesis, we wish to observe how the introduction of digital tools for citymaking affects the interest of citizens in the construction of parklets in Vienna. To answer this research question, it is necessary to measure the previous engagement of the participants and their level of social engagement, as well as their perception and actual use of the digital tools. Only by measuring the social situation before the use of the digital tools is it possible to fully understand the influence of such tools on people, and distinguish between their effects on people with previous engagement experiences and stronger social networks versus others without without such experience or with weaker social links.

The tools were designed based on the barriers for citizen participation discussed before in this text and elsewhere in the literature (Frug, 2001; Callahan, 2007; Edwards, 2013). Lack of time, lack of knowledge about the regulations and technical data, lack of motivation, but also apathy and manipulation are commonly mentioned as obstacles for the engagement of citizens. The toolbox was designed with these obstacles in mind. The central hypothesis is that by transforming technologies and removing barriers, i.e., by facilitating access to basic information, regulations and providing access to the authorities, we can increase the motivation of the citizens to build parklets in Vienna.

It is important to stress that the central objective of the website was only to test the degree to which citizens would become more engaged by the tools. For the project, we aimed to establish a collaboration with the initiative Grätzel Oase (Neighbourhood Oasis), part of the association called Lokale Agenda (Local agenda), which provides financial support for building parklets in Vienna, however, they declined the collaboration. The toolbox was promoted among the relevant actors; however, it was not able to provide financial or organisational support to build a parklet. Hence, the project was developed independently from the city administration.



**Figure 3.3:** Parklet potential map. Restrictions are shown in red, potential places in green

### 3.2.3 RESEARCH DEVELOPMENT

During the preparatory phase, we interviewed the responsible authorities to understand the procedures and regulations that should be considered. This step allowed us to understand the internal procedures of the city and aspects that should be taken into consideration but are not published anywhere. With the information collected, we conceived and designed a toolbox for the conception, design, and submission of parklets in Vienna. The experiment operated at the intersection of the institutions and citizens, disentangling the conundrum of regulations and institutions through online tools (see Figure 3.1).

During the experiment, the participants were invited to visit and test the toolbox. After they became familiar with it, they were asked to fill out voluntary survey. The toolbox was called CityMaking!Wien and it included four main tools, which are explained below.

- i. Basic information regarding the construction of parklets. This section presents the requirements and suggestions for the design and construction of parklets. For example, some restrictions are: *a)* the location of the parklet should be in the immediate surroundings of the permit holder; *b)* the use of parklets for commercial activities is not allowed; *c)* the maximal dimensions of the parklets are 10 meters or two parking places.

2. A parklet potential map that shows where it would be possible to build a parklet  
 This tool mapped the regulations and presented them in the spatial context of the city, showing in red the different restrictions that apply for the use of parking places and in green potential places for a parklet. The map contained information regarding hydrants, reserved parking places, bicycle parking racks, and other layers of information affecting the installation of parklets. Through the visualisation of such elements, the map makes regulations accessible and simplifies their understanding. Once a visitor clicks on a potential area (in green) a pop-up dialog box invites the visitor to make a parklet in the selected location. (figure 3.3)
3. A design tool that facilitates the creation of the drawings required for the submission.  
 The tool has considered the requirements regarding dimensions and security. For example, it does not allow creating drawings that exceed the maximum dimensions allowed. The visitors can also download the drawings and edit them according to their needs.
4. An online submission tool that facilitates contact with the authorities and the submission of the required documents to obtain a permit for the use of parking places. The form could be reached from the potential map and some fields would be automatically filled in for the user.

The tools represent the confluence of citymaking and hacking practices discussed in the introduction. They can be directly connected strategies presented in the hackable city such as visualising development opportunities, designing government frameworks, and conducting awareness campaigns ([Ampatzidou et al., 2014](#)). For example, the parklet potential map visualised opportunities for engagement in the city and made regulations easily understandable. The design tool helped visitors generate the required documents for seeking approval for a parklet. Together, the tools presented a prototype of a government framework that can significantly change the dynamics in public spaces by allowing citizens to easily reserve or “book” parking places and transform them.

### 3.2.4 DATA COLLECTION

CityMaking!Wien was launched in February 2018 and was promoted through social media channels and also through local citizen organisations with an interest in activities or interventions in public space such as Geht-Doch Wien, Raumstation Wien, and Space and Place.

Geht-Doch Wien is a civic association that focuses on issues affecting pedestrian mobility as well as other interventions, such as parklets, that make the city more friendly for pedestrians. The second organisation that was contacted is called Raumstation Wien, which is an association that originated in Germany. Its motto is, “We do not want to wait for the city to change by itself. We want to do it on our own”. Raumstation Wien regularly organises happenings and interventions in public spaces. The third organisation is called Space and Place, which is an association that uses social interventions to make new connections across the city and engage people to change their surroundings.

Three different data collection methods were used: online surveys, automated data collection, and interviews. The automated data collection included, for example, the location and duration of the visits, their origin, date, and the pages visited. For the collection of the origin of the visits, a GeoIP module and database ([MaxMind, 2019](#)) were used. These allowed us to record the actual engagement of the visitors and distinguish between people visiting the toolbox out of mere curiosity (for example, from other countries) and those who could potentially use it, i.e., visitors from Vienna. With such records, it is possible to observe the navigation paths and the actions from visits originating in Vienna. The second method used was an voluntary online survey presented to visitors to the website. Finally, expert interviews were conducted with people from the citizen organisations involved to get a detailed view of the people that are interested in building parklets and their perception of the CityMaking!Wien. The semi-structured interviews looked into the experience of the participants with informal citizen participation methods to find out the objectives of their engagement, the obstacles they faced, and their perceptions of how technology can facilitate their engagement.

## SURVEY DESIGN

The survey (Annex A.1) was designed to allow a comparison between participants with stronger social capital and previous engagements against others with smaller social networks and relatively less experience with interventions in public spaces. It also asked the participants about their previous experiences with technology. The survey had five groups of questions *a)* background, i.e., the previous experience of the participant with interventions in public spaces; *b)* the social background (social capital) of the participant; *c)* the technical skills and the trust in online content; *d)* the perceived impact of the toolbox; and *e)* general questions. The social background section was conceived based on the World’s Bank Social Capital Integrated Questionnaire ([Grootaert et al., 2004](#)). For the survey, two questions

from the Groups and Networks and one question from Trust and Solidarity were selected. To evaluate the technical skills and the trust in online content, some questions from the “United States Technology Use and Public Participation Survey” (Riel, 2012) were chosen. The population of the survey was visitors of the online toolbox CityMaking!Wien who were living in Vienna at the moment of filling the survey (see A.7.3). As the study demands basic skills and knowledge about internet browsing, the survey was also conducted online.

### 3.3 RESULTS

#### 3.3.1 AUTOMATED DATA COLLECTION

Data was collected from mid-February until the end of September 2020. During this period CityMaking!Wien received a gross total of 7,298 tracked visits from which, 3,936 visits originated from Austria and 2,822 originated from within Vienna, which is the segment considered for this study. The website was promoted through social media, flyers and citizen organisations. This generated records in the visitor log showing different sources (direct access, other websites and search engines). About 24% of the visitors entered the website directly, 70% were referred from other websites and the remaining 6% reached the website through search engines. From the considered segment, 31% were returning visitors and the remaining 69% were new visitors.

Visitors from Vienna generated a total of 5,195 page-views and 3,924 unique views. For this study, only unique page views are taken into account. After the homepage (1,188 views), the parklet potential map and the form pages were the most visited with 461 and 332 unique page views respectively. The info and plan pages got 202 and 180 unique visits respectively. Navigation paths show that there were 143 unique page visits to the online form that originated from the potential map page. These visits are interesting because they can only be originated once the users 1.) looked for a potential place in the map, 2.) clicked on it, 3.) clicked on the subsequent pop-up and 4.) visited the form. Those actions combined do not only show a higher degree of activity but also show the curiosity awoken among the visitors by the tools. Finally, during the period observed, the form was used a total of five times to request permits for parklets in the 2nd, 5th, 10th, and 15th districts of Vienna. The submissions were made only one year after the website was launched.

These results show moderate success of the platform and can be used to discuss the limitations of technologies such as CityMaking!Wien. The usage patterns of the website demonstrate low engagement of the visitors; indeed, only a few times did curiosity lead to

action. From the 3,924 total page views considered, only five visitors showed any intention of building a parklet in their vicinity. Such a contrast between curiosity and action shows either the limits of the tools or the need to combine them with other measures to steer initial interests towards a concrete plan for setting up a parklet. Creating a parklet requires both tangible and intangible resources that online tools alone may not be able to provide. This will be addressed again in the discussion.

### 3.3.2 SURVEY

The survey got a total number of 66 full responses from participants that were living in Vienna. This results in a sample of  $n = 66$  from an universe of 2,822 visits. All results were normalised on a scale from 0 to 100 using a linear transformation. Some parts of the categorical data were converted into numerical ranges, using a scale from 0 to 100. This is relevant for questions regarding social capital and trust in the neighbours and the impact of the platform. The values regarding those sections should not be confused with a percentage, they only represent a value within a range.

#### PREVIOUS KNOWLEDGE AND ENGAGEMENT

A total of 40 participants (about 61 %) said they had no experience with interventions or activities in public spaces (Question A.3.1<sup>i</sup>). From those 40 participants, 22 reported never having thought about making such interventions (Question A.3.2<sup>ii</sup>). The results of these two questions have been used to generate a composite score that classifies the participants as follows: *a)* Participants with previous experience with interventions in public spaces; *b)* participants without experience but with interest in making such interventions; *c)* participants with neither experience nor interest in the transformation of public spaces. This composite is used later in the analysis.

Regarding the previous understanding of the regulations, about 44% of the participants said that they did not know about the possibility of building parklets in Vienna, 28. 8% said they had known about this for more than a year and the remaining 27. 3% said they had been informed about it sometime during the last year (Question A.3.3<sup>iii</sup>). Regarding previous knowledge about the regulations, the majority (68%) said that they did not know how

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<sup>i</sup>Have you ever done any activity or intervention in public spaces? (e.g., flea markets, pop-up parks, guerrilla knitting, urban gardening etc.)

<sup>ii</sup>Have you ever thought about making some intervention in public spaces?

<sup>iii</sup>When did you first hear about the possibility of installing parklets in Vienna?

**Table 3.2:** Barriers for citizen engagement

	Time availability	Regulations / Access to regulations	Dealing with the authorities	Costs	Support of the community
It hinders a lot	30.30%	30.30%	30.30%	22.73%	6.06%
It hinders somewhat	39.39%	43.94%	42.42%	45.45%	15.15%
It does not have any influence	9.09%	12.12%	12.12%	16.76%	12.12%
It facilitates somewhat	4.55%	3.03%	1.52%	3.03%	19.70%
It facilitates a lot	4.55%	0.00%	1.52%	0.00%	34.85%
No answer	12.12%	10.61%	12.12%	12.12%	12.12%

to obtain a permit to build a parklet (Question A.3.4<sup>iv</sup>). It could be expected that previous engagement would be linked to better knowledge of regulations, however, we found no correlation between those values ( $r = 0.048, p = 0.69$ ). These results show that at the time of the study, the concept had not yet received a good reception as *a)* it was rather unknown for most of the participants and *b)* regardless of previous engagement, a majority did not know how to get permission to set up a parklet.

Regarding perceived obstacles for engagement, most of the participants expressed that time, regulations, dealing with authorities and costs were important barriers to citizen participation. Community support was the only aspect mentioned as facilitating participation (Question A.3.5<sup>v</sup>; Table 3.2). Perceptions about the impact of parklets showed that more than the half (53%) of the respondents strongly agreed that parklets improve social life in the city, 45% also strongly agreed that they allow them to participate in the development of their neighbourhoods. In contrast, only 20% strongly agreed that parklets ameliorate the lack of green areas (Question A.3.6<sup>vi</sup>). These results confirm the division between citizens and institutions mentioned in the introduction. The participants see the authorities as an obstacle rather than as partners, and the regulations as hurdles rather than as opportunities. Regarding the impact, the results suggest that the participants strongly value parklets as a social tool for their vicinity and associate them with community efforts instead of seeing them as a measure for greening the city.

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<sup>iv</sup>Do you know how to get a permit to build a parklet?

<sup>v</sup>Which of the following aspects facilitates or hinders for you interventions in public spaces?

<sup>vi</sup>In general, do you agree with the following statements?

## SOCIAL CAPITAL, TRUST

The questions regarding social capital asked participants about *a*) group membership, *b*) quality of the relationships with their neighbours and *c*) trust in their neighbours. For further analysis of the results, the categorical data was converted into numerical ranges from 0 to 100. For example, group membership can be interpreted as follows: 0 for no membership and 100 for leading position. The numerical values were averaged to generate a composite score for each question.

Most of the participants (56. 06%) did not belong to any of the groups mentioned, 15. 15% were passive members, 24. 24% reported active membership and only 4. 55% reported being in a leading position (question A.4.1<sup>vii</sup>). The results regarding trust in neighbours showed that most of the participants agreed that *a*) their neighbours could be trusted (68. 2%) and that *b*) they would be willing to help with simple tasks (60. 6%). However, a majority (74. 2%) also agreed that their neighbours did not know each other (question A.4.2<sup>viii</sup>). Finally, the results regarding the relationship with the neighbours showed that about 55% believed that their relationship has remained unchanged, and 45% reported an improved situation. Interestingly, none of the participants reported a worsened relationship with their neighbours (A.4.3<sup>ix</sup>).

The data shows a rather low level of engagement, given that a majority of the participants did not participate in any of the groups mentioned. Furthermore, when comparing the membership, trust and quality of the relationship with neighbours, there is no clear correlation between the composite scores of the results. Only the trust in the neighbours and the relationship with them are weakly correlated ( $r = 0. 225, p = 0. 069$ ). We observed a pattern in the results that people with previous experience with interventions in public spaces tend to have larger social capital, i.e., people who already have performed an activity in public spaces reported higher participation in social organisations ( $r = 0. 381, p = 0. 002$ ). On the other hand, however, previous engagement is not linked to trust or closer relationships with neighbours. While this supports the theory that social capital is linked to increased participation and engagement, it also suggests that the engagement activities of the participants are not directly linked to the place where they live.

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<sup>vii</sup>Are you member of some of the groups listed below, if so which is your role in it? Cooperative, Neighbourhood committee, Political group, Other

<sup>viii</sup>In general, do you agree with the following statements: most people in my neighbourhood . . . ?

<sup>ix</sup>How has your relationship with your neighbours changed during the last two years?

## IMPACT

The results of the impact section were normalised to scale from 0 to 100. Both averages and composite scores for each question were calculated. The participants are more likely (average value 59.84) to check if building parklets in their neighbourhood is possible. In the second place was checking the local regulations with an average value of 53.41. The third place with an average value of 46.59 was contacting others to collaborate on the construction of a parklet. Finally, participants are less likely to request a permit using the online form with an average value of 42.42 (Question A.6.1<sup>x</sup>) The perception of the parklet potential map (question A.6.3<sup>xi</sup>) shows that it helped visitors understand the regulations (average value 80.68) and saved time needed to consult them (average value 81.06). However, the map is less likely to inspire people to actually build a parklet in their neighbourhoods (average value 71.59). These results reflect fairly well the actual usage registered for the toolbox.

**Table 3.3:** Correlations between the impact of CityMaking!Wien and the composite scores of previous engagement and social capital. \* p < .05, \*\* p < .01, \*\*\* p < .001

Impact CityMaking!Wien	vs. prv. engagement		vs. social cap.	
	Pearson's r	p	Pearson's r	p
Checking if installing a parklet is possible	0.318 **	0.009	0.307 *	0.012
Requesting a permit	0.152	0.222	0.262 *	0.033
Contacting other people	0.295 *	0.016	0.183	0.142
Checking the regulations	0.310 *	0.011	0.321 **	0.009
Composite score for impact	0.305 *	0.013	0.304 *	0.013

### 3.3.3 INTERVIEWS

For the case study, a total of five expert interviews (see table D.1) were conducted with representative persons that have prior experience in citizen engagement projects or are members of citizen organisations with a focus in urban development.

Regarding the use of technology for citizen participation, the interviews showed a disconnection between the visions of what technology can achieve versus the actual use of applications. Members of research organisations tend to understand tools according to their potential, i.e., there is a latent or tacit vision for the future where such technologies should play a

<sup>x</sup>How likely are you to perform the following actions using Citymaking!wien?

<sup>xi</sup>Do you agree with the following statements regarding the parklet potential map?

significant role. CityMaking!Wien was overly well-received and qualified in more positive ways by the interviewed people working in research organisations. Members of citizen associations, on the contrary, were rather focused on the present situation and how such tools could potentially facilitate the achievement of their goals, regardless of their future potential. While members of citizens associations acknowledge and welcome new technologies, a certain scepticism emerges when the use of a given application does not offer a significant advantage over other methods of engagement, or when the use of technology diverts their attention from their main goals.

Some highly engaged citizens were habituated to dealing with bureaucracy personally or using traditional postal services. Even if they knew about new digital tools and infrastructures for citizen engagement, these people were not necessarily interested in adopting them because their existing methods to deal with authorities were already working. They cited the complications that technology can present, such as irregularities in the services or technical incompatibilities. This suggests that technology is, in general, welcomed but is not to be seen as an exclusive solution. On the contrary, hybrid methods (both digital and paper-based) offer flexibility to the citizens and a slower but more secure way of communication that is not exposed to technical glitches.

These interviews also shed light on a different aspect, that citizen participation can become also a problem for informal interventions such as parklets. When asked about obstacles faced, one interview respondent mentioned that during the approval process of a parklet in Vienna, some neighbours were notified of the plan and mobilised other people against the initiative. The association supporting the parklet was publicly confronted by around 16 citizens who were concerned about “the destruction of public parking places and the waste of taxpayer money”. The authorities, also surprised by the extraordinary response, chose to change the location of the parklet to avoid further confrontation. Such situations can emerge from conflicting views on the future of the city and raise the question of which tools can be used to address this, if any.

### 3.4 DISCUSSION

The observations made through CityMaking!Wien showed a mixed perspective on the actual impact of digital tools on citizen engagement. The results can be summarised as follows: the toolbox presented contributed to informing and awakening curiosity among citizen visitors and even helped some to request permits to build a parklet; however, it was

unlikely to significantly change the current patterns of engagement. Hence, the underlying hypothesis that digital tools for citymaking could provoke a change in citizen engagement was not validated. This, in turn, hints at a larger disconnect between the perception of the potential of technology and the actual use given to digital tools by citizens. These findings emerge at various points in the results.

It is rather clear that CityMaking!Wien contributed to informing citizens about the possibilities of public spaces, as many visitors did not know that building parklets were allowed in the city. This is substantiated by the usage observed, as most visitors used the map to search for a suitable spot for a parklet. These visits to the map, which represent curiosity, led some users to also visit the form. While the visits to the form indicate stronger interest from the users, these first steps were seldom transformed into collective action as very few visitors used the form to request a permit. The disconnect between curiosity and lack of action also emerges in the survey. The participants are more likely to check if installing a parklet in their neighbourhood is possible, and less likely to actually request a permit using the online form.

The conclusion that technology can only play a limited role is also supported by the pattern identified in the survey that indicated that people with previous engagement and greater social capital are more likely to use the toolbox. This last result shows that technology was more likely to increase engagement among already active persons. This might not be very surprising, but also implies that the toolbox would not significantly increase the engagement of people that are apathetic or passive, i.e., technology would maintain existing patterns of engagement rather than changing them.

Finally, the results suggest a larger disconnect between the perceived potential of technology and the actual problems faced by citizens. This disconnection emerged clearly during the interviews. People that work with citizen organisations but are not directly involved in the day-to-day reality of citizen engagement were much more confident on the potential impact of technologies on the engagement of citizens. People involved in fundraising, organisation of volunteers, and completion of projects in the city welcomed the toolbox and even showed enthusiasm about it, but saw limited potential in it. A much bigger concern for a citizen organisation is, for example, how to deal with opposing citizens who organise and protest against the installation of parklets in Vienna. The toolbox was not conceived with this reality in mind. It was instead based on the assumption that disentangling the conundrum of regulations and institutions would significantly increase the engagement of citizens.

### 3.4.1 HYBRID NETWORKS OF ENGAGEMENT

The results showed that previous engagement is a determining factor in the reaction of citizens to the tools and their potential usage. This suggests that platforms for citizen engagement should be closely linked to such citizens, facilitating and strengthening their role as initiators of interventions in public spaces. Their know-how and experience is an invaluable resource that is crucial for the success of engagement in public spaces.

Based on the results, we propose a model for the integration of technologies and citizens with previous experience with interventions in public spaces, i.e., proactive citizens. The model highlights the role of technology as a platform for engagement that supports proactive citizens to become propagators. This results in a hybrid network of engagement where the social connections of citizens are complemented and enhanced through digital tools and networks. In this schema, digital tools bolster the role of proactive citizens with tools that *a*) make regulations accessible, *b*) aid with design tasks; *c*) ease communication with the authorities and *d*) help them to connect with other citizens.

By facilitating a part of the work needed to initiate interventions, engaged citizens can progress towards the role of propagators. The aim is to create a synergy between digital tools and proactive citizens to reach and activate new persons that continue propagating both the tools and the know-how about citizen-initiated interventions. This should create a sustainable cycle where newly engaged citizens find lower barriers and, thanks to the tools provided, can focus again on taking on the role of propagators that share their know-how with others. With this model, both the tools and local interventions should enjoy greater adoption.

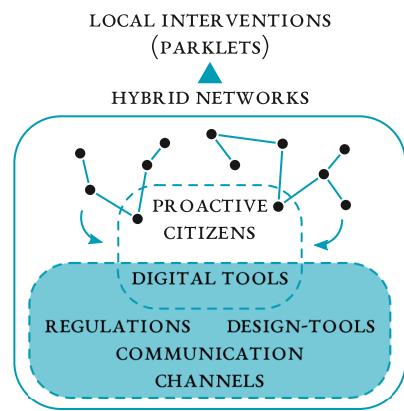


Figure 3.4: Hybrid networks of engagement. Schema for the integration of citizens with digital platforms.

## 3.5 CONCLUSIONS

CityMaking!Wien was led by a vision that technology could significantly change the behaviour of citizens by presenting them with tools that allowed them to transform their

cities. The underlying concept proposed the transformation of technologies to support bottom-up initiatives and change the dynamics of the city by allowing and engaging more people to build parklets. That goal was only partially reached. The research process showed that municipalities are not always open for the development of such tools, that other citizens might oppose bottom-up initiatives, that even small interventions such as parklets require support from neighbours, and finally that technology itself is only a small piece in the puzzle of urban transformation.

Technology can certainly *a*) inform citizens about opportunities to transform public spaces; *b*) encourage people to make use of such opportunities and *c*) guide citizens through the bureaucratic apparatus, yet transformation processes demand collective action rather than individual agency. The fact that groups with bigger social capital are more likely to use digital tools for citizen engagement shows that communities and networks play a key role in turning individual agency into collective action. This suggests that web-applications should be connected to person-to-person activities that create or activate communities and networks in the city.

The results raise questions that can be further explored through research projects. Further experiments can investigate tools that help people connect with each other within cities and observe how such connections can be transformed into collective action. Experiments that mix digital tools with other community-building activities can also further examine how digital and person-to-person interactions can be better created to increase engagement in cities.

## LIMITATIONS

This study focused on people that could access the website CityMaking!Wien. This requirement assumes a minimum level of computer literacy. Furthermore, the website was published in German and English to allow a larger group of people to access and understand the website. Regardless of this effort, there are other languages that could not be included. This makes a comparison between different groups in the city rather difficult. The results should be interpreted considering such limitations.



# 4

## The role of technologies and citizen organisations in decentralised forms of participation. A case study about residential streets in Vienna.

Citizen participation is a complicated piece of the urban development puzzle as it is prone to conflicts and manipulation. However, new, partly unsanctioned methods of citizen participation have appeared in recent years, opening new forms of engagement for citizens. At the same time, technology is increasingly being used to change the relationship between institutions, experts and citizens. However, the impact of such technologies in citizen engagement has not been systematically measured. Using residential streets in Vienna as a case study, this paper explores the impact of web technologies in the engagement of citizens. Three data collection methods were used: an online survey, expert interviews, and automated data collection. The results show that web-based maps can inform and inspire citizens, however, they will more likely only sustain current patterns of engagement. Further, collaborating with citizen initiatives proved to have a significant impact on the adoption and usage of online tools. This speaks strongly for co-creation approaches, where citizen organisations are included from an early stage in the development of the tools.

Keywords: Public space, urban-informatics, citizen participation

#### 4.1 INTRODUCTION

Growing urbanisation of the world unfolds parallel to a growing technologisation of urban spaces. In such a context, the conception, development and operation of technologies for cities is being compared with previous experiences and failures of urban planning. The implementation of digital infrastructures for cities has been guided by techno-deterministic paradigms that propose technology as the sole determinant of change. This approach has been questioned, based on the failures of similar approaches in the past (Kitchin, 2014; Hollands, 2008). At the same time, the literature highlights that technologies allow for the establishment of multi-directional channels of communication that change how institutions and citizens interact (Mano, 2021; Siyam et al., 2020). For example, the overlap between the processes of urban development and technologisation of urban spaces has been noted in previous research work that explores this overlap from both conceptual and practical perspectives (Certomà et al., 2020). In this context, new opportunities and models for citizen participation have emerged. This paper presents research that investigates the impact of technology on citizen engagement.

The paper begins with a literature review on citizen participation and how technology-enabled participation has opened up communication channels as well as opportunities to engage citizens. Following this, the paper presents research addressing the influence of technology on citizen participation, inquiring into the elements needed to effectively transform and decentralise government in urban areas. This is achieved through a case study on residential streets in Vienna, which looks into the previous and potential engagement of citizens. Finally, the results and the discussion are presented, where a model for augmented methods for decentralised citizen participation is introduced.

#### 4.2 LITERATURE REVIEW

##### 4.2.1 ORIGINS OF CITIZEN PARTICIPATION

Citizen participation in urban planning emerged during the second half of the 20th century as a reaction towards planning paradigms that failed to include citizens in the processes and institutions that shaped the city (Jencks, 2011). Functionalism (Mumford, 2000) or systems planning (McLoughlin, 1969; Hall, 2012) abstracted the city into a collection of functions or elements of a system that could be freely designed or re-arranged without taking citizens or communities into consideration. The controversies surrounding projects such as Brasilia

and Pruitt Igoe highlight the limitations of such planning paradigms and the unintended consequences of conducting urban development without the involvement of citizens.

Parallel to this, the establishment of modern institutions to regulate urban development further exacerbated the alienation of citizens from the planning and decision-making processes that shape their cities. Modern legal systems insist on a strong separation of private and public matters (Frug, 2001), where public institutions are granted a central role in planning processes. This institutional configuration, together with the establishment of planning as a profession, have established top-down managerial structures in cities that leave little room for the participation of citizens. Such structures operate at scales that escape the grasp of citizens and create dynamics where people are spectators rather than actors in the development of their cities. For those relegated to a passive role, things appear to happen without their notice or involvement (Jacobs & Appleyard, 1987).

As a result, various voices have stressed upon the importance of including citizens and communities in planning processes. In her seminal paper, Arnstein (1969) saw participation as a moral imperative, and proposed various degrees to which citizens could be involved in the urban development process. Other authors, such as Davidoff (1965), suggested that planners should assume the role of advocates who represent and balance the interests of communities within the city administration. Healey (1996, 1992) further deconstructed the rationalist approach towards planning, and proposed a communicative practice where spaces for community collaboration and discussion are created to strategically invite consensus between all stakeholders. Finally, the works of Lynch (1960) and Whyte (2010) also paid increased attention to the social character of cities and the perception of individual citizens.

However, from the beginning, citizen participation processes have shown limitations. Already in 1977, Cupps (1977) pointed out some of the problems related to citizen engagement. For instance, it is not always possible to reach a representative number of citizens, and even if the process reaches such a representative number, it is not easy to distinguish legitimate participants from external actors. This opens the door for external groups with vested agendas to instrumentalize citizen participation as a means to pursue their goals. This negatively impacts the legitimacy of such processes and makes participation prone to manipulation and conflicts (Roberts, 2016; Hall, 2012; King et al., 1998).

The problems associated with these processes have led cities to view citizen involvement as a costly and time-consuming activity that can result in conflicts rather than practical solutions (Hall, 2012). Some see engagement activities as empty processes that give citizens a false sense of empowerment (Edwards, 2013). This has contributed to a lack of change in

administrative structures and dynamics in cities, and a dissociation of citizens from these administrative apparatuses. To make urban development more participatory and democratic, there is still a need to find methods that allow citizens to get engaged in the conception and design of their streets, neighbourhoods and cities.

#### 4.2.2 INFORMAL METHODS OF CITIZEN PARTICIPATION

In recent years, new informal methods of citizen participation and engagement have emerged, such as chair bombing, guerrilla knitting, and parklets. These have been repeatedly replicated in various cities. Urban acupuncture, guerrilla, tactical, and pop-up urbanism are some of the terms coined to describe this trend ([Lydon et al., 2015](#); [Finn, 2014](#); [Hou, 2010](#); [Foth, 2017a](#)). In the context of this paper, these interventions are included under the umbrella term of informal participation, which describes the scattered nature of the activities and stresses upon the tensions between formal and informal methods. These methods have certain characteristics in common. First, they are usually initiated by small citizens' organisations preoccupied with the improvement of their local areas. Second, most of their interventions are conceived to avoid bureaucratic hurdles or circumvent regulations, often by exploring grey areas in regulations. Third, a vast majority are located in public spaces and are publicly accessible, thus benefiting the general public.

These spontaneous and often unsanctioned interventions are symptomatic of the maladies exposed in the previous section. They demonstrate the methods citizens have had to invent to sidestep institutions and regulations governing most cities. However, they have also been a fertile experimentation ground for methods that citizens can use to engage and transform their areas. Informal engagement often explores the hidden potential of under-used spaces and transforms otherwise sterile areas into lively places for communities. Successful experiences are frequently spread through networks and re-enacted in other cities. The replication and adoption of such interventions show that they are valued as effective methods to generate, for example, green areas, bike lanes, or embellishments for neighbourhoods ([Finn, 2014](#)).

Many such interventions operate at a scale that is not within the reach of the authorities or would involve unreasonable costs if done by the administration. The scattered nature of informal interventions has been described as urban acupuncture to stress on both its hyper-local character and its healing effect on cities ([Houghton et al., 2015](#)). Furthermore, the initiators often see such interventions as complementary to the work of local governments, rather than as opposed to them ([Iveson, 2013](#); [Douglas, 2014](#)). Instead of exercising opposi-

tion, the initiators aim to contribute to the improvement of their living environment using methods that do not completely fit within large bureaucratic apparatuses. This suggests that informal interventions could potentially be articulated as part of larger strategies for urban transformation. For example, in Vienna, the administration allows and supports the construction of parklets, which can be initiated by local citizen organisations (Figure 4.1).

Lydon ([Lydon et al., 2015](#)) proposes that small-scale interventions should be seen as part of a larger set of tactics that aim to transform cities in the long term. While planning necessarily involves evaluation and preparation prior to the execution, tactical urbanism allows for dynamic developments that nevertheless follow a common strategy. Contrary to public administrations, which are often described as slow and reluctant to innovation ([Bason, 2010](#)), informal citizen participation generates methods for urban transformation that are suitable for the capacity and needs of citizens. This presents a fresh approach to the questions of participation that might potentially lead to new forms of urban politics, where citizens actively appropriate public spaces and decide their use ([Iveson, 2013](#)).

Finally, the participatory design literature suggests that a progressive transformation of institutions should be part of a participatory approach towards planning. [Huybrechts et al. \(2017\)](#) observe that participatory approaches and projects are necessarily embedded in various legal and institutional frameworks that determine their outcomes. They introduce the term *institutioning* to stress upon the inter-dependencies between multiple actors as well as the need for institutions to progress with or parallel to the results of participatory processes. *Institutioning* provides a comprehensive and multi-level understanding of participation where individual citizens, local organisations and institutions evolve through participatory processes ([Teli et al., 2020](#)). In the context of informal methods of participation, *institutioning* highlights a process where cities can learn from spontaneous interventions and align them with long-term processes.



Figure 4.1: Parklets, one of the informal methods of citizen engagement. © Juan Carlos Carvajal Bermúdez

#### 4.2.3 TECHNOLOGY-ENABLED CITIZEN PARTICIPATION

A different development transforming citizen participation is the introduction of information and communication technologies that facilitate communication between citizens and between citizens and authorities. New communication channels offer multi-directional ways of exchanging information. This has already generated new forms of governance where authorities do not only inform but also gather information from citizens. A key premise in the argument for technology-enabled citizen participation is that it should make institutions more efficient by allowing faster communication, and more transparent by enabling citizens to engage in discussions about new projects and policies ([Tomitsch, 2018](#); [Siyam et al., 2020](#)).

The introduction of new technologies has already generated new forms of engagement in various cities ([Desouza & Bhagwatwar, 2014, 2012](#); [Ertiö, 2015](#)). For example, many cities use applications to collect localised reports regarding problems with city infrastructure, such as defective traffic lights, damaged elements, or even illegal garbage disposal ([Pak et al., 2017](#); [Kopackova & Komarkova, 2020](#)). Multi-directional communication channels also allow administrations to establish discussions about future projects and policies, or to ask residents about their concerns regarding specific areas before the conception and execution of development plans ([Wallin et al., 2010](#)). Other methods include idea collection and localised surveys that aim to gather citizens' knowledge about their vicinity and identify ideas to improve the city at a local level ([Kahila-Tani et al., 2016](#); [Kahila & Kyttä, 2009](#)).

The introduction of technology in the context of citizen participation has prompted researchers to propose frameworks that articulate technical and social developments. Community informatics propose a combined social and technical process that allows cities to learn the needs of their communities while propagating skills among their members. Such approaches are aimed both at generating capacity within communities and ultimately setting in motion a sustainable model for the further development of technologies ([Day, 2010](#); [Gaved & Mulholland, 2010](#)). Other studies have observed how intermediaries in social innovation projects play a dual role as community builders and as designers and shapers of technologies ([Cibin et al., 2020](#)). Recently, *infrastructuring* has broadened the scope of community informatics to articulate elements such as urban spaces and non-human actors as part of the development processes, while also proposing models for the management or sharing of resources ([Karasti, 2014](#); [Baibarac et al., 2019](#); [Seravalli, 2018](#)).

Other frameworks aim to link urban and technical paradigms. A recent publication

	Paradigm	City Government	Citizens
Cities 4.0	Open innovation	Collaborator	Co-Creators
Cities 3.0	Participative	Facilitator	Participants
Cities 2.0	Neo-liberal	Service provider	Consumers
Cities 1.0	Modernist	Administrator	Residents

Table 4.1: Interaction between citizens and cities (extended for this article). Based on (Foth, 2017b)

(Certomà et al., 2020) presents three imaginaries that seek to understand the relation between technologies and cities. The imaginaries, *hyperconnected city*, *receptive city* and *do-it-yourself-city*, range from a top-down perspective towards bottom-up dynamics, where citizens are directly involved in the generation of technologies and ideas for their city. Another research framework (Foth, 2017b, 2018) proposes four modes of technology-enabled interactions in cities (Table 4.1). The first one, residents, refers to the idea of familiar strangers who regularly cross paths in the city but do not interact. Normally such interactions are ignored, but they are being unveiled using GPS or tracking devices to identify social dynamics in cities. Interactions can also happen in the context of service delivery, such as in public transport departments interested in providing the best service for the citizens, who in this case are seen as consumers. The participative paradigm refers to processes of participation where people are invited to join public discussions or comment on projects, where the administration steers the whole process. Finally, the role of co-creators is related to the informal methods of citizen participation discussed before. Here, citizens assume an active role in the design and transformation of their cities in a bottom-up approach that explores underused opportunities and grey areas. The role of technology in the last form of interaction is focused on social networks that allow communication between citizens at the local level.

The framework proposed by Foth (2017b) also suggests a transition from formal participation methods steered by the authorities towards decentralised methods initiated by citizens. Here, de Waal (de Waal et al., 2017) identifies various common points between the practices of hackers and bottom-up initiatives (Ampatzidou et al., 2014; Fredericks et al., 2019; de Waal et al., 2017). Just as hackers operate within computer systems often managed by large organisations, city makers operate at the intersection of large bureaucracies, professionals and stakeholders. Often, hackers explore defects, glitches, grey areas, and the boundaries of technology to find exploits, i.e., methods that allow them to gain access to or control a given system. City-making strategies also look for underused opportunities or “glitches” in the system that allow them to stretch the boundaries of what is allowed.

It is in this context that the research presented in this paper is developed. Hacking the city can happen both on the streets but also by hacking or even developing platforms that offer opportunities for engagement. We see informal participation methods as a form of co-creation in the city, where people engage directly in the transformation of their cities ([Anttiroiko, 2016b](#)). This study focuses, in particular, on technology-enabled co-creation, i.e., on how digital tools can contribute to the activation of citizens and help them to assume a role as co-creators of public spaces. We focused on “residential streets”, a particular grey area of regulation, which allows residents to transform and co-create the city, demonstrating to others the underused opportunities of engagement that the city has. Following the parallel with hacking practices, we see residential streets as an ‘exploit’ in the city that allows the use and transformation of the streets while circumventing bureaucratic hurdles.

#### 4.3 CASE STUDY: RESIDENTIAL STREETS IN VIENNA

The original concept of Woonerven (Dutch for “living yards”) was established in 1976 after a report by the Netherlands Association of Local Authorities (Vereniging van Nederlandse Gemeenten, VNG) provided the basis for the regulation of this traffic-calming measure. Rather than creating a concept, the law endorsed informal developments that started in the city of Delft where the narrow streets did not allow proper separation between pedestrians and vehicles. This situation led residents, irritated with alien parking and cut-through traffic, to implement their own traffic-calming measures such as sandboxes, narrowings, and humps. In the process, the residents developed a traffic-calming concept that transformed the streets into living yards, or “Woonerven”. Cars could circulate, but at lower speeds, mitigating the risks of through traffic, letting residents enjoy public spaces. After their official enactment, the Woonerven became a model for other cities, and similar laws and regulations were enacted in countries like Germany, Denmark, Sweden, France, England, Japan, Israel, Switzerland and Austria ([Guttenberg, 1981; Kraay, 1986](#)).

In Austria, the concept of residential streets or “Wohnstraßen” was enacted in 1983. The local regulations stipulate that it is possible to enter and play in residential streets but vehicle traffic should not be intentionally hindered. In a residential street, drivers should keep a walking pace and should not put pedestrians or cyclists in danger. Traffic is prohibited in residential streets, except for cyclists, garbage collection, law enforcement, and fire brigades, as well as other public services. People are also allowed to drive in and out of residential streets in order to, for example, look for a parking place. As many residential streets include

parking places, the prohibition to drive through them becomes meaningless, and many residential streets have the same character as other streets. The law also allows municipalities to install speed bumps or curbs to reduce the speed of vehicles. However, often a residential street lacks speed-reduction elements or surface designs that transform the vehicular character to one focused on other groups such as pedestrians, elderly people or kids. The typical chicane curves used in Woonerven are not widely used in Vienna.

The lack of architectural elements to provide security for pedestrians and effectively limit the speed of vehicles leaves the potential of residential streets underused. In many cities, including Vienna, it is not usual to observe an active use of public spaces and residential streets. Furthermore, the restrictive attitude of the authorities inhibits inhabitants from actively using public spaces, let alone playing in residential streets. The concept expressed in the regulations is not always translated into reality by city administrations, and restrictions are often not enforced. The authorities see residential streets just as a traffic-calming label, rather than envisioning a re-design of public spaces that reclaims their inherent uses as a playground or social nodes. Even if playing cultures and games have been expanded over time, there is no reason why children should not continue enjoying urban spaces, even with augmented digital experiences ([Hjorth & Richardson, 2017](#)). This has reduced the original concept to a traffic sign that advises drivers to reduce speed, a result that is at odds with the experimentation done by the residents in the Netherlands. Residential streets' progressive loss of character as a public playground has already been noted in previous research work that explores how they can be reclaimed ([Tranter, 2015](#); [Tranter & Doyle, 1996](#)). The laws collected the original elements, yet the practice increasingly diminished the concept to a traffic sign (Figure 4.2).

In Vienna, the culture initiative *Space and Place* (see more in Section 4.3.2) also recognised residential streets as an underused and unexplored opportunity, an *exploit* in the city that allows for the engagement of citizens and transformation of public spaces into places. Residential streets offer an actual chance for people to use public spaces and experience the city as a place for social interchange. During the years 2018, 2019, and partially in 2020, *Space and Place* explored the boundaries of the legal concept and tested what could be achieved within the current regulatory framework. A series of interventions in residential streets were planned during the year (Figure 4.2). We agreed to collaborate on our research agendas, and as a result, these activities were used both to carry out research on the impact of web-based maps on citizen engagement, and to find out what people know and feel about residential streets. A qualitative study of the interventions is in preparation.



**Figure 4.2:** Intervention in a residential street showing the characteristic traffic sign in Vienna. Courtesy of *space and place*. © Renee Del Missier.

#### 4.3.1 RESEARCH CONCEPT

In this case study, we investigate how the use of web-based maps and information tools changes citizen engagement. We want to find out whether visualising regulations, i.e., residential streets, and providing information about them will make citizens more likely to use them and explore the full potential offered by the regulatory framework. To measure this, it is important to consider other factors, such as their previous engagement and social situation, especially within the neighbourhood context. These two variables allow for an analysis of the influence of web-based maps on the engagement of people that have already used residential streets versus those that have not.

To measure social interactions within the neighbourhoods, we resorted to research methods developed to measure social capital, taking into account the link between citizen engagement or participation, and social interactions or social capital (Coleman, 1988). The literature on social capital defines it broadly as an immaterial resource that is nevertheless essential for the mobilisation and activation of communities (Blanco & Campbell, 2006; Coleman, 1988). Even if recent research has observed a decline of social capital (Putnam, 2014, 1995) or its transformation through online networks (Hampton & Wellman, 2003; Foth et al., 2008), the methods developed to observe the social situation of individuals are appropriate and can provide insights into the social dynamics – or their absence – within

the neighbourhoods under study. This is relevant to current research, as social connections within the neighbourhood can act as a facilitating factor for an individual thinking about activating public spaces as social nodes, given that residential streets are thought to be used by people living nearby. Furthermore, social connections can also be an indicator of the previous engagement levels of the participants (Wellman et al., 2006).

The central hypothesis is that tools such as web maps can increase the engagement of citizens by facilitating access to information and providing them with key information about opportunities for engagement. In the introduction, we discussed how the institutional and regulatory arrangement of cities becomes an inhibitor for citizen participation, as people are unable to understand the mechanics of public spaces and the opportunities they offer. If providing citizens with tools that help them navigate the city and identify opportunities to make use of public spaces increases their willingness to use them, then it would be possible to conclude that technology can effectively increase engagement in the city.

#### 4.3.2 RESEARCH DEVELOPMENT

This case study was developed in cooperation with *Space and Place*<sup>i</sup>, a local cultural initiative that focuses on the activation of public spaces, social interventions, and dialogues that connect people in the city. *Space and Place* addresses both the spatial and the social dimensions of the city by transforming public spaces and creating spaces for social interaction.

Various digital tools were developed for the case study. These tools aimed to inform and facilitate the use of residential streets. The first was a custom-made map that highlighted residential streets in Vienna and visualised the legal aspects of public spaces. The map was to make regulations accessible and discernible by helping the visitor establish a link between the traffic regulations and their impact on the local neighbourhood. Three versions of the map were made available: an information base map, an interactive map that showed activities already organised in residential streets (Figure 4.3), and a map showing upcoming activities. A second tool was an online form that let anyone submit activities and display them on the interactive map. Its purpose was to inspire and encourage people to use residential streets based on previous experiences.

Another tool developed for the project was the residential street quiz (Wohnstraßen-Quiz). This quiz was both an information tool and a research method. It included trivia questions that hinted at possible uses of residential streets. During the quiz, a basic map

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<sup>i</sup>Space and Place is a cultural initiative that is active in the urban spaces of Vienna. See more at: <https://spaceandplace.at>

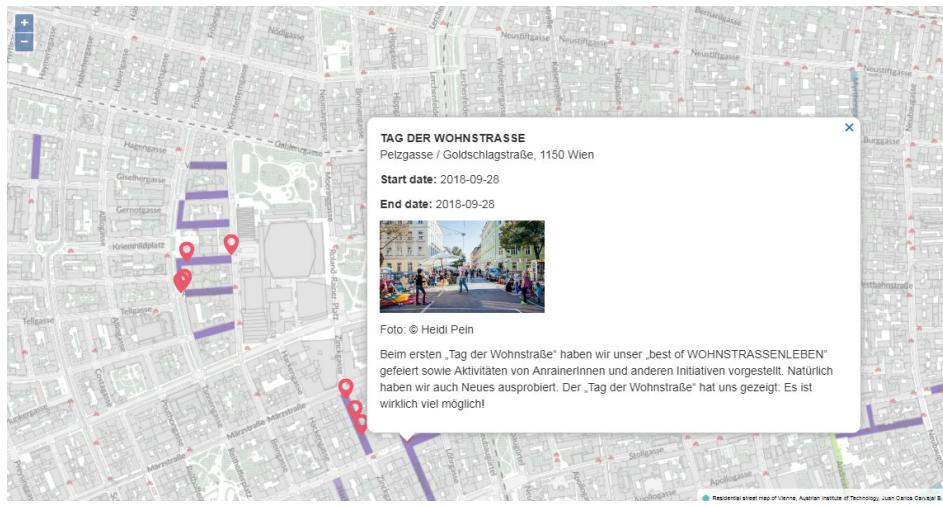


Figure 4.3: Residential street map showing one of the activities recorded.

of residential streets was presented to the participants and they were asked about their reactions to the map. The tools were launched in June 2018 and promoted through social media, mailing lists, and interventions (*Wohnstraßenleben*) organised by *Space and Place*.

#### 4.3.3 DATA COLLECTION

Three different data-collection methods were used: online surveys, automated data collection, and expert interviews. A web analytics tool was used to observe visits and the usage of the quiz and the different versions of the residential street map. The tool also collected the origin of visits, their duration, and the navigation paths of the visitors. This allowed us to distinguish between visitors motivated merely out of curiosity (e.g., visits from other countries) and visitors that can benefit from the tools. Additionally, this data demonstrated the actual usage levels of the tools.

The second method included semi-structured expert interviews conducted with persons with experience in the activation of residential streets in Vienna (see Appendix D). They were asked about their activities in the city, obstacles faced during their engagement, and their experience with technologies. The objective of these interviews was to get a picture of previous engagements and understand how other factors such as technology and social connections affect the motivation of people to become active.

Finally, we conducted an online survey that could be answered voluntarily by visitors on the website. The survey was designed to measure the influence of technology – in par-

ticular, web-based maps – on the engagement of citizens. The survey had four sections: general knowledge about residential streets, technology and the impact of web maps on engagement, social capital, and open questions. The third section was designed with questions taken from the World Bank's Social Capital Integrated Questionnaire ([Grootaert et al., 2004](#)). The questions allowed us to register the social situation of the participants as a factor that can potentially influence future engagement and the usage of digital tools to increase engagement.

We introduced gamification elements such as scores and badges to increase citizen participation in the survey. The survey was expanded with trivia questions that challenged participants to test their knowledge about residential streets in Vienna and show them what was allowed on such streets. For example, we asked the participants about the maximum speed allowed in residential streets. At the end of the survey, the answers to the trivia questions were evaluated and each participant got a score and one of three badges (Urban Newby, Urban Apprentice, Urban Expert). The survey was presented as a game called the residential street quiz ([Wohnstraßen-Quiz](#)). It was carried out both online and in-person during some of the actions organised by *Space and Place*.

#### 4.4 RESULTS

##### 4.4.1 AUTOMATIC DATA COLLECTION

During the period of the data collection, between June 2018 and July 2020, different versions of the residential street map received a total of 2,815 unique page views; however, only 1,669 originated from Vienna. A large portion (91%) were referred from the [website](#). The quiz received 1,998 unique page views, 1,159 of which originated from Vienna. Nearly all (98%) visits were directed from the [website](#). Regarding the usage of the residential street map, a total of 17 activities were recorded. In 2018, seven activities were recorded, in 2019, nine, and in 2020, only one. The abrupt change in 2020 reflects a real decline in activities due to the restrictions related to the COVID-19 pandemic.

The results of the automatic data collection already show that the collaboration with *Space and Place* had a significant impact in both the adoption of the tools and participation in the experiment. This indicates that the development and adoption of tools for citizen engagement is significantly boosted through collaboration with citizen organisations.

#### 4.4.2 SURVEY (QUIZ)

Between June 2018 and July 2020, the quiz received a total of 245 complete responses, 13 of which were from people not living in Vienna. This resulted in a sample size of  $n=232$  responses. All results were normalised on a scale from 0 to 100 using linear transformation. Some of the categorical data was converted into numerical ranges using a scale from 0 to 100. This is particularly relevant for questions regarding social capital and trust in the neighbours. The values reported in this paper represent a level in a range and should not be confused with a percentage.

#### PREVIOUS KNOWLEDGE

A majority (~86%) of respondents knew the speed limit that applies in residential streets (question B.2.5<sup>ii</sup>). About 81% knew that it is only possible to drive in and out of such streets, 61% were aware that they could park only after checking regulations, and more than 72% knew that it is not possible to drive through (question B.2.4<sup>iii</sup>). This shows that participants were consistently well informed about regulations applied to residential streets, and rules out lack of information as a reason for the poor impact that the concept has had in the city.

When asked about how long they had known about residential streets, around 69% reported that they had learned about them more than a year ago, while around 16% said they had just learned about them (Question B.3.1<sup>iv</sup>). These groups constituted around 85% of the participants, indicating that a majority were familiar with the concept of residential streets well before the study. Nevertheless, only about 46% knew which areas in their neighbourhood were residential streets (Question B.2.6<sup>v</sup>). This indicated, again, that while most participants knew of the concept and regulations, a majority was not conscious of the impact that these measures had on their neighbourhoods or the opportunities they offered.

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<sup>ii</sup>How fast should a car drive in the residential street?

<sup>iii</sup>By car you can...

<sup>iv</sup>When did you first hear about residential streets (Wohnstraßen) in Vienna?

<sup>v</sup>Do you know which streets in your neighbourhood are residential streets?

## SOCIAL CAPITAL AND ENGAGEMENT

The social situation of the participants was determined by asking about the level of trust (question B.4.1<sup>vi</sup>) and their previous interactions with their neighbours (question B.4.2<sup>vii</sup>). On average, 62% said that they thought their neighbours would a) take good care of their flats, b) water their plants and c) know each other personally (a. ~69%, b. ~59%, and c. ~69% respectively). Regarding their interaction with neighbours, a slight majority (53%) mentioned that they were friends or at least in contact. About 36% did not know their neighbours but said they would like to get in touch with them, while only 10% mentioned that they did not know their neighbours at all. This means that most participants had interacted previously with their neighbours and had a decent degree of trust in them. In fact, there is a moderate correlation between past interactions with the neighbours and the degree of trust ( $r = 0.579, p < 0.001$ ). Participants that reported some sort of interaction with their neighbours seemed to have a significantly larger level of trust (90) relative to those without prior interactions (trust level 60). At the same time, 36% said they did not know their neighbours but would like to meet them. This shows that if contact and interactions between neighbours are facilitated, the level of trust could increase significantly.

Engagement was measured by asking the participants if they ever organised or participated in an activity in a residential street (question B.3.2<sup>viii</sup>). Here, some major differences emerged: only 30% of the participants reported ever having used residential streets to play, sit, or partake in any of the other activities allowed. There is only a weak correlation between previous knowledge and engagement ( $r = 0.245, p < 0.001$ ), which suggests that some participants do not engage in their immediate vicinity but target other areas in the city. This corroborates the idea that the concept of residential streets has not been truly embraced by citizens. Even if a majority of people have known about the concept and the regulations for a long time, only a few know which residential streets are in their vicinity, and even fewer use them actively.

## ANALYSIS

The results of the survey allow us to compare the social capital of the participants, their previous engagement, and their reaction to the tools presented. For this study, we grouped participants according to their previous engagement and their social situation to analyse how

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<sup>vi</sup>Do you think that your neighbours...

<sup>vii</sup>Is there an exchange between you and your neighbours?

<sup>viii</sup>Have you ever done an activity (playing, sitting, etc.) on a residential street?

Already active in residential streets B.3.2	Average trust in neighbours B.4.1 ( $\frac{1}{n} \sum^n results_i$ )	Interaction with neighbours B.4.2	Impact of map - Discover new residential streets B.3.4
No	74.59	50.00	80%
Yes	80.71	60.95	90%

Table 4.2: Clusters by previous engagement, social capital and reaction to the residential street map.

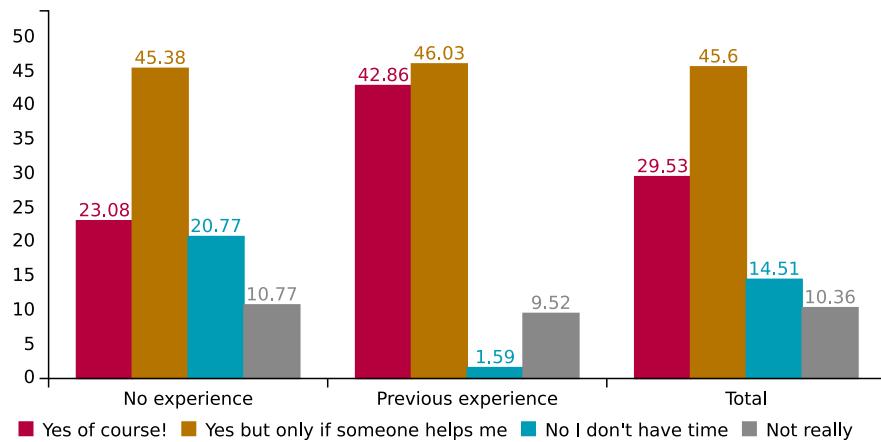


Figure 4.4: Reaction of the residential street map. Question B.3.5 - Would you like to use the residential streets that you just discovered?

these variables affect their engagement. However, when considering previous experience, social situation, and the impact of the residential street map, it is not possible to establish a clear link between them. While a greater percentage of the people with previous experience reported more interactions with and greater trust in their neighbours, this is not statistically relevant (Table 4.2). The same is true for the reported influence of residential streets. However, a significant difference emerges when considering participant responses to the question of whether they would like to use the residential streets that they had discovered (Question B.3.5<sup>ix</sup>). Here, participants with previous experience appear significantly more motivated to use residential streets on their own, and almost none see time as an obstacle for their engagement (Figure 4.4). Predictably, people that are already active are more likely to engage again and exploit the potential of residential streets.

To explore the impact of technology in more detail, we compared answers related to

<sup>ix</sup>Would you like to use the residential streets that you just discovered?

Question B.2.6 - Knowledge about residential streets	Question B.3.4 - Discover new streets in map	Result
No	Yes	Inform
Yes	Yes	Inspire
No	No	Apathy
Yes	No	No effect

Table 4.3: Results based on the previous knowledge and the reaction to the residential street map.

previous knowledge of residential streets in own neighbourhoods (B.2.6) and reactions to the residential street map (B.3.4<sup>x</sup>). We interpret the results as follows. “Inform” means that a person did not have previous knowledge about residential streets in their neighbourhood, but expressed that the web map helped them find them. “Inspire” means that even if the participants already knew of some residential streets, they used the map to find new ones. “Apathy” implies that the person did not know about residential streets and did not truly look at the map to find them. Finally, “no effect” means that the person already had some knowledge and did not find any new residential street through the map (Table 4.3).

These clusters allow for a comparison between the effect of the residential street map and previous engagement of the participants. We compared the results described in table 4.3 with the experience of the participants with such interventions (Question B.3.2). The results show that a majority were informed or inspired by the residential street map, but more than 31% were apathetic or did not look for new residential streets. When looking at the differences between the groups with or without experience, some bigger differences appear: participants with previous experience are less apathetic and showed much more interest in exploring other opportunities in the city (informed, inspire).

#### 4.4.3 EXPERT INTERVIEWS

A total of three expert interviews were conducted (See Appendix D). The experts largely corroborated the disorientation generated by the institutional configuration of cities. All three experts mentioned that the regulations often present challenges as it is not always clear what is allowed and which institution is responsible for a given intervention. For example, hanging a light bulb chain from two trees requires three different permits from

<sup>x</sup>Did you discover new residential streets on the map?

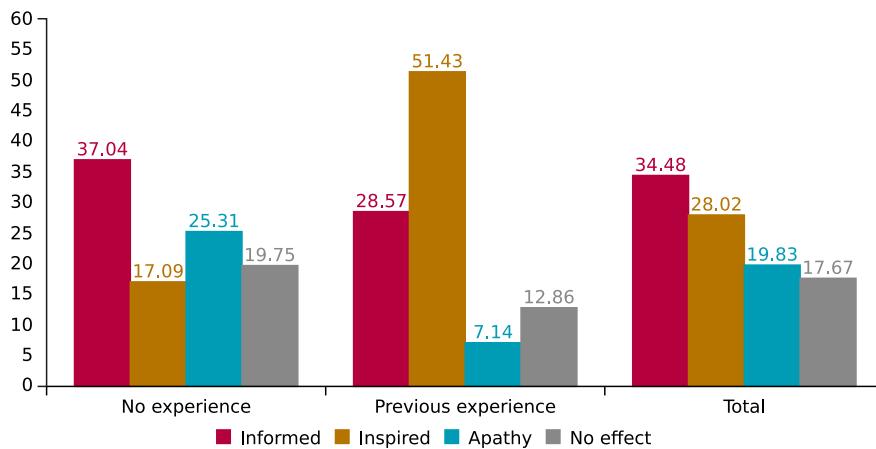


Figure 4.5: Effects of the residential street map.

three different departments. Furthermore, all experts mentioned that dealing with authorities in Vienna is not easy due to significant bureaucracy that takes a rather restrictive approach towards proposals and interventions in public spaces, and offers many objections and obstacles, thus making the process overly complicated. One interviewed person mentioned that it took her weeks of interacting with the authorities to get a single permit. Such complications place large demands on both human and financial resources, effectively imposing barriers, real or imaginary, for citizens to become active and use available opportunities.

There was also a consensus between the experts that the potential of residential streets has not been fully explored and that the legal concept has not been completely developed in the praxis. The streets are described as unattractive, lacking speed control measures for cars, and rather dangerous for kids to play in. This disconnect between the legal framework and the physical execution effectively generates a grey area that is seen as an opportunity to show what could be potentially achieved in the streets. Currently, the regulations are permissive and it is possible to organise activities without needing permits from the authorities.

The interviews also showed that the tools developed were used frequently to quickly check if a given street was a residential street. The map provided users with a different understanding of the city, which facilitated communication with other citizens, and uncovered some hidden potentials in their areas. One person mentioned that they actively promoted the use of the tools. This word-of-mouth approach proved to be successful as other people discovered the map of past activities and also sent information about their activities to be registered on the map. The adoption of the tools was largely supported by *Space and*

*Place.*

#### 4.5 DISCUSSION

Residential streets proved to be an *exploit*, i.e., an unexplored opportunity of engagement in the city that remains to be fully explored. The underlying reasons for this are a) lack of knowledge about the location of the streets, and b) the lack of traffic-calming measures that truly express the legal concept through an urban design that allows for playing, sitting, and enjoying urban spaces. This result is supported both by the survey and the interviews. The survey showed that a large majority of people is informed about regulations, but the use of residential streets does not coincide with citizen knowledge or awareness. In the interviews, residential streets were described just as normal streets that are not truly apt for other uses such as playing, reading, eating, or celebrating. Hence, it is possible to identify a disconnect between knowledge about residential streets and their actual usage.

A part of the problem can effectively be addressed by the use of web-based maps. The results showed that the residential street map gave people with or without existing knowledge about public spaces information about the location of existing residential streets, while participants with or without experience discovered new locations. This shows that digital tools can indeed contribute to inform and inspire citizens about opportunities for engagement already available in the city. However, the same tools fell short of encouraging citizens to start using residential streets for their intended purposes. While the data indicated that a majority of the participants learned about new residential streets, it also showed that there would not be a significant variation in engagement. Participants with previous experience are more likely to use residential streets, while those without previous experience did not show a significant change in their engagement levels. Hence, the impact of digital tools on engagement is rather limited, as it would only sustain current patterns of engagement, rather than stimulating more citizens to actively use residential streets.

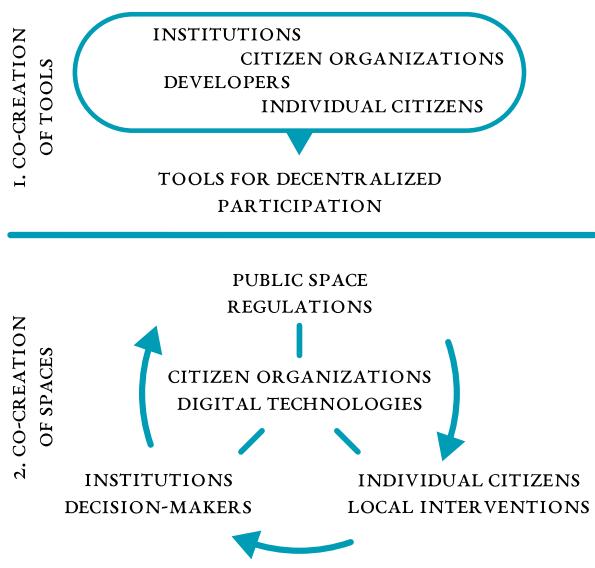
Nevertheless, the impact of all tools, including the quiz and the interactive map, was significantly boosted by the cooperation with *Space and Place*. This was evidenced by two facts. First, a vast majority of the visitors came from the *Space and Place* website. And second, most of the 17 activities recorded in the map were initiated by *Space and Place*. Others were organised by citizens motivated to activate residential streets and contacted *Space and Place* to publish them online. This collaboration with a local citizen organisation significantly facilitated the propagation and adoption of the tools, and indicates that the impact

of digital tools can be maximised through collaborations with citizen organisations. Therefore, cities or institutions planning to develop or deploy new tools should strongly consider involving citizen organisations in the conception of platforms for engagement. To support those efforts, we suggest a model that can be replicated to establish decentralised methods of citizen participation based on digital technologies.

#### 4.5.1 HYBRID METHODS FOR DECENTRALISED PARTICIPATION

The dynamic presented before positions citizens organisations as a pivotal element in decentralised models of governance and citizen participation. Such organisations act as mediators and articulators between city governments, citizens, and urban spaces. Their unique position is best described by at least two factors. First, they have collected know-how about the internal workings of the administration and regulations concerning public spaces as well as methods that can be used to activate public spaces. Second, they create and manage a network that reaches both institutions and single citizens. Such networks can be described as decentralised participation networks, and are the backbone of informal citizen engagement.

In the context of decentralised participation, we observed that technologies complement and augment the role of citizen organisations. Given the central role of local organisations, digital technologies for decentralised participation should necessarily involve them as an articulating element. Digital tools can augment the mediator role through communication channels that facilitate the creation and maintenance of decentralised participation networks. Based on these insights, we propose a model that illustrates a hybrid method for decentralised participation, where local organisations are the axis but also the connection between spaces, institutions, and citizens. Digital tools augment the role of local organisations (Figure 4.6) and create a hybrid intermediary capable of *a)* setting



**Figure 4.6:** Hybrid intermediaries within decentralised participation. Schema for the articulation of technology and organisations as the central piece for technology enabled citizen participation.

in motion the elements needed for decentralised forms of participation; *b*) maintaining information flow between all actors involved; and *c*) activating spaces and individuals for punctual transformations.

The model presented differentiates between two co-creation phases. The first involves citizens and citizen organisations as *co-creators of technologies*. The second one involves them as *co-creators of public spaces*. The first stage aims to identify and balance the requirements of institutions, citizens, and citizen organisations. Such an approach will fit the tools from an early stage to the needs of citizens, favouring their later adoption and propagation. The second stage integrates citizen organisations with the tools developed and creates hybrid intermediaries. This configuration gives citizen organisations a pivotal role, where their capacity to activate spaces and individuals and institutions is maximised. Technologies augment their role by connecting them with other actors and supporting their efforts.

The multi-stage co-creation process should lead to the creation of hybrid infrastructures and hybrid actors, i.e., digital infrastructures that are closely linked to citizen organisations. This approach expands approaches or imaginaries such as *infrastructuring* (Seravalli, 2018) or *do-it-yourself city* (Certomà et al., 2020) as it makes clear the different phases and roles that citizens and digital infrastructures assume in decentralised models of participation.

#### 4.6 CONCLUSIONS

The literature suggests new models of governance, institutionalisation, and interaction between citizens and institutions. This paper lays empirical evidence to further strengthen the argument for opening institutions and the city to new forms of decentralised self-governance of public spaces. Local organisations, equipped with customised digital technologies, can catalyse change at the local level while working to connect institutions, spaces, and individuals.

For the case study, we proposed co-creation as a new model for the development of cities in which citizens play a central role by proposing changes that can be considered later by the city administration. The results show that there is still a long way to go to achieve such a goal, as changing engagement patterns will require much more than information about regulations and their position within the bureaucratic apparatus. Nevertheless, the case study positions citizen organisations as a key piece in any of the participatory frameworks discussed, as they have a unique position as mediators, and thus have the ability to connect with complex bureaucratic apparatuses as well as individual citizens.

Based on the results, we proposed a model for augmented methods of decentralised participation that reflects the importance of citizen organisations as articulators of multiple actors and also as activators of public spaces. The model also presents the multiple stages required for the establishment of hybrid infrastructures, and highlights the importance of working together with citizens from an early stage, giving them roles as co-creators of technologies as well as co-creators of spaces. This multi-stage co-creation process aims to maximise the impact of technologies for citizen participation by tapping into existing organisations, their expertise and networks. These results should guide the development of technologies for participation that support the decentralisation of governance in cities.





# 5

## Playing is allowed: Can technology engage citizens to initiate play streets (Spielstraßen) in Vienna?

Since the introduction of motorised mobility, public spaces have undergone transformations, losing their inherent character as social spaces or playgrounds. Furthermore, the current institutional configuration imposes several barriers for the use of public spaces. In this context, informal methods of participation and digital technologies have been changing the dynamics between citizens, institutions and public spaces. The research presented in this paper investigates the impact of technology on the engagement of citizens and examines whether the introduction of new tools could change current patterns of engagement. The methodology is a case study about Play Streets in Vienna. The results show that previous experience is a determining factor for the engagement and that citizen organisations should play a central role in future platforms for engagement.

Keywords: Public space, urban-informatics, citizen participation.

## 5.1 BACKGROUND

### 5.1.1 CITIZEN PARTICIPATION AND PUBLIC SPACES

The need for citizen participation can be linked to at least two developments. The first is the establishment of urban planning as a professional practice that asserts control over decisions regarding the development and regulation of cities. Modernist or systems planning approaches conceived methods that centralised the conception, design, and execution of urban planning (Hall, 2012; McLoughlin, 1969; Mumford, 2000). The second is the creation of institutions and regulatory frameworks that progressively segregated citizens away from decision-making processes and hindered their participation in the transformation and design of public spaces. Modern legal frameworks and institutions insist on a separation of the public and private spheres, which is also reflected in the administration of cities and public spaces (Frug, 2001).

The creation of institutions coincided with an increasing complexity in the laws and regulations that govern the development of cities. The stipulations for buildings, but also for public spaces, have become the domain of a small number of experts, imposing barriers on those who want to participate in the design of their neighbourhoods or to enjoy public spaces. The combination of experts and institutions is often described as a form of top-down planning, with a strong technocratic tendency in which citizens play only a limited role. This has led to greater alienation, where citizens are often reduced to being mere bystanders in urban development processes and lack orientation on how to access decision-making processes and public spaces (Jacobs & Appleyard, 1987).

Public spaces are particularly symptomatic of such transformation. Once spaces for encounters and celebrations, they have often become inert traffic lanes while people have been displaced to the sidewalks. Jacobs famously decried and analysed the design principles and elements that led to the loss of public life (Jacobs, 1992). Lefebvre et al. (1996) links the deconstruction of public life to the growing influence of industrialisation on urbanisation processes. He argues that architects, public institutions, and private developers have taken control of the planning processes that govern urban development, while gradually severing citizens from their right to enjoy the city. In his view, planners reduced city dwellers to consumers, ignoring other anthropological needs for diversity, exploration, and play, among others Lefebvre et al. (1996).

As a result of such changes, multiple voices emphasised the need for citizen participation in the planning and decision-making processes in cities. Arnstein (1969), for example, saw

citizen participation as an urgent social task aimed at redistributing power in society and allowing for greater self-determination in disenfranchised communities. Davidoff (1965) proposed that planners should engage with communities and act as a link between them and public institutions. He suggested that the planner would represent the interests of the communities and the plans would be the result of a shared vision, rather than the design of a few experts. Later, Healey (1992, 1996) criticised the utterly rational underpinnings of planning paradigms and proposed planning instead as a communicative activity, where multiple actors participate to reach a consensus regarding the development of their cities.

Some studies and books which focused on the public and social life of cities also drew attention to the negative impacts of top-down planning. Whyte (2010) studied factors that make public spaces successful, such as the amount and quality of sitting places, or the amount of sun and trees available. He stressed that the lack of such elements, regardless of the design, would result in unattractive and empty spaces. Landry (2008) described also the elements that are part of the urban experience and how they affect our perception of cities. Finally, Lynch (1960) collected and studied mental maps of cities and how people navigated them. These maps showed the recognition of public spaces as places of encounter and discovery, where interactions with strangers happen in places or nodes that appear repeatedly in the mental maps of people.

Public spaces have been stressed as socialising nodes, where people have the opportunity and also the obligation of accommodating themselves to the presence of strangers. Life in the metropolis is both about the strengthening of individuality while accepting and accommodating itself to pluralism and diversity (Simmel & Wolff, 1964). This is stressed by Frug (2001) as an essential step towards participation in urban and community life. It is in parks or streets that people can get in touch with the plurality and diversity of views that characterise life in the city. Hence, there is a latent need to counteract the deconstruction of public life and the erosion of the “public” character of public spaces. The recent wave of spontaneous interventions in public spaces has shown some viable alternatives to strengthen the social and public spheres in cities.

### 5.1.2 NEW METHODS OF CITIZEN PARTICIPATION IN PUBLIC LIFE AND SPACES

Recent methods of citizen participation have created paths for the participation of people in public life and the appropriation and transformation of public spaces. Pop-up bike paths, guerrilla gardening, and parklets are just a few examples of such methods. Most interventions appear sporadically and emerge from multiple actors such as designers, citizens, or-

ganisations and occasionally even city administrations. The sporadic and scattered dynamic of such interventions makes it difficult to observe this phenomenon as a whole. There is no single term to describe such methods; instead, various terms have been coined, such as DIY, tactical, guerrilla urbanism, or urban acupuncture (Finn, 2014; Hou, 2010; Houghton et al., 2015; Iveson, 2013; Lydon et al., 2015). In this paper, the umbrella term informal citizen participation is used, which — opposed to formal participation processes — summarises the decentralised and sporadic “informal” nature of the interventions, while at the same time emphasises tensions between bureaucratic institutions and activism.

The interventions, however, have many elements in common. For example, a) they aim to regain — at least temporarily — control over small portions of the city and unveil hidden potentials following the motto “beneath the asphalt, the beach”; b) they exploit grey areas or come up with creative interpretations of the regulations to evade or bypass legal and bureaucratic hurdles; c) these informal methods of participation attach great importance to community life and social exchange over other transactional or consumerist values; and d) the interventions are normally placed in public spaces and aim to benefit the area as a whole, rather than particular groups. These common elements show that informal citizen participation has, despite its sporadic nature, an agenda for cities which can be argued to embody many of the principles defended by Lefebvre et al. (1996) and Jacobs (1992) regarding the revitalisation and transformation of public spaces to be activated as nodes of social interaction and exchange.

Iveson (2013) questioned whether informal citizen participation could evolve into a new form of governance for cities where citizens have more power to decide the use and design that should be given to public spaces. He noted that, despite his affinity for informal methods, many interventions were uncoordinated and scattered acts of appropriation that lacked the strategic vision to achieve actual impact in the city. Planners and public officials might dismiss such efforts as marginal actions that fail to make a long-term contribution. In this regard, Lydon et al. (2015) proposed that informal citizen participation should be organised as a form of tactical urbanism, where smaller interventions followed an overall goal for the city and were at least partially aligned with the city administration. Finding common ground between citizens using informal methods and the administration would present a shared governability model, where the long-term goals of the administration could be aligned with interventions started spontaneously by citizens. In fact, the initiators of informal interventions often see themselves aligned with the plans of the city and would even be open to collaborating with the administration. However, they execute such

plans illicitly because the bureaucracy is too burdensome or would involve unreasonable costs ([Douglas, 2014](#)).

Informal participation and the playful appropriation of public spaces do not only corroborate the problems presented in the first section, but also demonstrate through practical examples methods that can be used to transform spaces into places of social exchange and public life. The fact that informal participation methods are being copied and replicated in several cities validates them as tools to transform public spaces. Therefore, instead of dismissing them as marginal, it would be interesting to explore how they may be integrated with the authorities and used to align the long-term plans of cities with the initiatives of private individuals or organisations. This would demand communication channels that allow for a bidirectional flow of information, thus informing citizens about the possibilities “hidden” in the regulations, and authorities about the activities of citizens so that they can support initiatives with long-term potential.

### 5.1.3 INFORMAL PARTICIPATION IN THE PLATFORM CITY

The spread of informal participation has occurred in the context of a growing technologisation of cities, which allows for the control and monitoring of urban spaces ([Hollands, 2008](#); [Kitchin, 2014](#)). In cities, the use of technology was initially focused on streamlining administrative workflows. However, given the growing number of applications, systems, and datasets available or generated by cities, scholars have conceptualised the city as a platform where multiple actors participate and interact ([Anttiroiko, 2016a](#)). In the same way that various applications drastically altered how people hunt for flats, trade goods, and even make new friends, the greater availability of data in cities allows the conception and development of applications that generate new dynamics between public institutions, citizens, and experts ([Dijck et al., 2018](#)).

[Anttiroiko \(2016a\)](#) argued that the city is evolving from isolated silo structures and becoming an open platform where various actors interchange ideas for the city and collaborate in the conception of solutions. Instead of long and tedious participation processes, platforms could open a continuous co-creation process where problems and solutions are discussed openly. This is a model of governance based on the decentralisation of planning and development processes that allow citizens to join the processes through the use of network platforms. Such a decentralised model of governance would present an ideal framework for informal citizen participation. It can be argued that this has been one of the implicit demands of practitioners and activists. At the heart of the scattered and informal

nature of tactical urbanism are strategies to circumvent centralised forms of government, which have become too passive and intricate to keep up with the impatient pace of activists (Douglas, 2014).

In the context of the city as a platform, technology can open the communication channels needed to articulate the often incompatible methods and structures of institutions and citizens, namely formal, informal, centralised, and decentralised (Ertiö, 2015; Evans-Cowley & Hollander, 2010). Thinking about the city as a platform or recognising the growing importance of digital layers leads to the question of how citizens can engage with or participate in the development of digital infrastructures. Perhaps unsurprisingly, such channels have also appeared informally when digital activists also appropriate platforms and open them for the public. The convergence of technological and urban developments has also led to the confluence of bottom-up approaches towards the development of technology and cities. It is possible to identify shared values and practices between citymakers and hackers. Just as cit-makers playfully appropriate and transform as complex a system as the city, hackers also tweak, transform, and adapt large systems and technologies for common goals. Hackers open and facilitate access to platforms, while citymakers open public spaces. Finally, both hackers and citymakers exploit holes present in such systems to create paths for action (Ampatzidou et al., 2014; de Lange & de Waal, 2019; de Waal et al., 2017; Foth, 2017b; Foth et al., 2015; Waal et al., 2018).

## 5.2 CASE STUDY: PLAY STREETS IN VIENNA

### 5.2.1 RESEARCH FRAMEWORK

The research presented in this paper is situated in the context of the city as a platform and decentralised forms of participation. While the idea of an open and decentralised co-creation process is highly promising, there have been no studies looking into the impact of such platforms on the engagement of citizens, or at which elements are needed for such a model to work. Other studies have looked into the typologies and roles that technology enabled participation has created (Desouza & Bhagwatwar, 2014, 2012; Ertiö, 2015; Höffken, 2015) or the groups of people that use such platforms (Kahila-Tani et al., 2016). However, we do not know if the introduction of new applications effectively increases the engagement of people and motivates them to make active use of public spaces. Gaining a better understanding of the impact of such platforms will help future practitioners and policy-makers conceive and design applications for decentralised participation.

Often, applications are developed following the underlying hypothesis that technology alone would significantly increase engagement. This assumes that facilitating access to information and the authorities would transform or increase the engagement of citizens. This, while promising, also has an underlying techno-deterministic assumption that we want to observe critically: even if platforms are custom-made for citizen participation, it is not guaranteed that citizen engagement and interest will increase after the introduction of such technologies. Hence, the purpose of this study is to critically observe the impact of technology on citizen engagement and the factors that can contribute to generating new decentralised models of governance.

This will be observed through a case study focused on the Viennese play streets “Spielstraßen”. The play streets program has been selected because it allows anyone to transform streets into playing fields to be enjoyed by the children of the neighbourhood. Play streets is also an engagement method that transforms public spaces into social spaces. This offers a good opportunity to observe whether technologies can help engage more citizens with the program. Hence, the main research question will address how platforms for decentralised participation impact the engagement of people in the organisation of play streets in Vienna. This question requires a measurement of prior participation experiences and the social network of the participants, followed by a comparison of the impact that technology has in the engagement of citizens.

### 5.2.2 ORIGINS OF PLAY STREETS

At the beginning of the 20th century, streets fulfilled various functions that went beyond their single-use as car lanes. They were the epicentre of social life in the neighbourhood and were often used as play areas for children, making them an integral part of public life. However, the introduction of motorised traffic in cities caused dramatic transformations in public spaces and streets. With the beginning of motorised mobility, the inherent uses of the streets — as playgrounds for children or as nodes for social interaction — came into conflict with the new forms of mobility. Together with increased traffic, cities began to observe a rise in accidents and fatalities. Several factors contributed to the deterioration of road safety, such as poor driving skills (no driving licenses existed at the time), roads in poor condition, and the lack of traffic regulations ([Lydon et al., 2015; Hass-Klau, 1993](#)).

In such a context, children were a particularly vulnerable group and often the victims of traffic accidents. The archives have several records of news about such accidents. For example, in 1908, the New York Times reported a fatal accident involving three children playing

horse ([Times, 1908](#)). During the first four months of 1909, the New York Police Department had already registered about 20 children killed while playing on the streets and more than 40 serious accidents. These tragic numbers instigated the Parks and Playgrounds Association to submit a pilot plan to the police department of New York to regulate traffic and protect pedestrians. The plan contemplated the prohibition of traffic after school hours in areas with little traffic, but which were used by children to play ([Times, 1909](#)). In 1913, an instantaneous census observed the activities carried out by children on a typical Saturday afternoon and supported the claims with empirical evidence. The census, conducted by the People's Institute, noted that children used the streets to play regardless of the conditions or even the suitability of the streets. Their report emphasised the need to create safe spaces and accompanying children to keep them away from crime and other risks ([Times, 1913; Sun, 1914](#)).

Given the precarious conditions for children on the streets and the demands for more safety, the idea of closing the streets to allow their use as a playground also won the support of the police department. In 1914, Eldridge Street was closed "experimentally". The closing, which included a dance performance, was described as a neighbourhood celebration and was well received by the authorities. Thus, a street play system was introduced in New York to allow children to participate in cultural activities and play games or sports. The program soon received support from the parents of the children, who organised a fund to pay for play teachers and leaders to accompany their children (Figure 5.1) ([Times, 2014; Loeb, 1914](#)). By 1921, there were 25 play streets in the city and another 50 were added in other districts. In 1973, more than 40 play streets were organised in New York City ([Times, 1973; Lydon et al., 2015](#)).

### 5.2.3 PLAY STREETS IN VIENNA

In the inner districts of Vienna, there is a notable lack of green areas and parks. For example, the 4th to 9th districts have less than 23ha of green or recreational areas. This means that such districts offer less than 7m<sup>2</sup> of green areas per capita. These numbers present a similar situation to the one described in New York City in the early 20th century where some children did not have access to safe public spaces for playing. Hence, the city of Vienna has undertaken efforts to create new green and pedestrian areas.

Given the lack of recreational spaces, the city of Vienna also allows the transformation of streets into secure playgrounds. During the summer, car-free play streets offer additional space for playing games and having fun. With the play streets, the city intends to offer chil-

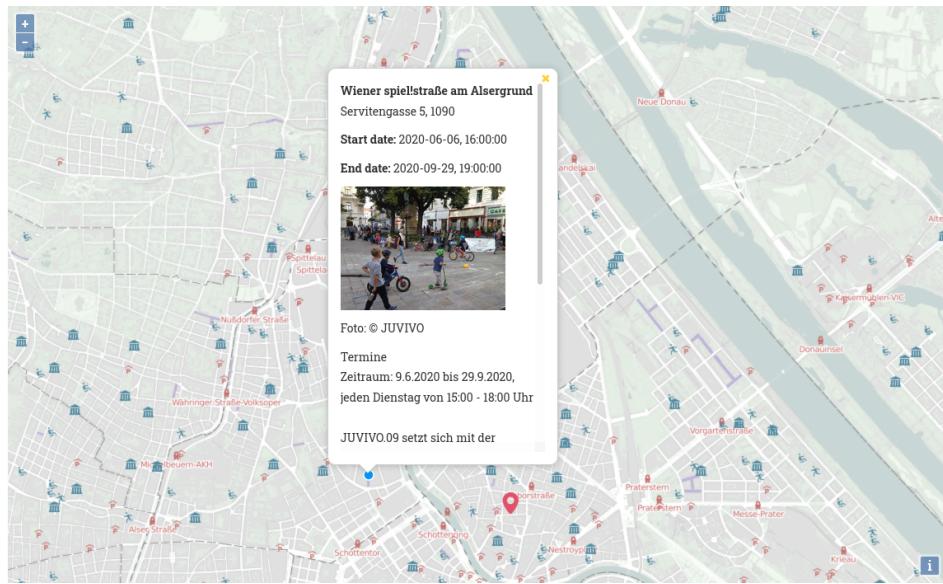


**Figure 5.1:** Loeb (1914) “Play-Street Idea Backed by Woods; Children Happy.” *The Evening World*. October 24, 1914. Public domain.

dren different opportunities and large areas for playing and moving outdoors, whether on the way to school or in the vicinity of their homes. The city of Vienna offers on-site support that can be requested by anyone interested in organising a play street. The support can be requested through the children and youth centres, schools, or kindergartens. The cooperation with the mentioned institutions assists in the organisation of playing activities on the street. The supervisors create a secure framework and offer game materials, then urge the children to use public spaces playfully and creatively.

#### 5.2.4 RESEARCH DEVELOPMENT

The research was conducted in cooperation with the MA13 “Department for education and youth” and the Mobilitätsagentur “Agency for mobility”. The MA13 encourages young people to be active and creative in the city. It also promotes cultural diversity, exercise, social intelligence, and responsible behaviour. The coordination of play streets is one of the measures taken to encourage youth to use the city. The Mobilitätsagentur promotes cycling and walking with awareness-raising campaigns, services such as public pumps, and innovative projects.



**Figure 5.2:** Support map for Play streets showing one of the past activities. Schools, Kindergartens and young and child centres are displayed in blue; public transport lines and parking entries are presented in red.

For the research process, we developed online tools that aimed to inform and encourage citizens to initiate play streets on their own. The first one visualised the regulatory framework and presented on a map the factors that facilitate or interfere with the organisation of play streets. For example, facilitators or partners are schools, kindergartens, and children and youth centres; hurdles are public transport lines and garages. The objective of this tool was to facilitate an understanding of restrictions and regulations by presenting them in the spatial context of the city. The map also recounted some past experiences to show the characteristics of a play street and motivate others to initiate one in their vicinity. The second tool is an online form that facilitated the contact with the MA13, the relevant authority for the organisation of play streets. The form complemented the map and invited citizens to get in touch with the city. The activities submitted through the form were saved and added to the support map (Figure 5.2).

### 5.2.5 DATA COLLECTION

Three data collection methods were chosen for the case study: automatic data collection, expert interviews, and a survey. The web traffic generated by the tools was measured with a web analytics tool, which collected anonymous data of the visitors. The data included information about the location, the origin of the visits, the time spent on the site, and some

of the actions taken by the visitors. The location of the visits is particularly important as it allowed us to distinguish between visitors that could potentially use the tools and those that were just viewing the tools out of curiosity.

Semi-structured interviews with persons with previous experience in organising play streets were also carried out to learn about their perceptions of the tools. For example, experts were familiar with the inner mechanisms of the city administration and the hurdles that could emerge when organising play streets. Their expertise could help generate a better understanding of the opportunities, but also the limits of technology enabled citizen participation.

A survey was also conducted to analyse the impact of technology enabled citizen participation applications on the previous experiences of the participants and their social situations in the neighbourhood. The goal is to observe which factors have a bigger influence on the potential usage of technologies developed for informal engagements. The survey asked the participants about a) their knowledge about play streets, b) their previous experiences of informal participation, c) their trust in their neighbours, and d) whether they would initiate play streets on their own after witnessing the tools developed for that purpose. The questions regarding the social connections in the neighbourhood were based on the social capital integrated questionnaire ([Grootaert et al., 2004](#)). To increase the motivation of the participants, we introduced gamification elements such as badges and scores. The survey was presented as a quiz and the participants were given a score at the end.

## 5.3 RESULTS

### 5.3.1 AUTOMATIC DATA COLLECTION

The automatic data collection took place from June until November 2020. During this period, the tools received a total of 714 visits, 578 of which originated from Vienna. The support map received 493 visits and the support form received 443. During this period, a total of five play streets were submitted using the online form. The play streets were submitted by people that were already involved in the organisation of activities for children. The results of the automatic data collection showed that the tools reached users in Vienna who can potentially use said tools. The data also shows that the tools were well received by people with experience in the organisation of play streets.

### 5.3.2 SURVEY (QUIZ)

The survey was visited 1,315 times and received a total of 82 complete responses. From the complete responses, 10 were from people living outside Vienna. This leaves a sample of n=72 respondents. The results presented include only complete responses from people living in Vienna. For the analysis of the results, some categorical data were converted to numerical ranges. All the results were normalised on a scale from 0 to 100. The correlation values are reported using the coefficients of Pearson and Spearman.

#### PREVIOUS EXPERIENCE

Regarding previous knowledge about the Viennese play streets (Question C.3.3<sup>i</sup>) and the institutions that provide support for their organisation (Question C.3.5<sup>ii</sup>), the survey showed that more than a half of the participants were familiar with the concept of play streets (66%) and half of them (50%) knew which departments provided support for the organisation of play streets. A slightly smaller group of the participants (48%) had already organised an event in public spaces (Question C.3.7<sup>iii</sup>). These results show that the participants were fairly well informed about the Viennese play streets and a large proportion of them already had some experience in the organisation of activities in public spaces.

#### SOCIAL CONNECTIONS

Regarding the social connections within the neighbourhood (Question C.3.9<sup>iv</sup>), more than half (56%) reported that they had had contact with their neighbours, 17% did not know them at all, and 26% did not know them but would be open to meeting them. When asking about the level of trust (Question C.3.10<sup>v</sup>), a larger number of respondents expressed that they would trust their neighbours (68%). About 22% reported that they would not trust their neighbours to take care of their flat while on vacation because they did not know them very well; 10% would not trust them at all. These results show that the participants are also fairly well connected within their neighbourhoods and that there is a rather high level of trust. Predictably, both values are strongly correlated ( $r = 0.66, p < 0.001$ ).

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<sup>i</sup>Do you know what the Viennese play streets are?

<sup>ii</sup>Do you know which department(s) (MA) can help you organise play streets?

<sup>iii</sup>Have you ever considered changing public spaces through parklets, festivals, or similar activities?

<sup>iv</sup>Is there any contact between you and your neighbours?

<sup>v</sup>Do you think that your neighbours would take care of your flat while you are on vacation?

## IMPACT OF TECHNOLOGY

The survey presented the support map for play streets (Figure 5.2) and asked the participants whether they would like to join some of the activities (Question C.3.13<sup>vi</sup>). A majority of respondents showed some interest; 29% said that they would definitely join the activities and 47% said they would eventually visit one of the play streets. The survey also presented a form that would help citizens contact the departments that support play streets and initiate play streets of their own (Question C.3.14<sup>vii</sup>). The answers to this question showed significantly less interest. About 33% said they would not be interested at all in initiating play streets; another third said they would not initiate one, but would help others. About 18% said they would initiate one with the help of others and only 10% reported that they would be clearly motivated to engage in the organisation of play streets. The remaining 5% had already organised one on their own. While both values are strongly correlated ( $r = 0.448$ ,  $p < 0.001$ ), the answers to these two questions still show a significant difference between the interest to join or initiate play streets.

## ANALYSIS

The results showed that the concept of play streets is not unfamiliar to a large proportion of the participants. Furthermore, a significant proportion of the respondents had prior experience with informal citizen participation. However, the questions addressing the impact of technology showed a notable difference between the interest of participants in joining or initiating a play street. We conducted further analyses to observe how previous experience or social connections influenced the reaction of the participants to the tools presented, as well as to identify which factors influenced the motivation of the participants to initiate play streets.

The social capital in the neighbourhood can potentially influence engagement as social connections can be activated to organise play streets. However, we did not find any significant correlations when comparing the previous engagement with the social connections. We also compared the values of the questions regarding social capital and those that showed the reaction to the tools developed. The results showed no significant correlations. These

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<sup>vi</sup>Look, here are the play streets of the last year. [Play streets support map] Would you like to visit one of the play streets?

<sup>vii</sup>You can also initiate a play street. We want to support you with the following form. Please take a moment to give us feedback on the question below. [Embedded form to show interest] Would you consider initiating a play street in your neighbourhood? \*

results indicate that the social connections within the neighbourhood have little impact on the engagement of the citizens and that social connections do not affect the reaction of the participants to the tools presented.

When looking at the interdependence between previous experience and the reaction to the tools presented, the results showed that previous knowledge did not predict whether the participant would engage in organising play streets. However, the results showed a strong correlation between previous experience and the reaction to the tools presented. People with previous experience in organising play streets are more likely to join and initiate similar activities in public spaces (Table 1). The values also show a slight difference in the interest to join or initiate play streets. These results single out previous engagement as a determining factor in the potential use of technologies for participation. This will be addressed again in the discussion.

Table I. Factors that influence the potential use of the tools developed.

### 5.3.3 EXPERT INTERVIEWS

The expert interviews corroborated the need to make public spaces friendlier for children and young people. One expert mentioned that the city has focused its design efforts on making parks for smaller children, but there is a lack of retreat spots where youth can meet and use streets as social spaces. There are often complaints about noise or littering, which lead to the exclusion of youth from public spaces. Even if some citizen organisations and institutions from the city support the active use of public spaces, the police and other departments can have a different understanding about which uses are allowed.

Experts also confirmed the problems mentioned in the background section regarding the complexity of the administrative system and the disorientation that it generates among citizens. It was stressed that some actors and institutions within the city actively support the organisation of play streets and that, in most cases, the permits were granted. Nevertheless, the experts also mentioned that other departments have procedures that make the process lengthy. Dealing with the authorities often required determination and knowledge of many of the different institutions involved. Hence, the organisation of play streets is a time-intensive task which, even with the support of some parts of the administration, requires experience with the inner workings of the city.

During the interviews, the contested nature of public spaces also emerged. The experts described conflicts but also cooperation among residents and neighbours. Most of the people involved in the organisation of activities regularly have to deal with complaints from

		Pearson's r	p
Do you know what the Viennese play streets are?	[Support map] - Look, here are the play streets of last year! Would you like to visit one of them?	0.027	0.823
Do you know what the Viennese play streets are?	[Support form] - Would you consider initiating a play street in your neighbourhood?	0.112	0.349
Have you ever considered changing public spaces through parklets, festivals or similar activities?	[Support map] - Look, here are the play streets of last year! Would you like to visit one of them?	0.401***	< .001
Have you ever considered changing public spaces through parklets, festivals or similar activities?	[Support form] - Would you consider initiating a play street in your neighbourhood?	0.395***	< .001

\* p < .05, \*\* p < .01, \*\*\* p < .001

Table 5.1: Factors that influence the potential use of the tools developed.

neighbours about issues such as the noise generated by children playing. Simultaneously, other neighbours may join in and support the activities by, for example, bringing food. This not only highlights the social and “public” character of public spaces, but also shows that there is potential to establish collaborations between the administration, professionals, and residents.

#### 5.4 DISCUSSION & CONCLUSIONS

The results enable a comparison with the planning paradigms mentioned in the introduction. Both modernist and systems planning tended to conceive the city as a collection of functions or system parts, neglecting the role that communities and citizens play in urban development. The case study presented also highlights that the mere introduction of technology would not be enough to involve citizens in the transformation of public spaces. Making regulations accessible and providing orientation can help, but more features would be needed to generate new dynamics in the city through the use of online tools. The results suggest that the introduction of tools for participation would improve if such tools were articulated with existing organisations that support the adoption of the tools and nourish local social networks. This conclusion emerges in different parts of the results.

Both the survey and the interview showed that previous experience was a determining factor in the future engagement of citizens. In particular, the survey showed that previous experience with activities in public spaces was strongly correlated with a positive reaction to the tools presented. This means that technologies for participation would most likely be used by pro-active citizens who are already engaged in the activation of public spaces. Furthermore, the interviewed experts expressed that navigating the administration processes required knowledge about the internal bureaucratic mechanism. This would further deter people without experience from engaging in public life and urban transformations. Nevertheless, the experts, as well as the survey, suggested that some citizens are willing to directly or indirectly support the transformation of public spaces.

The previous results show that a) expertise is a key resource for engagement and b) there are citizens that can be activated occasionally without requiring them to become organisers of play streets. Here, tools for citizen participation can act as the link between highly engaged citizens and those that can sporadically join or support activities. Hence, a better model to fully exploit the potential of technologies for participation would articulate new tools with social organisations and experts that help in both the design and adoption of

such tools. Technology can help to establish and maintain such networks so citizens can be updated about the activities happening in their neighbourhood. This suggests a model where technology connects institutions, citizen organisations, and single citizens to transform public spaces.

The articulation of multiple actors would be the first step to achieve the vision of an open co-creative process mediated by digital tools. In this vision, highly engaged citizens and civic organisations are the mediators between administration and other citizens. Technologies, besides providing information and facilitating the contact with authorities, should support the communication between the actors involved in such a manner that they can effectively engage in the transformation of their cities. This would reflect the dynamics observed during the research process, where a core group of pro-active citizens and organisations interact and activate both institutions and other citizens.

Based on the previous insights, we propose a model (Figure 5.3) which visualises the elements required to conceive and develop platforms for decentralised engagement. The model proposed articulates centralised forms of governance with decentralised interventions. The articulating piece is a platform for decentralised engagement. Such a platform should be understood as a hybrid element that combines the existing expertise and know-how with digital technologies. The platform operates at the intersection of formality, informality, grey areas, and regulations, linking localised interventions with larger institutions.

It can be argued that the design of future platforms allowing decentralised forms of government should necessarily involve citizen organisations and grant them the role of mediators between administrations and citizens. This model presents a viable way to establish new communication structures, which in turn, lead to new governability models where urban transformations emerge from an open dialogue mediated through technology. Establishing such structures seems to be of key importance to effectively enable informal participation in the platform society.

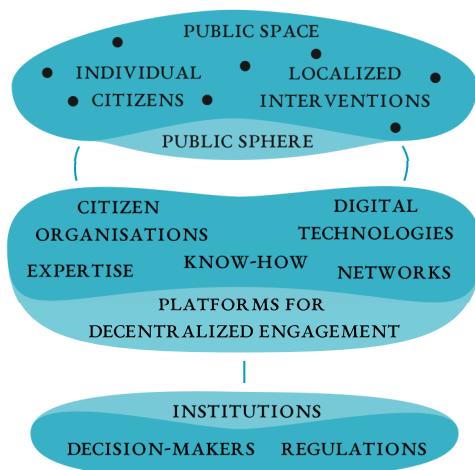


Figure 5.3: Platforms for decentralised engagement



# 6

## Conclusions

This work sought to research new methods of citizen participation based on digital technologies that encourage decentralised forms of participation as well as the creation of new dynamics between citizens institutions and other stakeholders. This goal was pursued on various fronts. First, the literature around citizen participation was reviewed to answer central questions including why citizen participation is needed and which factors are conducive to the establishment of citizen participation in the context of urban planning. Second, a survey of existing applications for citizen participation was carried out to identify the roles and dynamics emerging in the context of technology enabled citizen participation.

The literature review and the survey built the basis to conduct the case studies for this project. For the case studies, new methods of citizen participation based on digital technologies were designed and implemented to observe the reception and impact of such instruments, as well as the factors to facilitate the establishment of decentralised models of participation. The data collected through the case studies offered insights on some of the elements needed for the successful introduction of digital tools as well as some limitations. The following is a summary of the conclusions that were extracted throughout the research work.

## 6.1 ORIGINS, PARADIGMS AND TENSIONS

The literature review regarding citizen participation and digital technologies revealed the legal, social and conceptual developments that led to a greater separation of citizens from the design and decision-making processes that shape cities. At least two factors erected barriers which separated citizens from the processes of designing and planning cities. First, the institutional configuration was profoundly changed with the introduction of private and public divisions, as well as new social and economic dynamics that concentrated the planning of cities in the hands of institutions, experts and private developers. Second, planners positioned themselves as experts with a better understanding of urban matters who could independently decide the development course of cities, while the citizens were relegated to the role of spectators. Both developments contributed to a centralisation of governance and planning processes in cities, from which citizens were increasingly excluded.

It was in the context of such centralisation that citizens' demands for greater participation in planning processes emerged. Various authors proposed paradigms and methods that allowed communities to make decisions on their own or suggested new roles for planners where citizens and communities could play a central role in planning processes. Some of such paradigms and roles include citizen power, planning as advocacy, and planning as a construction of discourse. These approaches were contrasted with the limitations of citizen participation and conflicts that emerge when planning processes are subjected to public debate. The first part set the basis to propose new methods of citizen participation that could create new dynamics between citizens institutions and experts.

### 6.1.1 TENSIONS

The literature review identified three tensions that have shaped citizen participation, urban development and the roles and uses of technologies in this context. The first is the tension between centralised and decentralised models of governance and planning. The second tension oscillates between rational and intuitive understanding of cities. Finally, there is also a tension between the different forms of use of technology in the context of urban development — it can be used for either for control and surveillance or for the appropriation and opening up of spaces.

The first tension emerges from the trend and consecutive trend reversal towards centralisation and decentralisation of urban development. Institutions and experts have repeatedly claimed planning processes and excluded citizens from such decisions. Citizen participation

emerged as a reaction to such configurations and started a trend reversal where planning processes started to be include public discussion. In recent years, this trend has continued as new methods of citizen participation emerge in a decentralised fashion, for example, by starting scattered transformations in cities. Such methods, initiated and executed locally by citizens, contrast with the idea of master plans, which are initiated and controlled by few institutions and experts.

The second tension identified arises from the conflict between experts and laymen. This conflict has usually been framed in terms of expertise. This framing, however, leads to claims of superiority which disregard the opinions of citizens for the lack of expertise. Instead of framing this clash in terms of expertise, this work suggests a framework based on different cognitive styles, one rational-logical and the other intuitive-emotional. Framing the discussion in such terms allows for the articulation of the process of urban development as a process of co-creation, where two different cognitive styles collaborate to find solutions for cities.

The literature review looked at the conceptual frameworks that have emerged to understand the influence of technologies in urban development. In this context, it is also possible to identify tensions in the uses and roles given to technologies. Some applications use technologies as a mean of surveillance and control, while others employ technologies as a means to appropriate and open up the city. An influential concept for the current work proposes an understanding of the city as an open platform, where centralised silo structures are replaced with open collaboration.

Finally, the literature review also established linkages between the tensions described before, as many of the paradigms proposed for the development of technologies echo former and current paradigms of urban planning. The tendency towards centralisation is aligned with rationalist paradigms of planning and the use of technology as a means to control and observe. On the opposite side, an intuitive understanding of the city is linked to decentralised forms of participation that use technology as a means to appropriate and open up the city. The connections between the different paradigms present a conceptual framework that adds to the understanding of technologies in the context of cities.

## 6.2 EMERGING METHODS AND ROLES

A survey of existing applications for citizen participation was conducted to find out about *Which participation methods are emerging thanks to the introduction of digital technologies?*

The survey included applications for citizen participation where public institutions were directly involved. The survey observed which actions were available and which roles emerged thanks to the introduction of digital technologies.

The results of the survey showed that most of the applications allowed citizens to exercise control over certain aspects, for instance, by reporting problems such as damaged infrastructure, waste, and defective traffic lights, among other things. This was followed by actions such as discussing and suggesting, where the citizens could engage in online public discussions or suggest ideas that could be considered by the city. Finally, one of the applications allowed citizens to initiate interventions in the city.

The survey of technology enabled citizen participation applications showed that while cities are adopting technologies to open new channels of participation, the roles assigned to citizens are rather limited and demonstrate the cities' reluctance to use technology as a means for appropriation and opening up the city. Current applications appear inclined towards the use of technologies as a means for control and surveillance. The results suggested that further research was needed for applications that allow citizens to start intervening in the city.

#### 6.2.1 IMPACT OF DIGITAL TOOLS ON CITIZEN PARTICIPATION

Regarding the question on *How does the introduction of technology affect the interest of citizens to initiate interventions in their cities?* the research delivered the following insights. These results were obtained by observing the actual use of the tool and asking the users about their past experience with citizen participation and whether they would potentially use the tools presented.

The results of the three case studies consistently showed that previous experience and engagement had the biggest impact on the potential adoption of digital tools for decentralised participation. People with previous experience are more likely to check regulations and request permits to build parklets, use residential streets, or initiate play streets. Such results strongly suggest that citizens who are already active are more likely to use digital tools for participation. This implies the contrary: that inactive citizens were not likely to become more active through the introduction of digital tools. Hence, the introduction of digital tools would most likely continue current patterns of citizen engagement.

The results also hint at a disjoint between the perceived potential of digital tools and their actual impact. The interviews showed that in the context of research, people see greater potential for digital tools while in the context of urban activism, the potential of

digital tools is seen as limited, and some subjects even mentioned that the current paper-based methods would still work.

Some subjects mentioned conflicts with other citizens, and also noted the complexities of dealing with the bureaucracy of the city. For example, the organisers of play streets are often confronted by citizens complaining about the noise generated by kids. Other person mentioned a conflict with their neighbours who opposed the construction of a parklet in their vicinity. Here, it is worth asking if technology can provide a means to address such problem or if this is an inherent limitation of digital tools.

### 6.3 STRATEGIES FOR NETWORKED CO-CREATION

Regarding the research question *How should digital technologies be conceived and introduced to allow for the establishment of decentralised methods of citizen participation in the context of cities?*, the case studies presented empirical evidence and methods to guide the introduction of decentralised methods of citizen participation based on digital technologies.

The case studies introduced tools that supported decentralised methods of citizen participation in Vienna. The tools delivered information about the legal framework, facilitated contact with the authorities and provided information about the procedures needed to obtain permits. The use of the tools was observed using surveys, automatic data collection and expert interviews. The data collected led to insights that address the research question.

The case studies also showed that citizen organisations have a significant impact in the adoption of digital tools. For example, in the case of Residential streets, the tools were actively used and promoted by a citizen organisation. Such results lead to the conclusion that active citizens and citizen organisations should play a central role in the introduction of digital technologies for decentralised participation. Following these results, each case study proposed concepts or methods that can be used for the conception and introduction of technologies for decentralised participation. These methods are one of the central contributions of this research work to the field.

The first method proposed technologies as a support tool for proactive citizens. Digital technologies can facilitate the understanding of regulatory frameworks, and provide design tools that augment the role of active citizens and facilitate their engagement. At the same time, proactive citizens can become propagators of the tools and eventually motivate other citizens to become active and support both urban transformation and the adoption of digital tools.

The second method proposes a multi-stage co-creation process where citizen organisations act in a first stage as co-creator of technologies and in a second stage as co-creators of spaces. The method aims to involve citizen organisations from an early stage into the development of digital tools so that such tools can be shaped according to the existing social structures and facilitate their eventual adoption. After the development of the tools, citizen organisations assume the role of co-creators of public spaces and act as the link between institutions, citizens and spaces.

Finally the third method proposes a further integration of citizen organisations and digital tools into hybrid platforms of engagement. This concept combines the existing expertise of citizen organisations with digital technologies to maximise their impact. Such platforms operate between centralised actors such as institutions and decentralised ones such as individual citizens. Here, digital technologies provide the channels to connect them with each other.

Throughout the case studies, active citizens and citizen organisations emerged as a key element for the conception and adoption of digital technologies. In particular, citizen organisations bring together the expertise, experience and social structures needed for the initiation of urban interventions or transformations. This strongly speaks for schemas that introduce technologies in collaboration with citizens organisations.









# Survey - Case Study Parklets.

## A.1 SURVEY - IMPACT OF TECHNOLOGY IN CITIZEN PARTICIPATION

### A.2 GENERAL INFORMATION

#### A.2.1 GENERAL INFO

This survey will help to understand which is the impact of digital technologies and geographical information systems in the engagement of citizens in urban development. With your answers you will support the conception and design of future platforms and applications for citizen engagement and participation.

#### A.2.2 PRIVACY

By voluntarily participating in the survey you agree with the processing of your data for scientific purposes. This survey is anonymous, i.e., it will not collect any data that can be linked to a particular person and the data collected will not be given to third parties. Reasonable steps will be taken to limit the storage and ensure the confidentiality and integrality of such data. Be assured that the answers that you provide will be kept in confidentiality.

The survey will take 5-10 minutes to complete. We kindly ask you to answer the questions with accuracy.

**Thank you in advance for taking the time of answering the questions!**

There are 22 questions in this survey.

### A.3 PREVIOUS ENGAGEMENT

#### A.3.1 HAVE YOU EVER DONE ANY ACTIVITIY OR INTERVENTION IN PUBLIC SPACES? (E.G FLEA MARKETS, POP-UP PARKS, GUERRILLA KNITTING, URBAN GARDENING ETC.)

\*

[*Illustration of interventions in public spaces*]

Please choose **only one** of the following:

- Yes
- No

#### A.3.2 HAVE YOU EVER THOUGHT ABOUT MAKING SOME INTERVENTION IN PUBLIC SPACES?

\*

[*This question was only shown if the answer to the previous question was "No"*]

Please choose **only one** of the following:

- Yes
- No

#### A.3.3 WHEN DID YOU FIRST HEAR ABOUT THE POSSIBILITY OF INSTALLING PARKLETS IN VIENNA? \*

[*Illustration of a parklet*]

Choose one of the following answers

Please choose **only one** of the following:

- Never
- I just heard about it
- 1 Week ago
- 1 Month ago
- 6 Months ago
- 1 Year ago
- More than 1 Year

#### A.3.4 DO YOU KNOW HOW TO GET A PERMIT TO BUILD A PARKLETT?\*

Please choose **only one** of the following:

- Yes
- No

#### A.3.5 WHICH OF THE FOLLOWING ASPECTS FACILITATES OR HINDERS FOR YOU INTERVENTIONS IN PUBLIC SPACES?

Please choose the appropriate response for each item:

		It hinders a lot	It hinders somewhat	It does not have any influence	It facilitates somewhat	It facilitates a lot
Time						
Regulations / Access to regulations						
Dealing with the authorities						
Costs						
Support of the community						

#### A.3.6 IN GENERAL, DO YOU AGREE WITH THE FOLLOWING STATEMENTS? \*

Please choose the appropriate response for each item:

	Disagree strongly	Disagree somewhat	Neither agree nor disagree	Agree somewhat	Agree strongly
Parklets improve social life in the city					
Parklets ameliorate the lack of green areas					

	Disagree strongly	Disagree somewhat	Neither agree nor disagree	Agree somewhat	Agree strongly
Parklets allow citizens to participate in the development of their neighbourhoods					

#### A.4 SOCIAL CAPITAL

##### A.4.1 ARE YOU MEMBER OF SOME OF THE GROUPS LISTED BELOW, IF SO WHICH IS YOUR ROLE IN IT? \*

Please choose the appropriate response for each item:

	Do not belong	Passive member	Active member	Leading position
Cooperative and other production groups				
Neighborhood / Village committee				
Political group or movement				
Other groups				

#### A.4.2 IN GENERAL, DO YOU AGREE WITH THE FOLLOWING STATEMENTS? \*

Please choose the appropriate response for each item:

*Most people in my neighborhood...*

	Disagree strongly	Disagree somewhat	Neither agree nor disagree	Agree somewhat	Agree strongly
... can be trusted.					
... are willing to help you (e.g. Watering plants, take care of a Dog).					
... do not know each other					

#### A.4.3 HOW HAS YOUR RELATIONSHIP WITH YOUR NEIGHBOURS CHANGED DURING THE LAST TWO YEARS?\*

Please choose the appropriate response for each item:

	Worsened	Unchanged	Improved
Relationship with your neighbors			

### A.5 EXPERIENCE WITH TECHNOLOGY

#### A.5.1 HOW DO YOU RATE YOUR ABILITIES TO COMPLETE THE FOLLOWING TASKS?

Please choose the appropriate response for each item:

	Very bad	Bad	Average	Good	Very good	Don't know what is this
Using a computer to do basic things, e.g write a letter, search on the Internet, send emails.						
Resizing and editing pictures						
Generating a public-private encryption key pair (Data privacy)						
Creating a drawing using a vector editing software (e.g. inkscape, illustrator)						

**A.5.2 HOW DO YOU RATE YOUR ABILITIES TO COMPLETE THE FOLLOWING TASKS USING THE INTERNET?**

Please choose the appropriate response for each item:

	Very bad	Bad	Average	Good	Very good	I don't know what it this
Using a web-based map service (google maps, bing maps) to find the address of a shop						
Verifying the authenticity of a website						
Uploading pictures or videos to a website						
Finding legislation concerning a particular topic						

**A.5.3 HOW LIKELY ARE YOU TO TRUST THE FOLLOWING CONTENTS?**

1 - Not likely | 5 - Very likely \*

Please choose the appropriate response for each item:

	1	2	3	4	5
Email sent by a friend					
Email sent by a neighbor					

	1	2	3	4	5
Email from a local .gv domain					
Email from a public contact form					

## A.6 IMPACT

### A.6.1 HOW LIKELY ARE YOU TO PERFORM THE FOLLOWING ACTIONS USING CITYMAK-ING.WIEN? \*

1 - Not likely | 5 - very Likely

Please choose the appropriate response for each item:

	1	2	3	4	5
Checking if installing a parklet in your neighborhood is possible					
Requesting a permit for a parklet using the online form					
Contacting other people to collaborate in the construction of a parklet (If feature is available)					
Checking the regulations that apply for parklets in Vienna					

**A.6.2 HOW LIKELY ARE YOU TO TRUST A PERSON THAT CONTACTS YOU USING CITYMAKING.WIEN? \***

1 - Not likely | 5 - very Likely \*

Please choose the appropriate response for each item:

	1	2	3	4	5
Likelihood to trust such person					

**A.6.3 DO YOU AGREE WITH THE FOLLOWING STATEMENTS REGARDING THE PARKLET POTENTIAL MAP? \***

Please choose the appropriate response for each item:

	Disagree strongly	Disagree somewhat	Neither agree nor disagree	Agree somewhat	Agree strongly
It improves my understanding of the regulations regarding parklets					
It saves the effort of looking by myself the regulations					
It inspires me to build a parklet in my neighborhood					

**A.6.4 TO WHICH DEGREE CAN WEB APPLICATIONS HELP TO REMOVE THE FOLLOWING BARRIERS RELATED TO CITIZEN PARTICIPATION? \***

1 - Technology does not help | 5 - Technology helps a lot

Please choose the appropriate response for each item:

	1	2	3	4	5
Lack of time					
Lack of knowledge of the regulations					
Access to authorities					
Lack of funds					
Lack of support from the community					

## A.7 GENERAL QUESTIONS

### A.7.1 GENDER \*

Choose one of the following answers

Please choose **only one** of the following:

- Male
- Female
- Other
- Prefer not to say

### A.7.2 AGE \*

Only numbers may be entered in this field. Your answer must be between 0 and 120.

Please write your answer here:

- [ ]

### A.7.3 DO YOU LIVE IN VIENNA? \*

Please choose **only one** of the following:

- Yes
- No

#### A.7.4 IN WHICH DISTRICT DO YOU LIVE? \*

[This question was only shown if the answer to the previous question was "Yes"]

Choose one of the following answers. Please choose **only one** of the following:

- 1010
- 1020
- 1030
- ...
- 1230

#### A.7.5 WHICH IS YOUR EDUCATION LEVEL? (EQF) \*

Choose one of the following answers. Please choose **only one** of the following:

- 1. Mandatory school
- 2. Vocational middle school
- 3. Apprenticeship
- 4. Technical formation
- 5. Certified technician / Advanced Higher
- 6. Bachelor
- 7. Master
- 8. PhD

#### A.7.6 WHICH IS YOUR CURRENT SITUATION? \*

Choose one of the following answers. Please choose **only one** of the following:

- Student
- Employee
- Freelancer
- Company owner
- Unemployed
- Other

Thank you very much for your participation.

Thank you for completing this survey.

\* Mandatory question



# B

## Survey - Residential Street Quiz.

### B.1 RESIDENTIAL STREET QUIZ

#### B.1.1 GENERAL INFO

Test if you know all about residential streets with space and place. Are you already an expert or are residential streets a completely new discovery for you? Find it out here!

By the way, you also help us to carry out a scientific study about residential streets. This survey is anonymous, i.e. it will not collect any data that can be linked to a particular person. The participation in the survey is voluntary.

Have fun!

There are 33 questions in this survey.

### B.2 WHAT DO YOU KNOW ABOUT RESIDENTIAL STREETS?

#### B.2.1 HOW MANY RESIDENTIAL STREETS ARE THERE IN VIENNA?

Please choose only one of the following:

- 124
- 221
- 179

**B.2.2 WHAT WOULD BE THE TOTAL LENGTH IF YOU LINE UP ALL RESIDENTIAL STREETS OF VIENNA?**

Please choose only one of the following:

- 9.500 Meter
- 18.400 Meter
- 33.200 Meter

**B.2.3 WHAT CAN YOU ALWAYS DO ON A RESIDENTIAL STREET? \***

Check all that apply

Please choose all that apply:

- Go the wrong way on your bike down a one-way street
- Bring some folding chairs and drink coffee with the neighbours
- Block or stop car drivers
- Ride bicycle next to other people
- Do gymnastics on the street and do a cartwheel
- Organize a barbecue with friends
- Play chess
- Drive through the residential street with your car
- Place chairs on the residential street and hold an office meeting
- Play badminton
- Use the residential street as a school playground
- Bring a paddling pool & water and cool your feet
- Practice flute or guitar
- Have a sleepover
- Block the street and organize a flea market
- Place a beach chair and take a vacation on the residential street
- Read a good book
- Invite a band and make a loud concert
- Have a feast or a snack

**B.2.4 BY CAR YOU CAN ... \***

Check all that apply

Please choose all that apply:

- drive through the residential street
- drive in and drive out
- park after checking the regulations of the street

**B.2.5 HOW FAST SHOULD A CAR DRIVE IN THE RESIDENTIAL STREET? \***

Please choose only one of the following:

- Walking speed
- 10 km/h
- 20 km/h

**B.2.6 DO YOU KNOW WHICH STREETS IN YOUR NEIGHBOURHOOD ARE RESIDENTIAL STREETS?**

\*

Please choose only one of the following:

- Yes
- No

**B.2.7 WHAT HAS ALREADY BEEN SUCCESSFULLY TESTED AS PART OF WIEN LEBT WOHN-STRASSENLEBEN?**

Please choose the appropriate response for each item:

	Yes	No
A residential street was turned into a shared flat with a cozy living room. Furniture was built on-site for immediate use on the residential street. On a residential street, a temporary holiday paradise was created for young and old. Preliminary tests were conducted to evaluate which games work best on residential streets. Surveys about residential streets were conducted. A table was set up to have breakfast.		

**B.3 DO YOU REALLY KNOW EVERY RESIDENTIAL STREET?**

**B.3.1 WHEN DID YOU FIRST HEAR ABOUT RESIDENTIAL STREETS (WOHNSTRASSEN) IN VIENNA? \***

Please choose only one of the following:

- I just heard about it
- 1 week ago
- 1 month ago
- 6 months ago
- 1 year ago
- More than 1 year

**B.3.2 HAVE YOU EVER DONE AN ACTIVITY (PLAYING, SITTING, ETC.) ON A RESIDENTIAL STREET? \***

Please choose only one of the following:

- Yes
- No

**B.3.3 LOOK HERE ARE ALL THE RESIDENTIAL STREETS OF VIENNA!**

[Embedded residential street map of Vienna]

**B.3.4 DID YOU DISCOVER NEW RESIDENTIAL STREETS ON THE MAP? \***

Please choose only one of the following:

- Yes
- No

**B.3.5 WOULD YOU LIKE TO USE THE RESIDENTIAL STREETS THAT YOU JUST DISCOVERED?**

\*

[*This question was only shown if the answer to the previous question was "Yes"*]

Please choose only one of the following:

- Yes of course!
- Yes but only if someone helps me
- No I don't have time
- Not really

**B.3.6 WHAT ELSE WOULD YOU WISH TO HAVE ON A RESIDENTIAL STREET?**

Check all that apply

Please choose all that apply:

- Trees / Plants
- Fountains
- Tables / benches
- Visible street markings
- Stone paving
- Leveling of car lanes (Single Level streetscape)
- Chess tables
- Other:

**B.4 ARE YOU A NEIGHBOURHOOD CHAMPION?****B.4.1 DO YOU THINK THAT YOUR NEIGHBORS... \***

Please choose the appropriate response for each item:

	Yes	Uncertain	No
... would take care of your flat?			
... would water your plants while you are on vacations?			
... know each other personally?			

#### **B.4.2 IS THERE AN EXCHANGE BETWEEN YOU AND YOUR NEIGHBORS? \***

Please choose only one of the following:

- No, I do not know them at all
- No, but I would be happy to meet neighbors
- Yes, we do sometimes something together
- Sure! we are friends

#### **B.4.3 AGE \***

Please choose only one of the following:

- Kid / Teenager (0 – 18)
- Young adult (19 – 35)
- Adult (36 – 65)
- Senior (65 +)

#### **B.4.4 DO YOU LIVE IN VIENNA? \***

Please choose only one of the following:

- Yes
- No

#### **B.4.5 CAN YOU IMAGINE BEING A RESIDENTIAL-STREET-PIONEER?**

Please choose only one of the following:

- Yes
- No

#### **B.4.6 WHO ARE YOU GOING TO TELL WHAT YOU LEARNED DURING THIS RESIDENTIAL STREET QUIZ?**

Please choose all that apply:

- My cat
- My family / closest friends
- The whole Neighbourhood / School / Company

**B.5 WE ARE ALSO INTERESTED ABOUT THIS**

**B.5.1 HAVE YOU EVER USED A RESIDENTIAL STREET BEFORE? IF NOT - WHY NOT?**

Please write your answer here:

**B.5.2 WHAT WOULD YOU NEED TO BE ACTIVE ON THE RESIDENTIAL STREET?**

Please write your answer here:

**B.5.3 DO YOU WANT TO TELL US OF ANY WISHES OR SUGGESTIONS CONCERNING RESIDENTIAL STREETS?**

Please write your answer here:

**B.5.4 HAVE YOU BEEN TO ONE OF OUR EVENTS AT RESIDENTIAL STREETS OR HAVE YOU USED A RESIDENTIAL STREET YOURSELF? IF SO, WHAT DID YOU EXPERIENCE, WHAT WAS THE MOST POSITIVE / NEGATIVE EXPERIENCE FOR YOU? HAS ANYTHING CHANGED IN YOUR PERCEPTION OF RESIDENTIAL STREETS IN GENERAL?**

Please write your answer here:





## Survey - Case Study Play Streets

### C.1 POP-UP QUIZ

#### C.2 WELCOME!

This anonymous survey will help to understand which is the impact of digital technologies and geographical information systems in the engagement of citizens in urban development. With your answers, you will support the conception and design of future platforms and applications for citizen engagement and participation.

The survey will take about 10 - 20 Minutes

#### C.2.1 PRIVACY

This survey is anonymous. By participating in the survey you agree with the processing of the anonymized data for scientific purposes.

There are 24 questions in this survey.

### C.3 WHAT DO YOU TRULY KNOW ABOUT STREETS IN VIENNA? - GENERAL INFO

Test if you know all about the streets and communities of Vienna and what you can do with them. Are you already an expert on the topic? Find it out here!

By the way, you also help us to carry out a scientific study about public spaces in Vienna. This survey is anonymous, i.e. it will not collect any data that can be linked to a particular person. The participation in the survey is voluntary.

This project was made possible thanks to a research grant of the MA7.

Have fun!

**C.3.1 HOW MANY STEPS WOULD YOU HAVE TO TAKE TO WALK AROUND VIENNA? \***

- A lot, probably more than one million!
- About 120.000 steps
- I have big feet, so I definitely need less steps than other persons
- About 60.000 steps are enough for me

**C.3.2 WHAT DO YOU THINK: ARE YOU FASTER BY CAR OR BIKE FROM MARIAHILFER STRASSE (CORNER OF NEUBAUGASSE) TO COLUMBUSPLATZ / FAVORITENSTRASSE? \***

- Both are equally fast
- I'm 6 minutes faster by bike
- You can't ride that far at all with a bicycle!
- 10 minutes faster than the car

**C.3.3 DO YOU KNOW WHAT ARE THE VIENNESE PLAY STREETS? \***

- No, I never heard about them.
- Yes, I heard recently about them.
- Yes, I heard about them about a year ago.
- Yes, I heard about play-streets at least one year ago.

**C.3.4 HOW MUCH MONEY CAN YOU SAVE IF YOU BUY A BIKE INSTEAD OF A CAR? \***

- With the money saved, I can have a coffee in the coffeehouse every day for 20 years.
- I save one year of monthly rent for my 2-room apartment.
- I save myself a little more than a flowerpot costs.

**C.3.5 DO YOU KNOW WHICH DEPARTMENT(S) (MA) CAN HELP YOU ORGANIZE PLAY STREETS?**

\*

- MA 2412
- MA 57
- MA13 and the MA18
- MA 28 and the MA 33

**C.3.6 WHAT PERCENTAGE OF THE TRAFFIC AREAS IN VIENNA ARE PEDESTRIAN ZONES?**

\*

- 1%
- 15%
- 30 %
- 40 %

**C.3.7 HAVE YOU EVER CONSIDERED CHANGING PUBLIC SPACES THROUGH PARKLETS, FESTIVALS OR SIMILAR ACTIVITIES? \***

[Image of a Viennese play street]

- No, I do not have interest in such activities.
- No, I don't have time.
- Yes, I've already helped with other initiatives.
- Yes, I already organized one or more!

**C.3.8 HOW MANY HOUSEHOLDS IN VIENNA DON'T OWN A CAR? \***

- 1%
- 25%
- 45%
- 70%

**C.3.9 IS THERE ANY CONTACT BETWEEN YOU AND YOUR NEIGHBOURS? \***

- No, I do not know them at all.
- No, but I would be happy to meet neighbors.
- Yes, we sometimes do something together.
- Sure, because we are friends with each other!

C.3.10 DO YOU THINK THAT YOUR NEIGHBOURS WOULD TAKE CARE OF YOUR FLAT WHILE YOU ARE ON VACATIONS? \*

- No, not really.
- No, I do not know them very good.
- Yes, I have thought about it.
- Sure! they are very kind.

C.3.11 HOW MANY TREES WOULD HAVE TO BE PLANTED IN ORDER TO COMPENSATE FOR THE ANNUAL CO<sub>2</sub> EMISSIONS OF AN AUSTRIAN? \*

- 96
- 274
- 688

C.3.12 WHERE DOES IT GET HOTTER? \*

- [Picture of a street]
- [Picture of a street with more green areas]
- [Picture of a street]

C.3.13 LOOK, HERE ARE THE PLAY STREETS OF THE LAST YEAR! WOULD YOU LIKE TO VISIT ONE OF THE PLAY STREETS? \*

[ Embedded support map for play streets ]

- No, I do not have interest in such activities.
- No, I have no time.
- Maybe, it looks interesting.
- Yes! Sounds exciting

C.3.14 YOU CAN ALSO INITIATE A PLAY STREET. WE WANT TO SUPPORT YOU WITH THE FOLLOWING FORM! PLEASE TAKE A MOMENT TO GIVE US FEEDBACK ON THE QUESTION BELOW. WOULD YOU CONSIDER INITIATING A PLAY STREET IN YOUR NEIGHBOURHOOD? \*

[Embedded form to show interest]

- No thanks, I am not interested.
- No, but I could help others to organize it.
- Yes but only if someone helps me.
- Yes, it sounds exciting.
- I already organized play streets!

**C.3.15 DO YOU KNOW WHAT A COOL STREET IS? \***

- A street where everyone wears sunglasses.
- A street where the wind is always blowing.
- A street where additional seating, shade and fog showers are installed during the summer, instead of cars and parking lots.
- A street like no other.

**C.3.16 HOW MANY OF ALL JOURNEYS ARE MADE ON FOOT IN VIENNA EACH YEAR? \***

- 15%
- 30%
- 55%
- 80%

**C.3.17 WHAT PERCENTAGE OF CO<sub>2</sub> DOES MOTORIZED TRAFFIC CAUSE IN VIENNA? \***

- 20%
- 40%
- 60%

**C.3.18 SUPPOSE YOU USE YOUR CAR VERY LITTLE IN THE SUMMER. IT IS PARKED ON THE STREET - THIS HAS NO EFFECT. \***

- That's correct. What else could you do with the space?
- That's not true - usually a car heats up the street and their surroundings.
- That's not true - instead there could be a parklet with plants or a tree.

C.3.19 DO YOU LIVE IN VIENNA? \*

- Yes
- No

C.3.20 AGE \*

- Kid / Teenager (0 – 18)
- Young adult (19 – 35)
- Adult (36 – 65)
- Senior (65 +)





# D

## Interviews

### D.I INTERVIEW - IMPACT OF TECHNOLOGY IN CITIZEN PARTICIPATION

#### D.I.I INTERVIEW

The purpose of this interview is to get an in-depth view about new methods of citizen participation based on digital technologies. I would like to stress that the interview is part of a research project without any political or economical motivations. Please feel free to answer the questions honestly.

#### BACKGROUND

1. You are involved with \_ (organization), what motivated you to join it?
2. Did you worked before in other similar organizations?
3. Which is your vision for the city, - what is missing in the city?
4. In which forms do you participate or engage in the development of the city?
5. Do you consider your methods of participation formal or informal? - Why?
6. Have you experienced problems when trying to engage yourself in the city?

- (a) - Which are the major obstacles when it comes to citizen participation in Vienna?
  - (b) - Do other people help you with your projects?
  - (c) - How has been your experience with the authorities in Vienna?
7. Do you know about all the regulations for activities in public spaces?
  8. Can you understand the way in which the city is administrated?
  9. Is the city administration easy or difficult to understand?
  10. Some people speak about more self-governance in the city, what do you think about this idea?

#### SOCIAL CAPITAL

1. Do you know your neighbors, how is your relationship to them?
2. How has your relationship with your neighbours changed during the last two years?
3. Do you think that people in your neighborhood will help you with small tasks?

#### TECHNOLOGY

1. How has been your experience with technology so far? Do you consider yourself tech-savvy?
2. There are some new applications for citizen participation, have you used some of them?
3. Do you think that such applications can allow more self-governance in the city?
4. Do you prefer web-based applications or applications that should be installed on the phone?
5. Are you familiar with (Tools developed for case study)?
6. Which function is the most or less useful in your opinion?
7. Which barriers can or can not be addressed with technology?

**Table D.1:** Interviews. Case study Parklets

Name	Organization	Role	Experience
Hanna Schwarz	Geht-doch.wien	Initiator	Gounder of Geht-doch, an association to defend the rights of pedestrians in Vienna. Previous experience in environmental engagement.
Guntram Münster	Geht-doch.wien	Co-Initiator	Gounder of Geht-doch, an association to defend the rights of pedestrians in Vienna.
Tanja Tötzer	AIT	Scientist	Participation in projects related to citizen participation, for example LiLa4Green.
Jan Peters-Anders	AIT	Research engineer	Participation in projects related to citizen participation, for example Smarticipate.
Silvan Hagenbrock	raumstation	Member	Participation in various interventions in Public Spaces. Active member of raumstation

8. Finally, do you think that technology is superfluous when it comes to citizen participation? - Why?

#### D.1.2 LIST OF INTERVIEWED PERSONS

The following interviews were conducted for the research project.

**Table D.2:** Interviews. Case study Residential streets

Expert	Organization	Role
Brigitte Vettori	space and place	Founder and director
Corinna Wachberger	space and place	Place-maker
Renate Kraft	Magistratsabteilung 13 - Education and extracurricular youth care	Public servant

**Table D.3:** Interviews. Case study Play streets

Name	Organization	Role
Waiglein Michaela	Kinderfreunde	Coordination of park supervision 10th district.
Marcella Merkl	juvivo.at	Pedagogical director





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