Cracks in the Sidewalk

Tactics and discourses driving the “smart city” development of Quayside

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Abstract

Many nations have begun implementing “smart city” initiatives, however Canada is at a more nascent and therefore critical phase. In late 2017, Waterfront Toronto and Sidewalk Labs (a sister company of Google) partnered on a joint venture to create a new “smart city” development called Quayside. As Toronto and other global metropolises move towards becoming increasingly “connected”, the promises of smart cities are beginning to give way to problematic realities. This research project explored the ethical and socio-economic implications of “smart” technologies and discourses. Specifically, it questioned how issues of equity and inclusion are approached by smart city discourses, and how the narratives are being utilized in the pursuit of legitimizing smart urbanism. By examining the proposal for Quayside, the research examined a case study of an emerging smart city development, revealing four themes: 1) the spectrum of visibility, 2) the myth of neutrality, 3) the inclusive techno utopia, and 4) the rise of technocolonialism. These four themes outline the discourse and tactics Sidewalk Labs has utilized in pushing forward an agenda of smart urbanism. The findings show that smart cities have the potential to exacerbate the inequity which already exist in cities, even reaching to a new wave of technocolonization. For equity seeking groups such as people of colour and those with low income, who have historically been the target of state scrutiny, violence and colonization, living in a smart city may carry the risk of becoming more vulnerable. What happens when one doesn’t fit into the techno utopia depicted in Sidewalk’s MIDP? This project is intended for those working to craft digital governance policy within municipalities, urban planners engaging in smart urbanism projects, and non-profit organizations seeking to understand how smart cities may affect equity-seeking populations. In light of these findings, they can make a difference in fostering a more equitable society.

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Chapter 1: Introduction

When cities work well, they are some of humanity's greatest accomplishments. They can inspire and unite us as nothing else but they can just as easily divide. According to the acclaimed urbanist Jane Jacobs (1961), cities have "a most intricate and close-grained diversity of uses that give each other constant mutual support" (p.14). This is in stark contrast to economist Edward Glaeser (2011), who views cities simply as "the absence of physical space between people and companies" (p.6). Perhaps the reality lies somewhere in between– "cities accelerate time by compressing space, and let us do more with less of both. They are where jobs, wealth and ideas are created" (Townsend, 2013, p.1). One thing is for certain, however– "things do not just happen in cities, they happen to a significant extent because of cities" (Soja, 2010, p.97).

80% of global GDP comes from cities, however, they consume two-thirds of the world's energy production and create up to 70% of all greenhouse gas emissions (Estevez, Lopes, & Janowski, 2016). In the coming years, the pressure on cities will only increase. By the year 2050, the earth's population will grow to an estimated 9.7 billion people (UNDESA, 2019) with approximately 68% living in urban areas (UN DESA, 2018). As global urban development intensifies, local governments are turning to private companies to provide cost-effective solutions in areas such as mobility, energy, sustainability, and security. Cities have emerged as a key strategic arena for the private sector (Albino, Berardi, & Dangelico, 2015), and have quickly become the focus of technology companies in particular.

Digital solutions are being developed for a wide range of applications– from managing city infrastructure to engaging citizens– and municipal governments are increasingly turning to them for support. While cities have been collecting and utilizing data for many years, tech providers offer a host of seductive "civic analytics", in the form of urban indicators, city benchmarking and real-time dashboards (Kitchin, Lauriault, & McArdle, 2016). The global "smart cities" market is expected to balloon

to over $158 billion by 2022 (IDC, 2018), with the world's largest engineering, tele-communications, and utilities companies– Cisco Systems, IBM, Toshiba, Siemans, among others– competing for smart urbanism projects (Townsend, 2013; Luque-Ayala, McFarlane, & Marvin, 2016).

Some organizations, however, already hold an implicit bias in whom they view as the beneficiaries of smart cities. For example, the World Economic Forum (WEC) identify the residents of smart cities as “global citizens…seeking enhanced interaction and multi-layered experiences, with technology the key enabler of cultural exchange and engagement” (2016). This description focuses on a specific, privileged set of individuals and leaves out a significant portion of urban populations– the poor, the unhoused, and the many others who may be forced to prioritize basic needs over “enhanced interaction”.

As the wealth gap between the elite “global citizen” and ordinary people widen (OECD, 2017; OECD, 2019), cities will face a variety of societal challenges. By then layering on privately created, “smart” technological systems, which may already be embedded with bias against the poor (Eubanks, 2018), the potential unintended consequences should be a cause for concern. What will it mean for those who already suffer from marginalization, to live in a city of ubiquitous technology that is neither designed for them or by them?

Canada in the spotlight

Toronto grabbed the world’s attention in late 2017 when Sidewalk Labs (a sister company of Google) and Waterfront Toronto and launched a joint venture to create a new “smart” neighbourhood called Quayside. It would be located in a small stretch of land within an area known as the Port Lands, along Toronto’s eastern waterfront. Through the Quayside project, Canada has become a significant point within the context of global smart city developments and initiatives.

There are very few “from scratch” smart city projects in existence, particularly in North America, and it is not every day that a global

technology giant like Alphabet (the parent company of Sidewalk Labs and Google) enters the smart city market in such a comprehensive way. In every corner of the earth, cities are turning to tech providers to reimagine their urban infrastructure. The world will be watching Toronto and the Quayside project to see what the next step in smart city development will be.

About this research

As global metropolises move towards becoming increasingly "connected", it becomes imperative to carefully evaluate the promises of smart cities. Quayside is meant to "serve as a model for sustainable neighbourhoods throughout Toronto and cities around the world" (Sidewalk Toronto, n.d.). It is a phenomenon that should be closely scrutinized, for it has the potential to shape the future of cities everywhere. This exploratory research project therefore seeks to better understand the reality of smart city developments by using Quayside as a case study. My primary research question asks– what are the ethical and socio-economic implications of "smart" technologies and discourses? In addition, how are issues of equity and inclusion approached by smart city discourses? Which narratives are utilized in the pursuit of legitimizing smart urbanism? And what power relationships are created in pursuit of a smart city?

Political economist Christopher Blattman (2017) states that "the best research changes the intellectual conversation" (as cited in Corrêa d'Almeida, 2018). Therefore, my goal is to widen the scope of the current critical rhetoric of smart cities, while also providing a deeper understanding of the agendas, tactics, and narratives utilized by technology providers to ensure the success of smart urbanism. Many organizations, practitioners, and scholars have formulated toolkits and frameworks to identify best practices in smart city planning or governance strategies– this is not my aim because it perpetuates dominant discourses. I am interested in what lies beyond popular concerns regarding smart cities. Data privacy, although crucial, is just one part of a much more complicated set of issues. This project is

intended for those working to craft digital governance policy within municipalities, urban planners engaging in smart urbanism projects, and non-profit organizations seeking to understand how smart cities may affect equity-seeking populations.

In the following pages, I lay out the results of my research. In this introduction, I have set the context in which I began my research. In chapter 2, I look at how place, identity and technology form overlapping and interlocking histories and in chapter 3, I review the drivers, approaches, and critiques of the smart city. In chapter 4, I identify the methodology that I utilize to carry out my research. In chapter 5, I present the findings of my academic inquiry. In the conclusion, I point to future arenas that will extend the findings from my research.

Chapter 2: Laying the foundation

This project sits at the juncture of place, identity, and technology. These themes not only define the boundaries of the research but also reveal the cross-disciplinary lens that was necessary in order to investigate the phenomena of the smart city in a deeper way. Therefore, the theories and concepts from fields such as science and technology studies, critical geography, critical race studies, postcolonialism, and urban studies ground the conceptual foundations of this work.

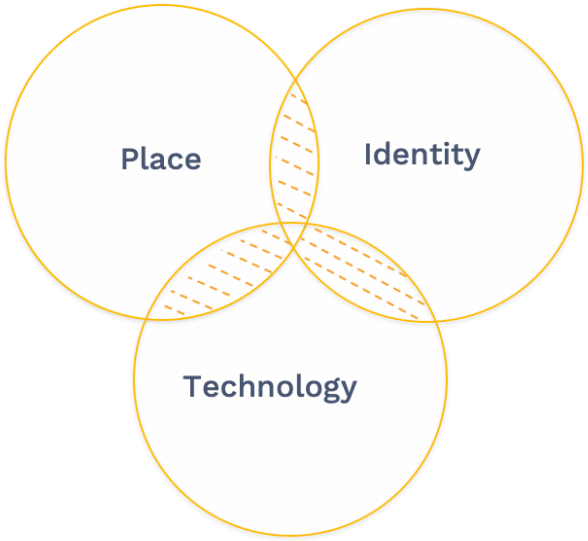

Figure 1: The conceptual foundation

Place & Identity

Agnew (1987) conceives “place” as having three aspects: (1) *location*- the role or function of a place compared to other places (Agnew, Shelley, & Pringle, 2003; Flint, 2016); (2) *locale*- the informal or institutional settings in which social relationships are negotiated (Agnew et al, 2003) and; (3) *sense of place*- the subjective and emotional meanings that are attached to a particular place (Cresswell, 2015).

Massey (1994) shares Agnew's view that to truly understand a place, it needs to be viewed in relation to other places, however; she emphasizes the fact that places are socially constructed and also temporal– and therefore always in flux. Massey (1994) views places as being an "ever-shifting social geometry of power and signification" (p.3), due to the differing positionality of those experiencing it. Positionality is the concept of a person's experience and worldview as informed by their identity markers (i.e. gender, sexuality, ethnicity, etc.), which are shaped by extrinsic forces (social, political) and shifting historical context (Alcoff, 1988). This creates "a simultaneous multiplicity of spaces: cross-cutting, intersecting, aligning with one another, or existing in relations of paradox or antagonism" (Massey, 1994, p. 3).

The postmodern philosopher Foucault (1972) traced how space, knowledge, and power intersect in ways that may be empowering or oppressive (Crampton & Elden, 2007). Soja (1980) describes this as the socio-spatial dialectic, with space, society and history being "mutually constitutive" (p.18). Sanders (1990) and Ruddick (1996) extend this work to demonstrate how "the interlocking violence of racism, patriarchy, heteronormativity, and capitalism constitute a spatial formation" (Mollett and Faria, 2018, p. 566) – the structural forces that generate inequalities and injustice (Young, 1990). This can be evidenced through the disastrous effects of discriminatory planning tools and policies such as Jim Crow laws, exclusionary zoning, and urban renewal/clearance projects that have been used against African-American and minority communities for over a century (Thomas and Ritzdorf, 1997). As demonstrated, injustice is manifested and maintained through space (Dikeç 2001) and colonialism in particular spawned myriad ways to do so.

Colonialism in its most basic form focused on the domination, extraction and exploitation of a subjugated nation's natural and human resources (Euteneuer, 2018) whereas settler colonialism centered specifically around the seizure of land through settler occupation (Wolfe, 2006). According to colonizers, land

rightfully belonged to and could be appropriated by those who had “earned it” through useful production (Bruce, 2015). Indigenous peoples’ engagement with the land was judged to be “insufficiently productive” (Bruce, 2015, p.28), and therefore available for occupation.

Colonizers engaged in a “forced forgetting” (p.279) that was systematized and implemented as multiple, concurrent strategies of erasure (i.e. conceptual, spatial, racial, political), rendering colonized peoples invisible in every way *(*Hall, 2008). They denied the existence of Indigenous societies, rights, and sovereignty (Buchanan and Heath, 2006) and intentionally engaged in the genocide of Indigenous peoples (Wolfe, 2006). This meant that the land would be rendered *terra nullis*– belonging to no one– which could then be acquired through occupation and “superior” exploitation under Eurocentric and colonial law (Buchanan and Heath, 2006).

A tactic to retain control over colonized land was the Roman maxim of *divide et impera*, to divide and rule, which the British utilized in maintaining power in India (Tharoor, 2017). By fomenting religious, caste, and ethnic divisions between people, the British kept communities from uniting to fight against their common enemy– the colonizers (Dutt, 1943). The complex legacy of colonialism can still be felt in India (Tharoor, 2017) and other former colonies today; however, “the reverberations of the past coexist with a thoroughly colonized present” (Hall, 2008, p.278). For example, decolonization is not yet a part of mainstream discourse in many places, including the USA (Mamdani, 2015). In fact, American public engagement has centered more around legal questions rather than an acknowledgement of the history and continued impacts of colonization (Euteneuer, 2018).

Technology & Place

Technology companies are starting to be viewed as a modern analog of colonial power (Couldry and Mejias, 2018; Jin, 2015; Kwet, 2019a; Lafrance, 2016, Simmons, 2015). Where once the British East India Company held sway over much of the world’s trade (Dalrymple,

2019), there is now Apple, Microsoft and Alphabet. They are the most valuable corporations on earth, reaching more than $1 trillion in market capitalization (Elias, 2020)– greater than the annual GDP of most nations (The World Bank, n.d.). These technology companies have capital, power, international reach– and are increasingly being treated as sovereign nations (Simmons, 2015).

Just like the historical colonial powers before them, technology companies have become increasingly interested in place, "...because what's on the ground has become big business" (Wroclawski, 2014, para. 4). Both Harvey (1973) and Lefebvre (1976) call attention to the "spatial fix"– how capitalism continuously turns to the urban environment as a mechanism of survival, to provide new markets and resources (as cited in Soja, 2010). From Google Maps to Airbnb to Uber, technology companies have invested in and amassed billions of dollars from the exploitation of place. It has also allowed them to access, collect, and capitalize on hitherto unimagined amounts of information on and about their users (Mann and Daly, 2018) practically anywhere, at any time, for their own purposes.

Technology companies have a vested interested in supporting what Lefebvre called a "bureaucratic society of controlled consumption", in which the state and the market are enmeshed in every aspect of normal urban life (as cited in Soja, 2010, p.96). In many ways, technology companies have achieved this; it has become increasingly challenging to participate in society without encountering a screen, an app, something "personalized", or "smart". For the first time, people have shifted from "using technologies to interacting with them" (Hildebrandt, 2015, ix), and have become adapted to life within an environment mediated by technology (Jewell, 2018).

Today, digitally connected devices are embedded in the very fabric of urban environments– an "everyware" (Greenfield, 2006) that is a condition of the "fourth

revolution" in urban infrastructure (Mattern, 2017). In 2015, Eric Schmidt, former executive chairman of Alphabet, asserted that "...the internet will disappear. There will be...so many devices, sensors, things that you are wearing, things that you are interacting with that you won't even sense it. It will be part of your presence all the time" (Smith, 2015). In providing this unified user experience, an "Invisible Empire" (Simmons, 2015) of tech companies will be able to shape society in accordance to their technocratic aims and profit incentives (Kwet, 2019).

Under historical colonialism, resource exploitation was defined and bound by physical geography; whereas a range of contemporary technologies have given tech companies the ability to surpass those limits (Couldry and Mejias, 2018). Cloud computing, advanced machine learning, the Internet of Things, and the proliferation of smartphones and apps have made it easier than ever to collect real-time data from people (Townsend, 2013). Zuboff (2019) describes the enormous potential profit that Big Data represents in creating products that predict behaviour. She describes how tech companies have moved from monitoring to "actuating"– strategically and subtly directing people towards the outcomes most profitable for the company.

Already, our current paradigm is one of tech companies that commodify human life in order to extract data for profit, contribute to and further entrench asymmetric power relationships, and participate in a system of global surveillance capitalism (Zuboff, 2019). These form the common characteristics of concepts such as data colonialism (Couldry and Mejias, 2018; Mann and Daly, 2018; Thatcher, O'Sullivan and Mahmoudi, 2016), technocolonialism (Fard, 2018; Madianou, 2019), and digital colonialism (Kwet, 2019a), which have been used to characterize not only the nature and actions of technology companies but also how digital technologies themselves are designed, produced, and implemented.

In pursuit of new markets, tech companies are leveraging terms such as *equality*, *democracy*, and *basic rights* to underwrite the necessity of

their products (Lafrance, 2016). For example, Facebook's Free Basics platform was touted as a way for India's poorest people to fulfill what the company considers a basic human right– access to the Internet (Lafrance, 2016). Indian activists protested that by providing free access to a limited set of websites, Free Basics would further entrench Facebook's monopoly and expose people to censorship and surveillance; regulators agreed, forcing the program to close (Kwet, 2019b). Marc Andreessen, a member of Facebook's board of directors, responded to this decision on Twitter– "Anti-colonialism has been economically catastrophic for the Indian people for decades. Why stop now?" (Lafrance, 2016). Andreesen later disavowed his comment, but the truth remains that there is a clear link between the global expansionist ambitions of technology giants and colonialism (Lafrance, 2016).

Identity & Technology

The effects of technology are not felt equally by everyone; however, the mainstream rhetoric doesn't always reflect that. Winner (1993) refuted the popular theory of technological determinism, that technology changes independently of society and are effectively neutral. Instead, he argued that technologies can be fundamentally political and designed deliberately or unknowingly to limit social choices (Winner, 1993). MacKenzie and Wajcman (1999) describe this as the social shaping of technology, in which technology and society are fundamentally intertwined. Therefore, technosystems are bound to target and affect social groups differently in regard to socio-economic consequences; what is optimal for one group may well be disastrous for others.

One of the first significant explorations into the interlocking nature of society and technology was in regard to identity. Cockburn (as cited in MacKenzie and Wajcman, 1999) found that technology was shaped by gender, and gender vice versa was shaped by technology. She discovered that gender bias often led people to disqualify the material artifacts and knowledge associated with women from being considered technology.

As men dominate technology and as women are excluded from the technical realm, Cockburn saw that it created a ripple effect– into the ways that tasks and machines were designed, domestic responsibilities, and the occupations that were deemed solely for men.

Women, visible minorities and manual workers have historically faced structural exclusion from technological development (MacKenzie and Wajcman, 1999), having very little if any involvement or say in the tools and systems that have come to govern life. Today, governments, banks, and many other organizations are engaging in practices of "dataveillance", predictive risk modelling and algorithmic policy decisions (Eubanks, 2017; Kitchin et al, 2016) to determine how people should be treated. Unfortunately, the network of politically and economically beneficial relationships between technology companies and algorithms, for example those behind search engines, produces gendered and racialized data discrimination (Noble, 2018).

Algorithms and big data reinforce and amplify social inequity by punishing marginalized communities (O'Neil, 2016) through carceral technologies (i.e. predictive-policing algorithms), or what Benjamin (2019a) refers to as "the new Jim Code" (2019b). Gandy's concept of the "panoptic sort" (as cited in Browne, 2015) describes how data collected on or about people, individually and collectively, "as citizens, employees, and consumers'" is used to "identify, classify, assess, sort, or otherwise control" in ways that selectively benefit some and deprive others (Browne, 2015, p.16). This digital "capture" and hypervisibility subject marginalized groups (i.e. women, people of color and the poor) to greater risks of surveillance and state violence (Eubanks, 2017; Afful, 2019).

Browne (2015) asserts that "racializing surveillance...where surveillance practices, policies, and performances exercise a 'power to define what is in or out of place'...reify boundaries, borders, and bodies along racial lines" (p.16). She traces the roots of racial surveillance back to European colonialism and

the transatlantic slave trade, which shaped social relations and institutions to privilege whiteness. The technologies used during slavery to "monitor and track blackness as property" (p.24)– such as lantern laws and plantation records– foreshadows the racializing surveillance used against people of colour today. For example, certain data practices in Australia– a colonial settler nation– are being targeted at marginalized and minority communities domestically and at its border, and at the less economically secure nations in the region (Mann and Daly, 2018).

Technology companies are currently capitalizing on surveillance products and services by finding a ready market in governments, law enforcement, and even property managers. Alphabet is providing U.S. immigration and border control agencies with the means to track, target, and ultimately mistreat asylum seekers and refugees (Elias, 2019). Police departments in Los Angeles utilize drones and camera feeds to monitor racialized neighbourhoods while Toronto is investing in a network of microphones to triangulate gunshots (Chuen, 2018). And with the rise of "prop tech", lower-income tenants of colour are already being targeted and harassed in cities across the US (McElroy, 2019; Fadulu, 2019). Surveillance technologies have even penetrated the home; smart home technologies are increasingly being utilized by perpetrators of domestic violence to monitor, harass, and exert control over their victims (Bowles, 2018). As one survivor of domestic abuse notes, "...not everyone has the privilege of 'nothing to hide'" (Anonymous, 2015).

Chapter 3: Exploring “smartness”

Vague is the new black

The “smart city” term first came into use in the mid-1990s (Söderström, Paasche, & Klauser, 2014), appearing alongside other neologisms such as “sentient cities”, “digital cities”, and “intelligent cities”. In the late 2000s, the use of the ‘smart city’ term gained momentum to become a global urban development paradigm (Angelidou, 2015; Söderström et al., 2014). The “smart city” label is unfortunately vague at best; multiple scholars have drawn attention to the lack of consensus on a universal definition of the term (Nam & Pardo, 2012; Ghaffarianhoseini et al., 2017) or what benefits they may offer (Hollands, 2008; Kunmitha & Crutzen, 2017). Subsequently, academics, practitioners, and commercial, governmental and international organizations have often created definitions and conceptual frameworks according to their particular perspective (Yigitcanlar et al., 2018).

The International Organization for Standardization’s (IOS) (n.d.) definition of smart cities is “integrated and interconnected strategies and systems to effectively provide better services and increase quality of life, ensuring equal opportunities to all and protecting the environment”. In contrast, Deloitte in their Real Estate Predictions 2017 report, views a city as smart “when investments in (i) human and social capital, (ii) traditional infrastructure and (iii) disruptive technologies fuel sustainable economic growth and a high quality of life, combined with thoughtful management of natural resources, through participatory governance” (p. 21). According to this definition, smart cities are tasked with not only driving the economy, but also fostering “disruptive” innovation, environmental sustainability and an engaged citizenship. In fact, smart city products and services have expanded to everything from e-government systems and urban dashboards to smart appliances (Kitchin, 2018). Both the

IOS and Deloitte's interpretations of a smart city speak more to what it *does* rather than what it *is*; however, the contrast between t he two offer a much deeper insight into the different ideologies driving smart city discourse – is it really an ideal model of urbanism or a corporate business plan (Yigitcanlar & Lee, 2014)?

The necessary conditions

Inspired by industrial innovations and scientific achievements, the late 19th century vision of futuristic cities were often of lavish mechanized utopias; such as Italian futurist A. Sant'Elia's "Citta̗ Nuova" (New City) which portrayed the city of 1913 as an efficient, fast-paced machine (Angelidou, 2015). By the late 1960s, the influence of cybernetics reimagined the city as a system of systems, primed for digital mediation and optimization (Forrester, 1969). Epcot Center, or the Experimental Prototype Community of Tomorrow, was Walt Disney's conception of a carefully engineered 1960s urban paradise which would encapsulate the best of industrial America's technological progress (Scola, 2018). Decades later, the 2008 global financial crisis sent tech providers searching for new markets for their products and they found it in bringing the "Citta̗ Nuova" to life (Kitchin et al., 2018).

Cities may not have become as welcoming of tech companies, however, if three things hadn't occurred. First, the world's urban and rural population became equal for the first time in history; more people were living in cities than ever before. Secondly, municipal governments found themselves needing ways to stretch their budgets, attract investment and revive the local economy during the same economic downturn that was affecting tech companies (Kitchin et al., 2018). And lastly, North American cities began to recognize the value of fostering knowledge and innovation as a competitive advantage (Angelidou, Gountaras, & Tarani, 2012) and shifted development from a post-industrial economy to the knowledge economy (Komninos, 2011). Researchers then began to explore how innovation functioned within a spatial context, trying to explain "why and how innovations concentrated in specific areas" such as Silicon Valley (Angelidou,

2015). If “the operations of cities could be purposefully designed to encourage the nurturing of knowledge” (Angelidou, 2015), then technology that supported achieving this goal would be seen as a significant and necessary component in ensuring the success of cities (Hollands, 2008).

The bigger picture

Smart city research is still fairly young, with the vast majority of the literature being published between 2010 and 2016 (Komninos & Mora, 2018; Kunmitha & Crutzen, 2017). Research from Europe and North America, based primarily in the computer science and engineering disciplines, are the greatest contributors to the field and therefore hold the most influence over its intellectual formation (Komninos & Mora, 2018; Estevez, Lopes, & Janowski, 2015). In Europe, universities are the leading producers of smart city scholarship, in contrast to North America where much of the research originates from private technology companies– specifically IBM and Forrester Research (Estevez et al., 2015). In reviewing the epistemology of the smart city field, it is clear that the frameworks, technologies, policies, and visions for smart cities around the world have their roots in technocentric and corporate agendas from the Global North.

There is a lack of consensus regarding nearly every aspect of the smart city– from the technologies that comprise it, the role of citizens and companies, to how it is planned and governed. For example, are Airbnb, Uber or Google Maps included as part of the smart city? Each city has a unique interpretation and implementation of “smartness”, there is no commonly agreed upon guidelines on how a city can “get smarter”, not to mention that “becoming smart” as a city means that there is no clear finish line (Whyte, 2014 as cited in Estevez et al., 2015). Developing a smart city therefore becomes a complex challenge in that it is continuously changing; in effect, it is a wicked problem. Estevez et al. (2015) illustrates this by adapting Rittel and Webber’s (1973) ten distinguished features of wicked problems and applying it to the smart city context– “i.e. a policy problem that cannot

be definitely described, where there is no undisputable public good, with no objective definition of equity, with no policies that are meaningfully correct or false, and without optimal solutions to social problems" (p. 116).

Despite or perhaps *because* of the ambiguity surrounding smart cities, most authors in the literature approach it from a technology-driven perspective (Yigitcanlar *et al*, 2018; Kunmitha & Crutzen, 2017)– focusing on promoting the implementation of technology in practically every aspect of the urban realm. They advocate for smart cities as a means of delivering resource efficiency, managing volatility and risk, reducing crime and insecurity, and increasing citizenship engagement through e-governance (Townsend, 2013). They also emphasize the possibilities for economic growth, greater innovation, ecological sustainability, human capital development, and an edge in urban competitiveness (Angelidou, 2015). The potential of technology is even extended beyond cities, into such contexts as "smart citizens", "smart mobility", "smart living", and "smart governance" (Caragliu et al, 2011). This technology-driven approach has supported the growth of the corporate vision of the smart city (Hollands, 2016), spurring "a new urbanism in which IT solution providers try to persuade city governments to support urban innovation and development by adopting their proprietary smart technology" (Komninos & Mora, 2018, p.11).

The technology-driven approach is shifting, however, as the human driven perspective becomes mainstream. This approach holds a different view regarding the role of technology, corporations, and civil society in smart city development than the technocentric perspective (Komninos & Mora, 2018; Kunmitha & Crutzen, 2017). In this context, technology is used to promote a citizen-centric model of development that pledges to foster social innovation and social justice, civic engagement, and transparent and accountable governance (Townsend, 2013). A smart city in this vision is one that promotes a smart society, functioning as a living lab where urban innovation would be co-created by communities (van Waart,

Mulder, & de Bont, 2015). This “Smart City 2.0” aims to be “the next generation of urban evolution”, “moving beyond just connected infrastructure and smarter things, the smart cities of tomorrow engage governments, citizens, visitors, and businesses in an intelligent, connected ecosystem” (Eggers & Skowron, 2018).

Critical scholarship of smart urbanism, while still emerging, are a third and altogether much smaller voice in the literature. While the technology and human driven approaches may hold differing perspectives on how smart cities should be built, ultimately they are united in their support of it as an aspirational goal. Critical researchers instead have identified a range of issues with the smart city concept itself, the consequences that have resulted from governments pursuing a smart urbanizing agenda, and have examined the ways digital technologies influence and reframe perceptions of the city (Marvin, Luque-Ayala,& McFarlane, 2016). Through their work, these authors attempt to unpack, demystify, and contextualize smart city initiatives.

Common critiques

Governance has been one of the earliest topics to receive attention from scholars of all approaches, whether technocentric, human-centred, or critical. Batty et al (2012) described a growing debate on the decentralization of governance in the digital age. They saw a need for new organizational infrastructure for smart cities, with the role of governments and the private sector shifting to collaboratively provide services. Urban planning (through smart cities) would expand its purview to include provision of utilities, access to services, health and education.

Critical scholars responded to this proposal very differently. They asserted that the private tech–public governance model would not be an equal partnership and instead would result in a confluence of power that would decidedly benefit technology providers– not citizens (Kitchin et al, 2018). In fact, the smart city

movement has been criticized for its historically top-down attitude to urban development (Calzada & Cobo, 2015) and a number of scholars have shown how the utopian urbanism of smart cities have advanced neoliberal, and technocratic forms of governance (Sadowski & Bendor, 2019; Grossi & Pianezzi, 2017; Jazeel, 2015; Greenfield, 2013).

Corporations such as Cisco and IBM specifically have received close scrutiny in the literature (Sadowski & Bendor, 2019; Wiig, 2016; Söderström et al., 2014). These enormous organizations account for a number of activities in smart urbanism; they propose and plan smart cities, lobby political representatives to serve their interests, and then create and sell the products which are rolled out in governments and the public. In this system, citizens and their communities are the ones who are the least powerful and in effect lose the right to their city in myriad ways (Kitchin et al, 2018; Moser, 2015).

There is real danger of nations leaving the root causes of major social issues unaddressed, in order to focus on smart city development. Datta (2015) contends that smart cities function more as a business model for technology providers rather than a means for cities to achieve larger social objectives, as they have been marketed. In fact, it has been found that nation states exacerbate social inequity by impinging on the rights of marginalized communities in order to encourage and assist smart city development. As part of India's 100 smart cities initiative, for example, new laws were quickly enacted to fast-track land acquisition (or dispossession) so that companies would find it easier to build smart cities (Datta, 2015). This is in fact one of the few case studies depicting how smart cities intersect with the social shaping of technology, in which the socio-economic consequences of technosystems target and affect social groups differently (MacKenzie and Wajcman, 1999).

Smart cities have also played a role in enabling "panoptic surveillance, predictive profiling and social sorting" (Kitchin et al, 2016):

> Digital CCTV, retail checkout tills, smart phones, online transactions and interactions, sensors and scanners and social locative media– produced by government agencies, mobile phone operators app developers, internet companies, financial institutions, retail chains and surveillance and security firms– all generate massive amounts of detailed data about cities and their citizens. (p. 47)

What may have been hidden or unknown is now subject to a panopticon– an all-seeing gaze; for the first time, municipal governments are presented with the ability to design human behaviour on a massive scale (Batty et al, 2012). The data is often repurposed and used in ways that were never intended when generated. For instance, exploited and sold by data brokers, employed to socially sort and redline populations, and used to reshape behaviour through anticipating future actions (Kitchin, 2014). The smart city therefore requires "a new power geometry" between all stakeholders (Vanolo, 2014) in order to mitigate the potential harms such technology may have.

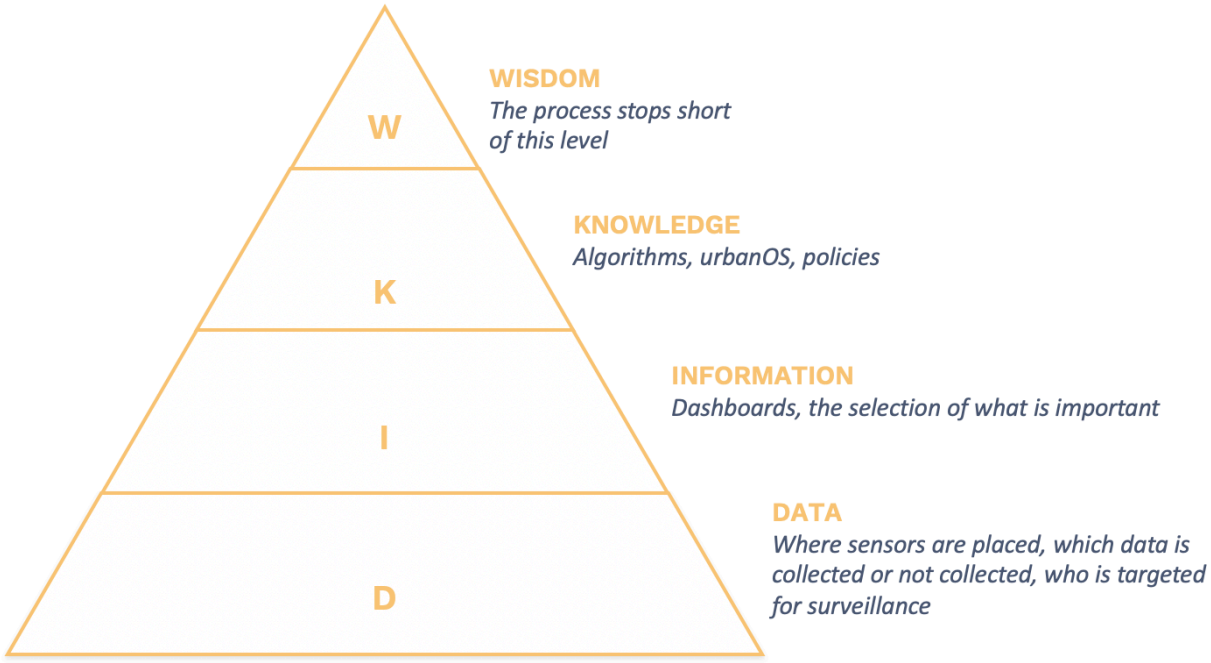

Figure 2: Bias in traditional technological data value extraction

Modelling the smart city

In his book, *The Data Revolution* (2014), Kitchin discusses how the generation of data and the uses they are put to are intrinsically imbued with ethical, social and political imperatives. Using the Data, Information, Knowledge, Wisdom (DIKW) model (Ackoff, 1961), I visualized how Kitchin and other scholars (Buolamwini & Gebru, 2018; Eubanks, 2019; O'Neil, 2017; Noble, 2018) have found bias in every part of the traditional technological data value extraction process– as seen above in Figure 2. These authors explicate how the location of sensors, what data is collected and then selected for visualization, and how algorithms are trained, are all decisions

with human experiences and motivations attached to them. This “reflection of the priorities, the preferences, and also sometimes the prejudices of those who have the power to shape technology” is what Buolamwini refers to as the "coded gaze” (as cited in Feloni, 2019). In pursuing techno-solutionism, however, governments contribute to a perception of data and algorithms as objective and non-ideological, which allow smart city projects to appear politically benign and neutral (Kitchin et al, 2016).

The DIKW model itself, however, has flaws. While being a fundamental model of information and knowledge systems and management, aspects of it have been heavily debated (Rowley, 2007; Kitchin, 2014). One of the main points of contention is that the nature and definition of each level is inconsistent, particularly that of “wisdom” (Rowley, 2007). Despite its position as the ultimate goal of the DIKW model, it is the least well defined (Rowley, 2007). Ackoff viewed “wisdom” as evaluated understanding, imbued with aesthetic and ethical values while Zeleny defined it as “knowing why”, (as cited in Rowley, 2007). In the smart city, however, the “why” is black-boxed in proprietary corporate algorithms and the ethical values still remain to be seen. A second criticism of the DIKW model is the fact that it is represented as a pyramid and therefore hierarchical (Rowley, 2007). Given the literature regarding smart cities, the hierarchical representation of data value extraction doesn’t hold up. In earlier chapters, we have seen how valuable data has become; how it is used as a mechanism to predict and then manage behaviour and thereby directly affects future data– this feedback loop is illustrated in Figure 3 below.

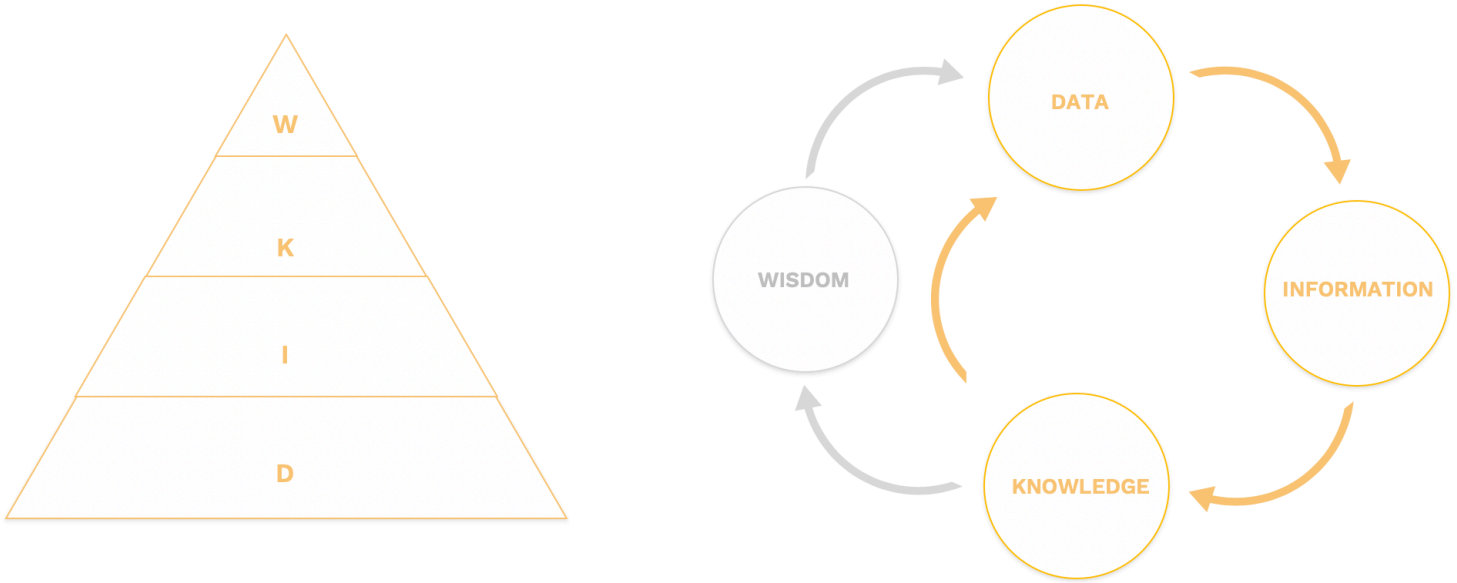

Figure 3: The smart city Data Information Knowledge feedback look

In Ackoff's original model, he had included a level he called "understanding", below wisdom; however, scholarly consensus proceeded to interpret understanding not as a separate level, but as a support to the transition from one level to the next (Rowley, 2007). Ackoff had felt that understanding was significant, and necessary to wisdom (as cited in Housworth, 2004):

"One can survive without understanding, but not thrive. Without understanding one cannot control causes; only treat effect, suppress symptoms. With understanding one can design and create the future ... people in an age of accelerating change, increasing uncertainty, and growing complexity often respond by acquiring more information and knowledge, but not understanding."

Ackoff believed that only the level of wisdom dealt with the future and constructing future visions (Housworth, 2004). Looking at the reconfigured DIKW model (Figure 3) it is concerning that the smart city's algorithms have the potential to create opaque data-driven futures for its residents.

Future imaginaries of the past

The rhetoric of smart urbanism is grounded in "seductive and normative visions of the future where technology stands as the primary driver for change" (Luque-Ayala et al., 2016, p. 1). In these visions, urban issues are reconfigured as engineering problems to be analyzed and solved using quantitative methods which privilege "urban phenomenon that can be measured and are deemed important enough to measure" (Bell, 2011, p.73 as cited in Söderström et al., 2014). These techno-romantic (Coyne, 1999) futures promise "unprecedented efficiency, connectivity, and social harmony through embedded sensors, ubiquitous cameras and beacons, networked smartphones, and the operating systems that link them all together" (Mattern, 2017).

The smart city's "corporate architects" sell their products as a means of achieving these technocentric utopias (Angelidou, 2015), offering a way to cure cities of their inefficiencies and "urban pathologies" (Soderstrom et al., 2014, p. 308). Townsend (2013) states that "by labelling their own visions of cities as smart, technology giants today paint all others' as inferior" (p. 107). "Smart" futures, however, are untenable due to the nature of ongoing technological progress; the proposed vision of the future (and the goal post of what it means to be "smart") is constantly pushed forward (Corrêa d'Almeida, 2018). The smart city movement therefore utilizes these futures strategically; cities are meant to keep "'versioning' toward an optimized model ever on the horizon" (Mattern, 2017), never to achieve reality.

Chapter 4: Methodology

Research approach

The interdisciplinary and ever-evolving nature of the smart city field holds real ramifications for researchers. Since an unequivocal definition of the smart city does not exist, and it's benefits and risks are contested, the problem area itself is therefore ill defined and still emerging. The volume of new frameworks, recommendations, and initiatives being launched by any number of stakeholders (governments, organizations, or scholars) seems to be increasing exponentially. In addition, as smart city developments are continually being launched, upgraded and expanded, there is no "baseline" for researchers in studying this phenomenon. Consequently, it becomes very difficult to assign a discrete boundary in order to determine a project's scope.

Problem finding and problem framing, already two of the most important activities that designers and researchers engage in, are therefore paramount in deciphering the smart city. Of the seven modes in Vijay Kumar's (2012) design innovation process, four are devoted to research and analysis. These are the phases where we begin to understand the nature and complexity of our problem space. It is critical that we identify and reframe issues correctly in order to adequately exercise levers of change. For complex challenges, it requires looking at the stakeholders, relationships, processes and systems that make up a phenomenon. In the instance of the smart city, it requires "looking at the corporations driving it forward, looking at the cities whose demands influence the services and systems developed, and looking at the deep partnerships that are formed between corporations and cities" (Sadowski, 2016). This research project therefore focuses on a case study, with complementary qualitative research methods– expert interviews, observations, critical discourse analysis, and descriptive value mapping.

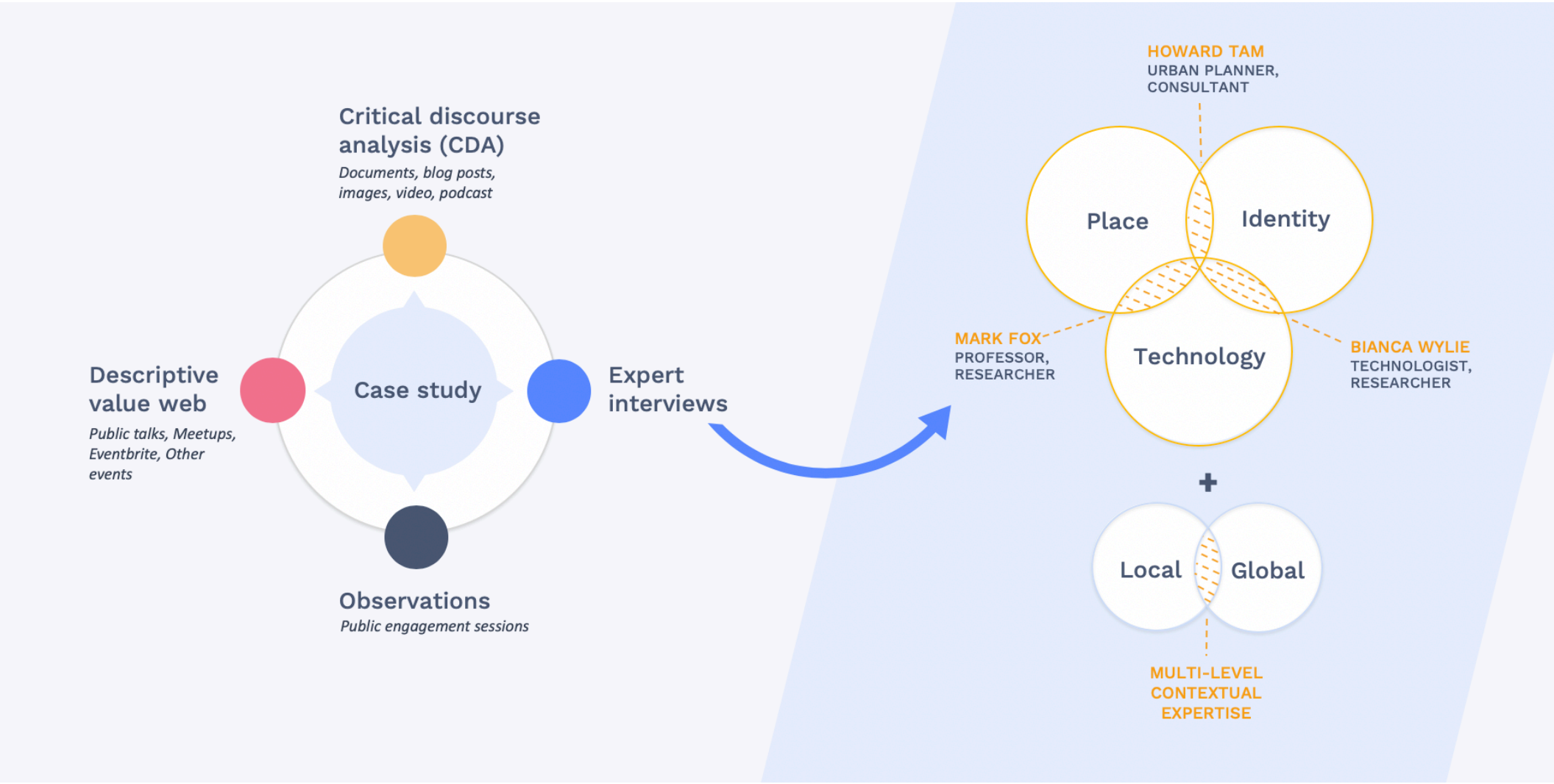

Figure 4: Research methods and expert interviews

Case Study

The case study method is “as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used” (Yin, 1984). Case studies allow for the exploration of a complex issue through analyzing a finite number of events or conditions and their relationships (USCLibraries, n.d). The detailed qualitative accounts often produced in case studies not only help to explore or describe the data in a real-life environment, but also help to explain the complexities of real-life situations which may not be adequately captured through experimental or survey research. Sadowski (2016) calls the smart city “...a world-in-the-making. It exists in a halfway space/time: partly existing in a possible future and partly being built in the present” (p.16), never fully materializing. As case studies are well suited for exploratory research focused on the study of emergent practices (Zainal, 2007), this method is particularly useful for examining smart city phenomenon.

In the smart city scholarship, there are a number of case studies. They have focused primarily on either critiquing multinational technology companies such as IBM and Cisco (Söderström, Paasche, & Klauser, 2014; Wiig, 2015; Sadowski & Bendor, 2019), or on specific initiatives such as India’s 100 smart cities challenge (Datta, 2017) and new “greenfield” developments such as New Songdo, South Korea (Halpern, LeCavalier, Calvillo & Pietsch, 2013). In the case study outlined in this project, I follow in the footsteps of these scholars in examining Sidewalk Toronto (a brownfield development) which is being proposed by Alphabet Inc (a major new entrant in the market, poised to disrupt the hold of the established technology providers).

Expert Interviews

Expert interviews are often a complementary research method and utilized for a number of objectives throughout the duration of a study—for example, to become better oriented with the field or to validate findings (Flick, 2009). Conducting expert interviews during the

initial discovery phase of a project can be more efficient than other data collection methods, especially if the experts serve as "crystallization points" for practical industry knowledge and function as proxies for a larger set of stakeholders (Bogner, Littig & Menz, 2009). Expert knowledge "not only consist of systematized and reflexively accessible specialist knowledge, but it has the character of practical knowledge in big parts" (Bogner & Menz, 2002, p. 46). The experts were interviewed to gain insight into their knowledge which is publicly available.

This research project sits at the juncture of place, identity and technology; as such, each expert interviewed was selected in accordance to how their knowledge and practice aligned to the three aforementioned subject areas. The experts also represented a range of stakeholder groups in the smart city discourse – urban planners, academics, technologists, policy researchers, consultants and engineers. Interviews were conducted at the beginning of the project as a means of gaining insight into two levels of context: the macro, industry-specific perspective as well as the micro, Toronto specific case.

Technology & identity

Bianca Wylie

Bianca is the co-founder of Tech Reset Canada and is a Senior Fellow at the Centre for International Governance Innovation in the Global Economy program. She worked for several years in the tech sector in operations, infrastructure, corporate training, and product management, most recently at Thomson Reuters. In 2014, Bianca founded the Open Data Institute Toronto. She is a columnist, guest lecturer, and speaker on open government and public sector technology policy and a member of the Toronto Public Library's Innovation Council.

Identity & place

Howard Tam

Howard Tam is a designer and urban planner, based in Toronto, Canada. He is the founder and principal at ThinkFresh Group, a city building consultancy. Howard has worked with government and private sector clients in Canada to facilitate community engagement and development processes that co-create urban spaces to enhance human experiences. Howard is interested in exploring the future of cities and how we might design them (and the emerging technology) to better adhere to human values and experiences.

Place & technology

Mark Fox

Dr. Fox is a Distinguished Professor of Urban Systems Engineering, and a Professor of Industrial Engineering and Computer Science at the University of Toronto where his current research applies Artificial Intelligence to Smart Cities. He is the Associate Director (Research) in the School of Cities at the University of Toronto. Dr. Fox is a Fellow of the Association for the Advancement of Artificial Intelligence (AAAI), the Institute of Electrical and Electronics Engineers (IEEE) and the Engineering Institute of Canada.

Critical Discourse Analysis

Critical discourse analysis (CDA) considers the contextual use of language to be essential to understanding society (Wodak & Meyer, 2001). Fairclough and Wodak (1997) view discourse as "a form of social practice" that is “socially constitutive as well as socially conditioned- it constitutes situations, objects of knowledge, and the social identities of and relationships between people and groups of people” (p. 258). Habermas (1977, p. 259) concluded that “language is also a medium of domination and social force. It serves to legitimize relations of organized power” (as cited in Wodak & Meyer, 2001). CDA focuses specifically on the relationship between language and power, critically analyzing “social inequality as it is expressed, signalled, constitute, legitimized and so on by language use (or in discourse)” (Wodak & Meyer, 2001).

Fairclough (2003) believes that “texts have social, political, cognitive, moral and material consequences and effects” (p.14). The documents and media produced by Sidewalk Toronto therefore hold greater significance beyond their stated purpose. These discursive materials are a crucial source in not only gaining a better understanding of what the smart city might entail, but also the vision of the possible futures it promotes. By analysing the video, reports, and proposals created by or on behalf of Sidewalk Toronto (please see Table 2 in the Appendix for a list of documents), this study examines how social inequity may be codified and further exacerbated in smart cities.

Observations

Observation as a research method has had a long history in qualitative research and as such has been systematized in its application (Goffman, 1961 as cited in Flick, 2009). The argument for utilizing observation posits that it enables researchers unfiltered access to practices as they occur, whereas interviews and narratives only allow access to the memory of the practices (Flick, 2009). There are a number of frameworks available to provide structure for recording observations; for example, Spradley’s 9 Dimensions of descriptive observation (1980) or eLab’s AEIOU heuristic (Wasson, 2000). The framework used in this study is POEMS (people, objects, environments, messages and services) by Kumar and Whitney (2003). POEMS was used as an organizing structure to note elements such as demographics, roles, behavioral traits, atmosphere, language, tone, interactions, etc.

In conducting observations, there are a number of methodological decisions to be made (Spradley, 1980), for example- covert versus overt observation, natural versus artificial situations, and self-observation versus observing others. The observations carried out for this study involved observation of public events that were organized by either Sidewalk Toronto or Waterfront Toronto (please see Table 1 in the Appendix for a full list of events). These events consisted of public talks or consultations to provide project updates and

gather feedback from attendees, all but one of which were live-streamed and later available online. In consideration of research ethics, I did not record one-on-one interactions that I had with other attendees. As a covert observer of these public events, I restricted data gathering to presentations from organizers and commentary directed to the entirety of the audience. While covert research is not ideal and should not be undertaken lightly, it is sometimes unavoidable; for example when conducting a study in a public setting (as this was), where it would not be feasible to gain informed consent from everyone in the setting (Economic and Social Research Council, n.d.).

Descriptive Value Web

Donella Meadows (2008) once observed that "Systems can't be controlled, but they can be designed and redesigned" (p.169). One of the first steps in understanding a system is to analyse it's structure, through its major actors (Gharajedaghi, 2011). A descriptive value web is a design method which visualizes the relationships between stakeholders in a system by mapping how value is created and exchanged between them (Kumar, 2013). Descriptive value webs are not a comprehensive systems map, however; they are more like "snapshots" of a dynamic system. It is commonly illustrated as a network diagram in which stakeholders are depicted as nodes, connected by links identifying the value flowing from one node to the next. Money, information, materials, and services comprise some of the most common value flows (Kumar, 2013); however, in this study I have incorporated Gharajedaghi's (2011) five dimensions of a social system (wealth, power, knowledge, beauty, and values) to form a hybrid framework for my value mapping. The basis for the mapping was derived from documents and event listings on the Sidewalk Toronto website, social media, and news articles. By looking at the interconnections (Meadows, 2008) which tie different stakeholders together, the descriptive value web method further informs this study's research approach of critique, "making visible the interconnectedness of things" (Fairclough, 1995, p.747 as cited in Wodak & Meyer, 2001).

Limitations

The limitations in my study lie in the scope and breadth of its conception. I did not conduct ethnographic interviews with stakeholders, whether it be Sidewalk Toronto, Waterfront Toronto, residents, or non-profit groups. I chose to focus on the phenomenon of the smart city itself and therefore stayed at a fairly high level in my analysis. I would argue however, that in doing so my study contributes to a better understanding and context-ualization of the problem space while also providing a stronger foundation on which to approach interventions. Organizational and systems theorist Russell Ackoff (1981) once stated, “We fail more often, not because we fail to solve the problems we face, but because we fail to face the right problem” (as cited in Gharajedaghi, 2011, p.142). The critical analysis of the smart city phenomenon undertaken in this study hopes to provide more clarity on just what the right problems are– and for whom.

Chapter 5: The cracks in the Sidewalk

Sidewalk Labs began a process of public engagement in October of 2017 by kicking off a town hall the likes of which no public sector project has even dreamed of. As I walked up to the Sony Center for the Performing Arts in downtown Toronto, the lines snaked down the block while protesters held up signs calling for greater housing affordability. Inside, it looked as if every single chair in the venue was occupied. There was an excitement in the air that could only be felt in the presence of a rock star; Google had come to Toronto and they were going to be doing incredible things for the city. Two years later, the public engagement that Sidewalk Labs pledged $50 million USD towards have produced the 1,496 pages, four volume monstrosity that is the Master Innovation and Development Plan (MIDP). This document, along with Sidewalk Labs' blog posts, videos, and live engagement sessions help reveal the values and intentions that underlie the Quayside project, and what implications they may hold when combined with smart city technologies.

This research combined critical discourse analysis, expert interviews, observations, and descriptive value mapping to unearth four key themes: 1) the spectrum of visibility, 2) the myth of neutrality, 3) the inclusive techno utopia, and 4) the rise of technocolonialism. Each of these four themes address discourse and tactics that Sidewalk Labs have utilized in pushing forward an agenda of smart urbanism. What emerges is a picture of an organization that is smart, flexible in utilizing the narratives that serve them best, and committed to realizing a testbed "city of the future" along Toronto's eastern waterfront.

1. The spectrum of visibility

The subjects of erasure and hypervisibility construe a tension that serves to highlight the contradictory nature of smart urbanism. On one end of the spectrum, history and even people have been erased from the site now being called Quayside. On the other, the people living, working and visiting Quayside are to be under ubiquitous surveillance, submitting to

the datafication of every facet of their lives. Both strategies serve the purpose of helping to craft the narratives that are of interest to those who hold power.

Erasure

The Port Lands are often spoken of as an underused (and thereby useless) collection of industrial buildings: *"...the eastern waterfront is largely a storage ground whose remaining industrial structures serve as a testament to the difficulty of large-scale urban development"* (Sidewalk Labs, 2019, MIDP Volume 0, p.43). This ignores the thousands of years of Indigenous settlement and history that precedes it, part of the history and tactics of settler colonialism. In fact, until the publishing of the MIDP (nearly twenty months after the start of the project), Sidewalk Toronto not only did not have a land acknowledgement as part of their websites, documents, or live events– there was very little mentioned in regard to this history or Indigenous peoples at all. While land acknowledgments may be considered to be empty and tokenistic by some, the fact that even this small gesture was missing for so long is telling.

It was in the 1870s that the Ashbridges Bay Marsh, once the largest natural wetland on the Great Lakes, started undergoing infilling in anticipation of the development of a massive industrial and shipping district, major waterfront park and cottage community (Waterfront Toronto, n.d.). While the first materialized, hopes for the latter two never did. Currently, the Port Lands still function as an active port, as well as being one of the centers of Toronto's (or Hollywood North's), significant film production industry. It was also the site of Tent City, an informal settlement of people without homes, that was forcibly disbanded in 2002 (Crowe, 2017). There are still unhoused people who currently call Quayside home, even though the Sidewalk Toronto project *"talk about Quayside like no one lives there,"* as one public engagement participant remarked. Another observed: *"They mention Canary Wharf a lot. Canary Wharf has no homeless people because the private police force goes and*

removes them." The Port Lands and Quayside are not *terra nullis*, but it is more convenient to make it so (see theme four– the rise of technocolonialism).

Hypervisibility

Smart cities run on data and the ability to collect, store, and process it. For Sidewalk Labs, *"...smart buildings must be able to recognize every last room, hallway, motion sensor, key fob reader, light bank, thermostat, and appliance inside them and to network them together"* (MIDP Volume 2, p.317). The smart buildings in Quayside, however, are meant to be mixed use: *"Measuring precise patterns across various tenant types can help inform more realistic goals for energy usage in buildings that have a mix of homes, offices, and shops..."* (MIDP Volume 2, p.402). This is in addition to the data collected in public, as well as:

> *"...information collected in privately owned but publicly accessible spaces, such as building lobbies, courtyards, some parks, groundfloor markets, and retail stores. And it can include information collected by a third party in private spaces, such as data on tenant or building noise, air quality, and energy use"* (MIDP Volume 2, p.402).

This blurs the lines between public and private, and sets up the conditions for ubiquitous surveillance– all in the name of sustainability. The only opt out option available regards whom your data gets shared with, not that it is collected in the first place. This also disproportionately affects renters, particularly in light of:

> *"...entities must submit a map with the proposed locations of all data-collection devices, such as sensors or cameras. (This requirement would not apply to private owners or tenants of residential units or houses, such as those installing home security cameras for personal safety reasons.)"* (MIDP Volume 2, p.433)

Not only will renters not need to be informed if their landlord installs a device collecting their data in their home, but they also have no control over whether it is there in the first place. Historically, data systems have been used to target the poor and marginalized, further reinforcing inequity (O'Neil, 2016; Eubanks, 2018) while anti-black surveillance through technology can be traced back to the colonial era with slaves needing to adhere to lantern laws (Browne, 2015). Sidewalk Labs *"commits to not disclose personal information to third parties, including other Alphabet companies, without explicit consent"* (MIDP Volume 0: The Overview, p.84), Alphabet is also one of the tech firms currently providing services to U.S. immigration and border control agencies that have been tracking, targeting, and mistreating asylum seekers and refugees (Elias, 2019).

With the rise of "prop tech" (property management systems), lower-income tenants of colour are already being targeted and harassed in cities across the US (McElroy, 2019; Fadulu, 2019). In Quayside:

> *"...the Home Scheduler could take a proactive role in managing the home operating systems, devices, and appliances...The proposed tool would also generate a data feed for households to understand the actions being taken — and to override them, if they wish."* (Sidewalk Labs, 2019, MIDP Volume 2: The Urban Innovations, p.322)

This type of software can easily be taken advantage of by someone with ill intent. For example, smart home technologies are increasingly being utilized by perpetrators of domestic violence to monitor, harass, and exert control over their victims (Bowles, 2018).

In the nearly 1,500 pages of Sidewalk Labs' Master Innovation and Development Plan (MIDP), the word "surveillance" appears just three times. The terms "smart city" or "smart cities" occurs fifteen times. Compare that to the word "data"– with 1,300 instances, and what emerges seems to be an attempt to minimize the association of Quayside with some of the most significant criticisms ofsmart

urbanism. Previously, in an old iteration of their website and during in-person events, Sidewalk Labs had presented the following diagram to describe the structure of Quayside:

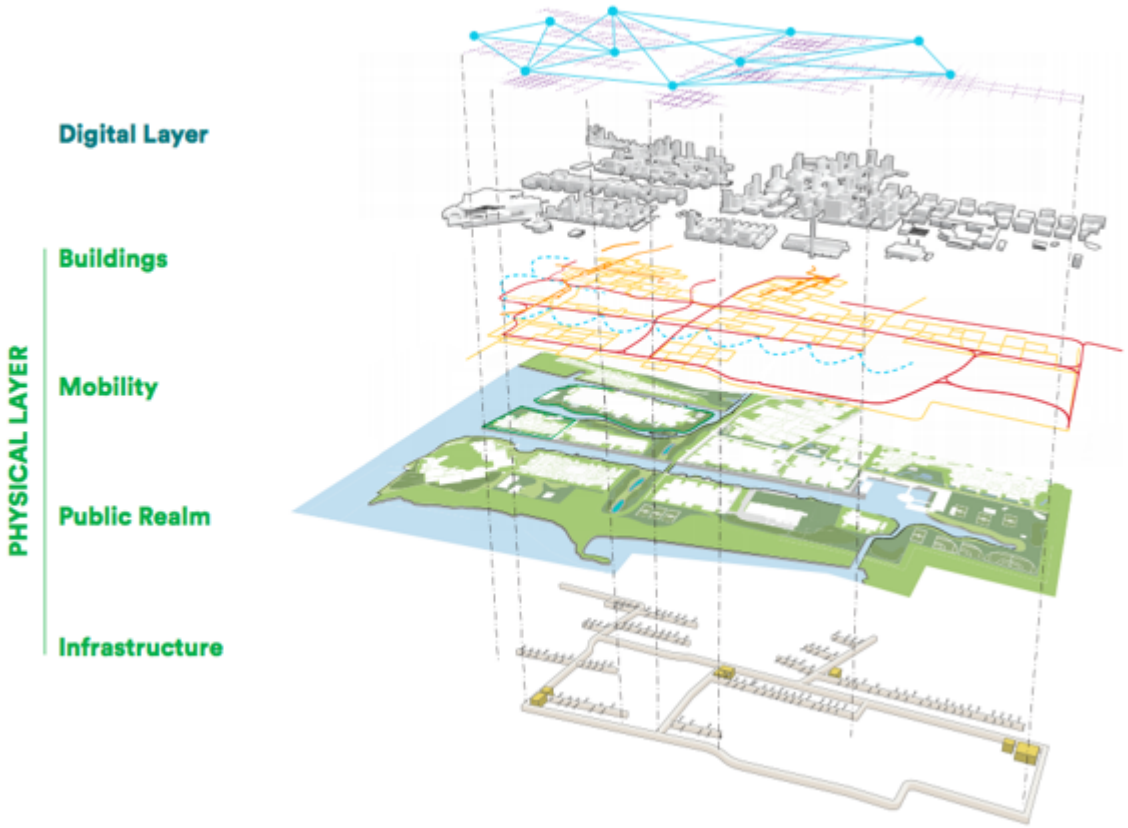

Figure 5: The structure of Quayside (Sidewalk Labs, 2018)

This diagram is intriguing for a number of reasons. It refers to a spatialized hierarchy, with the “digital layer” taking precedence over the “physical layer”, which is composed of buildings, mobility, the public realm, and infrastructure. This digital layer is the command structure, the top-down control mechanism which all else must answer to. What this diagram leaves out are the people that are enveloped within this all-encompassing gaze. "Google search optimization is people paying to be more visible than others," according to Dr. Safiya Noble (2019) but in the smart city context, visibility is not a choice that people are allowed to make. In the MIDP, Sidewalk Labs states that *“Partnered with proper enforcement, real time monitoring would create a responsive code system that would protect neighbourhood safety…”* (MIDP Volume 2, p.252). The question, of course, is safe for whom? And at what (or whose) cost?

2. The myth of neutrality

Another issue that has shaped the Sidewalk Toronto discourse are the assumptions surrounding neutrality. According to the Merriam-Webster dictionary, the word “neutral” has the following meanings: (1) “not engaged on either side, specifically: not aligned with a political or ideological grouping” and (2) “of or relating to a neutral state or power”. In the case of Sidewalk Labs, neither one of these conditions are true. Firstly, in regard to ideology, smart cities have been shown to be aligned with neoliberal and technocratic forms of governance (Greenfield, 2013). Secondly, Sidewalk Labs is not a neutral organization; it is a private company owned by one of the largest tech conglomerates in the world – *“Sidewalk Labs is a for-profit but mission-driven company backed by Alphabet’s patient capital”* (MIDP Volume 0, p.64).

Alphabet is not interested in building smart cities for altruistic purposes. In 2013, Larry Page (the CEO of Alphabet and co-founder of Google) revealed an ambition that seems to

have laid the foundation for Sidewalk Labs and its presence in Toronto:

> *"There's many, many exciting and important things you could do that you just can't do because they're illegal or they're not allowed by regulation…But maybe we should set aside a small part of the world…I think as technologists we should have some safe places where we can try out some new things and figure out what is the effect on society, what's the effect on people, without having to deploy it, kind of, into the normal world"* (Google Developers, 2013).

This "testbed urbanism" (Halpern, LeCavalier, Calvillo, and Pietsch, 2013) is envisioned as a way to circumvent regulation for Alphabet's benefit. Sidewalk Labs' very antecedents are biased, but it does not reveal that in the MIDP: *"Sidewalk Labs is an Alphabet company (and a sibling company of Google) founded in 2015 for the very purpose of delivering dramatic improvements in urban life"* (MIDP Volume 0, p.64). In reality, Sidewalk Labs was founded as a tech enclave where Alphabet would be free to do what it willed.

The close relationship that Sidewalk Labs enjoys with its parent company should be construed as a clear conflict of interest. Instead, it is repeatedly used as a value proposition in the MIDP. In fact, this very beneficial relationship is touted as two of Sidewalk Labs' three core capabilities:

> *"A second factor that makes Sidewalk Labs unique is that, as a subsidiary of Alphabet, it has an ability to invest in long-term projects."* (MIDP Volume 0, p.64)

and

> *"A third aspect that makes Sidewalk Labs unique is its ability to leverage its approach to urban innovation as well as its relationship with Alphabet to create jobs and new industries that lead to inclusive economic growth…"* (MIDP Volume 0, p.65).

So where does Sidewalk Labs start and Alphabet (or Google) begin? The answer is, wherever it is most convenient for them. On the one hand, *"The role for Sidewalk Labs should capitalize on its unique combination of strengths... its access to capital and technological resources, including from its parent, Alphabet"* (MIDP Volume 3, p. 27). On the other hand, Sidewalk Labs *"commits to not disclose personal information to third parties, including other Alphabet companies, without explicit consent"* (MIDP Volume 3, p. 23). How could Sidewalk Toronto possibly achieve both conditions at once? How do they hope to leverage the resources of Alphabet without joining the trade in personal data that the fortune of the company is built on?

Sidewalk Labs tries to manage this cognitive dissonance by strategically utilizing feedback gathered from their public engagement sessions. Relatively early in the MIDP, the following quote appears:

> *"'I think I understand the concern about privacy. I share it, too. But in the overall scale I am positive about it, because I think of technology as a tool. Technology does not have a life of its own. It's humans who decide how it gets used to the benefit or detriment of society. I believe that through proper governance we will strive for good.' Ray J., Willowdale"* (MIDP Volume 0, p.79)

Ray may be unfamiliar with the social shaping of technology, a theory in which MacKenzie and Wajcman (1999) first linked the influence that society has on technology and vice versa. Technologies, like societies, are not neutral. There are power relationships that are baked into the very design of technological systems, unconsciously but also at times deliberately, that can continue to be self-reinforcing. Yet the myth of neutrality perseveres and in the case of Sidewalk Labs, serves as a narrative that allows them to position smart urbanism and all its accompanying technologies as fairly benign. In this narrative, it is human nature, intention and poor governance that we must

be careful of– not the vested interests of one of the largest multinational corporations in the world.

Ray's quote also serves to re-center the public's focus on the issue of privacy and data governance, which have been the primary focus in mass media, instead of the many other critiques of smart urbanism. Unfortunately, this has had a number of ramifications. First, these concerns are founded on the assumption that data collection will occur (Goodman & Powles, 2019) which has allowed Sidewalk Labs to keep the discourse focused on mitigating privacy risk, rather than whether it is appropriate to even collect data in the first place. Second, it masks the fact that data collection itself is biased, and that there are beliefs and assumptions that enter into every stage of the traditional tech data value extraction model.

To Sidewalk Labs' credit, they do recognize that:

> *"The continued development and use of AI systems raises digital governance challenges that go beyond privacy. It is possible for organizations to be in full compliance with privacy laws yet still use data in ways that could impact people in harmful or unexpected ways"* (MIDP Volume 2, p.411).

The key words being used are *"*digital governance challenges". The concerns associated with AI systems go far beyond digital governance, however it behooves Sidewalk Labs to center the discourse on this specific topic. Their solution is to create a *"Responsible AI framework guided by six overarching principles that are contextual, progressive, and applicable to all types of technology (existing and future)"* (MIDP Volume 2, p.411). These principles are: "fairness and equity", "accountability", "transparency and explainability", "relevance", "value alignment", and "respect for human dignity". While these ideals are laudable, before they can be applied to designing AI they have to be applied to the project itself. The multiple criticisms that have plagued the Sidewalk Toronto project fall within the scope of many of these principles. Sidewalk Labs needs to

adhere to and practice these values in all aspects, before expecting others to follow them in regard to AI.

It is possible to get a sense of Sidewalk Labs' actual values through another quote that was strategically selected from their public engagement sessions:

> *"'If we are successful Toronto can be a model for other cities. There are lots of concerns, but they can all be managed. We can create standards that are better than what we have now. Let's build it so that people will come and say: 'Wow!' 'Jack G., Sunnyside"* (MIDP Volume 0, p.81)

Actually, there are many concerns that cannot just be managed, and they certainly won't be resolved by simply creating better standards. We should not just go ahead and build it; we do not live in the era of "move fast and break things". The Quayside project is not benign– it is replete with biases, assumptions, and vested interests at every level, but Sidewalk Labs is trying its best to convince the public otherwise. And there is evidence that their campaign may be working– *"A lot of the criticism has been about the tech. A lot of things don't need to be transparent,"* remarked one public engagement participant. It is true, there are things that may not need to be transparent – city building however, particularly in the smart city context isn't one of them; it requires not only transparency but also accountability (Valverde, 2018).

3. The inclusive techno-utopia

A third narrative which suffuses the Quayside project is the ideal of a new, inclusive techno-utopia, in which Sidewalk Labs places themselves in the role of the benevolent advisor. The seeds of this grand vision can be seen in this quote that the company selected from a public engagement participant, as featured in the MIDP:

> *"'The challenge is to find ways for technology to help foster a sense of community. That*

seems utopian but it's possible. ... We can find a way to make it happen. I think Toronto can be a global model for a new kind of technology that helps keep us human.' Annick B., West Hill (Lawrence Avenue East and Kingston Road)" (MIDP Volume 0, p.77)

Essentially, the directive of this future global utopia is to find ways to use technology in spaces that don't actually need it– in creating community and preserving humanity. In reviewing the MIDP, it became clear that there are a lot of ideas and goals that can be addressed without technology. In fact, the first volume of the MIDP opens with a poem that confirms it (p.7):

"When we ask Torontonians
what they dream about for
their future neighbourhoods,
we don't hear about dreams
of jetpacks and flying cars.
We don't hear about
21st-century modern
high-rises and flashy finishes.
What we hear are dreams
that are far more basic,
more human,
more fundamental"

If that is the case, why will technology be necessary to address these issues? When contrasted with the repeated statement that this project is not technology for technology's sake, the two narratives don't cohere. From the literature, it is known that the smart city's "corporate architects" sell their products as a means of achieving technocentric utopias (Angelidou, 2015). The ideal vision was once of cities that were "cured" of inefficiencies and "urban pathologies" (Soderstrom et al., 2014, p. 308), whereas the new dominant narrative has shifted to one of technology as the great unifier. That is not to say that the old directive of "curing" cities has gone away; to the contrary, it is just as foundational to the marketing of smart technologies, only given a new "diversity" twist:

> *"While every city faces these problems in its own way, the symptoms are consistent: places that are less livable, affordable, and sustainable — with fewer chances for the broadest diversity of residents to thrive. As these challenges rise, so too has the opportunity to address them using emerging digital and physical capabilities, including ubiquitous connectivity, artificial intelligence, and sensing tools, as well as new design and fabrication techniques, including the use of robotics."* (MIDP Volume 0, p.57)

Sidewalk Labs is framing Quayside as part of the new wave of smart cities, which promote a citizen–centric model of development that pledges to foster social innovation, and function as a living lab where urban innovation is co-created by communities (Townsend, 2013; van Waart, Mulder, & de Bont, 2015). In fact, Sidewalk Labs prefers not to use the term smart city– *"It reflects this early-21st century arrogance, that all that's gone before is obsolete,"* states Rohit Aggarwala, the head of urban systems (Bliss, 2018). Instead, "inclusive communities" have become de rigeur:

> *"The IDEA District would create the conditions that bring people together, not pull them apart. These conditions can help create an inclusive community — a group of people who share a sense of belonging, trust, safety, and collective stewardship in a place where everyone feels welcome and has an opportunity to flourish and thrive."* (MIDP Volume 0, p.151)

The value proposition of smart cities has clearly evolved; gone are the days where the sole pursuit of efficiency and economic growth was enough to convince municipal governments to pursue a smart urbanism agenda. The word "community" appears in the MIDP 848 times, while the word "economic" occurs 754 times. While the economy and job creation are both still major drivers of the Quayside project, they are being delivered alongside promises of social gains.

In a previous version of the Sidewalk Toronto website, in older documents, and during live events, there was a phrase that would be used proudly and frequently –*"...Quayside, the world's first neighbourhood built from the internet up"* (Sidewalk Labs, 2017, p.15). That phrase does not appear anywhere in the MIDP. Instead, the narrative has shifted from being technology-centric to community-centric – *"the best solutions to urban challenges come not from the top down but rather from the community up"* (MIDP Volume 0, p.63). The word "community" appears extensively throughout the MIDP. It is used with utopian connotations, imbuing the term with a sense of cohesion and positivity that flattens the reality. For instance, *"...communities as social structures host a multitude of formal and informal relationships and mechanisms that often limit participation, access, and resources, advancing certain members and subjugating others"* (Donahue, 2014).

As with organizations engaging in "greenwashing" or "pinkwashing" (Schwartz, 2011), Sidewalk Labs is utilizing "ethics-washing" as another way to gloss over the critiques of smart urbanism. There are entire sections in the MIDP dedicated to *"Committing to Diversity, Equity, and Inclusion"* (MIDP Volume 0, p.150), filled with beautiful illustrations featuring people of different skin tones, ages, genders (well, the binary really), religions, and abilities. This is an echo of their very first video, "Introducing Sidewalk Toronto", where Toronto is showcased as a model of diversity. Within the first ten seconds of the video, however, a resident proudly states, *"I always ask someone where they come from and eventually I ask them how to say hello in their language".* The implication is that the speaker, an older Caucasian man, is the "default" Torontonian and those that he perceives as being different are from elsewhere; are "other".

Sidewalk Labs paints a picture of a techno-utopia, within which they are a force of inclusion and belonging by bringing together *"...physical spaces, trusted delivery partners, and digital complements to enable a healthy and engaged community where everyone can grow, thrive, and*

belong" (MIDP Volume 0, p.95). In the very same vision, however:

> *"Municipal enforcement could be performed via traditional methods used by the City of Toronto today, or improved by providing enforcement agencies with better information and tools (such as recommended areas where violations are more likely) or systems that enable the city to perform automated enforcement (such as vehicle transponders or license plate readers)."* (MIDP Volume 2, p.452)

Who would want to follow "traditional methods" when cities can have "better information and tools?" Here, Sidewalk Labs is engaging in a sales pitch for predictive policing and automated justice, which have been proven to disproportionately and adversely affect communities of colour (Benjamin, 2019; Eubanks, 2018). In addition, their *"'outcome based' building code system would monitor noise, nuisances, and structural integrity in real time to help a mix of residential and non-residential uses thrive without sacrificing public safety or comfort"* (MIDP Volume 0, p.109). This thinly veiled panopticon would have the "power to define what is in or out of place" (Browne, 2015, p.16), what or whom constitutes a nuisance. Given the current trend of property management tech being used to harass lower-income tenants of colour (McElroy, 2019; Fadulu, 2019), the question remains as to whose preferred outcome will be given precedence.

In the MIDP, the words "partner" and "partnership" appears 609 times; the word "justice" never appears at all. In the case of Quayside, the rhetoric of diversity and inclusion are used to augment the image of Sidewalk Labs as a benign and benevolent advisor, simply hoping to create *"A new type of partnership to catalyze inclusive growth in the digital age"* (MIDP Volume 0, p.196). In reality, Quayside is meant to be the newest iteration of a techno-utopia, only with the veneer of diversity and inclusion to make it palatable.

4. The rise of technocolonialism

This last theme exposes the role that technological colonialism has played in the Quayside project. Alphabet has never hidden their ambition to expand their reach into the physical world, and created Sidewalk Labs in order to allow the company to compete with the likes of Cisco and IBM. The MIDP makes Sidewalk Labs' ambition to scale up and out very clear. While there are financial reasons for this, the company has a much larger vision in mind. They have co-opted communities and strategically utilized the language of the tech industry to sell this vision. In doing so, Sidewalk Labs and Alphabet have continued to engage in a new form of colonialism- technocolonialism- in order to shape the future of cities.

Companies selling smart city technology have historically portrayed governments as having too main constraints and too many procedures to truly be able to innovate. As with Quayside, they position themselves as the experts, and tout solutions that will solve all types of urban issues, while also providing jobs:

> *"While every city faces these problems in its own way, the symptoms are consistent: places that are less livable, affordable, and sustainable — with fewer chances for the broadest diversity of residents to thrive. As these challenges rise, so too has the opportunity to address them using emerging digital and physical capabilities, including ubiquitous connectivity, artificial intelligence, and sensing tools, as well as new design and fabrication techniques, including the use of robotics."* (MIDP Volume 0, p.57)

Governments see tech as the new economic development engine, and "they don't want to be seen as standing in the way of progress, of stifling innovation" explains Bianca Wylie (2018). She goes on to state that "the implicit idea that cities have bought into is that more tech and data capacity is beneficial and will lead to beneficial effects" (2018). The "cash-in pitch", as Bianca Wylie puts it, is for governments to put their incredible accumulation of data to use by becoming an innovation

platform, creating "*a new economic engine that drives outsized job growth on an accelerated timeline"* (MIDP Volume 0, p.156).

The seductive language of the tech industry is woven throughout the MIDP- the words "innovation" and "innovative" appear 1,848 times, and the word "new" occurs even more frequently – 1,957 times. Other techno-marketing terms, such as "catalyze", "transform", and "accelerate" are sprinkled liberally throughout the MIDP documents. "To talk of innovation, is to talk of settling the future" (Benjamin, 2019b), and Sidewalk Labs makes it clear that they have much more at stake than just Quayside, or even the Port Lands:

> *"Toronto's eastern waterfront presents…an extraordinary opportunity to shape the city's future and provide a global model for inclusive urban growth."* (MIDP Volume 0, p.35)

> *"Toronto is the perfect place to demonstrate forward-thinking planning and drive the future of urban development in the digital age."* (p.52)

> *"…as a company, Sidewalk Labs believes there is no better opportunity in the world to show the way forward for the future of cities."* (p.241)

"There is a race that Canada needs to win," states Alberto Leon-Garcia during a panel on smart cities at the 2018 Designing Enabling Economies and Policies (DEEP) conference. *"Rapid development in smart city tech is going to come from China. Canada can be a fast follower or we can be a leader."* This rhetoric of competition, of the need to exploit smart city technology first is echoed in the MIDP:

> *"The successful execution of the highly detailed plan would produce the most innovative district in the world…All together, more than five dozen innovations would be*

combined in a single place for the first time, creating a global model for combining cutting-edge technology and great urban design to dramatically improve quality of life." (MIDP Volume 0, p.36)

What is driving the urgency to become the global model? There are two main motivators. First, the first-mover advantage allows global technology companies to set regulations that then get rolled out to the rest of the world- "...which is a form of US imperialism", reveals former Facebook security officer Alex Stamos during his talk at the 2019 Collision Conference in Toronto. Second, developing nations are fast becoming "the focal point of a new industry of the future" (BBC, 2019), as smart city solutions help them "leapfrog" development. Brand new smart cities are much more prevalent in Asia than in Western countries. Sidewalk Labs, through Alphabet, could be in a very strong position to dominate this emerging market, especially after using Quayside as a *"testbed for how to harness new technological insights to improve urban life"* (MIDP Volume 3, p.120).

With so much at stake, Sidewalk Labs has borrowed from the playbook from one of the largest imperialist structures of our time- the British Raj in India. One of the British Raj's main tactics had been to divide and conquer, by turning Indian ruling aristocrats against one another and co-opting them to their cause (Tharoor, 2017; Dutt, 1943). Over the two years that Sidewalk Labs has been operating in Toronto, the company has been busy in public engagement efforts. By visualizing the relationships between the various organizations that Sidewalk Labs has interacted with through a descriptive value web (see Figure 6 below), it is possible to see how the British Raj's tactic worked in Toronto. The map reveals a complex interdependence that has been bought through age old imperialist methods- land, power and wealth. In trying to co-opt different communities, Sidewalk Labs has caused or further entrenched community divisions, making a united opposition to the Quayside project that much more difficult.

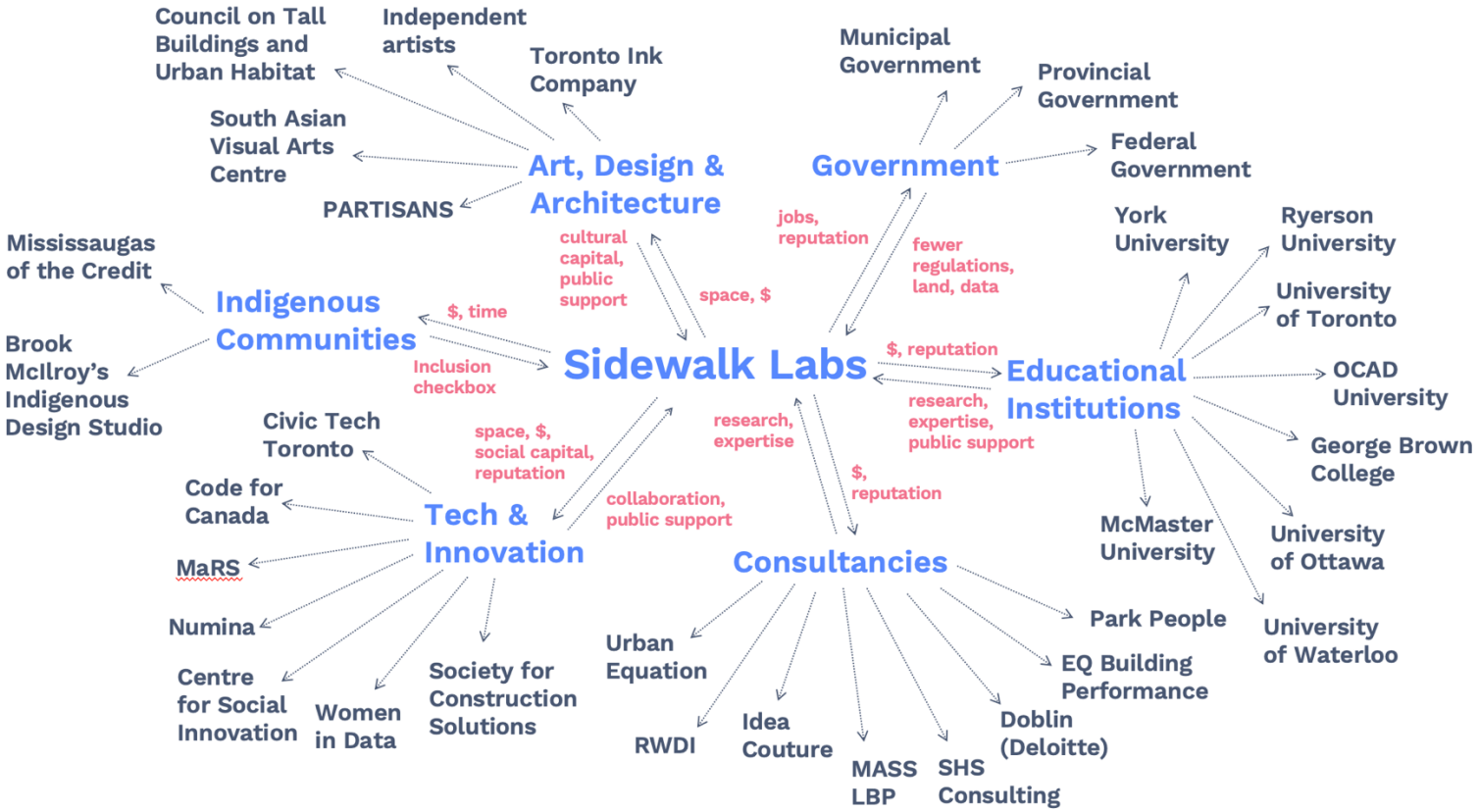

Figure 6: The six degrees of Sidewalk; a descriptive value web of Sidewalk Labs' partnerships

Summary

Four key themes emerged from this research: 1) the spectrum of visibility, 2) the myth of neutrality, 3) the inclusive techno utopia, and 4) the birth of an empire. The first theme identified the twin tensions of erasure and hypervisibility and how they allow Sidewalk Labs to be nimble in crafting a narrative that will best serve their needs. The second theme addresses the societal perception that technology is neutral, and how Sidewalk Labs have leveraged that to focus attention on mitigating the risks of data collection, rather than the ethics and need for data collection in the first place. The third theme reveals how Sidewalk Labs employs ethics-washing to frame themselves as an advisor-partner that will help ensure that the city meets its goals in an inclusive, sustainable way while also driving economic growth. And finally the fourth theme connects the ambitions for Quayside to the imperial agenda driving Alphabet, and the colonial methods they have utilized to ensure the success of the project.

Chapter 6: Conclusion

This project sits at the convergence of many "firsts" – the first time a major technology company like Alphabet has gotten seriously involved in smart cities; the first time a "from scratch" (not retrofitted) smart city initiative is being developed in North America; and it is also Canada's first steps towards building a brand new smart city with a private tech firm. As such, it was an opportunity to investigate history in the making. There were many crucial discussions around data privacy and digital governance in regard to the Quayside project, but I was interested in widening the scope of the conversation.

This research project therefore sought to explore the ethical and socio-economic implications of "smart" technologies and discourses. Specifically, it looked at how issues of equity and inclusion are approached by smart city discourses, the narratives being utilized in the pursuit of legitimizing smart urbanism, and the power relationships created in pursuit of a smart city. By examining the proposal for Quayside, it was possible to ground the research in a case study of an emerging smart city development. The subsequent analysis revealed four key themes: 1) the spectrum of visibility, 2) the myth of neutrality, 3) the inclusive techno utopia, and 4) the rise of technocolonialism. These four themes outline the discourse and tactics Sidewalk Labs has utilized in pushing forward an agenda of smart urbanism.

The research outlined how erasure and hypervisibility were deployed tactically in order to craft the narrative that would be of most value to Sidewalk according to their needs. The findings then showed that Sidewalk Labs' leveraged society's overriding perception of technology being neutral to focus attention away from their vested interests and towards specific issues of their choosing, such as data privacy. This research also showed how inclusion is being used as a means of "ethics-washing", and to portray Sidewalk Labs as a benign partner. Lastly, the research found that

Sidewalk Labs utilized colonial methods of conquest– through the new wave of techno-colonization– in order to ensure success for the Quayside project, matching Alphabet's expansionist agenda.

Based on this research, smart cities seem to have the potential to exacerbate the inequity which already exist in cities. The findings depict the smart city as a place where residents will be subjected to multilayered surveillance, for the privilege of living in a "city of the future". For equity seeking groups such as people of colour and those with low income, who have historically been the target of state scrutiny and violence, living in a smart city may carry the risk of becoming more vulnerable. What happens when one doesn't fit into the techno utopia depicted in Sidewalk's MIDP?

The tactics and narratives utilized by Sidewalk Lab have the potential to become worldwide phenomenon and it is crucial that researchers question the agenda that they are in service of. This was only partly the impetus for this research project, however. The rest came from the gap that exists in smart city literature, in identifying the human costs and ethical and societal implications of smart urbanism. What research does exist focuses on the role of data, and fewer involve a case study of the birth of a brand-new smart city. As such, the hope is that this project can support a shift to a more critical stance on smart urbanism and inform the approach taken by municipalities, urban planners, and non-profit organizations as they engage in crafting smart city policies and practices.

My research scope was limited by the fact that I did not speak directly to stakeholders, whether it be Sidewalk Labs, Waterfront Toronto, municipal governments, or residents of Toronto. A corporate ethnography of Sidewalk Toronto, however, would be an interesting next step in extending this project. It would allow for a deeper understanding of how the tactics, narratives, and agendas identified in this project came to be and shaped the planning of Quayside. A co-creation and foresight workshop with city residents

would also be another way to carry this project further. It would be another way to disseminate the research findings but also to engage community members in creating grounded strategies to mitigate the impacts identified.

Recommendations

In reframing the smart city model in chapter three, it became clear that making space for alternative futures, from voices outside the mainstream would be necessary to counter the growing power of smart urbanism to shape the future of cities. Indigenous futurism, Chicanofuturism and Afrofuturism, which focuses on people of colour and often deal with subjects of systemic oppression, therefore allow for ways of "reimagining the default settings – codes and environments – that we have inherited from prior regimes of racial control, and how we can appropriate and reimagine science and technology for liberatory ends" (Benjamin, 2019, p.195). Foresight, and the creation of alternative futures can combat the hegemonic single story (Adichie, 2009) and allow people to regain control of their narrative.

MacKenzie and Wajcman (1999) warned that a passive attitude towards technological change directs us to focus on how to adapt to technological change, and not on how to shape it. Mark Surman, the executive director of Firefox, reminds us of this in his remark – "Whether our remaining waterfront is developed by Sidewalk Labs or someone else, it is clear that sensors and data collection will be part of the package" (n.d.), and he is not alone in this assertion. This resignation towards the inevitability of a technology needs to be resisted; people need to be reminded of their power to shape their world and their futures. As legal scholar Derrick Bell states, "[t]o see things as they really are, you must imagine them for what they might be" (as cited in Benjamin, 2019, p.195).

Municipal governments must also begin to re-evaluate their role and the power they hold. They can reimagine how they relate to constituents; instead of a service

administrator, might they see themselves as conveners and connectors, or as catalysts for not just economic growth but social growth? Instead of focusing on creating community, they can focus on creating or supporting a “unity of will”, which “acknowledges specific agendas, interests, concerns, as well as our own positions...issues of scale, participation, trust, ownership, systems, and evaluation, as well as the political ramifications of these issues and others” (Donahue, 2014). City governing bodies have the power to literally make space and foster a more equitable society. They can truly listen and acknowledge the concerns raised by grassroots collectives such as Stop LAPD Spying Coalition, CryptoHarlem and Our Data Bodies and work towards a future where the efforts of these organizations are no longer needed.

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Appendix A.

Table 1

Materials used for analysis:

- Waterfront Toronto's Request for Proposals
- Sidewalk Labs' Project Vision
- Waterfront Toronto and Sidewalk Labs' 2018 Plan Development Agreement
- Sidewalk Labs' October 2018 digital governance proposal
- Sidewalk Labs' Master Development and Innovation Plan: Volume 0 - Overview
- Sidewalk Labs' Master Development and Innovation Plan: Volume 1
- Sidewalk Labs' Master Development and Innovation Plan: Volume 2
- Sidewalk Labs' Master Development and Innovation Plan: Volume 3

Table 2

Public consultation events attended, and where observations were conducted:

- Events Nov. 1, 2017 - Sidewalk Toronto Community Town Hall
- Mar. 20, 2018 - Public round table #1
- Apr. 24, 2018 - Public talk #2: The future of affordable housing
- May 3, 2018 - Public round table #2
- Aug. 15, 2018 - Public round table #3
- Sept. 26, 2018 - Public talk #3: The future of more accessible cities
- Dec. 8, 2018 - Public round table #4