From Smart to Platform Urbanism to Platform Municipalism

Planning Ideas for Platforms in Toronto and Vienna

Astrid Krisch

Abstract

This chapter critically reflects on the origins and developments of recent currents in academic literature dealing with technology-led urban development and planning. It shows, how planning ideas over the last 30 years have changed the mode of institutionalizing platforms within urban politics and planning. From smart to platform urbanism to platform municipalism, this contribution unveils the values, programmatic ideas, and policies that these different planning ideas incorporate. Using Vienna and Toronto as two examples of different institutionalization processes of platforms for urban planning agendas, the chapter embeds the concept of platform municipalism as a progressive approach to platform development into wider debates on smart and platform urbanism to look beyond a techno-dystopian vision of urban futures and carve out the scope for action for urban governance in the digital age.

Introduction

Urban planning and development have gone through different ideological shifts in the last decades. From the global city of the 1990s, to the creative city of the early 2000s, to the resilient and smart cities of the 2010s, the recent currents in urban politics unveil various planning ideas, dealing with pressing urban development challenges. Underlying the smart city planning paradigm is the rhetoric of an improved future for all through technological development and progress (Karvonen 2020). Smart urbanism as a scholarly debate thus investigates, how technology increasingly governs our cities and tries to understand the various smart city initiatives (Cugurullo 2019).

Platforms as new digital infrastructures are having tremendous effects on everyday life and urban space, revolutionizing social, cultural, economic, and political structures (Karvonen 2020). Platform urbanism as a concept analyzes the spatialization of platforms and the geographies of platform capitalism (Srnicek 2017), providing a critical approach to the collection practices of urban data through platforms to manage cities in real time, overlapping with the smart city discourse (Bauriedl/Strüver 2020). Platforms interact with existing urban economies and infrastructures and transform them (Altenried/Animento/Bojadžijev 2021). Although platform urbanism is mostly concerned with the so-called lean platforms (Srnicek 2017), which try to minimize their fixed assets and benefit from outsourcing by reducing costs as much as possible (e.g., Airbnb, Uber, etc.), other types of platforms, such as advertising platforms or cloud platforms are increasingly relevant in a spatial and urban context through mergers and acquisitions in fields of urban planning (e.g., Google's Sidewalk Labs), logistics networks (e.g., Amazon Web Services), or retail (e.g., takeover of Whole Foods by Amazon) (Krisch/Plank 2018). Platform Urbanism is not yet a coherent theoretical strand, but an approach to think about new developments and urbanization and spatialization of platform capitalism (Altenried/Animento/Bojadžijev 2021).

Governance structures are increasingly challenged by these newly emerging infrastructure systems, not only by economic concerns of the size and capital accumulation of large online platforms and the subsequent challenges for public regulation, but also their power over individual consumers and citizens through AI or machine learning (Leszczynski 2016), their effects on digitizing "the urban fabric" (León/Rosen 2020: 499) and improving conditions not for the whole society or the environment, but only a selected elite (Cugurullo 2019). As platforms are very different from each other, regulators and public administrations are struggling to find nuanced measures (van Dijck/Nieborg/Poell 2019). Especially the mismatch between municipal governments and their often small-scale and bounded capabilities on the one hand and the operational capabilities and scope of technology firms on the other are tremendously challenging (Barns et al. 2016).

These concerns have given rise to progressive social movements connecting to the origins of digital technology seen as an "important incubator for social movements, digital activism and civic action" (Bannerman et al. 2019: 3). Particularly the pivot towards platforms as a focal glass for asymmetrical power structures has demonstrated the need for radical reform (Barns 2020). The concept of platform municipalism, linked to the ideas of new municipal-

ism (Thompson 2020), is associated with these progressive values of utilizing technology for social gains and to democratize decision making within technology-led development. Thus, it provides a new current of planning ideas, that go beyond a techno-dystopian vision of urban futures and instead build an alternative future from the ground up.

To understand the evolution of planning ideas leading to the current belief of technological supremacy, this chapter traces how these different planning ideas came into being and were institutionalized through underlying values, programmatic ideas and policies, thus responding to the call to question how urban environments and communities are governed and planned in light of emerging digital infrastructures (Chiappini 2020). The current institutionalization of platforms in urban planning is analyzed for two case studies, Toronto and Vienna, to gain more in-depth knowledge on different institutional contexts and the restructuring powers of platforms in urban politics and planning. The conceptual part is guided by the theoretical concept of discursive institutionalism (Schmidt 2008) to understand the transformation of urban planning through technology and platforms more specifically. The case studies are based on field work in Toronto and Vienna, focusing on discourse analysis of the relevant strategic urban planning documents concerned with technology and platform development and interviews with experts in public administrations, think-tanks, and scholars in the field.

The chapter begins by outlining the different planning ideas since the 1990s and tracing the values, programs, and policies of smart and platform urbanism as well as platform municipalism. It then goes into detail on how these planning ideas are represented in the recent developments in two case studies, Toronto and Vienna, to analyze, which elements are pointing to a shift in ideology and which institutional factors are crucial for the transformation of digital infrastructures. The contribution ends by discussing the main points of planning ideas for digital infrastructure development and outlining reflections on future research.

Changing planning paradigms: From smart to platform urbanism to platform municipalism

Pressing challenges for urban planning have been constantly changing, taking different approaches on how to solve urban problems according to changing planning ideas and principles. Urbanism and its multitude of different artic-

ulations – whether it be green, sustainable, smart, or any other – rely on the establishment of specific normative framings, programs, and policies to implement collective action within the planning praxis, informed by visions of how a city should look like and the self-conception of the agents of intervention (Barns 2020).

The incorporation of technology to organize urban infrastructure systems has been part of urban politics and planning for decades (Bauriedl/Strüver 2020). However, the unquestioned belief in technological progress as universally beneficial for all has prompted an incorporation of digital tools into ever more applications. Technology is supposed to provide an optimistic scenario of the future and an appropriate tool to cope with global challenges, such as climate change, economic decline, etc. In the 1990s, the notion of the global city became popular, promoting global competition between cities through specific criteria indicating their success in specific sectors, such as education, public transport, health care, etc. (Valverde/Flynn 2020). A few years later, the creative city was in fashion. Urban problems, such as the decline of inner-city commercial space, the decline of the working class and industry or environmental and cultural issues with expanding suburbanization were supposed to be solved by cities and their creative potential, although the promise of solutions through the creative class was greater than the actual evidence of proven success (ibid.).

In the 2010s, in light of increasing climate change and awareness for the negative effects on cities, amplified by concerns about inequality and global migration movements, resilience became the new slogan of urbanism. Originating from psychological studies, it promoted a rather pessimistic notion of worldwide economic decline and the hope to mitigate the damage at the local level (ibid.).

Smart cities on the rise

Today, the smart city discourse has reached a hegemonic position (Morozov/Bria 2017), following after imaginaries of green and sustainable cities as well as information and intelligent cities, activating specific political-economic paradigms that regard the city as the central mechanism of capital accumulation (Artyushina 2020; Valverde/Flynn 2020; Vanolo 2014). The first decades of technological transformations, characterized by the modern infrastructural ideal predominantly struggled with the abstract demands of modernist urban planning and keeping the urban grid up and running, whereas today,

visions of smart and real-time cities with data-driven management in light of splintering infrastructure systems (Graham/Marvin 2001) and neoliberal policies of privatization and deregulation (Plantin et al. 2018) represent current challenges of the restructuring processes of our societies (Barns 2020; Janoschka/Mota 2020). Smart Cities have continuingly become an analytical concept and strategic approach of urban development worldwide since the 1990s through the institutionalization of smart growth and intelligent city projects in almost every city (Carr/Hesse 2020b; Hollands 2015; Matern 2017; Rose 2019; Söderström/Paasche/Klauser 2014).

Within the smart city logic, two things are combined: (1) the inter-city competition encouraged not just by corporate logics, but also city governments already familiar from other urbanism notions, such as the global or the creative city; and (2) the concept of innovation, in particular the unconditional belief in data-centric innovation as technological progress (Valverde/Flynn 2020). Visions from international to municipal levels are emerging, however, promoting often a mono-dimensional vision of smart cities, such as the European vision, picturing smart cities as "low-carbon and resource efficient urban environments that invest in ICT solutions for smart transport, smart buildings and smart grids" (Mora/Deakin/Reid 2019: 73).

On the municipal level, normative and pragmatic considerations promote smart city solutions, to reach widely accepted political goals through the implementation of technology, such as increased participation, individualized public services, de-bureaucratizing national and local administrations or fostering innovations to cope with austerity and increasing security and surveillance requirements. Technological innovations became the key objectives in today's data-driven world, taking over traditional urban governance goals such as democracy and financial caution (Valverde/Flynn 2020).

The emergence of platforms

Just as the smart city narrative emerged in the beginning of the 21st century, platforms as new forms of web-based intermediaries made an appearance at roughly the same time. By now, platforms have become a central part of our everyday lives, whether it be communicating with friends and work colleagues, online shopping, consuming different media, travel organization, or mobility services. These activities are predominantly offered by large online platforms, such as Google, Amazon, or Facebook. The increasing market concentration of these large online platforms shows that they position them-

selves as key players in their core business fields, but also increasingly in other complementary segments (Clement/Schreiber 2016). Google, for example, is the Internet platform with the most acquisitions in about the last five years. In addition to the early acquisitions of e.g., Picasa, a photo service, or Android in the early 2000s, the platform by now invests more in satellite technologies, artificial intelligence, or smart homes. Facebook invested in social media and social networking in general in the early 2000s. In recent years, however, it has increasingly invested in virtual and augmented reality. And Amazon, which was active in the online store business at the end of the 1990s, is now investing in all kinds of gaming portals, but also heavily in cloud infrastructures (Dolata/Schrape 2018; Srnicek 2017). However, not only large online platforms such as the above mentioned are relevant for digital urban infrastructures. Also large companies associated with smart city projects, such as IBM or Cisco, offer online platforms for managing urban systems. The mode of platformization of urban infrastructure systems has become a dominant organizational mode, making cities the "engines of the new data economy" (Barns 2018: 5), thus "reorganizing the geography of how value is created and who captures it and where" (Kenney/Zysman 2020: 55).

Platforms emerged from the emancipatory potential of the early 2000s, when they were still perceived as neutral spaces primarily catered to self-determined networks among different user groups. "While the wireless sensor networks and control room vendors of smart cities tend to speak primarily to municipal officials and politicians, platforms have spoken directly to city-dwellers, providing them with seducing and ergonomic digital tools that revolutionize and maximize social interaction." (Söderström/Mermet 2020: 6) However, platforms are more than just intermediaries between supply and demand side, even if they want to be seen as just technology companies providing neutral platforms for interactions. Their algorithms influence consumer interests, labor relations, and city services, making selective choices about what customers can see and obfuscating the underlying business model (Bauriedl/Wiechers 2021), resulting in increasing social polarization (Brodnig 2018). Moreover, platforms act as gatekeepers, as quasi-guardians of the Internet that cannot be bypassed, creating their own social order on the web.

In the platform age, the patterns of interaction between people are changing framed by data-driven business processes of online platforms, resulting in new negotiation processes and governance models. This outlines a new field in urban studies under the concept of platform urbanism since platforms act

as "infrastructures of urban exchange" (Barns 2020: 147). The emerging platform urbanism has been shaped by planning ideas and paradigms as well as specific technological developments and business practices (Barns 2020). Whereas smart urbanism generally is concerned with the relation between IT corporations, municipalities and citizens, platform urbanism conceptualizes how platforms directly target individuals and influence urban infrastructure configurations (Leszczynski 2019; Söderström/Mermet 2020). "Unlike ordinary websites and apps, platforms operate at a meta-level because they bring together different players in which the relations between the parties becomes the service itself." (Chiappini 2020: 279) Platform urbanism is more concerned with the mediation of services, that are much more actively queried by users for their individual supply needs, and thus the information generated is fed back into the system.

Physical places for example are becoming increasingly dependent on their online representation as unequal representations online also have material consequences. Places that are invisible on digital platforms often risk disappearing completely and, in turn, places that are disproportionately represented online also suffer from touristification and gentrification effects (Heo/Blal/Choi 2019; Neuts/Kourtit/Nijkamp 2021). Moreover, this dynamic is further reinforced by all kinds of places, from restaurants to community centers, trying to improve their algorithmic ranking and adapt to the aesthetic norms disseminated by platforms to reorganize their modes of operation through platforms. This potentially reinforces tendencies towards homogenization but also towards uneven development. Digital platforms are reshaping landlord-tenant relationships, changing the structure of real estate markets on a large scale (Kadi/Plank/Seidl 2019). They are also a central concern to the labor market and its spatial repercussions, starting to create entirely new forms of precarity and exploitation (Collier/Dubal/Carter 2017; Galperin/Greppi 2017).

The role of city administrations and the associated political apparatus is shifting more and more towards facilitator and mediator of data-driven services. Thus, the effects of platforms on urban structures have become a major governance challenge through reconceptualizing how to deal with the emergence of online platforms and how to utilize urban data. "There has been a pervasive tendency to increase democratic participation together with self-determination and self-organization, which entails a further shift in planning paradigm." (Anttiroiko 2021: 37) The governance of digital infrastructures and platforms in particular is shifting from a narrow focus on technical infrastructure networks (e.g., pipes, cables, data centers, etc.) to include consider-

ations of managing, using, accessing, and distributing data to support decision-making by city administrations (Barns et al. 2016). There are some similar ideological threads between platform urbanism and the smart city logic and the notion of smart urbanism, making urban data a central concern to manage cities in real time. Some critical scholars have pointed to the limiting effects of big data on long-term strategic planning, as the focus increasingly shifts to short-term thinking about the effective and efficient management of cities (Batty 2013). Whereas infrastructure planning in the 19th century was primarily conceived as an engineering task, today's development and management of urban infrastructure systems is more complex. There is a cleavage between surrendering to the market power of big tech, subordinating local infrastructures to their influence, and giving rise to a kind of renaissance of the expert-led planning approach, while on the other hand the understanding of infrastructure development is shifting towards a socio-political process of social co-creation in its respective local-specific and socio-political context (Barns et al. 2016; Douay 2018).

Platform municipalism as a progressive approach against "big tech"

In line with this argumentation of co-creating infrastructure systems, the notion of platform municipalism (Thompson 2020) is emerging from the social movements of new municipalism (Vollmer 2017) to develop an alternative to platform capitalist tendencies. It is a social movement that designs political and economic strategies to break down traditional boundaries between state and civil society and to rethink infrastructural configurations. *The municipal* is increasingly recognized as a strategic entry point to develop comprehensive practices and theories of transformative social change and to use new technologies in a community-building and socially progressive way (Hollands 2015; Russell 2019). The social movements of new municipalism build on two main principles: the *politics of proximity*, understood as a way to focus on forces that hold a society together, using the urban scale to achieve strategic goals, and the *feminization of politics*, which seeks to find a new way how politics is done by enforcing equality and cooperation instead of competition. Aiming at creating lasting institutional structures rooted in social wealth, platform municipalism seeks to organize new social relations with supporting forces able to maintain them by building on local actors (e.g., locally based public utilities, local anchor institutions such as universities, housing associations, hospitals, etc.) (Russell 2019). Institutions are understood as a series of so-

cial processes and social relationships, as norms (Salet 2018) to be opened up to challenge traditional politics and foster institutional innovations (e.g., neighborhood assemblies, participatory budgeting, open-source digital voting platforms, etc.) (Thompson 2020).

On the programmatic level, particularly data-harvesting and storing techniques of local governments are identified as the main problem. On the one hand, the vast amount of information and private data are in most cases not accessible for the public, and on the other hand, public data are usually inadequately processed or distributed across diverse departments, units, and operations that make up a local government and its administration (Morozov/Bria 2017). The concept of platform municipalism proposes a new possibility to move away from surveillance capitalism, building an alternative system, where data is socialized and new approaches to collaboration and co-creation are intensified to foster democratic and social innovations (ibid.). Platforms as organizational structures, inherently incorporating multi-level resource integration, can benefit a socially responsible technology-led urban politics and planning (Anttiroiko 2021).

Although platform municipalist initiatives differ geographically, ideologically, and socioculturally, Thompson (2020) differentiates between three ideal-types of platform municipalist initiatives to better understand the ideological underpinnings of these movements. The civic municipalist approach (adapted from the original term *platform municipalism* to emphasize the focus on civic mobilization) seeks to work in, against, and beyond the state through mobilizing civic organizations and establishing civic platforms (e.g., Decide Madrid, DECODE Barcelona and Amsterdam, Citizen Science Data Governance, Decidim Barcelona). Autonomist municipalist initiatives aim at a political structure outside the state through establishing cooperatives, communes, and autonomous assemblies by collective self-organization (e.g., midata.coop). The third ideal-type, the managed municipalism, wants to reclaim and regenerate local economic structures by seeking to transform the state from within. It is rooted in social wealth by building common goods, aiming at democratizing and anchoring the local economy (e.g., Preston Community Wealth Building Model).

As platform and surveillance capitalism is on the rise, governments have a responsibility to ensure that this new economy serves more than the platform-builders' profit (Morozov/Bria 2017). Thus, the concept of managed municipalist is in this context particularly interesting, to investigate governance structures for cooperative development of digital infrastructures and to un-

derstand public administrations' role as active agents of change within data-driven developments. The agency of city administrations and urban planning is highlighted in a smart city context (Exner et al. 2018; Mora/Deakin/Reid 2018; Morozov/Bria 2017). However, their agency in platform development towards a municipalist understanding of digital infrastructure development is still underrepresented in current debates. Thus, the next section tackles the institutionalization process of platforms in urban planning in Toronto and Vienna, highlighting the agency of public administrations in designing and structuring the digital transformation.

How platforms restructure the institutionalization process in urban politics and planning

As Karvonen (2020) noted, there are newly emerging trajectories, how technology is restructuring cities, including networked governance and sociotechnical imaginaries. As the previous section outlined the changing imaginaries, including values of planning paradigms and programmatic ideas as problematizations within urban politics and planning, this section focuses on the changing policies and actor constellations through the implementation of technology-led urban planning. I use examples of different cities to describe, how governance-formations shift through approaching the incorporation of the smart city discourse and the development of platforms into urban planning processes within different institutional contexts. Thus, this section outlines where and how different planning ideas, from smart to platform urbanism to platform municipalism can be found in two different planning contexts of Toronto, Canada and Vienna, Austria.

Toronto – dismissal of neoliberal platform urbanism?

In Toronto, Canada, the urban innovation start-up Sidewalk Labs, a sister company of Google, was contracted to develop the urban neighborhood Quayside at the waterfront area in Toronto through a synthesis of digital and physical infrastructure. However, as the official statement of the company says, the current global Covid-19 pandemic and the associated financial uncertainty led to the abandonment of the project in March 2020 (Flynn/Valverde 2019). The difficulties and resistance the company was facing are well researched (Barns 2020; Carr/Hesse 2020a; Flynn/Valverde 2019; Tusikov 2020). Particularly, pri-

vacy issues and the opacity of decision-making within the institutional structures were criticized, especially since Sidewalk Labs was aiming to serve as a model for cities around the world. "The Toronto project was Google's entry into the lucrative smart city industry, and it had global ambitions from the start. As Google's urban policy arm, Sidewalk Labs sought to shape data governance frameworks and standards that Google could export to smart city projects around the world." (Tusikov 2020: 71)

However questionable this neoliberal approach to urban planning by transferring responsibility to a private company already under scrutiny from international privacy courts may be, the outcome of the failed project is interesting to look at. As a response the city of Toronto is currently developing its own Digital Infrastructure Plan to counteract the negative consequences and to proactively set up a framework for the development of digital infrastructures throughout the city. They define digital infrastructure as "infrastructure that creates, exchanges or uses data or information as a part of its operation. Digital infrastructure includes physical structures, cabling and network systems, software systems, data standards and protocols" (City of Toronto 2021). Developed by the municipal division of the Connected Community/Smart City Project Team, this definition of digital infrastructure at least provides a guideline for city officials as well as companies, scholars, and community members to refer to. However, Toronto's complex governance structure, in which infrastructure development in particular is hampered by provincial power over city's agency is often an obstacle. Moreover, the tri-governmental unit Waterfront Toronto as a partnership agency between municipal, provincial, and federal agents makes the governance structure even more complex, especially in light of limited life spans and narrow mandates of public sector entities such as Waterfront Toronto, which always faces the risk of being restructured out of existence. Thus, the waterfront area is rather underdeveloped compared to other cities especially in North America (Verschuren 2021). In spite of these obstacles, the development of the digital infrastructure plan is the first step out of the often-practiced project-based developments to reach an overall strategic plan instead.

Furthermore, what is interesting about the repercussions of the failed project, is that through the massive resistance of NGOs, such as the Canadian Civic Liberties Association that filed a lawsuit against Sidewalk Labs, or the group #BlockSidewalk, the agents involved in the development process of the digital infrastructure plan are more diverse than ever, including citizens and scholars through public consultations. The City of Toronto is increasingly

trying to shape technological changes to achieve public objectives in dialogue with local communities. However, a critical point remains that the city is more likely to limit their interventions to setting up a framework predominantly for the procurement process for corporations providing digital infrastructures, than actively developing a long-term vision of their own for the development and incorporation of digital technologies and platforms into urban planning agendas. An illustrative example of this dynamic is the contracting of the city-wide payment system for public water supply by the transnational corporation and U.S. platform payit. This represents an outsourcing of essentially public services of general interest in the municipal sphere of responsibility. Thus, although the resistance to the Sidewalk Labs project resulted in a significant change in the strategic discourse of incorporating platforms into the urban planning agenda towards public administration providing a proactive approach to the development of digital infrastructure in conjunction with different interest groups, the actual implementation of these guidelines is still pending.

Vienna – infrastructural reform through urban platforms

In Vienna, Austria, the policy orientation towards smart city developments already began in 2014 with the publication of the first Smart City Framework Strategy. Just recently, in 2019, it was updated and changed with a stronger focus towards sustainability, shifting the orientation due to increasing criticism towards smart city developments. By now, the updated Smart City Framework, although it carries the same name, is commonly understood as *the* sustainability strategy of the city. In addition to this overarching strategy, various other sectoral strategies were developed, that are solely focused on the digital development in and of the city, such as the Digital Agenda 2014 or the Data Excellence Strategy 2019. The discourse within these documents is more catered to the notion of Digital Humanism, developing a digitization in harmony with social and democratic values. Data is increasingly seen as a 'city treasure', pointing to a shift in how public administration is expanding its responsibility to the digital realm. However, the discourse is also permeated by contradictions. Efficiency and effectiveness through technological solutions are at the same time promoted as digital equity and battling the digital divide. Moreover, digital humanism is clashing with expectations of Vienna becoming "Europe's capital of digitalisation" (Stadt Wien 2019: 65), thus promoting inter-city competition.

Particularly interesting is the shift in agency in the last few years, where an operational IT unit (MA 01 – Wien Digital) was established as a new municipal department in 2018, merging three former separate IT landscapes into one and subordinating it to the strategic IT unit, the Magistrate's Directorate. Moreover, through the elections in 2020, the operational IT department and the urban development and planning department are now under the same political leadership, raining hopes of strengthening future cooperation. Central for the development of platforms in Vienna are also the public utilities as a city subsidiary, including energy, mobility, and public service companies. However, public utilities and public administration only cooperatively develop strategic planning documents, whereas the actual implementation of platforms is organized separately.

However, the institutional context in Vienna provides the framework for a progressive approach to developing city-owned platforms, either to platformize existing infrastructure systems, platformize public services, or developing new platforms as digital infrastructure for urban planning. The strong tendency of public responsibility of public infrastructure development engrained into the planning culture in Vienna can also be observed in platform development. However, a coordinated effort for a strategic vision of incorporating urban platforms and technologies into urban planning agendas has only just begun, thus leading to a still very scattered implementation of various platforms through different actors, focusing mostly on providing individualized public services through platforms and increased participation efforts. Thus, although the strategic discourse is pointing to a shift towards platform municipalist ideas, the actual implementation of public platforms is focused predominantly on providing platforms as technological innovations as a self-serving justification rather than democratizing decision-making or focusing on financial equity and equality.

Conclusion and discussion

Since the body of literature on governance processes involved in implementing data-driven and digitally enabled innovations is still rather small (Valverde/Flynn 2020), this chapter contributes to understanding the incorporation of platforms in urban planning agendas. I looked at the different currents in academic literature to carve out the underlying planning ideas

and analyzed two case studies to trace the institutionalization process within their specific planning contexts.

Although the institutional contexts of incorporating platforms into urban planning agendas in Toronto and Vienna are very different, some commonalities can be identified. Both cities have recently picked up a more progressive approach to platform development. Although the neoliberal orientation of urban planning is much stronger institutionalized in Toronto, the city is taking up a proactive approach to steer technological and platform development in urban planning issues. In both cities, the increasing criticism towards platform urbanism and smart cities and the fast pace in which technology transforms cities has spurred a discursive and institutional shift in how platforms are incorporated into urban planning agendas. Public administrations develop a more progressive take on how they can design platforms as digital infrastructures, not only in the traditionally more public service-oriented city of Vienna, but also in more neoliberal focused urban contexts such as Toronto. Platforms thus determine a new way of policy-making, not just discursively through a change in strategic planning visions, but also institutionally through changing agency and actor-constellations.

Although the official justification of Sidewalk Labs for abandoning the project in Toronto was financial uncertainty due to the global pandemic, experts in the field point to institutional challenges the company faced. Not only did the bottom-up movement of #BlockSidewalk and others resist the upcoming urban development plans, but the company itself never really got familiar with how urban planning is done in Toronto and which institutional factors have to be considered when planning a neighborhood, where a tripartite responsibility of city, province, and federal state have stakes in the decision-making process.

In Vienna the process for changing the institutionalization of technologies and platforms for urban planning agendas was far more subversive by slowly integrating strategic visions and collective actions into the urban planning practice. Not a single large-scale failed project spurred the increasing incorporation of technologies in urban planning, but a gradual shift of discursive and strategic changes due to increasing digitization over the last decades. Interestingly, inter-city competition is far more present in Vienna than in Toronto, represented by notions of Vienna wanting to become the European Digital Capital, whereas the discourse in Toronto focuses more explicitly on inclusion of different minority groups. Moreover, institutional changes in Toronto are more in line with municipalist ideas, as different

non-governmental organizations challenged traditional politics and the way platforms are integrated in urban planning agendas at least for the Sidewalk Labs project. However, neoliberal policies and surveillance capitalism are more engrained into everyday politics and planning in Toronto than in Vienna. Thus, it is arguable that the failed Sidewalk Labs project and the resulting skepticism about data security and surveillance issues was publicly discussed only in this one instance, while future planning processes might tend to keep quiet about these critical issues. Whether the institutional changes brought about by the failed Sidewalk Labs project will actually have far-reaching consequences for citywide planning remains to be seen.

In both cases, platforms have been predominantly used as an aid to urban planners and decision makers rather than as a tool to challenge current institutional political structures. Thus, as Anttiroiko (2021) argues, they probably won't be able to bring about radical transformation in urban planning. With more knowledge of public officials as well as non-governmental organizations on the functioning and effects of platforms, their potential could possibly be further realized in an urban planning context. However, the challenge for politics and planning is also, not only to develop their own take on platform urbanism, but also to balance power between different actors involved in the digitization of cities to avoid the marginalization of the public sphere's role in the digital development of the city.

References

Altenried, Moritz/Animento, Stefania/Bojadžijev, Manuela (2021): Plattform-Urbanismus: Arbeit, Migration und die Transformation des urbanen Raumes, in: *Sub\urban. Zeitschrift Für Kritische Stadtforschung* 9(1/2): 73-91.

Anttiroiko, Ari-Veikko (2021): Digital Urban Planning Platforms. The Interplay of Digital and Local Embeddedness in Urban Planning, in: *International Journal of E-Planning Research* 10(3): 35-49.

Artyushina, Anna (2020): Is civic data governance the key to democratic smart cities? The role of the urban data trust in Sidewalk Toronto, in: *Telematics and Informatics* 55. doi: https://doi.org/10.1016/j.tele.2020.101456.

Bannerman, Sara/Porter, Tony/Tan, Netina/Gabel, Chelsea/Budd, Brian/Midzain-Gobin, Liam/Goodman, Nicole/Ouellette, Devin/Shoker, Sarah/Tabassum, Nowrin/Frost, Catherine/Goguen, Marcel/Detlor, Brian/Stecula, Dominik/Joseph, Ameil/Zeffiro, Andrea/Orasch, Angela (2019):

Digitization & Challenges to Democracy. Globalization Working Papers 19/2. https://globalization.mcmaster.ca/research/publications/working-papers/2019/working-paper-oct-2019.pdf [17.02.2022].

Barns, Sarah (2018): Platform Urbanism Rejoinder: Why now? What now?, in: *Mediapolis. A Journal of Cities and Culture* 3(4). https://www.mediapolisjournal.com/2018/11/platform-urbanism-why-now-what-now/ [17.02.2022].

Barns, Sarah (2020): *Platform urbanism. Negotiating platform ecosystems in connected cities*, Singapore: Palgrave Macmillan.

Barns, Sarah/Cosgrave, Ellie/Acuto, Michele/Mcneill, Donald (2016): Digital Infrastructures and Urban Governance, in: *Urban Policy and Research* 35(1): 20-31.

Batty, Michael (2013): Big data, smart cities and city planning, in: *Dialogues in Human Geography* 3(3): 274-79.

Bauriedl, Sybille/Strüver, Anke (2020): Platform Urbanism: Technocapitalist Production of Private and Public Spaces, in: *Urban Planning* 5(4): 267-76.

Bauriedl, Sybille/Wiechers, Henk (2021): Konturen eines Plattform-Urbanismus. Soziale und räumliche Ausprägungen eines digital divide am Beispiel Smart Mobility, in: *Sub\urban. Zeitschrift Für Kritische Stadtforschung* 9(1/2): 93-114.

Brodnig, Ingrid (2018): *Lügen im Netz. Wie Fake News, Populisten und unkontrollierte Technik uns manipulieren*, Wien: Brandstätter.

Carr, Constance/Hesse, Markus (2020a): Sidewalk Labs closed down – whither Google's smart city? https://regions.regionalstudies.org/ezine/article/sidewalk-labs-closed-down-whither-googles-smart-city/ [04.08.2021].

Carr, Constance/Hesse, Markus (2020b): When Alphabet Inc. Plans Toronto's Waterfront: New Post-Political Modes of Urban Governance, in: *Urban Planning* 5(1): 69-83.

Chiappini, Letizia (2020): The Urban Digital Platform: Instances from Milan and Amsterdam, in: *Urban Planning* 5(4): 277-88.

City of Toronto (2021): Digital Infrastructure Plan (DIP). https://www.toronto.ca/city-government/accountability-operations-customer-service/long-term-vision-plans-and-strategies/smart-cityto/digital-infrastructure-plan/?accordion=dip-working-principles [04.08.2021].

Clement, Reiner/Schreiber, Dirk (2016): *Internet-Ökonomie. Grundlagen und Fallbeispiele der vernetzten Wirtschaft*, Berlin/Heidelberg: Springer.

Collier, Ruth Berins/Dubal, V. B./Carter, Christopher (2017): Labor Platforms and Gig Work: The Failure to Regulate. https://doi.org/10.2139/ssrn.3039742 [17.02.2022].

Cugurullo, Federico (2019): The origin of the smart city imaginary: from the dawn of modernity to the eclipse of reason, in: Lindner, Christoph/Meissner, Miriam (eds.): *The Routledge companion to urban imaginaries*, New York: Routledge/Taylor & Francis Group: 113-24.

Dolata, Ulrich/Schrape, Jan-Felix (2018): *Collectivity and Power on the Internet. A Sociological Perspective*, Wiesbaden: Springer.

Douay, Nicolas (2018): *Urban Planning in the Digital Age*, Hoboken, NJ: John Wiley & Sons, Inc.

Exner, Andreas/Cepoiu, Livia/Weinzierl, Clara/Asara, Viviana (2018): Performing Smartness Differently – Strategic Enactments of a Global Imaginary in Three European Cities (SRE-Discussion-2018/05). http://www-sre.wu.ac.at/sre-disc/sre-disc-2018_05.pdf [17.02.2022].

Flynn, Alexandra/Valverde, Mariana (2019): Where The Sidewalk Ends: The Governance Of Waterfront Toronto's Sidewalk Labs Deal, in: *Windsor Yearbook of Access to Justice* 36: 263-83.

Galperin, Hernan/Greppi, Catrihel (2017): Geographical Discrimination in Digital Labor Platforms. Advance online publication. https://doi.org/10.2139/ssrn.2922874 [17.02.2022].

Graham, Steve/Marvin, Simon (2001): *Splintering urbanism. Networked infrastructures, technological mobilities and the urban condition*, London: Routledge.

Heo, Cindy Yoonjoung/Blal, Inès/Choi, Miju (2019): What is happening in Paris? Airbnb, hotels, and the Parisian market: A case study, in: *Tourism Management* 70(2): 78-88.

Hollands, Robert G. (2015): Critical interventions into the corporate smart city, in: *Cambridge Journal of Regions, Economy and Society* 8(1): 61-77.

Janoschka, Michael/Mota, Fabiola (2020): New municipalism in action or urban neoliberalisation reloaded? An analysis of governance change, stability and path dependence in Madrid (2015-2019), in: *Urban Studies* 11(2). doi: https://doi.org/10.1177/0042098020925345.

Kadi, Justin/Plank, Leonhard/Seidl, Roman (2019): Airbnb as a tool for inclusive tourism?, in: *Tourism Geographies*. doi: https://doi.org/10.1080/14616688.2019.1654541.

Karvonen, Andrew (2020): Urban Techno-Politics: Knowing, Governing, and Imagining the City, in: *Science as Culture* 29(3): 417-24.

Kenney, Martin/Zysman, John (2020): The platform economy: restructuring the space of capitalist accumulation, in: *Cambridge Journal of Regions, Economy and Society* 13(1): 55-76.

Krisch, Astrid/Plank, Leonhard (2018): *Internet-Plattformen als Infrastrukturen des digitalen Zeitalters*, Wien: Kammer für Arbeiter und Angestellte für Wien.

León, Luis F. Alvarez/Rosen, Jovanna (2020): Technology as Ideology in Urban Governance, in: *Annals of the American Association of Geographers* 110(2): 497-506.

Leszczynski, Agnieszka (2016): Speculative futures: Cities, data, and governance beyond smart urbanism, in: *Environment and Planning A: Economy and Space* 48(9): 1691-708.

Leszczynski, Agnieszka (2019): Glitchy vignettes of platform urbanism, in: *Environment and Planning D: Society and Space* 38(2): 189-208.

Matern, Antje (2017): Smart City-Konzepte als Impuls zur Erneuerung städtischer Infrastrukturen?, in: Engels, Jens Ivo/Janich, Nina/Monstadt, Jochen/Schott, Dieter (eds.): *Nachhaltige Stadtentwicklung: Infrastrukturen, Akteure, Diskurse*, Frankfurt: Campus Verlag: 150-73.

Mora, Luca/Deakin, Mark/Reid, Alasdair (2018): Smart-City Development Paths: Insights from the First Two Decades of Research, in: Bisello, Adriano/Vettorato, Daniele/Laconte, Pierre/Costa, Simona (eds.): *Green Energy and Technology. Smart and Sustainable Planning for Cities and Regions*, Cham: Springer International Publishing: 403-27.

Mora, Luca/Deakin, Mark/Reid, Alasdair (2019): Strategic principles for smart city development: A multiple case study analysis of European best practices, in: *Technological Forecasting and Social Change* 142: 70-97.

Morozov, Evgeny/Bria, Francesca (2017): *Die smarte Stadt neu denken*, Berlin: Rosa Luxemburg Stiftung.

Neuts, Bart/Kourtit, Karima/Nijkamp, Peter (2021): Space Invaders? The Role of Airbnb in the Touristification of Urban Neighbourhoods, in: Suzuki, Soushi/Kourtit, Karima/Nijkamp, Peter (eds.): *Tourism and regional science. New roads*, Singapore: Springer: 103-25.

Plantin, Jean-Christophe/Lagoze, Carl/Edwards, Paul N./Sandvig, Christian (2018): Infrastructure studies meet platform studies in the age of Google and Facebook, in: *New Media & Society* 20(1): 293-310.

Rose, Gillian (2019): Smart urban: imaginary, interiority, intelligence, in: Lindner, Christoph/Meissner, Miriam (eds.): *The Routledge companion to urban imaginaries*, New York: Routledge/Taylor & Francis Group: 105-12.

Russell, Bertie (2019): Beyond the Local Trap: New Municipalism and the Rise of the Fearless Cities, in: *Antipode* 51(3): 989-1010.

Salet, Willem (2018): Institutions In Action, in: Salet, Willem (ed.): *The Routledge handbook of institutions and planning in action*, New York: Routledge/ Taylor & Francis Group: 3-23.

Schmidt, Vivien A. (2008): Discursive Institutionalism: The Explanatory Power of Ideas and Discourse, in: *Annual Review of Political Science* 11(1): 303-26.

Söderström, Ola/Mermet, Anne Cécile (2020): When Airbnb Sits in the Control Room: Platform Urbanism as Actually Existing Smart Urbanism in Reykjavík, in: *Frontiers in Sustainable Cities* 2(15). doi: https://doi.org/10.3389/frsc.2020.00015.

Söderström, Ola/Paasche, Till/Klauser, Francisco (2014): Smart cities as corporate storytelling, in: *City* 18(3): 307-20.

Srnicek, Nick (2017): *Platform capitalism*, Cambridge: Polity Press.

Stadt Wien (2019): Digitale Agenda Wien 2025: Wien wird Digitalisierungshauptstadt. https://digitales.wien.gv.at/digitale-agenda/ [17.02.2022].

Thompson, Matthew (2020): What's so new about New Municipalism?, in: *Progress in Human Geography* 45(2): 317-42.

Tusikov, Natasha (2020): Privatized Policymaking on Toronto's Waterfront, in: Valverde, Mariana/Flynn, Alexandra (eds.): *Smart Cities in Canada: Digital Dreams, Corporate Designs*, Toronto: James Lorimer & Company Ltd., Publishers: 68-82.

Valverde, Mariana/Flynn, Alexandra (eds.) (2020): *Smart Cities in Canada: Digital Dreams, Corporate Designs*, Toronto: James Lorimer & Company Ltd., Publishers.

van Dijck, José/Nieborg, David/Poell, Thomas (2019): Reframing platform power, in: *Internet Policy Review* 8(2). doi: https://doi.org/10.14763/2019.2.1414.

Vanolo, Alberto (2014): Smartmentality: The Smart City as Disciplinary Strategy, in: *Urban Studies* 51(5): 883-98.

Verschuren, Iris (2021): *The depth of the urban palimpsest: encountering sense(s) of place(s) in urban imaginaries from Little Jamaica to Quayside and Re-Sistering*. Master thesis. York University.

Vollmer, Lisa (2017): Keine Angst vor Alternativen. Ein neuer Munizipalismus. über den Kongress „FearlessCities", Barcelona 10./11. Juni 2017, in: *Sub\urban. Zeitschrift für Kritische Stadtforschung* 5(3): 147-56.