

TORONTO'S NOT-SO-"SMART" CITY: DISMANTLING THE TECH UTOPIA &
BUILDING STRONGER COMMUNITIES

by

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ABSTRACT

This thesis critically analyzes the dominant discourse, actors, and technologies associated with the Sidewalk Toronto smart city project to uncover and resist the potential dangers of the unregulated smart city. Drawing from gray and scholarly literature alongside four semi-structured interviews and three action research methods, this research shows that smart cities and technologies are the latest iteration of corporate power, exploitation, and control. Imbued with neoliberal, colonial, and positivistic logics, the smart city risks further eroding democracy, privacy, and equity in favour of promoting privatization, surveillance, and an increased concentration of power and wealth among corporate and state elite. While the publicized promise of the smart city may continuously shift to reflect and co-opt oppositional narratives, its logics remain static, and its beneficiaries remain few. Applying a social justice-oriented lens which connects critical theory, postmodernism, poststructuralism, intersectional feminism, and anti-colonial methodologies is crucial in reconceptualizing "smartness" and prioritizing public good.

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1

INTRODUCTION

“Sidewalk Toronto will combine forward-thinking urban design and new digital technology to create people-centred neighbourhoods that achieve precedent-setting levels of sustainability, affordability, mobility, and economic opportunity.”

— Sidewalk Toronto (n.d.).

“Sidewalk Toronto is not a smart city. It is a colonizing experiment in surveillance capitalism attempting to bulldoze important urban, civic and political issues.”

— Jim Balsillie (2018),
former co-CEO of Research in Motion (now BlackBerry Ltd.)

In October of 2017, Waterfront Toronto and Sidewalk Labs—Google’s sister company—announced the birth of Sidewalk Toronto: a sensor- and data-centred “smart city” revitalization project for a 12-acre plot of publically-owned land on Toronto’s eastern waterfront, referred to as Quayside. This “urban innovation” plan promised a high-tech utopia that would “improve quality of life” and address major urban challenges like “energy use, housing affordability, and transportation” (Sidewalk Labs, n.d.). Sidewalk Toronto’s plan to design the “world’s first

neighborhood built from the internet up” (Badger, 2017) was unveiled and celebrated with the heads of all three levels of government.

As the Quayside project has progressed, however, public concern and debate has grown around issues of privacy, democracy, equity, public consent and protection, surveillance, governance, and the ethics of “smart” cities and technologies (Balsillie, 2018; Canon, 2018; Muzaffar, 2018; Sadowski, 2017; Wylie, 2018). It quickly became clear after the project was announced that Sidewalk Toronto had no specific plan prepared for addressing these urban issues. Meanwhile, Sidewalk Labs was leading a \$50 million USD planning, consultation, and lobbying process despite its non-existent track record for large-scale urban development and its lack of social license (i.e. acceptance and approval from local community members and stakeholders) (Lorinc, 2017; Wylie, 2018). Concerned citizens argued that this public-private partnership between tripartite government agency, Waterfront Toronto, and limited-liability corporation, Sidewalk Labs, granted the latter too much power and was made without prior consultation with the public. Prominent critics like Jim Balsillie (2018), former co-CEO of Blackberry Ltd., also drew attention to the dangers of partnering with a foreign company so intimately tied with Google, given that their “business model is built exclusively on the principle of mass surveillance” (para. 1).

Exacerbating public concern, four prominent advisors for Waterfront Toronto and Sidewalk Labs resigned within the first year of the project. These advisors—Julie DiLorenzo, Saadia Muzzafar, John Ruffolo, and Ann Cavoukian—voiced their discomfort and disappointment with Sidewalk Toronto’s ambiguous plan, exclusionary planning process, broad confidentiality agreements, and insufficient privacy regulations (Canon, 2018; Muzaffar, 2018; Rider, 2018; Roth, 2018). In December of 2018, Ontario’s auditor general also released a report stating that:

[Waterfront Toronto’s] new agreement with Sidewalk Labs raises concerns in areas such as consumer protection, data collection, security, privacy, governance, antitrust and ownership of intellectual property. These are areas with long-term and wide-ranging impacts that the provincial government, along with the City of Toronto, needs to address from a policy framework perspective to protect the public interest before this initiative proceeds further. (Office of the Auditor General of Ontario, 2018, p. 649)

In the months to follow, public resistance grew. The citizen-led #BlockSidewalk campaign launched in March of 2019 with the goal of resetting the Quayside project from the

Request for Proposal (RFP) phase, in order to allow for prior and meaningful public consultation. Meanwhile, the Canadian Civil Liberties Association began proceedings to sue all three levels of government and Waterfront Toronto for embarking on a project that violates the privacy rights of Canadian citizens. During this time, Sidewalk Labs continued to heavily lobby the City (with 68 lobbying interactions in April of 2019) as well as develop its Master Innovation and Development Plan (MIDP) which would offer more detail on the smart city project and technologies (City Hall Watchers, 2019). The 1,500-page MIDP was finally released in June of 2019, over seven months after it was originally expected. As once-celebratory government and Waterfront Toronto officials now remind us, this MIDP is not legally binding and will be reviewed and either accepted or rejected, in consultation with the public, in the coming months.

With no legal, ethical, or policy framework to guide a technological and commercially-driven city-building endeavour like this, however, Toronto treads into unknown territory as it becomes an “urban living laboratory” (Sadowski, 2017) through which Sidewalk Labs will “reimagin[e] the city as a digital platform” (Canon, 2018). Given that Toronto is also considered a global “AI hotspot” (Silcoff, 2017), there is a particular and imminent need for an ethical policy framework to address AI (artificial intelligence) and smart technologies in the city¹. The lack of law and policy for governing AI development and use in Toronto is particularly problematic given that these technologies perform human functions, but are not regulated or held accountable by our governments in the way that human workers and decision-makers are.

As scholar Safiya Noble (2018) contends, “A key aspect of generating policy that protects the public is the accumulation of research about the impact of what an unregulated commercial information space does to vulnerable populations” (p. 29). Of course, since Toronto’s smart city has yet to be developed, the outcomes of an unregulated, data-driven smart city space cannot directly be studied (nor do I wish to wait and see what the harmful outcomes of

¹ Here, I utilize the contemporary industry definition of AI, which refers to computer systems and technologies that are modelled after human reasoning in order to perform certain tasks that typically require human intelligence (i.e. decision-making, visual perception, speech recognition, etc.) (Marr, 2018). These AI technologies rely on algorithms, sensors, and machine learning techniques to collect, create, and use data in order to learn and make independent decisions (Upstone, 2017). Some refer to this as weak AI, in comparison to the hypothetical notion of strong AI, true AI, or AGI (artificial general intelligence): a machine with the general intelligence and capabilities of a human, including consciousness (Tegmark, 2016). In this paper, I assume that strong AI is a potential future iteration of weak AI.

an unregulated smart city will be). This paper thus critically analyzes the discourse surrounding Sidewalk Toronto's smart city project and process thus far in order to uncover and disrupt the class-, race-, and gender-based biases embedded in the conception, development, and promotion of the project. It applies critical, poststructuralist, intersectional feminist, and anti-colonial methodologies to offer an intersectional and social justice-oriented framework for critically assessing and guiding current and future technological developments in democratic and diverse cities like Toronto.

This research also analyzes the actors and technologies involved in the Sidewalk Toronto project, and traces the sociopolitical, economic, and cultural context surrounding and leading to the proposed smart city. The smart city is thus placed within a broader timeline of technological advancement from which the underlying capitalist and colonial logics of AI and technological "progress" are made discernable, and the potential future effects and repercussions of smart cities can be anticipated and resisted.

Langlois and Elmer (2013) offer a technique for approaching this type of future-oriented work that decentres the visible outcomes and content of new technologies in order to analyze their biased *logics*. In discussing algorithms, David Beer (2016) also suggests that we need to look beyond its coding and outcomes to examine how the *notion* of the algorithm is used to promote a capitalist rationality and agenda of development. My research thus asks: what discourses, ideologies, logics, agendas, and worldviews are being promoted and reproduced by the "smart city" project? What worldviews and narratives are simultaneously being obfuscated and silenced? If these biases persist, how will they impact socioeconomic inequality and systemic discrimination in Toronto (and Canada more broadly)? And how can this smart city project be reimagined, through a social justice lens (i.e. my theoretical framework), to better address the needs and rights of diverse Torontonians?

This research draws on news and industry reports alongside extensive gray and scholarly literature on the topic, including Waterfront Toronto's original RFP and Sidewalk Labs' original proposal to Waterfront (but not the MIDP, which was released too late to be analyzed in this paper). It also draws from examples and outcomes of similar technological systems to assess Sidewalk Labs' proposed smart city technologies (which have not yet been developed).

These analyses are put in conversation with data from four semi-structured interviews conducted with Toronto-based professionals in the fields of public policy, governance, technological development, and community engagement. The trajectory of each interview differed based on the expertise of each interview participants, however all interviews engaged with the four guiding research questions of this study². In these interviews, participants discussed: biases and inequities in the Sidewalk Toronto project (and tech industry/landscape more generally), the potential effects and harms of these biases, the potential benefits of the smart city project, and techniques for achieving equitable, socially beneficial, and democratic outcomes from the smart city.

Action research methods were also applied through my involvement in: the City of Toronto's deputation process on the Quayside development, the Power Lab's meeting on "Organizing for Fairer Economies in Toronto," and the Media Ecology Association's charrette session on building ethical and inclusive digital cities. I reflect on these experiences in the Findings & Discussion section of this thesis.

By triangulating data from secondary sources, interviews, and action research methods, my interdisciplinary research contributes to the fields of critical technology studies and surveillance studies, while answering calls from contemporary critical scholars to study "how corporations shape the world in accordance with their pursuit of profit, growth and legitimacy" (Benson and Kirsch, 2010, p. 459). I contest the very premise of the "smart" city and its promise of efficiency, objectivity, and optimization. I question whether we need experimental and data-driven technologies and sensors to be embedded throughout our city at a time when income inequality is growing, privacy for the average individual is shrinking, and no laws are in place to protect citizens from surveillance capitalism. I ultimately highlight the ways in which the smart city is a continuation and expansion of the colonial and capitalist project, allowing for the accumulation of land, resources, and wealth by powerful elite at the expense of people and bodies that are deemed disposable (i.e. low-income and racialized bodies, among others). To do

² (1) What discourses, ideologies, logics, agendas, and worldviews are being promoted and reproduced by the "smart city" project? (2) What worldviews and narratives are simultaneously being obfuscated and silenced? (3) If these biases persist, how will they impact socioeconomic inequality and systemic discrimination in Toronto (and Canada more broadly)? (4) And how can this smart city project be reimagined, through a social justice lens (i.e. my theoretical framework), to better address the needs and rights of diverse Torontonians?

this, I reference Indigenous scholars and histories in order to demonstrate that colonialism is the foundation and impetus for the Sidewalk Toronto project. Put another way, Sidewalk Toronto is the latest iteration of the colonial project, using the same tactics of surveillance, social sorting, deceit, control, exploitation, and dispossession that have been used to create the Canadian settler-colonial state upon Indigenous lands (Perry, 2016; King, 2016; Razack, 2012; Proulx, 2014). Moreover, these colonial tactics are being justified by the same destructive, discriminatory, and capitalist logics and ideals of rationality, positivism³, and “progress” at all costs. Anti-colonial methodologies derived from Indigenous thought are thus valuable in helping us to resist the colonial and capitalist logics of the smart city, and are applied in this paper. As Bang, Marin, Faber, & Suzokovich (2013) argue, the Western desire for “new” technology resembles colonial efforts to dominate the “new world”, and “it will be critical... to reposition narratives of technology so they are not the ‘new’ forms of Western settler colonialism” (Bang et al., 2013, p. 724).

My work thus seeks to proactively avoid discriminatory, inequitable, and exploitative outcomes of AI in the city while promoting critical and equity-based thinking on AI within my local community. As Sidewalk Labs’ CEO contends, Toronto’s smart city will “set a new standard for urban life in the 21st century” (Renzetti, 2019). I thus hope to encourage equitable policies and outcomes for Toronto’s smart city, which will in turn set a precedent for smart cities across the nation and globe. Specifically, I aim for my work to contribute to the smart city policy conversation in both the intelligence phase, when policy problems related to AI and smart cities are identified, and in the prescriptive phase, when the ethical norms for smart city policies are established (Braman, 2002).

Of course, I am aware that my research is based on the rapidly changing and evolving world of technology, and thus my future-oriented work will be historical by the time it is read (Noble, 2018). The value of this work, however, is that it adds to a body of literature that contextualizes the trajectory of technological development while uncovering its logics and rationalities, which remain quite static over time. Ideology is not something that changes with the new generation of an iPhone. Moreover, my work offers an intersectional⁴ and equity-based,

³ *Positivism* defined in Section 2.5.

⁴ *Intersectionality* defined in Section 3.4.

social justice-oriented lens which we (as city-dwellers, citizens, academics, technologists, and policy-makers) can use to analyze any current and future technological, AI, and smart city development. This critical, intersectional, and interdisciplinary theoretical framework is sorely needed in the largely positivistic and science-based field of AI and “smart” tech development.

2

LITERATURE REVIEW

“There is no cultureless or ‘neutral’ perspective any more than a photograph or painting could be without perspective. Sometimes these perspectives are explicit, but they are often implicit in practices, goals, and representations. In this sense, everything is cultured, including...the construction and use of technology” (Bang et al., 2013, p. 709).

The intersections of bias, technology, surveillance, and capitalism have been explored by many authors in the past two decades, as digital and internet-based technologies have come to increasingly shape our social, political, economic, and environmental landscapes. The following is a review of critical works which help to contextualize the key issues relevant to contemporary smart cities and technologies.

Scholars like Zuboff (2016), Lauer (2017), Foster and McChesney (2014) have laid important groundwork for understanding the history, development and mechanics of surveillance capitalism in the digital age. Bunz and Meikle (2018) critically analyze how surveillance capitalism is now enabled by physical objects embedded with sensors in the Internet of Things (IoT). Andrejevic and Burdon (2015) describe how the IoT has given way to a regime of data collection, storing, and sorting in our “sensor society.” Reichel (2017) offers a historical analysis

of privacy and surveillance, showing how privacy is treated as a commodity in capitalist societies, and necessitates mass surveillance based on race and class to maintain inequities in privacy and ownership. Silverman (2013) further analyzes how contemporary surveillance capitalism has diminished public privacy, autonomy, democratic accountability, and environmental sustainability. Pasquale (2015) draws attention to the corresponding and increasing power and opaqueness of tech and finance corporations, whose technological and profit-making systems and processes are hidden from public scrutiny in what he calls “black boxes.”

Although there is a notable lack of intersectional work that takes into account race and Indigeneity in the largely science-based and positivistic field of technology studies, the works of Duffy (2015), Daniels (2015), Bang et al. (2013), Noble (2018), and Magnet (2011) collectively suggest that “new” and “innovative” technologies actually reproduce historic race-, gender-, class-, and culture-based biases. For example, Duffy (2015) argues that women’s work continues to go uncompensated and unrecognized in the seemingly democratized world of digital social media. The social media promise of *getting paid to do what you love* insidiously romanticize work and encourage women to offer unpaid, aspirational labour that feeds into the marketplace at a time when employment opportunities and conditions are particularly “precarious, unstable... and *unromantic*” (Duffy, 2015, p. 454).

Daniels (2015) explores the colour-blind narratives underlying dominant Western notions of the Internet. She argues that the Internet is viewed as a raceless haven of equality and “limitless possibility” (p. 1388), which obfuscates the fact that there is racial inequity in not only the design of the Internet, but also in the employment and leadership of IT firms. Bang et al. (2013) further explore how everything is “cultured” (p. 707) and biased, including the creation and products of technology. They describe the Western desire for “new” technology as resembling colonial efforts to dominate the “new world”, and argue that “it will be critical... to reposition narratives of technology so they are not the ‘new’ forms of Western settler colonialism” (Bang et al., 2013, p. 724).

Noble (2018) argues that in this neoliberal age, algorithmic decision-making “reinforce[s] oppressive social relationships and enact[s] new modes of racial profiling” (p. 1) which she

refers to as *technological redlining* based on class, race, and gender⁵. Likewise, Magnet (2011) argues that seemingly-objective and innovative biometric technologies actually depend on and reproduce “rigid and essentialized understanding of race and gender” (p. 20).

Surveillance studies scholars like Lyon (2011), Browne (2015), and Abu-Laban and Bakan (2011) also argue that “smart” surveillance and decision-making technologies are embedded with colonial and capitalistic logics that lead to the *social sorting* of populations⁶. This social sorting results in the reproduction and even exacerbation of race- and class-based discrimination and surveillance.

My interdisciplinary research connects and builds on these studies by analyzing emerging “smart city” technologies with an intersectional⁷ and *socio-technical* lens (i.e. recognizing that social meanings are built into and reproduced by technologies). While race- and gender-based analyses of technology tend to be limited and siloed in the field of technology studies and are presented as such in this literature review (primarily being explored in Section 2.6), my research makes an intersectional theoretical frame central to my method and analysis. My work recognizes the need to approach AI conception, development, and use with a fundamentally equity-based and anti-colonial lens if we are to achieve equitable outcomes of AI technologies.

Since the Sidewalk Toronto project will be one of the first and largest “smart cities” in the world, there is also very limited research that puts AI bias (in the form of “smart” tech) in conversation with city-building, urban planning, and policy, particularly in the Canadian context. My research thus fills this gap in literature by studying the current developmental trajectory of Toronto’s smart city project and putting this in conversation with diverse and critical voices concerned with city, policy, and tech development (as expanded upon in the Methods and Findings sections).. My research critically intervenes in the idealistic and hegemonic narrative of “smart” AI technologies as “optimizing” the city, while drawing attention to the need for proactive, socially just, humanitarian, intersectional, and democratic AI and smart city policies and research in Canada (Hawking, Russell, Tegmark, & Wilczek, 2015; Ashrafian, 2015; Richards, 2013).

⁵ *Technological redlining* defined in Section 2.6.

⁶ *Social sorting* defined in Section 2.6.

⁷ *Intersectionality* defined in Section 3.4.

Via a social justice-oriented lens (i.e. my theoretical frame), this research will contribute to the growing fields of critical technology studies and surveillance studies, while answering calls from contemporary critical scholars to study “how corporations shape the world in accordance with their pursuit of profit, growth and legitimacy” (Benson and Kirsch, 2010, p. 459). Taking this critical thinking one step further, this thesis also begins to conceptualize alternate—and smarter—ways of approaching technological development in democratic and diverse cities like Toronto. This is valuable in offering an ethical and theoretical framework for future research and policy thinking on AI and smart cities.

2.1 The Neoliberal Corporation as a Predecessor of Artificial Intelligence

Critical scholars and activists tend to take the term “corporation” for granted, using it synonymously with a “profit-seeking,” “immoral,” and “inhumane” entity. It is important to operationalize the term, however, to help us see how and when this characterization truly fits a corporate entity. Broadly, a corporation is an organization that is made up of many individuals, but is legally authorized to act as a single entity or person (Achbar, Abbott, & Simpson, 2003). Corporations can vastly differ in mandate, size, composition, structure, and “personality”, so to speak, but the most significant distinguishing factor in the context of this paper is that they can either be for-profit or not. The City of Toronto, for example, along with various non-profit and not-for-profit organizations that provide important social, political, philanthropic, and educational services, are corporations, yet their people-centric mandates make them accountable to citizens and workers. While they still benefit from many of the legal and financial benefits that the “corporation” enjoys across the globe, they are ultimately driven by a multitude of socially-bound interests and goals that extend beyond the pursuit of profit.

The business corporation, on the other hand, is for-profit. Its main and end goal, its purpose, and its bottom line is always the accumulation of profit. Business corporations are almost exclusively driven by a capitalist agenda requiring the accumulation and preservation of wealth, land, private property, resources, human capital, and power, at all costs (Achbar et al., 2003). This is evident in the fact that the success of a business is measured by profit margins, growth rates, and returns on assets and equity; social benefits and costs do not figure into the equation.

Business corporations adhere to social and political pressures and trends when it will benefit their bottom line, either in the short- or long-term. We have seen corporate advertisers capitalize on popular social and political movements for decades, dating back to Bernays' promotion of cigarettes as feminist "torches of freedom" in the 1920s. We continue to see this trend today, for example with Gillette, Nike, and Adidas promoting feminist messages in the wake of the #MeToo movement.

Every decision that a business corporation makes will inevitably involve a financial analysis of profit margins and potential. What this decision-making process will *not* necessarily entail, however, is an analysis of the social, political, and economic effects of a decision on the broader society in which this corporation operates. Herein lies the danger of the business corporation; when profits are prioritized above the well-being of people, the legal loopholes that a corporation benefits from can be abused to garner enormous wealth for a few individuals, often at the expense of many (Pasquale, 2015; O'Neil, 2016; Noble, 2018).

These legal loopholes that I refer to are rooted in the fact that a corporation is seen as a legal "person" in the eyes of the law. It thus benefits from all of the legal protections that an embodied human enjoys—protections aimed at upholding freedom, equality, and human rights—without any of the limitations that an embodied and organic human has. On the most basic level, this can be seen in the fact that a corporation can live forever. Meanwhile, our biological clocks ensure that that a human's existence is finite. Corporations can also file for bankruptcy with virtually no repercussions, benefit from tax deductions that non-incorporated individuals cannot, and change management or internal policies at a whim. Their productivity can be vastly greater than an individual human, given that a corporation can employ millions of workers across the globe. Likewise, their social, political, and economic impact on a society, a nation, or the globe can be far greater than an average human has, given the business corporation's ability for vast productivity and transnational presence.

Take General Motors (GM), for example—one of the largest multinational automotive corporations in the world. GM was founded in Flint, Michigan in 1908 and became the social and economic hub of the city in the decades to follow, employing approximately 80,000 people in the city by 1978. In 1986, GM closed numerous manufacturing plants and laid off thousands of workers in Flint in favour of employing cheaper, non-unionized labour in Mexico. This not

only decimated Flint's economy and society—which the city still has not recovered from, as evident from its extreme poverty and crime rates—but allowed for GM to profit from the exploitation of Mexican workers (Moore, 1989; Lee, 2015). The clear beneficiary of these actions—the most triumphant “legal person” in this equation, no doubt—was GM; as of 2019, GM had the 13th highest revenue of all American corporations at over \$146 billion (Fortune, 2019).

What this and countless other examples throughout corporate history make clear is that business corporations are not guided or bound by morality or conscience; as already emphasized, profit is their *raison d'être*. In fact, the physical and psychological distance that the legal entity of a “corporation” creates between the producers and users of a product or service enables a depersonalized relationship whereby corporate workers can absolve themselves of any responsibility for the repercussion of their corporation's policies, decisions, and outputs. After all, how can any one person be responsible for the social, political, and economic outcomes of a profit-driven corporation composed of many individuals? McLuhan (1995a) echoes this analysis in his work on technologies and the human body. He asserts that when we extend our human capabilities through the use of tools and technologies (or the legal entity of the corporation, in this case), we lack biological and psychological coping mechanisms for regulating our use of these tools. Our instincts and reflexes thus become inappropriate for the new situations created by our tools (or corporations), and thus we cannot trust ourselves with our own artifacts (McLuhan, 1995a).

Beyond our biological inability to regulate the corporation is our legal inability to do so. Our laws and policies fail to address corporate power and in fact grant the corporation greater power than an physical person. For example, corporations are not held legally responsible under the criminal code in the way that physical humans are for the harms that they cause other persons and the public. The corporation itself cannot be sent to jail, and perhaps more significantly, it cannot experience physical or emotional pain in the way that humans can. The only form of hardship that corporations can experience is economic, in the form of financial loss. Even then, corporations can compensate for these losses through the dispersion of costs across departments, offices, and workers, and through the deduction of taxes, by filing these costs as capital losses.

Neoliberalism has only furthered the power, autonomy, and lack of accountability of corporations in our social, political, and economic landscape. Since the 1980s, neoliberal policies—premised on free market doctrines of privatization, deregulation, free trade, and austerity—have led to: greater subsidies for corporations, lower taxes for corporate elite, more precarious work for corporate employees (via part-time, temporary, and consultative roles), attacks on labour unions and lower wages for workers, and almost monopolistic, global control of certain industries by major corporations (Foster & McChesney, 2014; Duffy, 2015). This rise of corporate power has been complimented by the decline in, and privatization of, previously state-funded social services, which has led to greater socioeconomic inequality across the Western world. Monopolistic information and communication technology (ICT) corporations like Google, Microsoft, Apple, Facebook, and Amazon are the latest iteration of corporate power, with tentacles across the globe. In fact, these profit-seeking entities have achieved an unprecedented level of global power and wealth through their exploitation of the unregulated and ungoverned internet, and their use and sale of seemingly “innovative” and “neutral,” artificially intelligent technologies. In this neoliberal age, monopolistic tech corporations are increasingly unphased by resistance from people, communities, and even governments (Noble, 2018; Pasquale, 2015; Silverman, 2013; Zuboff, 2016).

We have already seen the abuse of such dispersed and global corporate power in the Facebook/Cambridge Analytica scandal. Cambridge Analytica used private Facebook data to create and sell voter profiles of American citizens to Donald Trump’s presidential campaign, thus influencing the 2016 presidential elections in the United States. Shortly after this scandal was unearthed in 2018, the European Union (EU) increased data storage, privacy, and transparency regulations within its jurisdiction through its General Data Protection Regulation (GDPR). To shelter itself from these profit-harming regulations, however, Facebook covertly transferred massive amounts of user data from the EU to its US offices before the GDPR came into effect on May 25th, 2018 (CNBC, 2018). This ability for corporations to use their wealth and power to evade and lobby governments ironically undercuts the supposedly “free market” logics of capitalism and neoliberalism by stifling competition and consumer-dictated market regulation. Adam Smith’s “invisible hand” has been replaced by the corporate hand, where certain private corporations control the market to further accumulate profit. In this corporate-driven economic system, public consent, interest, and good are undercut by self-serving corporate interests.

In a way, the contemporary and monopolistic business corporation is a predecessor to what artificial general intelligence (AGI), or strong AI, is expected to be in the future. Put another way, artificial intelligence (AI) is the latest profit-making frontier for monopolistic corporations, produced in the image of the corporation itself. AI promises a technological product that can efficiently perform all intellect-based human functions without the limitations of pain, hunger, exhaustion, illness, morality, conscience, reputation, family, and relationship that naturally regulate the embodied and organic human. The dangers of the unregulated ICT corporation thus go hand-in-hand with the dangers of unregulated AI, given that tech corporations are the ones racing to produce and use AI to further garner profit (Hawking, Tegmark, Russell, & Wilczek, 2014). The capitalistic and neoliberal logics and agenda of the tech corporation—or business corporation, more generally—will thus inevitably be reflected in the design, development, and use of corporate-made AI systems and products. We are already seeing these trends in the contemporary era of surveillance capitalism.

2.2 Surveillance Capitalism in the Age of the Internet

Surveillance can be defined as purposeful, routine, systematic and focused attention paid to personal details by organizations that want to control, influence, manage, or protect certain persons or populations (Andrejevic & Burdon, 2015; Proulx, 2014; Lyon, 2011). This can involve, for example, military surveillance in the interest of “national security” and protection, or government and corporate surveillance in the interest of managing and influencing populations and consumers. Roger Clarke defines the similar notion of “dataveillance” as “the systematic monitoring of people or groups, by means of personal data systems, in order to regulate or govern their behaviour” (Andrejevic & Burdon, 2015, p. 23). What both of these definitions have in common is an element of privacy penetration whereby certain persons and behaviours are made trackable and visible in a systematic effort to influence, manage or control them. Surveillance capitalism can thus be understood as an extension of these two terms whereby a company or organization systematically watches and collects massive amounts of data on *or* for potential consumers in the hopes of using that data to ultimately accumulate profit. This can involve gathering data on anything from people’s behaviours to locations, selling this data to anyone from governments to corporate marketers, using this data to improve marketing or

predict and influence behaviours, or any other capitalist amalgamation of data extraction, commodification, and control. Surveillance capitalism requires large-scale and continuous data collection given that the capitalist logic necessitates continuous growth and accumulation of profit.

In order to access, utilize, and profit from these massive amounts of consumer data, surveillance capitalists are largely dependent on technological systems that facilitate data tracking, extraction, and use. As Silverman (2013) asserts, “the means of surveillance and control are mostly embodied in new digital technologies and data-collection schemes... [which are premised on] the objectification of a human being into a data source capable of being parsed, scanned, assessed, and monetized by other, invasive interests” (p. 149).

Of course, consumer surveillance and “informational” capitalism are not new. Surveillance capitalism dates back to the post-World War II period, when American elite were concerned that the growth of the capitalist economy, as achieved via military manufacturing during the war, would stagnate. At the end of the war, the United States accounted for 60% of the world’s manufacturing output, and thus required new *surplus-absorption mechanisms*, as Foster as McChesney (2014) put it, to address this need for consumption of manufactured products. These surplus-absorption mechanisms included massive corporate marketing efforts to improve consumer sales, as well as “the creation of a permanent warfare state, dedicated to the imperial control of world markets” (Foster & McChesney, 2014, p. 2). In the 1970s, financialization (i.e. the world of finance) was added as a third surplus-absorption mechanism, and “each [mechanism] necessitated new forms of surveillance and control. The result was a universalization of surveillance” (Foster & McChesney, 2014, p. 2). This universalized, capitalist surveillance effort was aided and abetted by the information and communication technology (ICT) revolution. ICTs enabled mass advertising and political propaganda campaigns aimed at stabilizing the economy and ensuring mass acceptance of these surplus-absorption mechanisms (e.g. ensuring acceptance of wars overseas in name of democracy and the war on terror; naturalizing consumerism).

Lauer (2017) describes this relationship between ICTs and consumer capitalism in his analysis of American credit bureaus in the 1960s-90s. With the proliferation of the electronic database in the 1960s came the rise of data production, management, and commodification by

corporations, and particularly by credit bureaus like Equifax. Credit bureaus became involved in cross-referencing consumer data from credit, direct mail, and marketing databases to produce consumer profiles and even direct marketing campaigns for their corporate customers, who were predominantly banks and retailers. By the mid 1970s, it became clear that “the credit bureau of the future would no longer be primarily concerned with tracking unpaid debts... it would deal more broadly with...very big consumer data” (Lauer, 2017, p. 244). By the 1990s, the three most prominent credit bureaus had morphed into “consumer data brokers” (Lauer, 2017, p. 245). For these credit bureaus, surveillance involved not only watching and reacting to people’s behaviours, but also using their personal data to predict and control their consumer behaviours and choices in the interest of banks and retailers.

We are seeing similar trends today amongst technology corporations in the Western world, but at a much grander scale. Unique to surveillance capitalism in the age of the internet is the ability to track intimate aspects of human behaviour, thus offering a real-time data stream of a person’s daily internet usage and life. Everything from social media activity to purchasing, browsing, and location history can be collected, categorized, commodified, and sold in and from the lawless space of the internet, celebrated as “the world’s largest ungoverned space” by Google’s ex-chairperson Eric Schmidt (Pasquale, 2015; Zuboff, 2016). As humans across the globe have become increasingly dependent on the internet for social participation and information access, an exploitative capitalist regime has developed to harness the profit-making potential of the associated online data, often referred to as the world’s “new oil” (Zuboff, 2016; Silverman, 2017).

But as surveillance capitalism transforms commercial practice in both the digital and tangible world, its exploitation of online data is no longer about mailing catalogues to potential consumers or even producing targeted advertisements; the game is now to “directly influence and modify your behaviour for profit” (Zuboff, 2016, para. 5). A Chief Data Scientist at a popular Silicon Valley company in fact stated as much:

The goal of everything we do is to change people’s actual behaviour at scale. When people use our app, we can capture their behaviours, identify good and bad behaviours, and develop ways to reward the good and punish the bad. We can test how actionable our cues are for them and how profitable for us. (Zuboff, 2016, para. 6)

These profit-making logics of behavioural categorization, modification and control are central to the functioning of many major digital platforms that we use daily. Google recommends search queries in its search engine, routes and destinations on Google Maps, and e-mail responses on Gmail. It embeds advertisements into its search results while sorting and ordering the results that we see to surreptitiously promote third-party companies who have purchased advertising space. Likewise, social media and video-sharing sites like Facebook, Instagram, and YouTube filter, sort, and hierarchize all of the content that we see on their feeds using secret algorithms and logics, which Pasquale (2015) refers to as “black boxes”. What we see on the internet is increasingly in the hands of the highest bidder, and filtered by opaque algorithmic processes that use our data to offer a “personalized” and “optimized” user experience (meaning a tailored consumer experiences that will optimize profits for online platforms and brands). Meanwhile, our internet activity is continuously tracked, categorized, commodified and shaped by these digital platforms and brands to further generate profit. In this world of “digital scoring, where many of our daily activities are processed as ‘signals’ for rewards or penalties, benefits or burdens” (Pasquale, 2015, p. 21), users themselves become quantified and machine-readable subjects to be ranked, filtered, and categorized in the capitalist pursuit of profit (Lupton, 2016).

This form of surveillance capitalism is thought to have originated with Google and then Facebook in the same way that Ford and then General Motors propagated and institutionalized mass-production and managerial capitalism in the early twentieth century. A fundamental difference between the spread of surveillance capitalism today and capital-driven industrial revolutions of the past, however, is that while mass production was “interdependent with its populations who were its consumers and employees... surveillance capitalism preys on dependent populations who are neither its consumers nor its employees” (Zuboff, 2016, para. 12). Populations are now dependent, vulnerable, and largely ignorant of the surveillance, sorting, and exploitation processes that are used by major tech firms to accrue profit and maintain market dominance through their seemingly “free” platforms. As Noble (2018) argues, “Google functions in the interests of its most influential paid advertisers or through intersection of popular and commercial interests. Yet Google’s users think of it as a public resource, generally free from commercial interest” (p. 36). Click-to-agree and jargon-filled “terms of service” contracts offer only flimsy illusions of consent; they serve to legally protect companies in the business of surveillance rather than to genuinely inform users of the data exploitation that their agreement

will cost them. Such is the “quid pro quo of personalized digital services: total surveillance. Surveillance remains the preeminent business model of the internet” (Silverman, 2013, p. 159).

As we increasingly come to rely on digital platforms and technologies like social networks, apps and search engines, data collection becomes naturalized as part of daily social life. Even when users are aware that our data is being collected or tracked, as with “cookies” online and app permissions on a smartphone, our dependence on these major digital platforms and technologies, and the simultaneous opaqueness of their business processes and algorithms, impel us to passively and naively accept these terms (Pasquale, 2015). Thus when a mobile weather app requires that we give it access to our camera, microphone, and contacts in order to operate, we accept—and unsurprisingly, giant surveillance capitalists like Google, Facebook, Apple, and Disney have a monopoly in this app ecosystem (Dean, 2013). In fact, the power of these tech corporations’ social hegemony is so great that “Google [like other tech giants] benefits directly and materially from what can be called the ‘labortainment’ of users, when users consent to freely give away their labour and personal data for the use of Google and its products, resulting in incredible profit for the company” (Noble, 2018, p. 26). Like data collection, *labourtainment* is becoming a normalized part of social life in the contemporary era of surveillance capitalism. We write reviews, make videos, upload photos, and offer feedback to and for online platforms, and we perceive our actions as fun, helpful, and meaningful to other users and ourselves. Our labourtainment is however most beneficial to the tech firms, brands, and corporations that profit from having users and opinion leaders freely use and vogue for their products and services.

This process of labourtainment, whereby a consumer becomes an (unpaid) co-producer for tech firms and brands, is referred to by some scholars as *prosumption* (McLuhan & Nevitt, 1972; Toffler, 1980; Ritzer, Dean & Jurgenson, 2012). Toffler (1980) predicted that mass production would oversaturate the marketplace with standardized commercial products, which would lead to an era of mass customization in order for businesses to continue increasing profits via increased consumerism. To achieve mass customization, however, business would require users to assist in the production process by becoming “prosumers,” which would re-bridge the artificial divide between production and consumption created by the capitalist economic system itself.

Prosumption in today's age largely goes unpaid, but much like Horkheimer and Adorno (1944/2002) describe as typical of the capitalistic culture industry, a small fraction of prosumers are able to achieve celebrity status and wealth on digital platforms. In the 1940s, Horkheimer and Adorno (1944/2002) similarly argued that the entertainment industry intentionally “discovers” a handful of average, exploited workers and elevates them to celebrity status in order to enforce the notion that success and economic fortune is rare, but equally likely among all individuals. By equalizing the population as universally powerless in the face of chance, economic difference becomes seemingly natural, and futile to resist; chance serves as an alibi for the dominant, monopolistic forces that actually thrive from the active exploitation of the masses. Likewise, the seemingly random “discovery” and subsequent fame of a few relatable, amateur prosumers (e.g. YouTubers, bloggers, vloggers, Instagram models) on social media platforms has popularized a labour ideology of *getting paid to do what you love*. Duffy (2017) and Dean (2013) argue that this capitalistic labour ideology is so naturalized that people willingly partake in “aspirational,” unpaid labour in hopes of one day achieving success, all while filling the pockets of large corporations. Duffy (2015) further argues that this ideology perpetuates old forms of gendered exploitation whereby women's work goes uncompensated and unrecognized in the seemingly democratized world of digital social media.

Duffy (2015) defines *aspirational labour* as a “highly gendered, forward-looking and entrepreneurial enactment of creativity” (p. 443) through which women within “feminized sites of digital cultural production (e.g. fashion, beauty, retail)... seek to mark themselves as creative producers who will one day be compensated for their talents—either directly or through employment in the culture industries” (Duffy, 2015, p. 446). As Duffy's (2015) research indicates, however, very few bloggers engaging in aspirational labour actually realize the dream of “going pro” (p. 442) and instead offer cheap or free labour to both brands and social media platforms while operating within the “contemporary [and neoliberal] ethos of post-feminism, which celebrates individual choice, independence and modes of self-expression rooted in the consumer marketplace” (p. 443).

2.3 The Internet of Things in the Sensor Society

To better appreciate the scale and dangers of surveillance capitalism and its neoliberal logics, and particularly in the context of the smart city, it is important to also consider the *internet of things* (IoT) within the *sensor society*. Fundamental to both of these concepts are sensors, which Andrejevic and Burdon (2015) describe as “any device that automatically captures and records data that can then be transmitted, stored, and analyzed” (p. 25). Bunz and Meikle (2018) argue that sensors are essentially media of communication given that they “create and communicate data about the world and those in it” (p. 11) and “forge real power/knowledge relationships that reassemble the world” (Andrejevic & Burdon, 2015, p. 30). Once these sensors—fitted to *things* in the IoT—are connected to networks, they become “smart” (Bunz & Meikle, 2018).

The internet of things thus refers to the growing network of tangible objects that are embedded with sensors and connectivity (via Bluetooth or Wi-Fi, for example), making them “smart” objects and technologies—a common example being the smartphone. Sensing and surveillant cameras, hardware, and software become cheaper every year and are thus become embedded in more places, “promis[ing] to make ‘quantified selves’ of all of us, whether we like it or not” (Pasquale, 2015, p. 4). The term *sensing network* can also be used to describe this phenomenon by more explicitly referring to the way in which sensors become actors in a network of communication by detecting, generating, processing, recording and circulating information about their environments and the people in them (Bunz & Meikle, 2018; Andrejevic & Burdon, 2015).

Andrejevic and Burdon’s (2015) notion of the “sensor society” in turn refers to the practices of data collection, storing, and sorting that emerge from networked sensors becoming increasingly embedded in *things* throughout Western society (via the IoT). The term sensor society also draws attention to the “costly infrastructures that enable data collection, storage, and processing as well as to the advantages that flow to the institutions that own, operate, and access them” (Andrejevic & Burdon, 2015, p. 21). As an extension of the internet, the sensor society and IoT operate on very similar logics to the internet and thus enable surveillance capitalism and social control in many of the same ways (Pallitto, 2018). Just as Google, Facebook and a handful of other tech firms possess almost oligarchic power over data on the internet, these same tech

firms are extending their power to our tangible life-world through IoT objects. In fact, Bunz and Meikle (2016) assert that IoT technologies and applications were not developed in response to any *needs* in society; they were developed due to the increased technical feasibility of producing such objects, and for the primary purpose of accessing and exploiting more personal data for profit. As Silverman (2013) argues, the aim is to “make the world machine-readable, to provide more processes and behaviours to surveil and digitize, and to use these new streams of information to monetize more of life” (p. 156).

Andrejevic & Burdon (2015) further describe how sensors enable surveillance, explaining that the ultimate goal of data collection is to:

Capture [...] a comprehensive portrait of a particular population, environment, or ecosystem (broadly construed). More systematic forms of targeting start to take place against this background, and increasingly come to rely on it. The population-level portrait allows particular targets to emerge—and once they do, their activities can be situated in the context of an ever-expanding network of behaviours and the patterns these generate. Thus, sensor-derived surveillance can be untargeted, non-systematic, and often opportunistic. (p. 23)

Even when individuals are not originally targeted by these data collection and surveillance processes, it is becoming increasingly possible to identify, sort, and target them after the fact due to the “additive and speculative character of data mining” (Andrejevic & Burdon, 2015, p. 27).

As new sensors are embedded into our environment, new dimensions of data on people, environments, and ecosystems are generated. These new data can then be compared with other and pre-existing datasets to produce potentially useful patterns for activities like marketing, politics, policing, healthcare, employment, education, and of course profit-generation through the selling of these patterns and data to relevant government, military, and corporate parties (Andrejevic & Burdon, 2015). Moreover, old sensors can be repurposed for new functions. Smartphones, for example, are prone to feature creep:

Smartphones can count steps, track sleep patterns, and perform other kinds of bio-behavioral monitoring, but these and other capabilities were mostly introduced later by independent app-makers and tinkerers who realized that the device’s gyroscopes and sensors could be repurposed to track all manner of activity. (Silverman, 2013, p. 152)

Surveillance no longer needs a rhyme or reason; the goal of major tech and intelligence firms is total information capture for potential future use, all without the explicit and meaningful consent or understanding of the data cows: the public. Networked sensors—which are central to

“smart” technologies and by extension, “smart cities”—thus raise serious concerns in terms of surveillance, privacy, consent, equity, democracy, and public good.

In the 1970s, Michel Foucault metaphorical compared modern forms of social control and surveillance to Bentham’s panopticon model. Bentham designed the panopticon as a physical, institutional building and system of control where all inmates or residents of an institution could be watched by a single, central guard or watchperson within a tower. At the same time, these inmates/residents could never be sure if they were being watched due to the high vantage point of the guard within the tower. From this, Foucault developed the panopticon theory of surveillance, in which the public is under the authoritative, centralized, and watchful gaze of dominant powers. Critical scholars have since offered a clear consensus on the role of surveillance as a form of social control that is naturalized amongst citizens under the guise of “national security” and “safety.” For example, the American war on terror was used to rationalize increased national and global surveillance, and as discussed earlier, was ultimately a surplus-absorption mechanism for the American capitalist economy. Permutations of Foucault’s panopticon theory are thus often still used by scholars to conceptualize surveillance of citizens by state, military, finance, and corporate authorities and elite.

This panopticon theory does not, however, account for the decentralized surveillance practices that we are seeing in the contemporary sensor society. The ubiquitous and ambient form of surveillance enabled by the IoT and smart city can be better understood through “Deleuze and Guattari’s rhizomatic metaphor, in which power moves through a system of ever-branching roots (similar to a computer network)... [where] many micro-relationships extend out from a surveillance-defined social order” (Pallitto, 2018). The rationality for surveillance has also evolved from “national security” to the promise of personalization, optimization, and efficiency via corporate, online methods of data collection and use.

Of course, like the war on terror, the promise of a “personalized” consumer experience on the internet is deceptively used to advance new forms of social management and control, all in the pursuit of profit:

Martin Feuz and Matthew Fuller found that personalization is not simply a service to users but rather a mechanism for better matching consumers with advertisers... Google’s personalization or aggregation is about actively matching people to groups, that is, categorizing individuals. In many cases, different users are seeing similar content to each

other, but users have little ability to see how the platform is attempting to use prior search history and demographic information to shape their results. (Noble, 2018, p. 54)

These *social sorting* processes⁸ are thus not truly offering a “personalized” experience, but instead grouping and shaping our consumer behaviours according to our personal data and perceived sociopolitical and economic category. While this is typical of market segmentation and advertising, the narrative of the free and open, democratizing internet which serves only the user is one that obfuscates these commercial processes and interests. In actuality, opaque and profit-driven algorithms use our data to categorize users and limit consumer choice and understanding in the interest of tech corporations and retailers. This actively undercuts the ideals of freedom, openness, equality, and democracy promised by the internet (in many of the same ways that the American war on terror actually undercut American ideals of freedom and democracy).

In this era of surveillance capitalism, old notions of mass media as “transmitters” are thus no longer sufficient; we must understand mass media as “data collectors, storage houses, and processing centers...[to reorient] critical attention toward the epistemological power of media [in the sensor society]” (Andrejevic & Burdon, 2015, p. 30).

2.4 Considering Privacy in the Data-Driven Information Economy

It is important to define privacy in order to recognize its significance in this era of surveillance capitalism and “smart” data production. In an information economy where the most valuable currency is intimate data about people’s lives, privacy is not just a protection for consumers, but also both the regulator and enabler of corporate profit, power, and social control.

Westin (1967) described privacy in the 1960s as:

...The claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others. Viewed in terms of the relation of the individual to social participation, privacy is the voluntary and temporary withdrawal of a person from the general society through physical or psychological means, either in a state of solitude or small group intimacy or, when among larger groups, in a condition of anonymity on reserve. (p. 7)

⁸ *Social sorting* defined in section 2.6.

Central to this definition of privacy is information, or data; for Westin (1967), privacy is the ability to control or limit the circulation of information about oneself. In Western traditions, privacy also involves the right to be left alone, to be afforded some form of autonomy, and to have one's personal freedom protected. As Rössler (2004) argues, "nothing is private in itself: privacy has to be conceptualized as a function of convention, not of nature" (p. 65), and in Western capitalist societies, privacy is conventionally associated with property and possessive individualism. For example, we can expect to have autonomy in the "privacy of our own home," where the home is our private property within which we are afforded privacy. In this way, the right to privacy is conceptualized as a commodity which is only afforded to those who can and do own property. The more wealth and property one has, the larger their private realm and thus the more privacy they have access to. In this sense, "privacy might well be intrinsic to one's security, and instrumental to happiness and freedom... but it is also intrinsic to wealth, and, by extension, instrumental to one's social status" (Reichel, 2017, p. 4760).

In fact, privacy serves to protect people's wealth and capitalist accumulations from public scrutiny:

Fuchs (2012) argues that a core function of privacy in liberal society is to obscure wealth, so that social inequalities are not in plain view. Because the legitimacy of the prevailing social order rests, in large part, on the conceit that most people are starting from relatively equal footing, it is necessary to conceal the fact that this is not, in fact, the case. (Reichel, 2017, p. 4761)

Reichel (2017) supports Fuchs' argument by citing a 2011 nationwide survey in the U.S. which found that respondents indeed vastly underestimated income and wealth disparities in the nation. Ultimately, Reichel (2017) argues that privacy does not protect everyone equally, which is exactly how it was designed; he demonstrates that "an intrinsic connection exists between the maldistribution of privacy rights and the broader social hierarchies that they reflect" (p. 4758). Wealth, power, and privacy go hand in hand.

Given the data-driven nature of our contemporary sensor society and information economy, the link between privacy, wealth, and power has become even more stark. Tech corporations directly profit from the lack of privacy afforded to users of the internet, and in fact actively fight regulations that would grant users privacy and control over their own digital data (Pasquale, 2015). As these corporations gain wealth and power from the invasion of our personal

data, they themselves benefit from increased privacy and opacity which they ensure through tactics such as ambiguity, “proprietary” algorithms and processes, and non-disclosure agreements (NDAs). These tech corporations are thus able to “seek out intimate details of potential customers’ and employees’ lives, but give regulators as little information as they possibly can about their own statistics and procedures” (Pasquale, 2015, p. 3-4).

As Silverman (2013) asserts, “Now the home—and the activities, behaviours, and preferences of those within it—is becoming transparent, as mappable as a city street. Individuals have been made vastly more transparent, while authorities and corporations have become more opaque” (p. 148). Silverman (2013) goes on to argue that these reductions in public privacy and increases in surveillance go hand in hand with the growth of the U.S. surveillance state. Pasquale (2015) further argues that state authorities utilize many of the same tactics that corporations do in order to hide their own actions and keep the “black boxes” closed. These strategies employed by corporate and state elite can be categorized as:

“Real” secrecy (establishes barrier between hidden content and unauthorized access to it), legal secrecy (obliges those privy to certain information to keep it secret), and obfuscation (deliberate attempts at concealment when secrecy has been compromised. The end result of all of these is opacity – my blanket term for remediable incomprehensibility. (Pasquale, 2015, p. 7)

These various strategies of secrecy allow business firms and governments to track us “ever more closely” through the internet and IoT technologies, while we have “no clear idea of just how far much of this information can travel, how it is used, or its consequence” (Pasquale, 2015, p. 3). The corporate technologies that make up our sensor society may thus have adverse affects on our lives and sociopolitical and economic relations, as discussed throughout this thesis, “but we can never fully investigate or understand them because they are concealed behind the veil of algorithmic secrecy” (Silverman, 2013, p. 155). In a world where knowledge is power, tech corporations and state authorities benefit from one of the most significant and inequitable forms of power in avoiding scrutiny while continuing to scrutinize others via mass surveillance practices (Pasquale, 2015).

Of course, privacy rights have become a topic of greater public concern in recent years, as internet citizens, users, and activists fight for greater control over their digital dossiers. Many popular tactics for promoting user privacy, however, essentially reproduce the logic of privacy as

a commodity by requiring that smart and informed users “securitize the self” (Silverman, 2013, p. 160) and engage in a regimen of “digital hygiene” (p. 161). These tactics include using private and encrypted browsers, search engines, and communication platforms along with virtual private networks (VPNs) to protect oneself from corporate data collection. Silverman (2013) argues that this is “an essentially consumerist and individualist response, which precludes showing much solidarity with a larger public (except in the form of using the same expert-approved encrypted chat apps). The larger result is a vast disparity in privacy conditions and outcomes” (Silverman, 2013, p. 160). Moreover, these tactics are largely reactionary and force us to operate according to the terms of surveillance capitalism rather than meaningfully disrupting the privacy, power, and wealth inequities that it enables.

More broadly, however, the privacy rights discourse has introduced a “fundamental contradiction within capitalism” (Reichel, 2017, p. 4761) by threatening to overexpose its wealth and power asymmetries. Fuchs (2012) argues that almost routine surveillance is thus required in order to circumvent this overexposure while upholding the legitimacy of modern capitalism:

The establishment of trust, socio-economic difference, and corporate interests are three qualities of modernity that necessitate surveillance. Therefore, modernity on the one hand advances the ideal of a right to privacy, but at the same time it must continuously advance surveillance that threatens to undermine privacy rights. An antagonism between privacy ideals and surveillance is therefore constitutive for capitalism. (p. 46)

This analysis echoes earlier analyses in this paper that illuminate the fundamental contradictions of contemporary surveillance capitalism (i.e. the American war on terror necessitates surveillance in the name of democracy and freedom while actually undercutting these ideals; the promise of a free and open, personalized internet experience necessitates data exploitation process which actually make the internet experience depersonalized and restricted). Feminist perspectives are thus hugely valuable in illuminating how primitive “advanced” capitalism really is. As Braidotti (2015) puts it, capitalism is a “fast-spinning system that is advancing at top speed on the road to nowhere” (p. 5) while perpetuating “structural injustices, ruthless opportunism and brutal violence” (p. 1) in addition to environmental degradation. Contemporary surveillance capitalism in the age of the internet has only made the system faster.

2.5 Problematizing the Logics of Computation & Positivism

The logics of computation and positivism, whereby only measurable and empirical results are considered valid and valuable knowledge, are dominant in the sensor society (Andrejevic & Burdon, 2015). Positivism became a dominant mode of thinking in Europe in the eighteenth century Enlightenment era, and assumed that reality only consisted of observable and measurable things. As Marcuse (1991) puts it, “Only what can be seen to exist is recognised as having a right to recognition” (p. 7). Alongside positivism was the dominance of optimistic thinking based on the ideals of reason and progress; it was believed that the “rational man” could and should uncover the singular realities and “facts” of life through rigorous intellectual reasoning and science (GrBich, 2013). At the time, this was perceived as a form of liberation from the hegemonic power and dominance of the church:

Scientific knowledge gained from observation and based in logical thought processes was seen as having the potential to displace ignorance and superstition, which were the tools of power of the church. Scientific knowledge was seen as having the capacity to facilitate freedom from religious influences and to lead the way to a New World built on the notions of progress and a universal foundation of knowledge. (GrBich, 2013, p. 6).

Central to positivist ways of thinking was the belief that a researcher, mathematician, or scientist could occupy an objective, distant, and neutral role in order to study reality, and could thus produce universally generalizable “facts.” There was no acknowledgement that the experiences or perspective of a researcher could influence or bias their findings and construction of reality. This supposedly-liberatory form of positivistic and “rational” thinking ironically produced new forms of hegemony and control. The White man’s scientific findings became the new word of God, discounting any other perspectives, truths, or ways of knowing.

Although the assumed objectivity of positivism was refuted in the decades to come, for example with Einstein’s theory of relativity quite literally pointing to the fact that scientific findings can be relative, the logics of positivism and calculation have persisted (GrBich, 2013). In fact, the growth of surveillance capitalism along with the development of advanced and ubiquitous ICTs has led to the re-emergence of positivism as a dominant mode of thinking. The contemporary sensor society is after all entirely premised on data-driven sensors and information technologies that are produced by positivistic tech giants who claim to be neutral arbiters while relying on measurement and calculation for profit. Packer (2013) in fact argues that Google

pioneered and cemented the profit-making logic of computation in the digital space by measuring, collecting, and commodifying our digital data: “did someone initiate financial data flows, spend time, consume, click, or conform?...The only measurable quality is digital data. Google doesn’t and couldn’t measure ideology” (p. 298). Langlois and Elmer (2013) also explain that social media platforms increasingly collect data “not only on what is said, but also specific information about the profile of the user sending out a message, the users receiving the message, about how users interact with a message by reading or not reading it, ‘liking’ it, sharing it, etc.” (p. 2). The content of a social media post is thus not as significant (or financially valuable) as its measurable effects on our behaviours in the digital and real world. Behavioural data is the commodifiable product that tech giants both use and sell to retailers and other business corporations in their pursuit of profit; it is used to shape and control consumer behaviours in an effort to maximize sales and consumption.

This type of behavioural data is largely what constitutes *big data*, which is the driving force of our contemporary information economy. As “MIT’s Big Data guru Sandy Pentland...claims... ‘Big data is increasingly about real behaviour, and by analyzing this sort of data, scientists can tell an enormous amount about you’” (Andrejevic & Burdon, 2015, p. 27-28). Our economic reliance on big data, which is produced and used by algorithmic and “smart” technologies, has facilitated an ontological shift whereby nothing exists beyond the legible human. The persuasiveness of the scientific method and rationality is so great that all intangible aspects of human and social life are made irrelevant (Magnet, 2011; Rose, 2016). Furthermore, detailed empirical and behavioural data collected via technology is considered more valid, accurate, efficient, objective, and neutral than human experiences or observations. Silverman (2013) describes this highly positivistic logic of contemporary surveillance capitalism as premised on:

...Feedback loops, the assumed “neutrality” of algorithms, and the ideological notion that computers carry an inherent authority—i.e., they can never be wrong. The system, with its impressive processing power, its enormous storage capacity, and its multitasking capabilities, is treated as a more neutral arbiter than a human being, for whom efficiency and speed might be less important values than ethics, deliberation, or questioning assumptions... Efficiency justifies everything. It reflects the perfection of a system and the elimination of bias, waste, and error, which are lamented as all-too human phenomenon. (Silverman, 2013, p. 154)

Hugely problematic with this positivistic logic is the assumption that computers, algorithms, and technologies have no flaws or biases, when in fact the technological prioritization of speed and efficiency over ethics and deliberation is in itself biased and ideologically fixed.

Bang Marin, Faber, & Suzokovich (2013) illuminate the biased nature of contemporary positivism and technological rationality by problematizing the notion of objectivity in itself:

There is no cultureless or ‘neutral’ perspective any more than a photograph or painting could be without perspective. Sometimes these perspectives are explicit, but they are often implicit in practices, goals, and representations. In this sense, everything is cultured, including...the construction and use of technology. (p. 709)

These authors use indigenous methodologies and worldviews to disrupt the positivist and capitalist logics of transnational tech giants and corporations. Contrary to Western traditions of knowledge, they believe that just because something *can* be known does not mean that it *should* be. They also define information and knowledge as experiences of communities, “and thus with knowing comes responsibilities shaped by complex systems of kinship” (Bang et al., 2013, p. 710). Their perspective of technological development centres community, relationship, accountability, human experience, and sustainability rather than capitalist desires for growth, total information capture, and control. This radically challenges the positivistic view that efficient and profit-driven data-collection technologies are somehow “objective,” “optimizing,” and unanimously ideal, thus allowing for a more critical assessment of these corporate-made technologies.

The notion that all cultural artifacts—including technologies—are ideologically biased is also a recurring theme in the interdisciplinary field of communication and cultural studies. As Durham and Kellner (2001) assert,

There are no innocent texts... all artifacts of the established culture and society are laden with meaning, values, biases, and messages that advance relations of power and subordination... they generate political effects, reproducing or opposing governing social institutions and relations of domination and subordination. (p. xiii-xiv)

Nietzsche (1970) and Foucault (1990), for example, express a particular skepticism towards technological advancement and scientific rationality due to its tendency to flatten human experience into a single and hegemonic “truth,” logic, or discourse. These hegemonic “truths” are dictated by and thus benefit those in power, while suppressing the diversity of human

experience and perspective. In discussing *hegemony*, both Gramsci and Williams (1985) further explain that certain worldviews carry a stamp of legitimacy and appear to be natural or inevitable when in fact they are authoritative tactics that are culturally sanctioned (Huang, 2015). Marcuse (1991) and Escobar (2012) argue that even the notions of “progress” and “development” are biased and far from neutral; dominant notions of “progress” move to a specific end, in the interest of dominant and capitalist powers. Duffy (2017) and Dean (2013) show us how capitalistic logics are so naturalized that people now willingly partake in aspirational, unpaid labour via social media platforms and apps in hopes of achieving success, all while filling the pockets of large tech corporations. These texts prove that seemingly-neutral communication platforms, technologies, and entertainment products are embedded with capitalist biases which serve to naturalize and advance inequitable socioeconomic relations. Moreover, the ways in which these “neutral” technologies and products are marketed to us further naturalize a capitalist agenda of development and progress.

Frankfurt School theorists like Marcuse (1964/1991), Horkheimer and Adorno (1944/2002) in fact argue that both advertising and technological advances serve to rationalize, naturalize, and disguise the static underlying system of exploitative capitalism while pacifying, commodifying and standardizing consumers. Through exposure to the products of the monopolistic culture industry, people are lulled into passivity and reduced to exchangeable, reproduceable, and replaceable objects of control in our authoritarian economic system (Horkheimer & Adorno, 1944/2002). McLuhan (1995b) similarly argues that technological advances provide “ever intenser [*sic*] thrills” (p. 29) which perpetuate the illusions and distractions created by corporate advertisers, thus allowing for capitalist corporations to exploit and control people. He further explains that the social effects of our corporate technologies and media environment are difficult to discern because we are so immersed in this environment, like a fish in water (McLuhan, 1995a)⁹. These texts, along with a vast body of critical literature in both communication and cultural studies, indicate that we must question our naturalized understandings of the world and the power relationships that they enable, particularly with respect to any process or technology that fallaciously claims to be “neutral.”

⁹ McLuhan’s theories further discussed in Section 3.3.1.

Furthermore, as Bunz and Meikle (2018) argue, seemingly objective and neutral technologies may be marketed as solutions to the flawed human, but actually reveal through their own failures that they *do not* have fewer flaws—they simply have very different ones. Using three examples of car accidents caused by Tesla and Google self-driving vehicles, they show that these technologies—fitted with cameras, sensors and networked traffic and location data to enable seemingly-objective and -superior computer vision—have in inbuilt politics of their own, and make errors that a human driver would not. “While computer vision enables networked things to become more autonomous, it also equips them with the ability to see or to serve particular groups, experiences, ideas or topics... [And] their ability to see might – consciously or unconsciously – be ideologically fixated” (Bunz & Meikle, 2018, p. 55). Bunz and Meikle (2018) disrupt positivistic thinking by drawing attention to the failures, errors, and biases of our technological products.

O’Neil (2016) similarly asserts that the opaque (or black-boxed) math-powered applications, models, and processes that increasingly manage our lives and power our data economy in the sensor society are encoded with human prejudice, bias, and misunderstanding. Using her academic background in mathematics as well as her experience of working in the finance industry, she asserts that these mathematical processes actually exacerbate socioeconomic inequalities:

Like gods, these mathematical models were opaque, their workings invisible to all but the highest priest in the domain: mathematicians and computer scientists. Their verdicts, even when wrong or harmful, were beyond dispute or appeal. And they tended to punish the poor and the oppressed in our society while making the rich richer. (Noble, 2018, p. 27)

Beer (2017) also contends that biased logics and rationalities are reproduced by seemingly-neutral technological processes like algorithms. Beer (2017) draws attention to the process by which certain state and corporate authorities transfer their ideological biases to technologies like the algorithm, and mobilize the very *notion* of the algorithm to promote “a rationality based upon the virtues of calculation, competition, efficiency, objectivity and the need to be strategic” (p. 17). The logic of positivism is thus used by these corporate and state elite to assert the validity and neutrality of algorithmic computing in order to ensure that we accept these algorithmic decision-making and surveillance technologies into our lives. Ultimately, this allows for tech giants and state actors to accumulate wealth and maintain social control.

Langlois and Elmer (2013) further unpack our naturalized relationships with technologies like corporate social media platforms by questioning our focus on social media *content* and instead locating and focusing on a platform's *digital object* as the point of departure for critical analysis. The digital object is constituted by elements like links, videos, posts, and images as well as "like," "reaction," and "share" buttons, which in themselves both shape and measure the way in which we communicate through social media platforms. The authors use the term *double articulation* to explain how digital objects are designed to accumulate as much data as possible, which in turn affects the interface of the communication platform for users as their data is used to shape the advertisements, content feed, and digital objects themselves. The digital object is thus "the operative site of the commercialized, communicative act" (Langlois and Elmer, 2013, p. 2), and helps us to foreground the ways in which corporate social media "mine life itself – where life is understood not in strictly biopolitical terms, but rather as intellectual, emotional, affective, cognitive and social life" (Langlois & Elmer, 2013, p. 4). These exploitative corporate logics are obfuscated, however, by the appearance of social media as "transparent" and "authentic" communication platforms: "While on the surface, they seem to promote unfettered communication, they work in their back-end of data processing and analysis to transform and translate acts of communication into valuable data" (Langlois & Elmer, 2013, p. 6).

Ultimately, then, social media can be conceptualized as an extension of Horkheimer and Adorno's (1944/2002) culture industry, capitalizing off of our free labour and data under the guise of facilitating connectivity and "friendships" which are not necessarily beneficial, and in fact sometimes harmful, to our social lives, health, happiness, and economic prospects (Dean, 2013; Duffy, 2015; Blair, 2017; Silverman, 2013). Duffy (2015), for example, argues that the labour ideology of *getting paid to do what you love*—enabled and popularized by corporate social media like Instagram and YouTube—obfuscates problematic constructions of gender and intersections with class. After all, a certain amount of social and economic capital is both required and put on display (via social media posts with branded goods) in order to be a successful beauty or fashion blogger. Moreover, the few bloggers who do achieve "pro" status on corporate social media platforms tend to reaffirm the heteronormative standards of beauty that have historically prevailed in Western culture industries; most are young, thin, and White. Social

media thus enables aspirational labour¹⁰, which in turn reproduces traditional gender and class-based hierarchies and market logics. Meanwhile, the narrative of “newness” and “possibility” associated with digital social media deflects attention away from the biased and unjust working conditions of amateur bloggers using these digital platforms. Duffy (2015) thus suggests that digital social media and the associated promise of *getting paid to do what you love* insidiously romanticize work and encourage women (and other media prosumers) to offer unpaid, aspirational labour that feeds into the marketplace at a time when employment opportunities and conditions are particularly “precarious, unstable... and unromantic” (p. 454). As her work shows us, surveillance capitalism in the digital age exacerbates income inequality and socioeconomic hardship for historically marginalized communities by reproducing old, exploitative practices in new, neoliberal forms.

As Noble (2018) argues, however, “Data and computing have become so profoundly their own ‘truth’ that even in the face of evidence, the public still struggles to hold tech companies accountable for the products and errors of their ways. These errors increasingly lead to racial and gender profiling, misrepresentation, and even economic redlining” (p. 28). The positivistic logic of surveillance capitalism along with the opacity, profitability, and power of tech corporations and their technological products thus shield these corporations from accountability to the public. This compromises democracy and allows for new AI technologies to reinforce various forms of social and economic discrimination and subordination (O’Neil, 2016; Noble, 2018; Pasquale, 2016).

2.6 Machine-Perpetuated Identity Bias

As the work of Noble (2018), O’Neil (2016), Duffy (2015), Daniels (2015), Bang et al. (2013) and various other contemporary critical technology scholars show us, new algorithmic and artificially-intelligent technologies can reproduce race, gender, and class categorizations and biases. These algorithmic, AI, and internet-based technologies essentially enable new forms of historical inequities and social stratification. A stark example is Microsoft’s AI chatbot, which was released on the internet in 2016 with the promise of getting smarter as it interacted with

¹⁰ *Aspirational labour* defined in Section 2.2.

more Twitter users. Due to the racist content and activity on Twitter, however, the AI chatbot began posting racist and neo-Nazi tweets via its machine learning processes within twenty-four hours (Vincent, 2016). This example overtly shows us how seemingly-“smart” algorithms can quickly “perpetuate particular narratives that reflect historically uneven distributions of power in society” (Noble, 2018, p. 71), although algorithmic systems often do this in more subtle and insidious ways than the AI chatbot did.

In particular, Noble (2018) argues that in this neoliberal age, algorithmic decision-making “reinforce[s] oppressive social relationships and enact[s] new modes of racial profiling” (p. 1), which she defines as *technological redlining*. Here she draws on sociologist John McKnight’s notion of *redlining*, which refers to the discriminatory practices of U.S. banks, governments, and corporations in actively denying investment in and services to neighbourhoods with racialized and marginalized populations throughout the 1900s. For Noble (2018), the contemporary notion of *technological redlining* draws attention to the ways in which corporate- and state-made, internet-based and AI technologies—including the internet itself—exclude and marginalize certain voices, narratives, and bodies from equitable and respectful social participation on the basis of race, gender, and class.

For example, the artificially-intelligent courtroom sentencing software Northpointe was used for risk assessment by judges to determine the future criminality of a defendant. This AI system miserably misrepresented Black defendants and led to their overincarceration while simultaneously predicting that most White criminals would not offend again, despite data showing that this is not the case (Noble, 2018). In differentially treating racial and social groups, algorithmic technologies like Northpointe engage in technological redlining via the practice of *social sorting*. Surveillance studies scholar Lyon (2011) describes social sorting as the process by which data brokers and manipulators—including tech corporations and their data-driven technologies—use data to categorize and differentiate people based on race, ethnicity, gender, education, occupation, income, location, social status, or other sociopolitical and economic factors. Social sorting is often used for predictive policing and algorithmic decision-making that concerns people. It is premised on capitalistic and colonial logics of distinguishing and differentially treating different social groups in society based on their behaviours, habits, and seemingly-inherent qualities. Technologies and political bodies that engage in social sorting thus

reproduce, and often even exacerbate, discrimination and surveillance along sociopolitical and economic lines.

In particular, race (and associated phenotypical markers of difference) are often the basis upon which people are socially sorted and treated differentially (Lyon, 2011). Surveillance is not a neutral process that affects everyone equally. Abu-Laban and Bakan (2011), for example, write about how Israeli military and surveillance practices in the occupation of Palestine have been clearly violating international human rights codes for decades. Due to dehumanizing social sorting practices that label Palestinians as terrorists and racial “others,” however, Palestine is treated as a “state of exception” in which commonly accepted human rights laws do not apply. Charles W. Mills’ (1997) notion of the *racial contract* can be applied here to further explain this type of racial exceptionalism. The racial contract is a spin on the philosophical concept of the *social contract* developed by Enlightenment thinkers in the 17th and 18th century to describe the relationship between citizens and state. These Western Enlightenment thinkers asserted that citizens consent to give up some of their freedoms to the state in exchange for the protection of their safety and remaining rights. Mills (1997), however, argues that this social contract was only designed to regulate relationships between White bodies, thus making Whiteness the unnamed system of domination in the modern world. This enabled a form of exceptionalism—which he refers to as the racial contract—whereby non-White bodies could be oppressed and exploited in a way that would otherwise violate the morals and ideals of the social contract.

The logic of Mills’ (1997) racial contract can be seen in the long history of racialized bodies being surveilled by White authorities, particularly in North America (King, 2016; Browne, 2015; Reichel, 2017; Giroux, 2015; Proulx, 2014). Beginning in the 15th century when Christopher Columbus claimed to have “discovered” America, European colonizers and their kin sought to dominate and annihilate Indigenous peoples as part of the settler colonial project (Razack, 2012). Indigenous communities and peoples who survived the initial disease and genocidal practices of these European colonizers were then subject to colonial practices of surveillance and control. There is extensive literature that points to the ways in which the Canadian state, both in the past and present, has used legislation and institutions like the *Indian Act* and inter-residential school system, along with military and para-military practices, to surveil and suppress the threat of self-determining Indigenous peoples (whose very existence

destabilizes the legitimacy of the Canadian state) (Proulx, 2014; Bourassa, 2004; Simpson, 2016; Perry, 2016).

From the 16th century onwards, the transatlantic slave trade led to Black bodies also becoming heavily controlled, exploited, and surveilled in North America (Browne, 2015; Giroux, 2015; Reichel, 2017). The systems of control needed for the slave system to function were massive and all-encompassing, and heavily relied on surveillance to track the Black body (e.g. through runaway slave posters, rules that forced Black slaves to travel by lantern and candlelight, etc.). Once slavery was abolished in the U.S. in 1863, surveillance and policing of Black bodies persisted to enforce segregation. Today, mass incarceration of Black Americans continues to exclude them from the public sphere (Browne, 2015). As Giroux (2015) argues,

‘People of colour, especially poor dissenting blacks,’ have never had a reasonable expectation of privacy in the United States... ‘The right to privacy was violated in the historical reality of slavery, the state terrorism enacted under deep surveillance programs... and in the current wave of mass incarcerations’ (Reichel, 2017, p. 4764).

Practices of carding and “stop and frisk” policing are contemporary iterations of these race-based surveillance practices (Reichel, 2017). We have seen similarly “exceptional” treatment and surveillance of Muslims in North America since 9/11, as rationalized by the war on terror. Fundamental to these targeted forms of surveillance and control are racist discourses that frame these racialized bodies as less human, uncivilized, backwards, threatening, and thus in need of surveillance.

As these histories of racialization, social sorting, and surveillance make clear, surveillance and privacy rights have never been equally distributed amongst all people. Moreover, racial and social sorting practices have allowed for the U.S. and other Western nations to fund and wage wars in racialized, exceptionalized, and “othered” nations as part of their capitalist surplus-absorption mechanisms (e.g. the U.S. waging war in Iraq to sustain the military industrial complex) (Foster & McChesney, 2014). Given that surveillance is historically rooted in racist social sorting practices, new and artificially intelligent surveillance technologies that rely on social sorting will only reproduce these discriminatory logics. As Noble (2018) argues, “structural inequalities of society are being reproduced on the Internet”—and IoT technologies, by extension—“and the question for a race-, gender-, and class-less cyberspace could only ‘perpetuate and reinforce current systems of domination’” (p. 59). Our Western belief that we

can produce an objective technology from our subjective experience is fundamentally flawed (Magnet, 2011). This positivistic view of technology dangerously obfuscates real, discriminatory practices and outcomes in the design, development, programming, and use of “smart”, AI, and internet-based technologies.

Daniels (2015) similarly problematizes the dominant, colour-blind narrative of the internet in the West by drawing attention to race and gender bias not only on the internet, but also in the tech industry. She triangulates data from numerous academic, industry, and mainstream media sources to contend that the internet is viewed as a raceless haven of equality and “limitless possibility” (p. 1388). She argue that this raceless perception obfuscates the fact that there is racial inequity in not only the design of the internet, but also in the employment and leadership of IT firms. After all, “the tech firms in Silicon Valley are predominantly led by White men and a few White women; yet the manual labor of assembling circuit boards is done by immigrants and outsourced labor, often women living in the global South” (Daniels, 2015, p. 1379). Her work draws our attention to the human element of technological design and programming, which is important when we consider that seemingly-neutral digital technologies are designed by “fallible humans” (Noble, 2018, p. 27) with their own worldviews, perspective, and ideological biases.

Magnet (2011) similarly argues that despite their promise of being race and gender-neutral, biometric technologies—which use body measurements and calculations to identify individuals, like facial recognition technologies—are actually racist and sexist in their design and coding. Using numerous examples of biometric failures, she demonstrates that “biometrics are explicitly sold to us as being able to circumvent problematic human assumptions about race, gender, class, and sexuality...[but] it is upon rigid and essentialized understanding of race and gender that these technologies rely” (Magnet, 2011, p. 20). Biometric technologies are part of a long historical trend of White, male scientists using numbers, measurements, and “science” to make claims about the supposedly inherent inferiority of gender and racial minorities—a trend based on positivism and social sorting. Magnet’s (2011) work indicates that even today, the White body is the standard upon which biometric technologies are developed, which leads to extensive flaws, failures, and biases in these technologies when they are put into practice by diverse populations. We must thus think critically about how and why biometrics can

simultaneously exclude certain people (e.g. when Black faces cannot be recognized by cameras and facial recognition technologies) while simultaneously making some hyper-visible (e.g. when racialized people are targeted by these same biometric technologies for the sake of national security).

By drawing attention to the lack of diversity in the tech field—which is partially responsible for the corresponding failures, flaws, and biases in technological products—both Daniels (2015) and Magnet (2011) help us to discern how and in what ways digital technologies are biased. They do this by acknowledging who the dominant groups (i.e. White men, for Daniels [2015] and Noble [2018]) and marginalized groups (i.e. women of colour) in the tech field are, both in the stage of programming/production and in the stage of use/consumption. Noble (2018) adds another layer to this analysis by contending that even the timing of our reliance on decision-making technologies—which as discussed, are largely designed by White men—should be questioned. She argues that it is no coincidence that we began to champion and rely on technological decision-making as superior to human decision-making just as women and people of colour began gaining decision-making roles in the U.S., thanks to legislation in the 1960s that addressed employment barriers for marginalized communities (Noble, 2018). The collective work of these authors offers us a point of departure from which we can suggest remedies for alleviating discriminatory biases and practices like social sorting in technologies, as well as the tech industry at large. They help us to recognize the network of actors, interests, and biases at play in the conception, development, and use of new AI and “smart” technologies.

As decision-making technologies become more autonomous, we must critically assess who these technologies benefit and harm. Just as studies of media representation (or lack thereof) have been historically valuable in disrupting the invisibility, misrepresentation, and discrimination of marginalized group, voices, and narratives in society, we must now also consider what Bunz and Meikle (2018) refer to as *media recognition*. This entails a study of “how technology assists particular groups, experiences and areas and with what intentions...[Because] it is important to ensure that the failures of the past are not reprogrammed into the things that will make up our world in the future” (Bunz and Meikle, 2018, p. 70). Studying media recognition allows us to challenge all forms of discriminatory social sorting and bias (e.g. race, gender, and class bias, among others) that are reproduced by new and supposedly

“smart” technologies. This allows us to envision smarter, alternate, and radically equitable ways of living with and alongside AI technologies.

3

THEORETICAL FRAME

“For Hall, what matters is the practice of cultural studies as a radical intellectual project to understand and intervene in the social and cultural struggles of the day, driven by an ineluctable longing for a better world” (Ang, 2016, p. 37).

My research is informed by various critical, poststructuralist, postmodern, feminist, and anti-colonial scholars who argue that all cultural artifacts—including “smart” and artificially intelligent (AI) technologies—are political in that they either disrupt or reinforce relations of domination and subordination (Durham and Kellner, 2001; Foucault, 1990; Braidotti, 2015; Bang, Marin, Faber, & Suzokovich, 2013). My work thus draws on these various emancipatory methodologies to uncover and disrupt discriminatory biases that are being embedded in and reproduced by contemporary AI and “smart city” technologies. Like scholar Safiya Noble (2018), my research is “a practical project, the goal of which is to eliminate social injustice and change the ways in which people are oppressed with the aid of allegedly neutral technologies” (p. 13).

Of course, for any form of discrimination or oppression to be challenged, all must be challenged. As hooks (1990) contends, “any individual committed to resisting politics of domination, to eradicating sexism and racism, understands the importance of not promoting an

either/or competition between the oppressive systems” (p. 64). My intersectional lens thus allows me to acknowledge that all forms of oppression are “interlocking systems of domination which uphold and sustain each other” (hooks, 1990, p. 59). Noble (2018) in fact identifies a need for this type of intersectional work in addressing new technologies:

Missing from work on Google is an intersectional power analysis that accounts for the ways in which marginalized people are exponentially harmed by Google... To whom do we appeal? What bodies govern artificial intelligence, and where does the public raise issues or lodge complaints with national and international courts? These questions have yet to be answered. (p. 28-29).

I heed this call, and use my multifaceted theoretical frame in the context of AI development to challenge the reproduction of racism, sexism, classism, and colonialism, among other forms of oppression. To do this, I contextualize and draw from a suite of critical and social justice-oriented theoretical frames to show how AI is a continuation, and in some ways, an exacerbation, of modern, colonial, inequitable, and “rational” Western thinking. While there are commonalities in the intersecting and overlapping methodologies that I apply, they are all necessary to successfully deconstruct the centre stronghold, with each offering something novel. Furthermore, putting these various methodologies in conversation is novel in itself, and allows for the bridging of often siloed forms of academic thought. As Dixon (2014) argues, acknowledging the commonality in histories and ideas among various anti-authoritarian (i.e. anti-colonial, anti-oppression, and anti-capitalist) movements enables solidarity organizing, relationship-building, and a stronger shared politics.

3.1 A Social-Justice Oriented Lens

Each methodology described in this section adds value to a broader social justice-oriented lens. Critical theory helps us to recognize the contradictory and inequitable logics of capitalism, from which the harmful logics of the tech industry stem. Postmodernism helps us to acknowledge subjectivity, problematize positivism, and recognize the socially constructed nature of all forms of oppression. McLuhan helps us to understand how tools and technologies affect human relationships with each other and our environment. His postmodern theories encourage us to recognize the importance of studying and problematizing technologies before their harmful logics become naturalized. Poststructuralism helps us to see how problematically narrow and

capitalist discourses (like the discourse of technology as efficient, optimizing, objective, ideal) are produced and naturalized through the marriage of knowledge and power. Postcolonialism further helps us to recognize how Western discourses of technology have become dominant ways of thinking about AI. Derrida gives us the tools to deconstruct these dominant discourses and narratives, in order to expose their contradictory and socially constructed roots.

Intersectional feminism helps us to see that in addition to a multiplicity of perspectives among humans are multiple and intersecting social, political and economic identities which come with certain levels of privilege and oppression in our inequitable society. Intersectional feminism encourages us to dismantle these socially constructed forms of oppression (i.e. racism, sexism) using both theory and action. Anti-colonial methodologies allow us to think beyond our exploitative and inequitable capitalist system, in order to imagine and build mutually respectful forms of relating with each other and our environment. Anti-colonial methodologies centre community, reciprocity, accountability, belonging, and relationship.

While a social justice-oriented lens can also include other methodologies (for example, queer theory, which has not been explored in this paper), I use this selection of methodologies to offer a baseline from which social justice-oriented thinking can begin. This social justice-oriented lens can be thought of as a toolkit which can be grown and utilized to assess, dismantle, and rethink any current or future technological or industry development, including the Sidewalk Toronto smart city project.

3.1.1 Positionality: Operating from the margins

My work resists positivist thinking which assumes that researchers can somehow study reality from a pseudo-objective and neutral position (GrBich, 2013). As anti-colonial and Indigenous scholar Leanne Simpson (2013) asserts, part of the responsibility of a scholar and producer of knowledge is to recognize your own positionality and worldview. She embodies the change that she wishes to see in the world and does not try to hide her scholarly analyses behind an “objective” voice (Simpson, 2014).

Likewise, Laurel Richardson (2000) argues that applying a postmodern perspective allows us to “know ‘something’ without claiming to know everything. Having a partial, local,

historical knowledge is still knowing” (p. 518). She further asserts that poststructuralism encourages us to “understand ourselves reflexively as persons writing from particular positions at specific time.... it frees us from trying to write a single text in which everything is said to everyone” (Richardson, 2000, p. 518).

Intersectional feminist scholars like bell hooks (1990) employ similar methodologies, using their own experiences as marginalized voices and bodies to produce transformative theory that directly translates into practice. hooks (1990) in fact suggests using marginality as a site of resistance and “radical openness” (p. 152). Braidotti further contends that critical theorists and philosophers are “wounded” by their histories and experiences (Davis and Braidotti, 2016), while Ahmed (2014) notes that these histories follow marginalized bodies and “linger as mood” (p. 22). As critical theorists Horkheimer and Adorno (1944/2002) demonstrate with their own critical analysis of the culture industry and as Ahmed (2014) argues in her work, marginalized *affect aliens* thus possess a unique critical lens with which social change and transformation can be achieved. Here, Ahmed (2014) uses the term *affect alien* to describe “those who are alienated from the nation by virtue of how they are affected” (p. 13) by dominant discourses, moods, and narratives.

I thus recognize that my sociopolitical identity as a second-generation Canadian and Muslim woman of colour, my emancipatory and equity-focused values, and my experience as a millennial who grew up in the age of the internet are all factors that colour my perspective of and goals for this research. Heeding Stuart Hall’s call for “radical intellectual” work, I aim to “understand and intervene in the social and cultural struggles of the day, driven by an ineluctable longing for a better world” (Ang, 2016, p. 37). The theoretical frame that I offer in the pages to come—which I broadly refer to as a social justice-oriented lens—is one that I hope can be applied to critically assess any and all supposedly-neutral AI technologies and smart city projects at present and in future.

3.2 Critical Theory

“Free election of masters does not abolish the masters or the slaves”
(Marcuse, 1964/1991, pg. 7).

My analysis of contemporary technological progress is rooted in an understanding of critical theory. Despite some oversights in their pessimistic analysis (which likely stems from their experiences as émigrés Jews from Germany), critical Frankfurt School theorists help to uncover the contradictory, inequitable, and oppressive logics of late capitalism and consumerism. They update Marxism to fit capitalism in their own time (i.e. the mid-20th century), and thus confront the problematic effects of our fascination with “new” technologies (like AI and “smart city” technologies).

In their landmark text entitled “The Culture Industry: Enlightenment as Mass Deception,” Adorno and Horkheimer (1944/2002) problematize the logics of rationality, reason, and positivism that developed during the Enlightenment era and became central to modern capitalism¹¹. They argue that modern capitalism and its monopolistic culture industry (i.e. popular culture and media: film, music, advertising, etc.) are commodifying and standardizing both art and the human mind. Despite its façade of constant newness and “progress,” this culture industry strips both consumers and art of their power and uniqueness, reducing them to exchangeable, reproducible, and replaceable objects of control and exploitation in the authoritarian economic system. They stress that this culture industry is insidiously different from mass culture because it is not authentically derived from the masses’ needs; it is a planned system of manipulation which creates false needs among consumers, and rationalizes the domination of people and art through organizational reason and technological progress. As a result, art and culture now reflect and reinforce inequitable socioeconomic structures rather than transcend or challenge them, just as individuals have been lulled into passivity and stripped of their ability to resist the existing order.

Adorno and Horkheimer (1944/2002) make an important distinction between mass culture and the top-down culture industry, the latter of which is used to repress and control populations rather than reflect their needs and desires. In making this distinction, they redirect the accusatory gaze of economically oppressed people away from one another and towards their oppressors above: the dominant forces in the culture industry. This is an important step in achieving a truly powerful and unified revolution, although Adorno and Horkheimer (1944/2002) never actually suggest this revolutionary potential in their text (a weakness in their work, no

¹¹ *Positivism* defined in section 2.5.

doubt). As seen in the 2016 U.S. presidential elections, classifying marginalized people differently and pinning them against each other only allows for the perpetuation of regressive power relations and economic structures. If, for example, poor White men, poor Black men, poor immigrant men, and poor women targeted their collective critical gaze towards the leaders of the oppressive system that makes them all poor, perhaps a meaningful revolution could be achieved. Instead, the dominant forces of the culture industry alongside the political candidates encouraged hostile lateral glances between marginalized groups, which ultimately led to an election with two unsuitable candidates: Clinton, who essentially promised to maintain the status quo, and Trump, who promised to redistribute wealth only enough to put the White heterosexual male at the top of the still-oppressive system (or more realistically, to *keep* them at the top). While recognizing the different histories and socioeconomic backgrounds among marginalized people is of course important in achieving an equitable society, another's difference must not be confused as the reason for one's own economic misfortune.

Adorno and Horkheimer (1944/2002) go on to explain that the culture industry is a totalitarian form of control which completely incorporates individuals into the system of production not only at work, but also in their leisure time. Contemporary practices of *labourtainment* and *prosumption*¹² on the internet and social media platforms are particularly clear examples of this. People are constant consumers, and ultimately, objects of sameness; they are given the illusion of choice between genres and products which only superficially differ, just as consumerism has reduced any real individuality among them to surface-level difference. Moreover, pervasive and repetitive advertisements naturalize society's oppressive and consumerist ideology, so that the dominant powers of the monopolistic culture industry can maintain wealth and control. Meanwhile, media and popular culture distract consumers from their poverty, unhappiness, and lack of true leisure time by providing temporary pleasure while further reproducing society's ideology. Not only does the authoritarian nature of the culture industry prevent the equitable redistribution of wealth, but it represses the potential for autonomy, critical thinking, imagination, spontaneity, spiritual growth, happiness, and ultimately revolution among consumers (Adorno & Horkheimer, 1944/2002).

¹² *Labourtainment* and *prosumption* defined in Section 2.2.

3.2.1. Technological advancement as the road to nowhere

Particularly relevant to the topic of this paper is Adorno and Horkheimer's (1944/2002) assertion that visible technological progress is used to disguise the static underlying system of capitalism, where needs and desires are constantly produced but never realized, and economic suffering is only perpetuated but never mitigated by said technology. Herbert Marcuse (1964/1991) reiterates this analysis, critiquing Western consumerism and goals of "progress" as methods of control. He argues that our inequitable economic system is actually stagnant under its dynamic guise, but is justified and validated by achievements in science and technology which fulfill the constructed goals and ideals of growth, productivity, and efficiency.

For these Frankfurt School theorists, our capitalist society requires that everything must be reproducible according to a certain schema, and non-conformists are alienated both socially and economically until they are incorporated into the system (Adorno & Horkheimer, 1944/2002; Marcuse, 1964/1991). A contemporary example of this is the Canadian narrative of reconciliation with Indigenous peoples. Given that Indigenous rights to land and self-determination fundamentally call into question the validity of the settler-colonial Canadian state, the narrative of reconciliation is used to incorporate activist Indigenous voices and bodies into the "multicultural" Canadian body. This is particularly necessary for the settler-colonial state (i.e. a state established by colonizers who settled on occupied land) given that Indigenous worldviews are fundamentally oppositional to the capitalist ideology in many ways, and call into question capitalist notions of property, land ownership, and "progress" at the expense of the environment¹³. The discourse of reconciliation thus precludes nation-to-nation relations with self-determining Indigenous communities. It instead frames them as a minority and special interest groups in need of capitalist rights to economic and political opportunity. In this way, opposition is redefined as harmless divergence *within* the system, which only reinforces the validity of the capitalist system itself (Adorno & Horkheimer, 1944/2002).

¹³ Further discussed in Section 3.5 on anti-colonial methodologies.

3.2.2 Updating critical theory to our time

While many of these arguments are still applicable today, there are weaknesses in these theorists' analyses; their extreme pessimism and elitism leads to a failure in acknowledging socioeconomic diversity among populations, and thus divergent frames of reference. As Stuart Hall (1973/2006) describes in his theory of encoding/decoding, some "decoders" of mass media (i.e. viewers, consumers) may interpret a dominant message in a negotiated or oppositional way, thus rejecting the dominant ideology either partially or fully. After all, the culture industry, particularly in the mid-20th century, was not geared towards consumers of every race, gender, ethnicity, and sexual orientation. Anyone outside of the prescribed norm and target audience would thus be a peripheral consumer of mass media messages and products (e.g. Indigenous peoples, African-American people, queer people, etc.), and potentially capable of some autonomy, critical thinking, imagination, and ultimately, resistance. For example, hooks (1992/2013) describes the "oppositional gaze" as the way in which Black women resist dominant misrepresentations (or lacking representation) of Black female characters in popular film and television. Likewise, Marcuse (1964/1991), Adorno and Horkheimer's (1944/2002) own ability to critique modern capitalism and the culture industry is evidence that foreign and marginalized bodies and minds have the ability to resist the dominant capitalist ideology. Their work even informed and motivated the New Left and anti-Vietnam war movements in the 1960s. Their analyses would thus benefit from feminist, poststructuralist, and other emancipatory methodologies in order to recognize both their own positionality and the intersectionality of the general population. This layered worldview is something that I offer with my own theoretical framework, in order to strengthen this critical theory perspective.

3.2.3 AI and AC (Anti-Capitalism)

Still, these Frankfurt School theorists offer a valuable theoretic lens which allows us to recognize inequitable class and power relations, while locating and ameliorate economic oppression. Their analysis also directly relates to the dangers of AI. They suggest that reason taken to its extreme can catastrophically result in highly intelligent minds rationalizing the development and use of technologies of mass harm and destruction. Having seen the rise of Fascism in Germany lead to the Holocaust, these critical Frankfurt School theorists argue that

technical rationality dangerously serves to advance authoritarian capitalism. Contemporary anti-capitalist thinkers like Beer (2016), Coulthard (2014) and Žižek (2014) further argue that capitalism is premised on short-sighted ideals of accumulation, competition, calculation and efficiency which allow for the rationalization of genocidal colonialism, environmental degradation, and socioeconomic inequality. Since “smart” technology, or AI, is the epitome of efficient and rational thinking and is also developed almost entirely by capitalist ICT (information and communication technology) corporations, it could thus serve as the ultimate tool for exacerbating and naturalizing capitalistic relations of domination and subordination (Daniels, 2015).

Leading physicists and computer scientists like the late Stephen Hawking, Max Tegmark, Stuart Russell, and Frank Wilczek (2014) have warned us as much. They argue that the creation of strong AI—or AGI (artificial general intelligence, referring to a machine that can perform *all* tasks that an intelligent human can, rather than only specific tasks)—will be the “biggest event in human history”, resulting from “an IT arms race fuelled by unprecedented investments and building on an increasingly mature theoretical foundation [for artificial intelligence]” (Hawking et al., 2014, para. 2). Despite the fact that IT/ICT leaders market AI as the solution to all of humanity’s problems, the predominant fear among experts is that AGI may rationally render humans unnecessary or obstructive to its objectives (Hawking et al., 2014; Jones, 2015). It could thus exterminate human life sources or bodies in highly intelligent ways, for seemingly logical and amoral reasons (Tegmark, 2016). This is why it is so crucial to question technological utopianism and uncover the ideologies, worldviews, and agendas that are central to the design of AI, and thus being embedded into “smart” AI technologies. We must ask: why is this technology being created, why does it operate in the way that it does, and who benefits and suffers from the outcomes of seemingly-neutral technology? These are questions that will be addressed throughout this thesis.

3.3 Postmodern Methodologies

“The artefact is seen to be not neutral or passive, but an active logos or utterance of the human mind or body that transforms the user and his ground”
(McLuhan, 1988/1995b, p. 379).

Postmodern thought interprets reality, truth, and knowledge as contextual, uncertain, historically produced, subjective, and constituted by multiple and diverse perspectives. Postmodernists thus reject positivist thinking and the notion of a singular, knowable truth or reality (logics which are central to the tech industry and their technological productions). Postmodernists are highly critical of broad and generalized narratives of the world, which they contend are “power-laden discourses developed specifically for the maintenance of dominant ideas or to enhance the power of certain individuals” (GrBich, 2013, p. 8).

As discussed earlier, postmodernists also value and acknowledge subjectivity, and urge that the positionality and worldview of both a researcher and their research participants be foregrounded in any study. As Richardson (2000) describes it:

Postmodernism recognizes the situational limitation of the knower. Qualitative writers... don't have to try to play God, writing as disembodied omniscient narrators claiming universal, atemporal general knowledge; they can eschew the questionable metanarrative of scientific objectivity and still have plenty to say as situated speakers... engaged in knowing/telling about the world as they perceive it. (p. 518)

Using postmodernism as a theoretical lens is thus valuable in allowing me to challenge the supposed scientific objectivity and neutrality of AI, smart technologies, and the tech industry at large (and even academia itself, which tends to equate valid knowledge with an “objective” perspective). At the same time, postmodern thought allows me to use my own situated subjectivity to produce rigorous academic work that describes reality as I perceive it, while also drawing on the perspectives of my interview participants (which are largely marginalized perspectives, given the dominant narrative of AI technologies as beacons of optimization, efficiency, and superior decision-making). In highlighting subjectivity and a multiplicity of realities, possibilities, truths, and perspectives, postmodernism naturally fits with the other emancipatory and social justice-oriented methodologies that I employ in this paper: critical theory, intersectional feminism, and anti-colonialism.

Postmodern thought also recognizes that our understanding of the world, including our languages, laws, norms, and notions of gender, race, and sexuality, are culturally and socially constructed. This helps us to challenge and disrupt inequitable power dynamics and methods of control by exposing socially constructed truths, knowledges, and institutions “for what they are” (GrBich, 2013, p. 8). Likewise, postmodernists suggest that a holistic view of any research topic

is essential; the structures that impact the context of a research topic, such as policies, culture, and sociopolitical and economic relations, among other things, must be acknowledged.

I apply postmodern thought in the design of my study and method, in my writing style, and in the development of my sociopolitical and sociotechnical lens for analyzing technology. I recognize that technologies are rooted in a social, political, economic, and historical context which shape both the technologies and our understanding of those technologies. I thus situate my work in its time and context, while recognizing that this context allows for the powerful in society to control and oppress those without privilege, increasingly via technologies. I highlight alternate perspectives and narratives on “smart” tech and AI in order to disrupt their dominant, naturalized, and socially constructed discourses in Canada and the Western world. I also aim to write in an accessible manner, recognizing that my knowledge and perspective is not shared by all. I offer explanation and context for typically taken-for-granted and specialized, academic terms and concepts. Given my social justice-oriented and emancipatory goals, it is important to resist academic conventions that make scholarly work inaccessible to the very people whom the work concerns.

3.3.1 McLuhan and the Technopolis

I also draw on the theoretical concepts of postmodern scholar Marshall McLuhan (1966/2003) to understand our human relationship with technology. McLuhan popularly coined the phrase, “the medium is the message.” He explains that we shape our tools and technologies, but these technologies in turn shape us. Just as words bring the universe into existence, every subsequent technology changes our environment and relationship with it (McLuhan, 1988/1995a). In this sense, every medium possesses its own language and mode of communicating. This is an interesting concept to consider in the context of digital technologies and AI, which are quite literally based on computer codes and languages. As Noble (2018) contends, “algorithms are a fundamental invention of computer scientists who are human beings—and code is a language full of meaning and applied in varying ways to different types of information” (p. 26). In this sense, code itself produces a worldview and *discourse* (à la

Foucault¹⁴). Code-based algorithms and sensors (which are central to the smart city) thus become tangible reproductions of an uncontested dominant discourse, producing reality as much as reflecting it¹⁵.

McLuhan (1988/1995a) goes on to suggest that technologies are extensions of our minds and bodies which numb the area that we extend. In this sense, every new technology is an amputation which hypnotizes the user. We can see this in the way that smartphones and social media capture our attention and even become an addiction, while numbing our minds and in-person connections with others. For example, we participate in online communities, yet voter turnout is low. We replace in-person relationships with online “friendships” that lack a sense of touch, which McLuhan is fond of. For McLuhan, touch is important because operating from great distances relieves us of responsibility for and identification of our actions. We see this in the way that anonymity online has led to cyberbullying and violent hate speech. Likewise, artificial weapons like drones, bombs, and guns are used to harm others on a massive scale. In contrast, animals with natural weaponry like horns have strong inhibitions against hurting their own, but these in-built restraints that help us to avoid harming each other do not extend to our use of tools. This is particularly problematic in the age of the internet, which McLuhan (1988/1995a) predicted well before the internet was actually created: “As electric media proliferate, whole societies at a time become discarnate, detached from mere bodily or physical ‘reality’ and relieved of any allegiance to or sense of responsibility to or for it” (p. 377).

In this way, we may think that we control our technologies, but they also control and change us, modifying the image, identity, and nature of a user in ways that can be more sudden, damaging, and destructive than wars fought with hardware. McLuhan (1988/1995a) argues that we integrate psychologically with our tools and technologies that service us, and in turn service them; our technologies in fact bring entire environments of service into existence. For example, when we build a house, we then have a master and task for life; we must clean and furnish it. Returning to the example of social media, we may develop a presence and reputation online, but then we must maintain and respect that reputation; we are no longer free.

¹⁴ Foucauldian *discourse* defined in section 3.3.2.

¹⁵ *Sensors* defined in section 2.3.

Of course, technology does have benefits. McLuhan (1988/1995a) cites Hans Hass to explain that our tools, or prosthetic extensions of our organs, have five distinct benefits to our lives and cultural advancement:

- (a) They have no need of constant nourishment, thus saving energy.
- (b) They can be discarded or stored rather than carried (a further saving of energy).
- (c) They are exchangeable, enabling man to specialize and to play multiple roles: when carrying a spear, he can be a hunter, or with a paddle he can move across the sea.
- (d) All of these instruments can be shared communally.
- (e) They can be made in the community by "specialists" (giving rise to handicrafts).

(p. 375)

Our notions of and desire for cultural advancement, however, are ideologically biased and can thus enable harm. For example, the railway extended motion and in turn allowed us to create new types of cities. This railway was then used to penetrate into Congo and access rubber, which began an entire era of slavery and colonization. The damaging legacy of colonization was thus directly enabled by the railway, which allowed for the reach of human greed to be extended. At the same time, the railway created distance between colonizers and the colonized, again moving away from touch-based relationships and enabling mass harm (1988/1995a). This analysis echoes Frankfurt School theorists and their fear of extreme rationality; rationality combined with technology-enabled distance and a capitalist agenda of development, power, and control can lead to massively destructive consequences. As already discussed, these same fears are echoed by critics of AI and its current development trajectory which is driven by a capitalist agenda which seeks to render more and more human workers obsolete (thus further distancing us from touch).

Ultimately, McLuhan (1951/1995b) argues that the “media maelstrom” of the electric age can lead to hugely destructive changes in human behaviour and identity; only by seeking to understand the patterns and effects of these technologies can we hope to survive. He further asserts that the time for anger and resistance concerning new technologies is at the beginning of their development and not in the advanced stages of development. He critiques “our rear-view mirror orientation [from which we] look at all these new technologies as if they were reflexes of the old technology” (McLuhan, 1966/2003, p. 86). He explains that the content of any new medium or technology is an old medium, which is what we can easily see and retrospectively analyze. In constantly looking backwards and analyzing older mediums and iterations of

technology, however, we fail to prepare for the imminent and potentially harmful effects of new mediums and technologies.

For example, we tend to analyze social media posts or content, which is actually the old medium of text/writing, rather than social media platforms themselves. This is why Langlois and Elmer (2013) encourage us to decentre social media content and analyze the *digital objects* of social media in order to analyze the biased and exploitative logics of these platforms¹⁶. Likewise, contemporary policy conversations in the Western world are only now addressing governance, privacy, and regulation on the internet. The internet, however, is the old medium upon which the coming wave of smart city and IoT (internet of things) technologies are based; the internet is the *content* of IoT¹⁷ and smart city technologies, if you will.

My research thus applies McLuhan's valuable theoretical lens in order to proactively understand and analyze the patterns and effects of the latest iteration in our corporatized technological and media environment: smart city technologies. As McLuhan (1988/1995a) explains, these effects are difficult to discern because we are so immersed in this technological environment, like a fish in water (McLuhan, 1988/1995a). As Hall asserts, however, "Dangers are not places you run away from but places that you go towards" (Ang, 2016, p. 32). I thus look forward, and proactively seek to understand and resist the dangers of smart cities *before* their harmful and exploitative logics become solidified and difficult to disrupt. Postmodern thought and methodologies assist me in producing this future-oriented, interdisciplinary, critical, and transformative work in the predominantly scientific field of AI and smart cities.

3.3.2 Poststructuralism

"Where there is power, there is resistance" (Foucault, 1990, p. 95).

GrBich (2013) describes poststructuralism as a subset of postmodernism that developed in reaction to structuralist thought. Structuralism developed in the early 20th century with the linguistic work of Ferdinand de Saussure, who saw language as a "system of signs, codes, rules and conventions" in which patterns provide meaning, and all words have "recognized meanings

¹⁶ *Digital objects* defined in Section 2.5.

¹⁷ *IoT* defined in Section 2.3.

that could be learned” (GrBich, 2013, p. 8). Poststructuralism, on the other hand, emphasizes the flexibility and uncertainty of language and meaning. Beginning in the mid-20th century, around the time that the Frankfurt School’s critical theory was also developing, poststructuralists began drawing attention to the ways in which meaning-making, or *semiotics*, is dynamic and contextual.

Michel Foucault (1990), for example, famously introduced the notion of *discourse* to describe the ways in which we think, speak, and write about a topic, and explains that life is immersed in and produced by discourse. He argues that certain norms and codes are established and socialized as natural within a “regime of truth,” and these naturalized knowledges reflect and reproduce the interests and beliefs of dominant social groups (Foucault, 1990). For Foucault, discourse thus entails the marriage of knowledge and power; truth and knowledge are constructed by those in power, while ever-present relations of power also allow for certain truths to be suppressed and silenced. He asserts that dominant institutions determine what is normal or deviant, and thus hegemonic discourses constitute, reinforce and naturalize relationships of control, domination, and subordination (Foucault, 1990).

Postcolonial scholar Edward Said (1979) draws from this thinking in utilizing Foucault’s technique of discourse analysis to critique the colonial, Western study of the “Orient.” He argues that Western powers and scholars have systematically produced and disseminated knowledge about the East from a position of power which disqualifies and suppresses non-Western thought and perspectives (Said, 1979). Since Western academics had the power to imagine, write about, and thus construct the Orient from their narrow and condescending perspective, they were able to rationalize colonialism, discrimination, and marginalization through a perceived need for civilizing the Eastern “other” (Said, 1979). Not only did this imbalance in power allow for the Eurocentric construction of the East to become mainstream knowledge and pseudo-“fact,” but it also centralized the dominant West as the universal norm by which other nations, cultures, and values could be judged (Said, 1979). This postcolonial “othering” process thus allowed for the continued neo-colonial domination of the East by Western powers.

Said’s postcolonial analysis can be applied to smart city technologies, in order to help us see how Western and capitalist notions of AI as a beacon of progress, efficiency, and rational thinking (which are all virtues in capitalist society) are naturalized, thus becoming the dominant

and hegemonic discourse about AI. At the same time, this constructed and dominant discourse suppresses non-Western epistemologies and notions of AI technology in capitalist and settler-colonial states. As already discussed, even the computer codes and languages upon which AI technologies are based can themselves be understood in terms of discourse. Designed by capitalist tech elite in the pursuit of profit, opaque algorithms and other forms of code-based AI can thus reproduce and solidify the dominant and one-dimensional logics of Western capitalism under the guise of technological neutrality.

Poststructuralists like Jacques Derrida also draw attention to the ambiguities, contradictions, power structures, and hierarchies in languages, signs, and symbols. Derrida's methodology of semiotic deconstruction involves exploring all possible meanings and interpretations of a word, phrase, sentence, image, or sound in order to critically uncover and foreground what truths and narratives are being privileged and/or marginalized. For Derrida, we must read any text (which in the context of this paper, can include the publicized promise of AI) as dynamic rather than static, and interpret all possible meanings rather than privileging the voice of the author or creator. Through semiotic deconstruction, we can thus argue, for example, that the discriminatory and hegemonic ways in which the West views and marginalizes the East actually means that the West is not Western enough. Afterall, Western nations champion Enlightenment ideals of democracy and hospitality, however do not apply these ideals when it comes to Islam and the Eastern other (Thomassen, 2009). In this example, deconstruction allows us to unravel Western Islamophobia from the inside, with its own logics. Semiotic deconstruction thus helps us to see the contradictions within the logics of a text itself, and lends itself well to other socially just frameworks and methodologies which also seek to disrupt and problematize dominant meanings and modes of thought.

Ultimately, poststructuralist thought fits well with the critical and emancipatory methodologies that I use in this paper. It allows us to resist binaries and hierarchies while questioning naturalized assumptions and seemingly absolute and universal "truths" embedded in language and discourse. It enables us to foreground marginalized voices and perspectives, and helps us to understand ourselves reflexively, as people writing and working from a particular position at a particular time. I apply poststructuralism in this paper in order to shed light on narratives that are obfuscated by the promotion and publicized promise of the smart city, like

Indigenous dispossession and displacement which is perpetuated through settler city-building and modernization projects like Sidewalk Toronto. I highlight these obfuscated truths, narratives and realities, in an effort to promote critical thinking and socially just outcomes of AI technology within my community.

3.4 Intersectional Feminism

“This is an intervention. A message from that space in the margin that is a site of creativity and power, that inclusive space where we recover ourselves, where we move in solidarity to erase the category of colonized/colonizer. Marginality as site of resistance.

Enter that space. Let us meet there. Enter that space. We greet you as liberators”

(hooks, 1990, p. 152).

Intersectional feminism is oppositional to oppressive structures in society. It is based on the concept of *intersectionality* coined by Kimberlé Crenshaw (1989) to describe and resist the ways in which Black women are marginalized by social and legal institutions as a result of being both Black and female. She asserts that this intersection of marginalized identities leads to compounding discrimination experienced by Black women, yet this discrimination is easily overlooked when we consider race and gender as mutually exclusive rather than intersecting issues and experiences (Crenshaw, 1989). Likewise, intersectional feminism helps us to see how all forms of oppression and marginalization (broadly thought of as “isms”) are compounding and interlocking. A person can be subjugated and excluded in a given society based on their race, gender, class, ethnicity, nationality, age, religion, sexual orientation, physical ability, or citizenship status, among other factors. These various aspects of social differentiation give way to multiple social identities which overlap and intersect, and result in different forms of inequity, oppression, and violence being experienced by a person. For example, a straight, immigrant, South Asian, Muslim man will experience different forms of privilege and oppression compared to a trans, Black woman or a queer, White, Christian woman in Canada. Some identities afford a person privilege and power in society (e.g. straight, male, White, in the Western context), while some lead to marginalization. As Braidotti (2015) puts it:

‘Difference’ is never a neutral category, but a term that indexes exclusion from the entitlements to subjectivity. This results in making entire sections of living beings into

marginal and disposable bodies: these are the sexualized, racialized, and naturalized others for whom to be different always means being different-from and to be worth less than. We're all human, it's just that some seem to be more mortal than others. (p. 3)

Intersectional feminism thus confronts and resists the ways in which certain social identities are deemed more disposable and exploitable than others. hooks (1990), Kovach (2005), and Braidotti (2015) describe feminism as a radical project which seeks to disrupt, dismantle, and work outside of oppressive (i.e. patriarchal, racist, colonial) structures, rather than merely seeking recognition and acceptance within those structures. I would describe the latter form of feminism as outdated, and associated with White, Western feminist suffrage movements of the 19th and early 20th century. The intersectional feminists that I draw on also value and centre lived experience, as well as action and resistance. They contend that we must “think global and act local” (Braidotti, 2015, p. 241) while choosing marginality “as site of resistance—as location of radical openness and possibility” (hooks, 1990, p. 153). As poet and civil rights activist Audre Lorde (1984/2007) famously wrote, “The master’s tools will never dismantle the master’s house” (p. 2). Intersectional feminists thus seek to define new ways of living and relating with one another without reproducing relationships of domination and subordination.

In constructing my intersectional feminist lens, I also draw on anti-racist scholarship. Stuart Hall (1990), for example, contends that we must foster an anti-racist common sense amongst the populace in order to overcome inferential and naturalized racism in media, technology, and society. This logic can be applied to all forms of oppression. In my work, I thus seek to foster an anti-oppressive common sense among city-dwellers, policy-makers, technologist, and academics of Toronto, which I refer to more broadly as my “social justice-oriented” lens.

In line with postmodernism, an intersectional feminist lens allows us to recognize that there are a multiplicity of perspectives and experiences of oppression in any given context. When thinking about how AI technologies can be discriminatory or biased, an intersectional feminist lens helps us to better discern which bodies, identities, and perspectives are being privileged and (multiply-)marginalized by a given technology and its associated logic.

Like forms of postmodern thought, contemporary feminism foregrounds positionality and situated ways of knowing. As Kovach (2003) asserts, “Feminist scholars have challenged the long-held methodological assumption of scientific objectivity that is deeply ingrained in

positivism and hence what constitutes scientific research” (p. 29). She goes on to explain that feminism sees theory and method as intimately connected:

A narrow definition of methodology focuses primarily on the methods (interviews, survey, coding) of research without acknowledging the theoretical assumptions implicit in the work. In qualitative research, feminist scholars and critical researchers have illuminated the importance of both theory and method in methodological considerations. Feminist scholars have argued that ones’ theoretical lens ought to guide the research methods and, as such, methodology encompasses not only the mechanisms of research, but “how research does or should proceed.” (Kovach, 2005, p. 29)

Drawing on this feminist understanding of method, my theoretical frame is central to the design of my study. Given the intellectual nature of scholarly work, I recognize that the conceptual underpinnings and ethics with which I approach my work fundamentally shape the outcomes and nature of my work, including the ways in which I conduct my primary research. I also actively seek to live the ethics of my theoretical frame, and thus chose to engage in action research methods for my study (in conjunction with my interviews¹⁸). My action research methods allowed me to practically and proactively disrupt and challenge the systems of oppression that I name and question throughout this paper.

3.5 Anti-Colonial Methodologies

“Academics who are to be true allies to Indigenous Peoples in the protection of our knowledge must be willing to step outside of their privileged position and challenge research that conforms to the guidelines outlined by the colonial power structure and root their work in the politics of decolonization and anticolonialism”
(Simpson, 2004, p. 381).

While anti-colonial methodologies resonate with other emancipatory methodologies in many ways, the core difference is their focus on acknowledging and supporting Indigenous decolonization movements. Although decolonization is not the focus of my research topic or questions, my work recognizes the centrality of Indigeneity in the anti-colonial project, and the gap in literature that accounts for Indigeneity when critically analyzing technological developments like the smart city. While this is not a gap that I am able to fill with my work, I

¹⁸ See Chapter 4 for methods.

apply anti-colonial methodologies that are derived from Indigenous thought and decolonizing principles in order to draw our attention to the need for further research in this field. These anti-colonial methodologies have significantly guided the ethics and worldview with which I approach my methods and analysis.

Although Tuck and Yang (2012) assert that non-Indigenous solidarity is “incommensurable” with decolonization, King (2016) argues that the shared experiences of colonization, dispossession, and dislocation among Black and Indigenous communities in North America creates a basis for productive solidarity. For example, Yerxa (2014) writes about self-hate as a result of internalized colonial thought amongst Indigenous peoples, which echoes W. E. B. Du Bois’ (1903/1999) notion of “double consciousness” in which Black-Americans see themselves through White eyes. Yerxa (2014) also argues that the discourse of the “savage Indian” as a homogenized and inferior “other” in need of domination was constructed and continues to be upheld through Western colonial power and knowledge production. This resonates with Said’s (1979) analysis of postcolonialism and the “othering” of the East, which rationalized colonialism and continues to allow for the neocolonial domination of Eastern nations and bodies by the West. Walia (2014) thus suggests that “Indigenous self-determination must become the foundation for all broader social justice mobilizing” (p. 45), as it is intertwined with issues of racism, poverty, police violence, war and occupation, violence against women, and environmental justice. In fact, Indigenous peoples are most impacted by these intersectional struggles. As she urges, however, Indigenous struggles *must not* be subsumed by other equity-seeking movements; Indigeneity is not merely an identity, but a way of life that requires solidarity on its own terms (Walia, 2014).

I thus draw on Indigenous thinkers like Simpson (2004; 2014), Tuck and Yang (2012), Lawrence (2004), Mays (2016), Perry (2016), and Thomas-Muller (2014) while seeking to confront ongoing settler colonialism in my work, recognizing that I too am complicit in settler-colonialism. I do this in solidarity with Indigenous decolonization movements, where solidarity is understood as a commitment to sustained and long-term support, premised on an acknowledgement of shared politics (Walia, 2014). Given that decolonization is deeply intertwined with action and the reclamation of Indigenous lands by Indigenous peoples, however, I avoid referring to my work as applying “decolonizing” methodologies, so as not to depoliticize

the notion of decolonization. Carlson (2017) further explains that as a settler who does not understand Indigenous languages or knowledges, it does not feel ethical to claim to employ Indigenous methodologies (a feeling that resonates with me). I thus consider my work to draw on anti-colonial methodologies, and recognize that the ethics of these methodologies can and should be applied in any social justice-oriented context. We must remind ourselves that Indigenous communities are not just marginalized minorities; they have fundamentally oppositional worldviews for how life, society, and human-land interactions should function (and are multiply oppressed for it) (Walia, 2014).

For example, anti-colonial methodologies add a layer of complexity to intersectional feminist thought. Thomas-Muller (2014) draws attention to the fact that Cree society, along with many other Indigenous societies, are matriarchal. Colonialism and gendered violence against Indigenous women are thus intimately related and in fact inseparable:

There is a powerful metaphor between the economic policies of this country Canada and the USA and their treatment of our Indigenous woman and girls. When you look at the extreme violence taking place against the sacredness of Mother Earth in the tar sands for example and the fact that this represents the greatest driver of both Canadian and US economies, then you look at the lack of action being taken on the thousands of First Nations woman and girls who have been murdered or just disappeared, it all begins to all make sense. It's also why our woman have been rising up and taking power back from the smothering forces of patriarchy dominating our economic, political and social and I would say spiritual institutions. (Thomas-Muller, 2014, p. 278-279)

Critical theory and its resistance to capitalism also resonates with some of the principles of decolonization. The settler state's ideological commitment to capitalism has propelled its colonial, exploitative, violent, oppressive, and neoliberal practices which have resulted in ecological disaster and damage to Indigenous lands. As Thomas-Muller (2014) argues, "We must understand that these are all symptoms of a much larger problem called capitalism. This economic system was born from notions of manifest destiny, the papal bull, the doctrines of discovery and built up with the free labour of slaves, on stolen Indian lands" (p. 278). As Coulthard (2012) thus asserts, "for Indigenous nations to live, Capitalism must die" (p. 173).

Where critical theory fails to offer alternative ways of relating in society, however, Indigenous epistemologies help us to imagine accountable, reciprocal, and wholistic ways of living which centre community and relationships with each other and our environment. Here, the spelling of *wholism* (rather than holism, or holistic) "indicates 'whole' as in... complete,

balanced and circular” (Absolon, 2010, p. 75); attending to wholism means attending to “the heart, spirit, and body in addition to the mind... to values, emotion, history, and context” (Carlson, 2017, p. 503).

3.5.1 Applying Indigenous perspectives to contemporary technologies

Although Indigenous thought is often written off as prehistoric and thus incompatible with modern society, it is actually particularly valuable in the context of my research topic, the “smart” city. Indigenous thought helps us to refocus our attention to the community-based nature of a city, while bracketing the “smart.” In turn, this helps us to question the very notion of “smart,” and the type of values and ideologies that it represents and reproduces. We must ask if a capitalist, data-driven, and environmentally damaging city designed by a transnational tech giant that actually profits from the continued colonization of our behaviours and lands is “smart” or beneficial to us at all.

In this way, Indigenous perspectives, being fundamentally oppositional to capitalism, help us to reimagine many of the discourses and institutions which we as social justice-oriented peoples and scholars tend to problematize. For example, scholars Bang, Marin, Faber, and Suzokovich (2013) help us to rethink our capitalist desires for total information capture:

“Information” in Indigenous communities is not facts to be know; information or knowledge is the experiences of communities, and thus along with knowing comes responsibilities shaped by complex systems of kinship, age, and gender, among other social dimension. (p. 710)

Here, these scholars not only suggest that information collection is something that should be done with accountability and responsibility in mind, but they also question our seemingly democratic value placed on totally information *access*. We tend to idealize the narrative of the “free” and “open” internet, where all information is accessible to all people. Not only is this narrative actually false, given that corporate and private influences control much of what we see online, but they it does not consider how age and other social dimensions may impact the ways in which we receive information. Much research now focuses on the harmful effects of digital social media on children and youth. Perhaps our belief that all people should have access to all knowledge at all times is one that also needs to be questioned.

In asking these questions, I heed Bang, Marin, Faber, and Suzokovich's (2013) call for scholars to disrupt colonial desires for "new" and "modern" technologies which actually resemble colonial desires for dominating and modernizing the "new world." They argue that we will increasingly need to support Indigenous repatriation of technologies which will help to restore "conceptions of technology to Indigenous paradigms" (Bang et al., 2013, p. 710). I attempt to draw on these principles in my final recommendations of this paper, where I aim to make space for Indigenous scholarship and knowledges to guide future technological development. This resonates with Leanne Simpson (2004) emphasis on the need for anti-colonial methodologies to create spaces that enable "the recovery of Indigenous Knowledge systems" and "the protection of Indigenous lands from environmental destruction" (p. 381).

Carlson (2017) also suggests that settlers engaging in anti-colonial research should engage in reciprocity and practice-/action-based research, while ensuring the self-determination and autonomy of research participants. As Walia (2014) puts it, "If we are in support of self-determination, we too need to be self-determining" (p. 50). I thus aim to maintain the self-determination and autonomy of my interview participants via consent, privacy, anonymity, and security measures¹⁹. For example, I give all participants the opportunity to review my work, and the ways in which their interview data is used in my study. This gives them the ability to dictate how their experiences and perspectives are being represented, and flag any concerns with the representation or use of their data. After interviewing one participant and organizer for the #BlockSidewalk movement—Milan Gokhale—I also offered to help with the movement, in the spirit of reciprocity (as inspired by anti-colonial methodologies). This is what led to my involvement in the City of Toronto's Executive Committee deputation process on the Quayside development, which in turn became part of my action research methods²⁰.

Ultimately, I apply anti-colonial methodologies while aiming to "ensure our model of liberation does not become a model of oppression for others" (Walia, 2014, p. 50), and particularly Indigenous societies, with their oppositional worldviews. I centre relationship, community, interconnectedness, accountability, and action, while seeking to disrupt and dismantle oppressive and inequitable hierarchies in society, particularly as they are reproduced

¹⁹ See Appendix A for interview consent form.

²⁰ Action research methods described in section 4.4.

by Toronto's proposed smart city project and AI technologies. I also centre intersectional feminist thought, which is very much in line with Indigenous decolonization movements and conceptions of a better future:

When we turn things around as a peoples, it will be the woman who lead us, and it will be the creative feminine principal they carry that will give us the tools we need to build another world. Indigenous peoples have been keeping a tab on what has been stolen from our lands, which the creator put us on to protect, and there is a day coming soon where we will collect. Until then, we will keep our eyes on the prize, organize and live our lives in a good way and we welcome you to join us on this journey. (Thomas-Muller, 2014, p. 279)

4

METHODS

“One has to think global, but act local: here and now. To come to terms with the present while resisting it, being oppositional without being negative, that is the challenge for politicized relational subjects” (Braidotti, 2015, p. 241).

My method is deeply informed and shaped by my theoretical frame, which offers the conceptual underpinnings, ethic, and social justice-oriented lens with which I approached my work. This methods section builds on my theoretical frame and offers a description of the practical and physical steps that I took to conduct my research, with the aim of answering my four research questions: What discourses, ideologies, logics, agendas, and worldviews are being promoted and reproduced by the “smart city” project? What worldviews and narratives are simultaneously being obfuscated and silenced? If these biases persist, how will they impact socioeconomic inequality and systemic discrimination in Toronto (and Canada more broadly)? And how can this smart city project be reimaged through a social justice-oriented lens (i.e. my theoretical framework) to better address the needs and rights of diverse Torontonians?

My research involves various forms of analysis and data-collection, meaning that my results are triangulated. GrBich (2013) explains that triangulated findings are more robust and

reliable than findings from a single form of data-collection and analysis. I model this triangulated method upon Duffy's (2015) research method, which is particularly strong according to GrBich's (2013) guidelines for evaluating qualitative research. I combine interview data with my action research findings and intersectional, social justice-oriented analysis to uncover and assess the logics, ideologies, and potential harms and inequities of Sidewalk Toronto's smart city project.

4.1 Analysis of Secondary Data

First, the dominant discourse surrounding Toronto's "smart city" development was studied via public (i.e. industry, government, and academic) reports on the topic, including documents released by Waterfront Toronto and Sidewalk Labs/Sidewalk Toronto. To gain a more holistic and informed understanding of the Sidewalk Toronto project, context, and discourse (i.e. its history, actors, stakeholders, processes, and marketing techniques, as well as reactions, support, and criticisms from the public), the project was also studied via English news reports and opinion articles from both Canadian and international online news outlets. Subscriptions were purchased for City Hall Watchers and The Globe and Mail, while all other news articles accessed during this research process were available for free. This online research was on-going from the period of October 2017 to June 2019, and utilized the following keywords: Toronto, smart city, Sidewalk Labs, Sidewalk Toronto, Quayside, and Waterfront Toronto. Notes were taken on relevant and interesting articles throughout this research process.

Applying a social justice-oriented lens/theoretical frame, the discourse surrounding Sidewalk Toronto's publicized promise was analyzed, giving special attention to the power dynamics that shape the dominant discourse. This included an analysis of Waterfront Toronto's original RFP (Request for Proposals) for the Quayside development, and Sidewalk Toronto's original proposal to Waterfront Toronto. From this analysis, it was confirmed that Sidewalk Toronto's publicized promise is indeed imbued with dominant, naturalized, and hidden logics which serve certain private interests at the expense of others. Specific technologies that Sidewalk Labs proposed both in Toronto and in the United States were also analyzed, in order to further assess how the technologies themselves advance a certain logic and agenda of development.

As discussed in section 3.2.2 on poststructuralism, dominant narratives tend to obfuscate alternative perspectives and worldviews. In order to uncover narratives that are being obfuscated by Sidewalk Toronto's project and publicized promise, news reports, opinion articles, and the resignation comments/statements released by four Sidewalk Labs and Waterfront Toronto advisors who resigned from their positions during the course of the project (i.e. Julie DiLorenzo, Saadia Muzzafar, John Ruffolo, and Ann Cavoukian) were thus analyzed. Ethics clearance was then applied for and received from Ryerson University's Research Ethics Board in order to conduct interviews with local (i.e. GTA-based) professionals and experts who could offer educated perspectives on the Sidewalk Toronto project and bias in AI more broadly.

4.2 Interview Sampling Method

As part of the ethics protocol submitted to Ryerson University's Research Ethics Board, consent forms were prepared which outlined this study's research aims, researcher contact information, participation criteria, interview process, potential interview questions, potential benefits and risks of participating, data storage and confidentiality processes, and more (see Appendix A). A recruitment e-mail script (see Appendix B) and phone script (see Appendix C) were also prepared to summarize the key information from the consent form for potential participants. These texts, along with a list of potential research questions (see Appendix D), were all approved by Ryerson's Research Ethics Board on April 6th, 2019.

Between April and May, 2019, potential interview participants were contacted. Three local (i.e. GTA-based) professionals and a City Councillor were initially contacted in early April. Each had publically expressed opinions, questions, and concerns about the Sidewalk Toronto project in the media, and had publically available contact information online. Waterfront Toronto was also contacted via their website's "contact" submission form, and Sidewalk Labs was contacted via their press inquiry e-mail address listed on their website (interestingly, they had no other means of communicating with them or the Sidewalk Toronto team at the time). Of these six potential participants, only Councillor Gord Perks' office and Sidewalk Labs responded. The former (Councillor Perks) agreed to meet and be interviewed, while the latter (Sidewalk Labs) stated that they were unable to participate because they were "laser-focused on the project," and suggested checking their "documents" page of the Sidewalk Toronto website for information.

As of May 2019, a snowball sampling method was used to find the rest of the interview participants; people aware of this study either suggested potential participants, or contacts who could suggest other potential participants. The weakness of this form of sampling is that it limits the voices/perspectives studied to a particular social circle or network. These limitation were offset by ensuring that the people interviewed worked in different fields and were recommended by different people. Six more potential participants were contacted through this snowball sampling method, of which four agreed to meet and three agreed to be formally interviewed. The fourth person did not wish to be interviewed because she did not feel knowledgeable enough about the topic. Instead, she invited me to a lecture where she spoke about affordable housing and income disparities in relation to the Sidewalk Toronto project. After this lecture, she also invited me to the Power Lab's meeting on "Organizing for Fairer Economies" in order to meet other potential interview participants. Rather than becoming a venue for recruiting interview participants, the Power Lab's meeting on May 30th, 2019 then became part of the action research methods for this study (see section 4.4).

4.3 Semi-Structured Interviews

Four semi-structured interviews were ultimately performed between May and June, 2019 with Toronto-based professionals in the fields of governance, public policy, AI and tech development, and community engagement. These interviews were 30 minutes to 1 hour long, and focused on investigating: a) personal and public perceptions of the Sidewalk Toronto project, b) potential benefits and harms of the project, based on its current developmental trajectory, c) policy and other governance needs for the smart city, and d) ways to better design the smart city in order to limit harmful/inequitable consequences while maximizing public benefit. Two of these interviews were conducted over the phone, while two were conducted in-person.

Before each interview began, the consent form was clearly explained to each participant verbally, to ensure that they had full autonomy over each option that required consent (i.e. remaining anonymous or identifiable, being audio-recorded or not, being sent a copy of the interview data for review or not). It was explained that even if they did not consent to any or all of the options, they could still be interviewed, for the sake of learning. All participants consented to be audio-recorded, while two opted to be identified by pseudonyms. These participants will

henceforth be referred to as *Emily Earhart* and *Christie Castellano*. *Earhart* works at the intersection of public policy and AI, while *Castellano* is a community engagement professional. The two participants who opted to remain identifiable were Gord Perks, Toronto City Councillor for Ward 14, Parkdale-High Park, and Milan Gokhale, a technology consultant, writer, and #BlockSidewalk organizer.

The questions asked in each interview differed based on the expertise of the participant and the trajectory of their own responses. Some of the prepared questions, however, were asked to all participants (for example, many of the “personal and public perception” questions in Appendix D). This semi-structured format was based on Bernard’s (2011) guide for research interviews. He suggests that semi-structured interviews are best for situations in which you will only interview someone once, as they allow for you to follow an interview guide and cover set topics while also following leads in the participants’ responses. At the same time, the semi-structure format shows to the participant that you as a researcher are prepared, efficient, and in control, without exercising excessive control; it still allows the participant to follow their own leads (Bernard, 2011).

Bernard (2011) also explains that in an interview, the researcher is always in a position of power, while the respondent is in a marginalized state and vulnerable to the researcher’s questions. In an effort to subvert these power relations, respondents were thus reminded at the beginning of each interview that they did not have to respond to any questions that made them feel uncomfortable, and could stop the interview at any time. My own perspective was also shared with each participant throughout each interview, thus making the interview process reciprocal and conversational. Finally, each interview was concluded by asking the participant if they wanted to share any other thoughts or information, thus giving each participant the opportunity to offer what they felt was important.

All interviews were audio-recorded, and then transcribed within a week of the interview in clean-verbatim format (i.e. leaving out only “ums,” “ahs,” and “likes”) (see Appendix E for interview transcripts). To sort and organize this interview data, each transcript was then coded according to the main themes/headings from the literature review: the neoliberal corporation, surveillance capitalism, the internet of things, privacy in the information age, the logics of computation and positivism, and machine-perpetuated identity bias.

4.4 Action Research Methods

In addition to conducting interviews, action research methods were utilized in an effort to embody the ethics of this study's social justice methodology and theoretical frame. Both anti-colonial and intersectional feminist scholars emphasize the importance of practice- and action-based research.

As described earlier, the first action research venue—the Power Lab's "Organizing for Fairer Economies" meeting on May 30th, 2019—was suggested by a potential interview participant. At this all-day event, Toronto community members and organizers discussed concerns about the Sidewalk Toronto project, and worked in small groups to consider solutions. Community organizer Maritza Silva-Farrell from Queens, New York also joined this meeting via video call. Maritza was a lead organizer in the successful resistance against the building of Amazon's headquarters in her neighbourhood. At this meeting, I (the researcher) engaged in dialogue with other community members, while both learning and sharing ways to help shape and promote equitable outcomes of the Sidewalk Toronto project. Notes were taken at this meeting to document the key points.

The second action research method involved participating in the City of Toronto's Executive Committee deputation process on the Quayside development, which took place on June 6th, 2019. As described in section 3.5, this action research opportunity was suggested by a colleague of interview participant Milan Gokhale; both are #BlockSidewalk organizers. At this event, notes were taken to document the deputation process along with the specific concerns, hopes, and comments from other citizens, deputants, City Councillors, and Mayor John Tory. Drawing from anti-colonial principles of reciprocity and action (as discussed in section 3.5), I also made my own deputation as both an researcher/academic and citizen of the GTA, in solidarity with the #BlockSidewalk movement.

Finally, my thesis supervisor, Dr. Stéphanie Walsh Matthews, offered me a ticket to the Media Ecology Association's international conference on Media Ethics, where I was invited to a closed *charrette session* on building inclusive and ethical digital cities on June 28th, 2019. A *charrette session* is an intensive, collaborative, and creative brainstorming session in which

guided discussion ends in an interdisciplinary team designing solutions to a complex problem. In this three-hour session, a handful of scholars, professionals, and journalists collaborated to consider what a digital city (like Toronto's smart city) *should* look like. Both challenges and opportunities in designing an ethical, inclusive, and equitable digital city were identified, and noted on sticky notes that were posted on a communal board. Small groups were then formed to develop written and systematic plans for tackling specific issues related to the digital city. The plans created in this session were collected by the Media Ecology Association in order to develop a City Manifesto. Notes were taken throughout this session for the purposes of this research study, as well.

The notes from each of these action research methods were then cross-referenced with the sorted and coded interview data. During this process of cross-analysis, new themes were identified in order to better sort the triangulated data. These themes (bias in tech and the tech industry, public perceptions, corporate interest and power, policy and governance, civic engagement and resistance, rethinking the project and process) informed the headings in Chapter 5, where the primary data from this study is presented and discussed. The data in each of these sections was then analyzed through a social justice-oriented theoretical frame, and supplemented with secondary data and literature where relevant or necessary.

5

FINDINGS & DISCUSSION

As discussed in the introduction of this thesis, the Sidewalk Toronto “smart city” project is on-going and constantly evolving, making this research appear instantly historic. As I write this, Sidewalk Labs’ Master of Innovation and Development Plan (MIDP) has just been publically released, thus offering new material for analysis. Sidewalk Labs has also updated their website, hired new advisors, and shifted their publicized promise and goals in response to public resistance. What I offer in this findings section, however, remains relevant. I offer an analysis of Sidewalk Labs’ behaviour, publicized promise, business model, and agenda leading up to this point, which allows us to identify their guiding values, principles, logics, and worldviews. As Adorno and Horkheimer (1944/2002) describe as typical of the culture industry²¹, technology corporations offer an illusion of change and progress when in actuality, their underlying capitalist agenda remains static. Moreover, oppositional perspectives which resist capitalist tech developments tend to be marginalized until they are co-opted as harmless divergence *within* the capitalist system and agenda of development (Adorno & Horkheimer, 1944/2002). It is thus crucial to critically analyze and deconstruct the discourses, narratives and effects of technology-centred corporate projects like Sidewalk Toronto with a social justice-oriented lens if we are to conceptualize equitable and humanitarian ways for integrating the public and private interests of

²¹ *Culture industry* defined in Section 3.2 on Critical Theory.

city-dwellers and tech corporations. As McLuhan (1951/1995b) argues, the time for understanding, resisting, and shaping new technologies is at the beginning of their development—not in the advanced stages of their development. I thus present future-oriented findings in this section, in hopes of helping to inform and shape discourse, policy conversations, and physical developments of the “smart city” and associated “smart”/AI technologies, both in Toronto and elsewhere.

To do this, I draw from and analyze primary data collected through two methods: interviews and action research²². This data was originally coded and sorted according to the main categories of the literature review (i.e. the neoliberal corporation and AI, surveillance capitalism, the internet of things, privacy in the information age, the logics of computation and positivism, and machine-perpetuated identity bias), however these titles and categories were changed once the primary data was cross-analyzed and triangulated, to make space for new ways of thinking. The interview and action research results are also contextualized in this section with secondary data collected from scholarly literature, news reports, opinion pieces, resignation letters, and gray literature.

5.1 The Siloed Tech Industry

I think my educational experience—I completed engineering and MBA programs—actually prevented me from thinking critically about technology. Both experiences forced me into a narrow frame/lens around technology solutions to infrastructure and business problems. Those are narrow lenses that blind us from seeing larger, broader political and philosophical problems...I think the lack of formalized training on humanity, society, welfare and public good is one of the biggest problems in the tech sector, and I spend an increasing amount of my life thinking of how to help solve that.

This response from interview participant Milan Gokhale offered valuable insight into the guiding principles and worldviews of the technology industry, and by extension, Sidewalk Labs. Gokhale explained in his interview that he has been working in the tech industry for 10 to 12 years, and tinkering with technology and software long before that. When asked to reflect upon his educational experience prior to working in the tech industry, and whether or not it taught him to think critically about the impacts of technologies and the tech industry, his answer was a

²² See Chapter 4 for details on these methods.

resounding “no.” In suggesting that “the lack of formalized training on humanity, society, welfare, and public good is one of the biggest problems in the tech sector,” he indicated a need for interdisciplinary and humanistic education among technologists, programmers, and business professionals who design and market our “smart” and AI technologies.

This is a crucial point given that the dominant discourse around technological education seems to exclusively focus on *digital literacy*, which involves teaching non-“techies” about the mechanics and privacy implications of using commercial digital technologies. Increasingly, we hear concerns and reports about the push for visible diversity in the tech industry. Rarely, however, do we see progress towards diversity in *experience*, worldview, and education within the tech industry itself.

Councillor Gord Perks in fact explicitly described a lack of meaningful and representative diversity among the Sidewalk Toronto team, based on his experiences in their lobbying sessions:

I haven’t seen anybody from any Indigenous community. I have seen some, so-called “experts” who are from racialized groups, but they tend to be people who hang out in cool swanky think tanks in New York City, and are not attuned in any way to the issues of Toronto’s very diverse population, and the opportunities and problems associated with how Toronto as a community deals with racialized groups.

*Christie Castellano*²³, a community engagement professional, similarly described a need for an intersectional approach to diversity that moves beyond visible diversity alone:

So you could have, just to be crass, a person of colour, and a person from Scarborough and a person with a disability, but what experiences are they bringing? What critical thought and reflections are they bringing? ...If it’s just a token...I think that’s problematic... Ya, they are of diverse ethnicities, but I’m not sure experiences.

As *Castellano* and Perks indicate, visible diversity may increase the *possibility* of achieving a diversity of perspectives, but it does not guarantee it (and in fact, even visible diversity is far from realized, with Google’s [2019] global workforce still comprised of 68.4% men and 54.4% Whites). Gokhale reiterated this thought in his interview: “I think our current system [in the tech industry]... does not incorporate collective, democratically sought perspectives.” Instead, technologies are designed from a narrow and positivistic perspective, as trained into employees

²³ Pseudonyms italicized.

through siloed math-, science-, and business-based curricula which limit their understanding of a broader social, political, economic, and historical context.

These conclusions resonate with Frankfurt School theorists' critiques of capitalist society. Marcuse (1964/1991), for example, argues that administrative (i.e. non-critical) academic training and research limits the development of alternative frames of reference which would allow for oppositional thought and behaviour. People who are exclusively exposed to non-critical education thus become uncritically incorporated into the capitalist system of production and consumption, and indoctrinated into the cycle of creating and satisfying false material needs. Marcuse (1964/1991) argues that this results in a "one-dimensional" universe of thought and behaviour, which we are seeing in the contemporary technology industry as a result of non-critical training within a workforce that lacks diversity in worldview and experience.

This analysis also resonates with Noble's (2018) assertion that we require both interdisciplinary education *and* cross-disciplinary collaboration in order to design and produce technologies that equitably reflect the populace:

One cannot know about the history of media stereotyping or the nuances of structural oppression in any formal, scholarly way through the traditional engineering curriculum of the large research universities from which technology companies hire across the United States. Ethics courses are rare, and the possibility of learning about the history of Black women in relation to a series of stereotypes such as the Jezebel, Sapphire, and Mammy does not exist in mainstream engineering programs....We need people designing technologies for society to have training and an education on the histories of marginalized people, at a minimum, and we need them working alongside people with rigorous training and preparation from the social sciences and humanities. To design technology for people, without a detailed and rigorous study of people and communities, makes for the many kinds of egregious tech designs we see that come at the expense of people of color and women. (Noble, 2018, p. 70)

Noble's (2018) work, along with Gokhale and *Castellano's* responses, draw explicit attention to dangers of the disciplinary divides which allow for technology industries to increasingly mediate our relationships with and perceptions of the world around us (via technology) without thinking critically about the repercussions. Due to the dominance of positivistic thinking in modern and colonial, Western society, these tech corporations and their workers are not made responsible for promoting social or environmental justice, or engaging with critical and intersectional thought. Instead, all other members of society (which represents a far greater and more diverse portion of the public than tech elite and workers) are expected to

shape their own thinking and behaviours to fit the technological products that these tech corporations produce. In this sense, our focus on digital literacy *without* a simultaneous conversation about interdisciplinary education in the tech field reproduces the logic of privacy as a commodity. It requires that all tech users become informed enough to “securitize the self” (Silverman, 2013, p. 160), thus exclusively offering technological privacy and access to those who can afford to be made informed (which actually contradicts the promise of “democratizing,” “accessible,” and “efficient” new technologies). Moreover, this reaffirms the perceived naturalness and inevitability of the tech industry’s privacy-penetrating and surveillance capitalist practices while precluding meaningful public debate about whether or not we want or need privacy-penetrating technologies at all.

5.1.1 Technologies of Mass Exclusion

Castellano took great issue with the ways in which technology actually serves to continuously exclude and marginalize certain people based on socioeconomic status, despite the narrative of technology as inclusive and democratizing:

Have you ever been that person to not have [technology], and to be the one that has to consistently ask, “Can I borrow your phone? Is it okay?” What does that do for a person’s dignity? So if you’re only setting up a process where I am continuously feeling othered, I call bullshit on that “inclusion”...I appreciate that they’re looking at... integrating tech and so of course civic engagement sounds like it has a big tech component to it, but again are you really thinking about the people who don’t have tech, and how they are going to feel excluded? And what it’s like to have to be the person to consistently borrow and feel like you’re begging?

Councillor Perks also expressed concern with the exclusivity of technology, and problematized the fact that there are often very few real beneficiaries of “technological breakthroughs.” In his interview, he drew attention to the ways in which positivistic and capitalist logics have allowed for “newness” and “progress” to become virtues in and of themselves, rationalizing harmful acts of oppression, domination, and colonialism with the aid of technology. For example, he described how the chemical industry reproduces “our dominance over nature, and also the dominance of the colonizing group over the colonized.” Resonating with anti-colonial thought, he goes on to explain that Western conceptions of new and “innovative” technologies actually tend to do more harm than good to peoples and lands:

The sciences, as far back as the Enlightenment, have been largely responsible for reproducing power relations, as they are. Just entrenching them and deepening them... Technology always, always reflects the societies that produce the technology, and Western civilization particularly, because we fetishize technology and technique as the way that we gain global dominance—"we have better technology than everybody, that's why we won" has turned the notion of "new" into a virtue in and of itself.

When you look back, though, at some of the major technological breakthroughs through the ages, they have been almost universally more destructive than they have been helpful. You know, I don't care how much electricity you generate, you'll never make up for Hiroshima and Nagasaki. I don't care about how many great products you can fabricate, the contamination of the Earth by synthetic chemicals—every inch of the Earth by synthetic chemicals—is not worth the fact that I can get my lettuce wrapped in plastic at the grocery store.

So we should always begin conversation about a new technology with two questions in mind: who benefits? And, is it beneficial, broadly, socially? Neither of those questions have been asked about artificial intelligence and digital surveillance. None of those questions have been asked, at least in any meaningful, broadly inclusive and democratic way. That being said, the early evidence seems to be that unless you're like someone who enjoys playing chess and go on the internet, the only benefits of artificial intelligence to date seem to be in surveillance, which should be a giant red flag, right?

As Perks argues, public consent, will, need, and long-term good are rarely factored into the conception and design of new technologies like AI, given that the principles of democracy do not seem to extend to the corporation, and by extension, the tech industry²⁴. Speaking more specifically about the Sidewalk Toronto team and their promises of improving the City, Perks expressed skepticism:

As soon as you talk concretely about specific things [that they are proposing], it was very apparent that their sales pitch is: "We do things new and different, and new and different is always good." Which, you know, having worked in the environmental movement and looked at the catastrophes that "new and different" have caused humanity, I'm skeptical of.

Gokhale reiterated many of these views, explaining that he was grateful to his partner for challenging him to think critically, and to question his problematic value systems which are so conditioned and prevalent in the tech industry. He explained that Sidewalk Labs, Google, and the tech industry should be seen as actors in a larger, inequitable and capitalist system in which

²⁴ As further discussed in Section 2.1 on the neoliberal (tech) corporation.

narrow corporate interests supersede universal human interests and rights. These corporate entities are thus symptoms of a larger problem of unfettered corporate power:

I guess I've always thought of Sidewalk Labs as a canary in the coal mine, of sorts, for broader problems in the tech industry, more broadly in our technologies that we use in society, and technology's influence in society, so... I often think of Sidewalk Labs as a department of Google, and I think of Google as a department of the tech industry, and I think of the tech industry as a department of industry at large, and I think of industry as just being too powerful.

I actually think all of those entities that I've just described have too much power, relative to their peers in their particular ecosystems. And I think what we need to think about is at every level, at every stage of our society and of our lives, [is] how much power do we give to the entities I just described? And how much should we take away from them and give back to people? People who are not working there, that are not shareholders there, that aren't associated with those particular entities, but are still people, and they still deserve the basic human rights and the same basic protection... by government, and they still deserve the same sort of rights and freedoms and values that everyone should have.

That's probably what I want people to take away – how do we make people more accountable to people... [And] how do we make technology work for all people?

In an effort to subvert the limited and biased logics that are dominant in the tech industry, Gokhale thus suggested a communal approach to technological development: “What we should do is reframe technology that's...built by certain people... as: how do we build technology that is produced and consumed by all people?” His critiques and questions further resonate with anti-colonial and postmodern methodologies in centring community and recognizing the existence of multiple perspectives from which technology can and should holistically and collectively be designed.

This thinking was echoed in the charrette session on building inclusive and ethical digital cities, which I participated in on June 28th, 2019 as part of my action research methods²⁵. In this session, participants problematized the segregation, exclusion, and silos enabled and perpetuated by the tech industry and their technological products, and thus suggested that we decentre the “digital” when thinking about an ethical city. The diverse and international group of journalists, academics, students, and practitioners who participated in this charette session all agreed that an ethical city should primarily focus on building stronger communities, relationships, trust (in each

²⁵ Action research methods described in Section 4.4.

other and our governments), and civic engagement, using technology only as a tool to advance these efforts. Much like Gokhale, the participants in this session felt that an ethical city should utilize co-designed and co-created systems and technologies to enable bottom-up and community-based governance where power is more localized within communities and cities, thus returning more power to people/city-dwellers/citizens. One participant argued that we even need to rethink the notion of “empowerment” and recognize that power is actually inherent in citizens; it is the dominant systems, people, forces, and technologies in place that serve to restrict and numb our inherent power. Other participants suggested that we disrupt the appealing narrative of “big” as better and instead aim to design a pluralistic digital city which centres small communities and small businesses. Another participant suggested that we think of this form of governance as the United Cities or Communities, in contrast with the United States where power is concentrated among few, elite members of society at the expense of many. Other participants explicitly drew from Indigenous epistemologies to further question our “people-centred” thinking, suggesting that the principles of relationship and reciprocity should also extend to our natural environment in an ethical city. Ultimately, the charette session participants demonstrated anti-colonial thinking in suggesting that localized relationship with our community and environment should be prioritized above the narrow corporate interests that currently drive technological development within the digital “smart” city.

Both Gokhale and the participants of the charette session believed that government regulation and legislation will be critical in limiting the power of tech corporations and ensuring that city-building projects centre accountability and community. The question of why our governments have yet to enforce such regulations, particularly given the imminent Sidewalk Toronto project, is one that is further explored in Section 5.2.

5.2 Neoliberalism: Corporate and Oligarchic Power

I have a lot of concerns about multinational massive corporations who sometimes pitch a really good... socially conscious purpose... when it's pretty clear that their mandates are about making profit... Are people from City Hall, who I guess are on the Waterfront Toronto board, actually pushing for and limiting their scope of what they can and can't do? Are we setting parameters? Because I would hate to see us being bought out.
(Castellano, 2019, Appendix E)

In describing his first meeting with Sidewalk Toronto, Councillor Perks similarly explained that he was “flabbergasted” by the blurring of public and private interests, and the lack of attention paid to genuinely and meaningfully ensuring benefit to the public:

Staff from Waterfront Toronto and Sidewalk Labs came in to see me, I don’t recall when. It was prior to the item going to the Executive Committee the first time, and what astonished me—well there were a couple of things that astonished me. First of all, listening to the pitch they gave me, I couldn’t tell who was a public servant and who was from Sidewalk Labs—which is strange because there’s two different sets of interests being represented—but the enthusiasm Waterfront Toronto had for something that had never received any public scrutiny struck me as odd. As an elected official, I have a duty to ensure that the public interest is maintained when a private entity wants to make use to of public resources, and there was nothing in that conversation that showed any thought had been given to that.

The second thing—I very directly challenged Sidewalk and said, “Okay, so I want to understand your interest here. What’s your profit centre? How are you making money here?” The answer I got back was very vague. Corporate speak. So I pushed and pushed and pushed, and finally they admitted, “Ya, the real sure thing is land.” Land is always what it’s about... They were also making broad claims about how they could deliver city-type services better than we do. I pushed on that and said, “What do you mean? Do you mean like violating our collective agreements and replacing our public workers with something else? Changing standards for the building code? What do you mean?” And the answers I got back were just vague hyperbole. Like these guys, they could... Phew... They’re just salesmen.

They also talked about all the wonderful environmental benefits that they would bring. I happen to have a background in environmental—its what I did in undergrad and I worked in the environmental movement for 20 years—and when I prodded and poked on that stuff, it was just buzzwords that they had gotten off the internet. There was no substance there. So I wasn’t impressed.

Striking here is the fact that government agency Waterfront Toronto was not actively representing and advocating for public interests, or critically engaging with the profit-driven sales pitch that Sidewalk Labs was offering. In many ways, the concerns and experiences of *Castellano* and Perks echo Saadia Muzaffar’s resignation letter from Waterfront Toronto’s Digital Advisory Board in August of 2018. She referred to Waterfront’s “apathy and utter lack of leadership regarding shaky public trust and social licence” as “astounding” (para. 4) given the potentially harmful and city-wide repercussions of the smart city project (Muzaffar, 2018).

Waterfront Toronto’s apathy and the associated blurring of public and private interests may be traced back to the private dealings which seem to have occurred between heads of

government and Sidewalk Labs prior to the announcement of the Sidewalk Toronto project.

Perks expressed concerns about this in his interview:

...The heads of all three governments had private aspirations and private conversations with Google, and got all excited. That's all we know for sure... And the fact that staff who worked in Mayor Tory's office now work for Sidewalk, staff who worked on Mayor Tory's campaign now work for Waterfront Toronto, and one of Mayor Tory's closest allies on council now works for Sidewalk. That should be pretty telling...Keerthana—she had been in the mayor's office doing communications, she now works for Google. Andrew Tumilty had been staff on John Tory's last election campaign, he now works for Waterfront Toronto, and Mary Margaret McMahon, who had been a councillor, now works for Sidewalk.

...All that indicates to me that there are relationships with heads of government that are cozier than I like, and that indicate that a level of conversation has taken place between the heads of government and Sidewalk that have not gone through formal channels, and therefore cannot be held to account, and are not transparent to the governments that those three leaders represent.

As his insights make clear, we must look beyond the corporation of Sidewalk Labs in order to also challenge and hold our governments accountable, recognizing that they too benefit from the neoliberal outsourcing of city-building to a private and third-party corporation. Afterall, the leaders of all three levels of government approved and celebrated the Sidewalk Toronto partnership from the get-go, despite the fact that the smart city plan was utterly ambiguous and announced without any prior public consultation. As *Castellano* lamented:

We don't have governments that actually have people as their priority. I'd say any level of government, at this point. So whether its Google now or Google in 3 years, or whoever, I kind of feel like its going to be inevitable. Which feels kind of crappy to say, but it just feels that way.

Furthermore, on the day that the Sidewalk Toronto project was first announced in 2017, Prime Minister Trudeau deviated from his prepared speaking notes and hinted at a prior agreement with the former chair of Google and then-executive chair of Alphabet, Eric Schmidt: "Eric and I have been talking about collaborating on this for a few years now" (O'Kane, 2019, para. 3). For some critics, this indicated that Sidewalk Labs—which is a subsidiary of Alphabet, for which Eric Schmidt was executive chair—had always been Trudeau's preferred partner for the Quayside development, although Waterfront Toronto has claimed ever since that Sidewalk Labs was selected through a careful and competitive proposal process (O'Kane, 2019). Others also speculate that the governments' uncritical celebration of the smart city project was likely

prompted by Sidewalk Labs' commitment to funding and leading the initial planning and consultation process with \$50 million (Balsillie, 2018; Di Lorenzo, 2019). As Perks argued, however, these types of secret agreements and backroom dealings lack transparency and can thus never be proven or held to account by citizens and other members of government.

5.2.1 Opacity and Power

Multiple interview participants expressed concern with the lack of transparency and public understanding of the Sidewalk Toronto project, noting that it would have GTA-wide implications that most people were not aware of:

I think that the whatever percentage of people who follow urban politics—I'd like to flatter myself and think that it's as much as a third of the population, but it probably isn't—know that a company owned by Google wants to do something on the waterfront and people are concerned. I think most people don't even know that, and as I said, nobody knows what they're really up to. Not one person. We're making educated guesses, but it's based on, again, informal, public statements rather than any kind of proposal that they're legally accountable. So we know nothing—for all we know, they could put a server farm there, or a nuclear power plant—we just don't know. (Perks, 2019, Appendix E)

I think most people have no clue [about the Sidewalk Toronto project]. I think of Scarborough, and I haven't heard—not that I know of, but I don't want to be that presumptuous person—but from the chatter, I haven't heard anyone talk about it. From my groups in Rexdale, I haven't heard anyone talk about it. Some of the groups in North York, not on the radar. (Castellano, 2019, Appendix E)

I don't think the vast majority of people—I don't fully understand this [Sidewalk Toronto] project, so I can't imagine how—and I've been researching it extensively for almost 2 years—so I can't imagine how the average person in Toronto is following the majority of it, let alone some of it, or even any of it. So no, I don't think the vast majority of Torontonians know what is happening and what is involved. (Gokhale, 2019, Appendix E)

My own action research experience at the May 30th meeting on Organizing for Fairer Economies corroborated these views; other than #BlockSidewalk organizers, most fellow attendees had, at most, a surface-level understanding of the Sidewalk Toronto project. Even I, the resident “expert” who has been following and studying the project since it was announced, felt unequipped to offer details about it; my studies have only made me starkly aware of how much is actually unknown, unconfirmed, and ambiguous about the project. In this sense, my experience

directly echoed Gokhale's feelings, although his relationship with the Sidewalk Toronto project began from a very different starting point.

As a technology consultant working within the tech industry, Gokhale explained in his interview that when he first heard about the Sidewalk Toronto project, he was very curious to learn about it, and interested in getting involved with it. As he attempted to learn more about the project, actors, and technologies involved, however, he became concerned about what the project would mean for people in his community, given the red flags and ambiguity when it came to important urban issues. He is now a #BlockSidewalk organizer, and actively working to reset the Sidewalk Toronto smart city project from the RFP phase. Describing his concerns with the Sidewalk Toronto project, Gokhale explained:

I would say at the root of [my concern] is sort of abuse of corporate power, or abuse of power. So abuses of power can happen in lots and lots of different ways, so they can manifest as harassment, bullying, lobbying, surveillance, human rights violations, and there are probably lots of other ways. But basically they all kind of stem from the same basic premise which is that as technology companies become more powerful, they take away power from people, and that has real, real impacts and effects that manifest in lots of different ways.

In many ways, the lack of transparency among tech corporations, their technological processes, and their dealings with government bodies allows for this abuse of power, which in turn “take[s] power away from people.” As mentioned by Gokhale, lobbying is one mechanism through which this opacity and abuse of power is enacted, given that it is up to the politicians and corporations involved to make the details of their lobbying sessions known. In his interview, Councillor Perks explicitly stated that Sidewalk Toronto attempted to lobby him multiple times with “fluff and buzzwords,” however the results of many other lobbying sessions are often unknown, unavailable, or unclear. For example, in April of 2019, as resistance to the Sidewalk Toronto project grew through groups like #BlockSidewalk and the Canadian Civil Liberties Association, it was reported that Sidewalk Toronto lobbied the City of Toronto more than any other group that month, with 68 interactions (City Hall Watchers, 2019). I have been unable to find any reports or details about these 68 lobbying sessions and who was involved in them. As Perks puts it:

This is the transparency mystery. Right now, a public agency is deep into negotiations with one of the modern robber barrens, Google, and no information is available to

Canadians, Ontarians, and Torontonians on whose behalf we steward those lands. It's unlike anything I've ever seen.

Perks thus emphasized the need to be critical of the marketing tactics, buzzwords, promises, and sales pitches of Sidewalk Labs, contending that all of these claims are “just noise” and “blue sky stuff” that distract from the reality of the project—they are not “anything that [we] can base a decision on.” This sentiment was echoed by Gokhale, who expressed “grave concerns about exploitation and the use of, not just data, but also hardware, software, language, marketing.” Gokhale explained:

These tactics are designed to accumulate power, and that power can and likely would be abused and exploited in order to satisfy what we know tech companies are designed to do, ‘cause like all companies, they’re designed to make money. You really can’t make money without some form of exploitation, and so the questions are open as to which type of exploitation, but I don’t think we need to wait until we can clearly define which types of exploitation and which types of data get collected, and I think that conversation distracts us from the larger and more important point.

Speaking more specifically about the implications of corporate exploitation on the city of Toronto, Perks argued:

There are a variety of crucial systems that people who live in the city of Toronto use every single day—we use them so frequently that we don’t even notice them—but those are lands that we own together, and use to provide services for each other so that we can enjoy opportunity and a good quality of life. And if we start giving away scarce land, our ability to provide those services vanishes.

...I don’t know if they still teach this stuff in schools, but North America, particularly the United States of America, went through a period of extensive expansion in the 18th century and early 19th century, where a bunch of very rich people manipulated government to get control of public resources, and basically ripped everyone off and made themselves billionaires.

And that’s what’s happening now. One of the world’s largest corporations is trying to *plunder* resources in order to make a lot of money, and they’re doing it by stealth, and they’re doing it in a way that avoids all accountability and scrutiny from the governments you elect to look after your interests. That’s what I would want people to really know.

5.2.2 Illusions of Engagement and Equity

Perks further explained that an illusion of democracy tends to be perpetuated through developer presentations and “consultations” with the public. These public consultations, like the

ones held by Sidewalk Labs prior to the MIDP being released, tend to market and serve corporate interests while obscuring important facts and details relevant to the public:

I deal with a lot of development applications, right—so we go out in the neighbourhood and the developer shows a bunch of slides to the neighbourhood about what they intend to build. And I have learned through long, bitter experience, that whatever slides they show the public are irrelevant. What is actually relevant are the specific drawings that they submit to our planning staff for review, and more often than not, the presentation that they make to the community doesn't match up to the document that they actually submit, saying “we're building this many metres in height, that many parking spaces, and the loading will take place off of this street.” So just another public launch of a plan is irrelevant to me. What matters to me are the technical documents they submit for what the terms of sale of the land are, and what concessions they want from regulations and policies that I oversee here. Until I have that in hand, I—it's like watching an Avengers movie and thinking that it actually happened.

Likewise, *Castellano* explained that she attended an invite-only “consultation” with Sidewalk Labs, which in actuality involved a presentation made by Sidewalk Labs, followed by a Q&A session; community members were not meaningfully consulted on how the project should be designed and conceptualized, and how targets for equity and diversity should be set. She felt that Sidewalk's promises of equity and diversity were merely marketing and persuasion tactics, and failed to demonstrate a genuine commitment to these issues or to civic engagement more broadly. When she pressed the Sidewalk team on specifics, goals, and metrics related to equity and affordable and secure housing, she was consistently underwhelmed by their generic and non-committal responses. Reflecting on the experience, she explained:

I was in that consultation, and I just thought—it didn't feel like equity was really top of mind. Like they named it, like, “Oh we want an inclusive city and we want a neighbourhood”—I saw on their website—“people-centred,” and it's like okay, which people? Because we can say we're people-centred, but we can be talking about a particular group of people, kind of like what our provincial government talks about, right? Who's in and who's out? Because I'm pretty sure who's traditionally out will stay out in this process.

...Okay, you want to have some stuff for small businesses? Okay. But I'm just thinking, which small business? And sorry, I'm feeling kind of crass right now—but which trending coffee shop with a hipster with a cool beard and mustache is going to occupy that space? And are one of the entrepreneurs coming out of a newcomers' women's services entrepreneurship program? Are they going to occupy that space? One of the women from Thorncliffe who's starting her business in the park, are they going to be able to occupy that space? Set the fricken targets. Say, “If this is a priority for this, 10% of the spots”—I don't know the magic numbers to be quite honest, but “10% of the spaces are

going to be for small businesses led by people with disabilities. Or newcomer women.” Like, name it. Don’t just say, “We’ll be inclusive,” or, “We’ll be diverse.”

Ultimately, *Castellano* felt that traditionally excluded groups, like low-income, homeless, and newcomer peoples, among others, were still being excluded in this supposedly inclusive smart city. As she expressed in her interview, without bold targets and commitments for achieving equitable outcomes, the discourse of the “inclusive” and “diverse” digital city is just that—discourse and lip service. This can even be seen in the way that the Sidewalk Toronto team has appropriated the language of social justice, equity, and inclusion without any tangible follow through. For example, the Sidewalk Toronto project had been criticized for a lack of Indigenous consultation—something that I personally mentioned in my deputation at the City of Toronto’s Executive Committee meeting on June 6th, 2019, when the Quayside project was being discussed. Shortly after this meeting and the MIDP being released, the Sidewalk Toronto team added a land acknowledgement to their website. Of course, their project and team still show no sign of Indigenous leadership, thought, or epistemologies. The land acknowledgement is thus a mere marketing tactic, offering the illusion of equity in an effort to ensure the acceptance and success of the project. Such efforts by corporations like Sidewalk Labs to subsume and co-opt criticism resonate with Adorno and Horkheimer’s (1944/2002) analysis of the capitalist culture industry, in which genuine opposition is redefined as harmless divergence *within* the system.

Further reflecting on the marketing tactics and illusions of democracy and transparency promoted during the broader public “consultations” held by Sidewalk Labs, *Castellano* explained that:

Sometimes you get those big consultations where there are pretty slides with great images, and you think, “Wow! We can have all of that!” But when you start breaking it down, there is a way it gets white-washed... So it feels like a farce.

...I’ll give them credit, they actually had ASL. That was impressive, because I would say 90% of the time it isn’t there, and they had it—but these big TED Talk-y kind of things. If it’s just going to be that, then that’s not engagement. You’re just talking at these people.

...So it really concerns me, who is actually shaping this and how much of this is, “Here’s our plan. It’s good ay.” You can plan consultations and say, “Isn’t purple the best colour? Because purple means this, this, and this,” and then lead people into saying, “Ya purple, we should have everything purple.” And I’m just curious about how much they’re leading consultations as opposed to actually being objective and wanting to actually hear from people.

5.2.3 Democracy or Corporatocracy?

Similar to *Castellano*, Perks, and Gokhale's concerns with Sidewalk Labs' marketing illusions, participants from the Media Ecology Association's charette session argued that digital and social media (including the digital city itself) create an illusion of participation, activism, and choice while actually feeding into the capitalist system and profit margins of tech corporations. In line with critical theory, these charette session participants believed that the lack of regulation for contemporary digital technologies is intentional, to allow for the concentration of data and power among corporate and government elite. They felt that an equitable city would hold corporate and government elite accountable to the public, rather than putting the onus on the individual consumer or activist to "fix the system" and "securitize the self" (as discussed in section 5.1).

Supporting conclusions were drawn from my action research experience of deputing on the Quayside agenda item at the City of Toronto's Executive Committee meeting on June 6th, 2019. During the deputation process, I noted that City Councillors and Mayor John Tory engaged most (via questions, comments, and general attentiveness, interest, and respect) with business industry elite. This included Jim Balsillie (former CEO of Blackberry Ltd.), Sunil Sharma (a tech investor centrally involved in bringing the Collision Conference to Toronto), and Micah Lasher (head of communications for Sidewalk Labs). Meanwhile, many Councillors ignored or talked through the deputations made by other citizens, community organizers, and #BlockSidewalk supporters and members. This stark contrast illuminated the ways in which the very structures that are meant to allow for democracy, transparency, and civic engagement are themselves rife with inequitable power relations that preference corporate actors.

Deputants are already in a vulnerable position and given a mere 5 minutes to speak (which can be cut down to 3 minutes with virtually no notice, as was the case on June 6th, 2019, when the Quayside development was discussed). They are subject to questioning by Councillors without the reciprocal power to directly question Councillors or City staff (for example, Bianca Wylie—open government and data advocate—asked questions to City staff in her deputation on June 6th and did not receive a response). Deputants are not able to offer comments or questions at any point outside of their allotted speaking time (for example, one Councillor made an inaccurate

comment about the consultation process of the Sidewalk Toronto project, but there was no system in which we as deputants could correct her). In many ways, the deputation process is thus highly undemocratic, which is only exacerbated by the clearly privileged position offered to deputants with historically favoured markers of status: i.e. wealthy, male, business professionals.

This experience drew my attention to the tendency for government officials to pander to the exclusive interests of business elite in processes that are supposedly meant to be democratic and equitable. At the same time, citizens with real and informed concerns are automatically labelled as less significant “special interest groups.” As *Castellano* puts it:

When you think about the #BlockSidewalk folks... [they] get discredited... in this environment where it's so easy to be labelled a “special interest group.” And it's like, “Uh, it's called democracy and accountability, friends. Yes, I do have a special interest, and it's for you to be accountable”... There should be nothing wrong with a special interest group, but you've labelled it negative... it's called civic engagement.

Despite the fact that the majority of deputants were highly critical of the Sidewalk Toronto project, it thus became clear by the end of the deputation process that the City planned to go ahead with the project regardless. As Gokhale put it:

There are probably hundreds of people who would benefit from Sidewalk Labs coming to Toronto, Google coming to Toronto, and incorporating government... But there are also thousands and thousands of people who would lose out. So, what happens is, as money and power and political influence creeps into government, it makes government less accountable to the majority of people in Toronto.

Instead of heeding public concern and restarting the smart city project from the RFP phase to accommodate for meaningful consultation, Toronto is now expected to spend \$800,000 on evaluating Sidewalk Labs' MIDP. On one hand, this spending pales in comparison to the \$50 million that Sidewalk Labs spent on preparing the MIDP and “consulting” with the public (which *Castellano*, Perks, and other critics described more as presentations than consultations). In this sense, “civil society is outgunned” (McFarland, 2019). On the other hand, however, many community-oriented critics, including interview participant *Castellano*, find this type of financial commitment by the City jarring given the supposed lack of funding for other City priorities. It is more problematic still when we consider that there is no real evidence that Torontonians even need a “smart city,” making an \$800,000 allocation of tax money to this Sidewalk Toronto project undemocratic.

Perks argued that the main need for Toronto is “socially-owned, affordable housing. I don’t mean privately owned, I want to be very clear about that.” This was reiterated by *Castellano*: “It really is frustrating to see public land for private interests where we are begging for affordability—like actually affordable housing.” Perks, *Castellano*, and Gokhale also mentioned a need for community centres, libraries, parks, transit, jobs, and more reasonable costs of living. While these issues can be confronted with the *aid* of technology, none require a sensor-laden, smart city neighbourhood at the Eastern Waterfront of Toronto. Sidewalk Labs’ desire to centre smart and surveillance technologies in the Quayside development project thus seems to exclusively reflect the interests of corporate elite and the government officials who pander to them.

5.2.4 The Oligarchic-Corporate Political Emergence

This blurring of private and government interests can be understood through Kapfere’s notion of the oligarchic-corporate political emergence. In the oligarchic-corporate political regime, state, policing, intelligence, military, corporate and media actors maintain relatively exclusive control of economic resources and their distribution, not as a monolith but as complimentary actors with a shared goal (Proulx, 2014). Enabled by lax government policies aimed at keeping big businesses in the city or state, corporations have structural power through which they can privately determine the allocation of investment and resources in the city. This oligarchic regime “carefully preserves the principles of elected legislative assemblies while ensuring, through lobbying, that democracy does not harm corporate well-being” (Proulx, 2014, p. 85). Security and surveillance thus become central to this corporate state, as a means of “protecting ruling interests against the public” (Proulx, 2014, p. 85). The fixation on total information capture and control seen among tech corporations like Sidewalk Labs and Google (as well as intelligence and military agencies) can thus be understood as driven by the oligarchic state’s need for knowledge to reduce risk, generate profit, and exert control over populations and resources (Proulx, 2014; Neocleous & Rigakos, 2011). Resisting surveillance capitalism therefore becomes complicated by the fact that “the surveillance society is constituted and supported by a range of actors and activities, both public and private” (Pallitto, 2017).

Perks expressed such concerns in his interview:

The only benefits of artificial intelligence to date seem to be in surveillance, which should be a giant red flag, right? The fact that the Chinese government and many police departments in North America and Europe are using artificial intelligence to surveil people, and that seems to be the biggest investment anyone is making, should immediately alarm us all, and should be causing us to very deeply reflect on how its being used and for whom.

5.2.5 The Risk of a Surveillance State

Since private and public surveillance systems are so deeply intertwined, the dangers of mass government and corporate surveillance are one and the same, and could be realized simultaneously:

Private companies sell personal data to government agencies. They depend on federal contracts and lobby for favorable legislation...[and] intelligence agencies... turn the ostensibly benign commercial surveillance of web browsing into a covert intelligence-gathering operation. In the larger digital economy, it is hard to disentangle one from the other. (Silverman, 2013, p. 159-160)

In this sense, corporate and state actors are multiply connected. Private consultants advise state policy-makers, while governments outsource state functions like urban planning, policing, and prisons to private firms (as all three levels of government have collectively done with Waterfront Toronto and Sidewalk Labs). While private contractors sell surveillance technologies to governments (as Sidewalk Labs is attempting to do in and beyond Toronto), telecom providers share recorded call data with governments. Both governments and insurance companies value risk assessment and management data and tools, thus making their data mutually useful and shareable. Biometric technologies are also shared between governments, insurance companies, and the IT firms who produce them, and are used in both the home and public spaces. The body, home and city thus become increasingly networked alongside the networked surveillance practices of the various oligarchic state actors, with no regulations in place to protect the public from surveillant powers (Pallitto, 2017).

The fact is that sensors and the data derived from them can be repurposed, shared, or even hacked to track all forms of human activity. Policing bodies already subpoena recorded data from “always-on, always-listening IoT devices... for criminal investigations” (Silverman, 2013, p. 148) and will have equal access to ubiquitous smart city sensors if we allow Sidewalk Labs to

implement them. Smart technologies have enabled a shift from discrete monitoring to passive surveillance systems which allow for oligarchic state actors to collection on-going streams of information that may become useful, shareable, and profitable once more data points are collected in the future²⁶ (Andrejevic & Burdon, 2014). This capitalist and colonial need for total information capture via “smart” surveillance and decision-making technologies in turn leads to the social sorting²⁷ of populations (Lyon, 2011; Browne, 2015; Abu-Laban & Bakan, 2011).

Take Replica, for example: Replica is a tool created by Sidewalk Labs to map out a population’s commuting patterns. It cross-references actual cellphone location data with the census data of a city to produce a map of a “doppelganger” population’s movements. Sidewalk Labs claims that the GPS data used in Replica is de-identified—with names and phone numbers removed—to ensure privacy, yet completely disregards the identifying nature of census data. As Oved (2018) explains, “There are precisely the correct number of rich people and poor people, of single mothers and university students, of cyclists and truck drivers, in each area of the city... modelled on real people” (para. 22). This type of mapping thus re-identifies individuals and enables social sorting along demographic lines of race, gender, age, socioeconomic status, and occupation as certain populations can be easily identified and targeted by governmental organizations and corporations. In fact, despite the data being “depersonalized,” two Illinois public servants interested in procuring the mapping tool stated that “GPS data should provide the characteristics of individual travellers...[allowing for] analysis of not only what trip are being made, but by whom” (Oved, 2018, para. 5).

While Replica is marketed as making the urban planning processes more efficient and precise, it is thus teeming with ethical issues. For instance, Sidewalk Labs spokesperson Dan Levitan has stated that Replica will be offered to Toronto for free as part of the Sidewalk Toronto project, but the technology is being sold to other cities for a profit; a three-year, \$3.6 million sole-sourced contract is on the table with the state of Illinois. As Brenda McPhail, asks, however, “Do people even know that their data is being collected?...[And] is it reasonable for that data to be used by a for-profit vendor to sell back to the government?” (Oved, 2018, para. 10). The answer is no. An Associated Press investigation, corroborated by privacy and computer-

²⁶ As further discussed in Section 2.2 on surveillance capitalism in the age of the internet.

²⁷ *Social sorting* defined in Section 2.6.

science researchers at Princeton University in August of 2018, found that Google stores Android and iPhone users' location data even when their "Location History" and GPS privacy settings are set to prevent Google services from doing so. While Google claimed that they provide "clear descriptions" of their tools and "robust controls" for turning them off, users' location data is actually collected by a default setting called "Web and App Activity" that makes no clear mention of collecting location data (Nakashima, 2018). These location markers that are attached to a user's Google account can be seen at myactivity.google.com, but are scattered under various headings which often make no mention of location and can only be deleted by painstakingly deleting each data point, or else deleting all stored activity (Nakashima, 2018).

A 2017 investigation similarly found that Google was collecting the addresses of nearby cellphone towers to collect location data on Android users whose location services were all turned off (Nakashima, 2018). These examples make clear that Google has consistently shown a disregard for meaningful user consent, while prioritizing data collection and surveillance in the interest of profit-making above all else. As Bunz and Meikle (2018) emphasize, more than understanding the potential of new technologies, it is crucial to consider the social, political and economic interests that shape these technologies; "it is... [these] interests that select, research, invest in and promote certain technical possibilities over others to decide which of the many possible internet of things will become realized" (p. 22). They explain that technologies often become dominant due to commercial potential rather than the potential for public good, even when these dominant technologies have environmental, social, political, or health disadvantages (on either an individual or societal level) compared to alternative technologies (Bunz and Meikle, 2018). Regardless of the useful potential of Replica, it is therefore likely from the history, interests, and business model of its creators that it will give way to harmful data exploitation which could compromise the safety, security and privacy of city-dwellers who do not want their data collected, commodified, and sold among oligarchic elite (i.e. state actors, police, military, corporations, advertisers).

Similarly predictive and location-based tools have been proposed by Sidewalk Labs in its original proposal to Waterfront Toronto. In the proposal, Sidewalk Labs (2017) introduces a four-part digital layer for its "platform" (p. 66) (being the city). One component is the Sense

feature, which, like the “sensing network” described in the literature review²⁸, uses networked cameras, radars, and computer vision, air quality, noise level, and weather sensors across the neighbourhood to collect real-time data about the environment. The Model component of the digital layer simulates “what if” scenarios and, “once fine-grain data are available” (Sidewalk Labs, 2017, p. 72), predicts neighbourhood activity 5 to 30 minutes in the future to “anticipate problems and suggest remedial measures before they amplify” (p. 74). The Map component collects and records real-time location data on all fixed and moving objects in the public realm, from buildings and sensors to park benches, self-driving cars, and drones, thus tracking inanimate objects in the same way that Replica tracks human citizens. Finally, the Account component is “a highly secure, personalized portal through which each resident accesses public services and the public sector” (Sidewalk Labs, 2017, p. 66). It is not made clear if the Account data is made secure and unreadable to Sidewalk Labs itself, although this is doubtful given that the project logics are premised on ubiquitous connectivity and data collection. The goal of this four-part digital layer is to provide a “single unified source of information about what is going on” (Sidewalk Labs, 2017, p. 65)—a dangerous promise of centralized intelligence—while making APIs available for third-party developers to build on (thus offering up public, identifiable data to third-parties, which was the reason for privacy expert Ann Cavoukian’s resignation as privacy consultant for Sidewalk Labs [Canon, 2018]).

While elements of this plan possess the potential for improving urban planning processes and services, when considering alongside the interests of Sidewalk Labs and its sister company, Google, troubling ambiguities and numerous openings for data exploitation are clear. The privacy penetration enabled by the proposed “high-resolution cameras that capture millions of pixels dozens of times per second... [for measuring] vehicle and pedestrian flow or the status of street infrastructure” (Sidewalk Labs, 2017, p. 72) is not warranted by the ends; surely other tools for measuring traffic flow could be developed without giving way to CCTV-like, ubiquitous video surveillance. As Bunz and Meikle (2018)—and even Sidewalk Labs’ own report—suggest, this technology was likely selected for its low cost and high commercial potential; as stated in their proposal, “commercial, off-the-shelf components [will be used] that are significantly less expensive than components designed to survive for decades in

²⁸ *Sensing network* defined in section 2.3.

environments where replacement is expensive and difficult” (Sidewalk Labs, 2017, p. 68). In this neoliberal vision of success, cost cutting and efficiency are prioritized above not only real innovation, but also citizen democracy, privacy, and freedom, all of which are undermined by ubiquitous video surveillance enabled by Sidewalk Labs and accessible to the City of Toronto.

As computer scientist Mark Weiser warned, “The most profound technologies are those that disappear... They weave themselves into the fabric of everyday life until they are indistinguishable from it” (Bunz & Meikle, 2018, p. 24-25). This is why we must question and reimagine Sidewalk Toronto’s smart city plan *before* it is constructed, and before its sensor-driven, surveillance-based technologies are naturalized. As interview participant *Emily Earhart* put it when explaining her hopes and fears for the smart city:

My fear is that we will commercialized urbanization, even though we’ve commercialized lots of aspects of it, and [my hope is] that we stay vigilant when it comes to guarding our personal data and guarding our privacy. You know, it’s definitely scary to think about the public realm being a place where you don’t have privacy, and it’s important to be able to move through the world in a private way.

5.2.6 Corporate Secrecy as a “State of Exception”

Of course, questioning the Sidewalk Toronto plan is difficult given that even now, almost two years after the plan was announced as if it were a “done deal” (Skok & Roth, 2018), it is still unclear “how Sidewalk Labs will execute its ideas, monitor people in the neighbourhood, and secure enough money to bring everything to life... where does the money come from to pay for all of these innovations?” (Boisvert, 2018). Balsillie (2018) also notes that Sidewalk Toronto has “weaponized ambiguity”, arguing that issues of privacy, IP and data ownership should have been publicly debated with citizens and experts *before* they issued the Request for Proposals (RFP) in March of 2017.

In discussing her attempts at looking up the Sidewalk Labs team members and advisors, *Castellano* also described a problematic lack of transparency:

Maybe I just couldn’t find it properly on their website, but even from transparency...who is [Sidewalk Toronto]? Of course I’m going to get defensive and think you’re doing something wrong because you’re not even saying who the team is, and there’s an advisory but you’re not naming who they are.

Speaking more broadly about the ambiguity and lack of transparency throughout the Sidewalk Toronto project, she explained:

If you actually want to be inclusive and you want this to be different, then be open and transparent, right? Like be honest with what's going on, because I think people are reasonable. But if it feels like you are hiding something, if it feels like you're not being truthful, then yeah you're going to get a whole lot of resistance, and you're going to get a whole lot of questions. You should expect that peoples' backs are up about a multinational corporation who's not accountable to us coming in and proposing a whole bunch of things.

Earhart, who works at the intersection of public policy and AI and was generally more optimistic about the Sidewalk Toronto project than other interview participants, also cited a lack of transparency on the part of Sidewalk Labs:

I don't really understand why Sidewalk wasn't more transparent to start. I think everyone agrees that they kind of blew it out of the gate, and I feel like they will kind of agree too, and they've just sort of protested that they are...consulting. That it was always part of their plan. But many have judged that to be not satisfying.

This opacity and ambiguity is a trademark of the contemporary sensor society, in which “the home—and the activities, behaviours, and preferences of those within it—is becoming transparent, as mappable as a city street... Individuals have been made vastly more transparent, while authorities and corporations have become more opaque” (Silverman, 2013, p. 148-149). The neoliberal logics of the sensor society transform privacy into a commodity, whereby the amount of privacy that one is able to obtain is directly related to their wealth, power and overall position in society (Reichel, 2017). The elite in the oligarchic political regime thus benefit from increasing levels of privacy (which even extends to their secret algorithms) while directing the gaze of surveillance technologies onto the general public (Silverman, 2013).

Waterfront Toronto (2017) in fact only mentions privacy twice in its 56-page RFP: once to state that their chosen partner will need to help them develop a privacy policy, and second to mention that any information given to the government during the Quayside project may be subject to the Ontario Freedom of Information and Protection of Privacy Act. Rather than asserting any privacy regulations, needs or interests up-front, they simply offer revenue prospects to their potential partner through IP sharing, and even describe the Quayside neighbourhood as a “testbed” for “advanced technologies” (Waterfront Toronto, 2017, pg. 18).

Waterfront Toronto has thus invited Sidewalk Labs to assert structural power in the city and even design their *own* privacy policy without regulation, as typical of governing bodies in the oligarchic political regime (Proulx, 2014). It is also important to note here that information *not* given to the government is *not* subject to the disclosure requirements of Ontario Freedom of Information and Protection of Privacy Act, despite the fact that Waterfront Toronto is funded by all three levels of government. This is highly problematic from a transparency standpoint when we consider Councillor Perks' assertion that there is "absolutely not" enough government oversight for the project:

Waterfront Toronto functions a little bit differently. What's the old saying? If you're accountable to everybody, you're not accountable to anybody? Because they answer to three different governments, no one government has any real authority. So you have this board, which mostly seems to meet in secret to consider these things, which *was* beginning a planning process, *had* put out an initial request for expressions of interest, and decided to throw that out and take an unsolicited bid from Sidewalk...I'm highly suspicious of these semi-independent legal entities that are dealing with public policy and public resources, but are not accountable to a specific publically-elected government. It's the worst of all worlds.

...I could not tell you what the possible benefits to the public are [of the Sidewalk Toronto project], and I could not tell you what the possible costs to the public are. I don't know, to this day, if we're going to have to make changes to any of our service systems, I don't know if we're going to be providing infrastructure support, I don't know how much land is involved, I don't know what the terms—the financial terms—would look like. I don't know anything that would allow me to make an informed judgement about what this is all about. I'm absolutely in the dark... I would need to see advice from city staff, the city solicitor, city finance staff, laying out what their assessment would be. I've received nothing. Absolutely nothing. It's scandalous, frankly.

While Waterfront Toronto has its own Freedom of Information (FOI) policy, Rudny (2018) found that even basic requests for information on the Sidewalk Toronto project were rejected. Waterfront Toronto and its partner Sidewalk Labs thus maintain a façade of transparency while operating in what Abu-Laban and Bakan (2011) refer to as a *state of exception*.

This state of exception, which Abu-Laban and Bakan (2011) describes as a place of law without law, can be thought of in this context as a place where asymmetries in wealth and power protect the oligarchic political elite from scrutiny, surveillance, and legal accountability while

rendering the public a collection of hyper-visible and “vulnerable data subjects... vulnerable... to extraction, oppression, and misrecognition” (Pallitto, 2017). Corporate immunity, lobbying and backroom dealings that are kept secret from the public, but have repercussion for the public (like the Sidewalk Toronto plan), are examples of how this state of exception operates. As Proulx (2014) describes, corporations make unilateral decisions which can impact levels of employment, consumption, and economic growth within a region and thus affect a population’s life-chances. The internet, which now extends to the internet of things and smart cities, enables this state of exception on an even more colossal scale by offering a huge and growing ungoverned territory for these corporate and political elite to exploit data and control populations. Due to the blurring of public and private surveillance practices in the oligarchic political emergence, these government, policing, insurance, military, and corporate elite can access intimate information about individuals and hold them accountable, legally or otherwise, for anything from theft and fraud to more mundane transgressions like speeding or illegal streaming.

On the flip side, consider the Facebook and Cambridge Analytica crisis: social media and IT giant Facebook was found to have leaked personal data to the third-party company Cambridge Analytica who then used that data to produce targeted ads during the 2016 U.S. presidential election *and* Britain’s Brexit referendum. It was also discovered that Facebook knew about this data breach well before the public was informed. Despite compromising tens of millions of people’s data and influencing world events in the process, Facebook has still not been held legally accountable for its negligence—this story remains a mere “scandal” (Meyer, 2018). This is a stark example of the huge imbalances in power, privacy, and accountability between the populace and oligarchic elite: imbalances that are exacerbated in the sensor society, and by extension, the smart city.

When imagining the smart city, it is thus important to rethink the current paradigm in which privacy is treated like a commodity. Instead, privacy can be thought of as “a shared, social good, one that benefits everyone” (Silverman, 2013, p. 161). It is time to “start envisioning other paradigms, whether they be social networks without metrics, communications without surveillance, or business models that do not depend on personal data” (Silverman, 2013, p. 162). A completely transparent, “maximum security state” (Browne, 2015, p. 15) is not inevitable if

we resist against ill-planned and exploitative projects like Sidewalk Toronto. As tech entrepreneur Saadia Muzaffar (2018) put it in her resignation letter from Waterfront Toronto's Digital Advisory Panel:

The question we need to be focused on is not how can we build a better monopoly-tech-company led, surveillance-based city...but the fact that we have enough evidence to know that we don't want to build that at all. There is nothing innovative about city-building that disenfranchises its residents in insidious ways and robs valuable earnings out of public budgets, or commits scarce public funds to the ongoing maintenance of technology that city leadership has not even declared a need for. (p. 2)

As it stands, the smart city is being conceptualized according to oversimplified internet logics. Smart city technologies are being conceived merely as additional “node[s] within... networked information communication technologies...[as] the city itself is reimagined and reconstructed as a [digital] platform” (Pallitto, 2018). This internet-up, platform logic of city-building has been explicitly expressed by Sidewalk Labs (2017) and Sidewalk Toronto on various occasions (Badger, 2017; Cannon, 2018) as well as implied in their initial proposal to Waterfront Toronto: “An Android phone changes with every new downloaded app; the original street grid of Toronto changed with every streetcar track placed on top” (Sidewalk Labs, 2017, p. 17). Eric Schmidt—Google's former chairperson—even described that Sidewalk Labs emerged from asking, “Wouldn't it be nice if you could take technical things that we know and apply them to cities?... We started talking about all of these things that we could do if someone would just give us a city and put us in charge” (Alang, 2017). Sidewalk has also requested to be exempt from city regulations in order to autonomously “innovate” in the playground and testbed that is Toronto's Eastern Waterfront (Balsillie, 2018). The smart city is thus being approached with the same data and profit-driven, experimental tactics that have led to the rapid and ungoverned development of information technologies—but this move-fast-and-break-things approach is simply not suited to the careful urban planning processes required for complex cities (Skok & Roth, 2018). As Muzzafar (2018) stated in her resignation letter, “a city's infrastructure has an obsolescence of many decades, it is not like a new phone that we can change in a couple of years if we find it to be problematic” (p. 2).

5.3 Looking Forward: Building a Smarter City

What I think we should clearly articulate is what kind of a society we want to live in, and what we think the role of technology should be in that society, and I think those are the inputs that are important... We absolutely need to have more discussion around policies, standards, and norms. But probably let's start with laws, and let's root those laws and those policies and those standards in a set of clear principles, and those principles should be rooted in democracy, justice, truth, human rights, accessibility, freedoms. You know, it's like simple—what I think we could call universal—values, and that's the place from which we start to create these pieces of legislation, and these standards and these norms and these ideas. Those are the outputs. The inputs are: what type of society [do we want], [and] what type of values do we want to underpin all of them? (Gokhale, 2019, Appendix E).

As discussed in Section 5.1.1, both interview and charette session participants consistently sought to centre the well-being and prosperity of city-dwellers, communities, and the environment when considering how to best design a “smart city.” Subverting the technology-centred implications of the term “smart,” they emphasized the need to focus on issues like civic engagement, community-building, and government-administered corporate regulation in order to achieve a healthy, democratic, ethical, inclusive, prosperous, and environmentally sustainable city. Most participants in fact did not see AI or smart technologies as central to a smarter and stronger city at all. They did, however, acknowledge that these technologies are rapidly advancing and dominating our economies and lives, and must thus be regulated and used as tools to achieve community-centred goals within the city. As *Castellano* put it when describing her feelings that a corporate-driven, technology-centred smart city is inevitable: “... So how do we get the best out of it? And the best not necessarily being money or tech, but something that is about people.”

Earhart, who works in public policy at an AI company, had many suggestions for how new technologies could be regulated and leveraged to improve the city. Among all interview and charette session participants, she was the most optimistic about the Sidewalk Toronto project, arguing that, “Unless our political leadership who are in Toronto, their powers being very eroded by the province—unless we're willing to increase property taxes so that we can actually afford the city that we want, then maybe the future of city building *is* public-private partnerships.” She went on to explain in her interview how the smart city, designed and funded in partnership with tech companies, could be a space of opportunity:

Let's contextualize this. We can't afford the city that we want right now. So is this an opportunity to capture some value, keep Toronto on the map, create some great jobs, and

be a leader in responsible cities, and be a voice—you know, be the mayor, be the premier, be the prime minister that advocates for this being done in the right way without being too polite about it. Maybe Canada's reputation for being polite—maybe we're seen by these big tech companies as pushovers or small fishes because of our small population that's just spread out on a big, beautiful land. I think the opportunity for Canada is to show everyone that that's wrong—that designation isn't right.

Earhart went on to draw on the EU's General Data Protection Regulation (GDPR) and the notion of digital literacy to explain how this public-private smart city partnership could be “done in the right way”:

I think truly achieving and documenting informed consent is an important part of this project, the disclosure piece, how is data being used, probably importing a couple of important GDPR principles, which I'm sure they're thinking of. You know—can I access the data that company has on me? Can I request that it be dropped?

...I think that there's an opportunity to have more of a pan-Canadian framework for the computer sciences across the K-12 system... So what does digital literacy mean?... People build a facility using the internet but not necessarily understanding it. You know, how is the internet being commercialized? Why are the terms of this app important? How do I protect myself online, protect my identity? What are cookies? Why am I getting this ad? ...I don't think that work erases the very real and harmful, scary risks of bias, but I think it's definitely part of improving.

She also suggested that we draw from the federal government's criteria for working with AI companies, and use that as a model for any level of government that considers partnering with a tech company or implementing a new technology: “A big part of that is explainability of the algorithm, and talking about data sources.” For *Earhart*, explainability would improve transparency by helping the average tech user to understand how a technological system or algorithm actually works and makes decisions “in real life.”

Earhart also offered ways in which technology users and city-dwellers could be financially compensated for the data that tech companies currently profit from:

There's a really interesting value for data policy conversation kind of quietly happening in the state of California with Governor Gavin Newsom and what he's calling a data dividend. That's basically that big tech should be remunerating people in some way for the value of their data.

...At [our company], we're working on a way for people to invest their data as well, so not just money. So appropriately awarding people for that value... How can we help more

people invest, that may not see themselves as investors or may not have money right away—how do you make [data] valuable for them?

While operating from the premise that a smart city is still a technology-centred city, unlike other interview and charrette session participants who subverted that technology-centred notion of “smart,” *Earhart* still highlighted ways in which contemporary technologies could be regulated to ensure benefit to people and communities, in line with what Perks also suggested as necessary for regulation in the digital age:

With digital stuff, we’ve just laid down the road and let them run over us. I mean, data we should be treating data as a public good the same way we treated broadcast frequencies as a public good, and we should license it, regulate it, and control it, and charge them money for the use of it. And only allow them to use it in ways that our regulations say they can.

Like Perks, Gokhale, *Castellano*, and the charette session participants, *Earhart* also acknowledged the need for formal mechanisms that hold tech corporations accountable to technology users and the public. She did not, however, believe that policy is the answer:

The reality is that, though I’m a fan and practitioner of policy, I don’t think that just making a policy solves anything... It can be quite a blunt reaction. You could be like, “we have a policy that you have to have unbiased hiring.” Okay, that’s great, you have a policy, but what’s the jurisdiction of the state to actually do that, and how is that explainable, how are people going to demonstrate that? So that’s why I’m cautious about the application of policy intervention in those spaces.

Earhart drew attention to the need for regulatory mechanisms that are more specific and reinforceable than the generic policies that we are beginning to see develop in the wake of ethical AI and data privacy debates. Likewise, Gokhale argued that laws are likely more effective means of enforcing regulation.

5.3.1 Legislation, Resistance, and Civic Engagement

In the Organizing for Fairer Economies session that I participated in as part of my action research methods, organizer Maritza Silva-Farrell from Queens, New York in fact explained that legislation was crucial in helping her predominantly Black and Latinx community stop Amazon’s HQ2 (i.e. second headquarters) from being built in Long Island City. Like the critics

of the Sidewalk Toronto project, her community had major concerns with a tech giant profiting from government incentives and land while displacing low-income, racialized community members in favour of employing wealthy White and Asian outsiders (who largely make up the tech industry). Furthermore, they felt that Amazon's publicized promise of offering employment opportunity and benefit to the community was a farce, given Amazon's track record of paying no taxes, treating employees poorly, and failing to engage with local communities to understand their needs. While American cities were competing to attract Amazon through secretly negotiated tax breaks and grants (with the New York governor and city mayor offering Amazon a total of nearly \$3 billion in incentives), community members from Queens thus pressured the city to pass legislation that would limit the use of corporate NDAs. To Maritza, this was their most significant achievement, forcing Amazon and their governments to be more transparent about what Amazon would actually do, gain, and take from the Queens community, which in turn led to the rapid termination of the deal between Amazon and New York.

Legislation will thus be crucial in ensuring greater transparency and accountability among tech corporations like Sidewalk Labs and Google, both of which have their own histories of opacity, secrecy, NDAs, exploitation, and lacking diversity, among other dangers that have been discussed throughout this paper. Like the deal with Amazon, public funds and profitable lands are being promised to these corporations as part of the smart city project, when in fact these funds and lands could be reallocated to directly address the most pressing issues in the city of Toronto, like affordable housing. Like Amazon in New York, Google seeks to build a headquarters in Toronto as part of the Sidewalk Toronto plan, which also risks displacement and rising housing costs for vulnerable, racialized, and historically marginalized communities in the city as wealthy American tech workers come to Toronto. As Gokhale explained, "I think corporate power is the root of [these problems], but corporate power is related to patriarchy, and white supremacy, and other systems of oppression, right – they're all connected." And like Long Islanders, Torontonians will resist.

Explaining #BlockSidewalk's stance on the Sidewalk Toronto project, Gokhale clearly asserted: "As long as the project continues, opposition and resistance to the project will continue." Perks also encouraged Torontonians to organize and fight against the Sidewalk Toronto project:

I start with the question, “do you have an obligation to try to win?,” and the answer to that is an obvious yes. If you believe like me that socially-owned goods should be, a) managed with democratic permission, and b) should be delivering social benefit, then you have a duty—if you’ve become aware of what is happening on the waterfront—you have a duty to fight back. The question of, “can we win?”—the future is unwritten.

Although supportive of the Sidewalk Toronto project, *Earhart* similarly argued that we as Torontonians need to push for transparency and accountability among tech corporations:

We should use this power of accountability and the push for more transparency to push Google and Alphabet to articulate this project in a more sophisticated way so that it *can* happen here. That is my hope. That it *can* happen here, but it doesn’t mean that I want it to happen here without those rigorous checks and balances and without that company listening, etc. etc., that’s all.

Castellano drew attention to the need for the City of Toronto to get involved in this resistance as well:

Where is the human rights office in this? And I have to be honestly, I don’t even know where they are lately, kind of in general... If you’re only focusing on internal staffing and that, you’re missing all of the systemic stuff. How are they involved in this to say, “Okay, how are people’s rights potentially violated, and how do we actually get the most for people out of this?”

...Where are the checks and balances in it? How is the City calling bullshit on it? Who is doing that, and when the #BlockSidewalk folks did it prior to forming #BlockSidewalk, they were stigmatized for it as “shit-disturbers” and “troublemakers” and just doing it for the sake of doing it. And it’s like, no, it’s about accountability. And if you feel like you actually have the answers to their questions, then maybe there’s a problem with the communication. So, deal with it as opposed to labelling folks that are asking questions as “trouble-makers.” But people don’t like to have their power questioned, let alone sharing some of that.

5.3.2 Reconceptualizing “Smartness”

As predicted in the literature review and theoretical frame and as proven throughout this Findings section, we are seeing Sidewalk Labs co-opt the oppositional language and ideas of resistant voices, thus giving the illusion of socially just and egalitarian values when in actuality, the epistemological roots of the project remain fixed, and do not reflect socially just ethics. It is thus important to focus on the logics and worldviews embedding in the Sidewalk Toronto project in order to identify the potential dangers of the smart city. Surface-level and superficial changes

in the project deflect our attention away from these deeper issues related to the guiding ideologies of the project and tech corporation in question, Sidewalk Labs—a corporation which can enormously profit from this smart city project, but cannot meaningfully be held accountable by the peoples or governments of Toronto for the outcomes of the project.

While resistance to the Sidewalk Toronto project may continue, and our governments may implement mechanisms for remunerating people for their data, and legislation may be passed to make tech corporations more transparent, we must thus begin to conceptualize smarter ways of building, thinking about, and relating to AI. The question of how to truly conceive of ethical AI must be further explored. The fact is that there is no unbiased perspective of the world, and thus we can never produce unbiased AI. We can, however, promote notions of AI that displace the capitalist and colonial worldviews and exploitative agenda of development that AI technologies and the tech industry are currently imbued with.

As suggested in the theoretical frame of this paper, Indigenous epistemologies, theories, and methodologies offer an alternative to these capitalist and colonial ways of thinking. Kovach (2005) explains that the relational and the collective are key themes in Indigenous methodologies. In describing *the relational*, she explains that, “Indigenous ways of knowing have a basis in the relationships that are inclusive of all life forms. The philosophical premise of take what you need (and only what you need), give back, and offer thanks suggests a deep respect for other living beings” (Kovach, 2005, p. 30). In describing *the collective*, she explains that, “Inherent in this understanding of life is reciprocity and accountability to each other, the community, clans, nations. It is a way of life that creates a sense of belonging, place, and home; however, it doesn’t serve anonymity or rugged individualism well” (Kovach, 2005, p. 30). These themes resonate with Gokhale and the charette session participants’ focus on community-centred cities and technologies. These Indigenous principles thus offer a valuable basis for approaching ethical conceptions and designs of AI.

Researchers Jason Edward Lewis and Suzanne Kite at Concordia University are already working to conceptualize AI from an Indigenous worldview. They argue that we cannot correct bias out of AI systems because the way that we design and think about AI is fundamentally unethical (Murdoch, 2019). Applying the principle of relationality described by Kovach (2005), they explain that Indigenous epistemologies help us to see that AI is part of a larger network of

relations and interconnectedness, and must thus be treated respectfully; “You’re not treating something respectfully because it has a soul, you are treating it respectfully because it’s one nodal point in a number of different relations that you are enmeshed in” (Murdoch, 2019). They encourage us to question our exclusive focus on human well-being when thinking about ethics, and our perceived control and superiority over AI; our relationships with AI should be reciprocal and respectful if we are to produce a better world alongside AI (Murdoch, 2019).

In an article entitled “Making Kin with the Machines”, Lewis, Arista, Pechawis, and Kite (2018) further explain why Indigenous alternatives to Western notions of AI are crucial:

As Indigenous people, we have cause to be wary of the Western rationalist, neoliberal, and Christianity-infused assumptions that underlay many of the current conversations about AI.

...It is clear to us that the country to which AI currently belongs excludes the multiplicity of epistemologies and ontologies that exist in the world. Our communities know well what it means to have one’s ways of thinking, knowing, and engaging with the world disparaged, suppressed, excluded, and erased from the conversation of what it means to be human.

What is more, we know what it is like to be declared non-human by scientist and preacher alike. We have a history that attests to the corrosive effects of contorted rationalizations for treating the human-like as slaves, and the way such a mindset debases every human relation it touches—even that of the supposed master. We will resist reduction by working with our Indigenous and non-Indigenous relations to open up our imaginations and dream widely and radically about what our relationships to AI might be. (p. 11)

If we are to build ethical AI, we must begin with ethical principles that account for and accommodate, rather than limit, the multiplicity of perspectives, identities, and life-forms that exist in the world. We must break free from old, exclusionary, and positivistic thinking to forge new, smarter conceptions of AI and “smart” technology. We must consider our relationships with AI as reflections of our broader relationship with the world, and question whether we want to develop intelligent technologies that further entrench the inequitable values that have led to centuries of environmental degradation and oppression along sociopolitical and economic lines. Ultimately, we must begin the path towards the creation of ethical AI by applying a social justice-oriented lens (as described in the theoretical frame of this paper) and centring alternative ways of thinking, as offered by Indigenous scholars who draw from Indigenous epistemologies.

6

CONCLUSIONS

This thesis has addressed four main questions: What discourses, ideologies, logics, agendas, and worldviews are being promoted and reproduced by the “smart city” project? What worldviews and narratives are simultaneously being obfuscated and silenced? If these biases persist, how will they impact socioeconomic inequality and systemic discrimination in Toronto (and Canada more broadly)? And how can this smart city project be reimagined through a social justice-oriented lens (i.e. my theoretical framework) to better address the needs and rights of diverse Torontonians? My social justice-oriented lens draws from critical theory, poststructuralism, postmodernism, intersectional feminism, and anti-colonial methodologies to offer a multi-faceted theoretical toolkit for dismantling all forms of oppression, while elevating marginalized worldviews and perspectives that allow us to conceptualize smarter (i.e. more equitable and sustainable) cities and technologies.

This social justice-oriented theoretical frame informed the design of my method, which involved four semi-structured interviews and three action research methods. These interviews were conducted with Toronto-based professionals in the fields of community engagement, public policy, governance, and AI/tech development. The action research methods involved participation in the Power Lab’s Organizing for Fairer Economies meeting, the City of Toronto’s

deputation process on the Quayside development, and the Media Ecology Association's charrette session on building equitable and inclusive cities.

By analyzing and triangulating the interview data and action research notes from these two methods, this thesis has shown that despite their outwardly equitable and inclusive narrative, the Sidewalk Toronto "smart city" project, corporate actors, and technologies are perpetuating positivist, neoliberal, and neocolonial logics and worldviews. Although the smart city has yet to be built, the behaviours, histories, and discourses associated with the project and actors (i.e. Sidewalk Labs, Google, Waterfront Toronto, City of Toronto, and the heads of all three levels of government) indicate that socioeconomic inequality, surveillance, social sorting, sociopolitical discrimination, and erosions to democracy will be exacerbated by the smart city development. This smart city project aims to use public lands and funds to promote privatization and corporate profit and "innovation" while promising few tangible and guaranteed benefits for Torontonians. Meanwhile, the exploitative and surveillance capitalist agenda of development promoted by the Sidewalk Toronto project suppresses alternative perspectives on AI, development, and "smartness" which would more meaningfully address and maximize public consent and benefit. Opposition is quickly co-opted by and reflected in the constantly evolving marketing tactics, language, and narrative of the Sidewalk Toronto project, thus limiting the opportunity for meaningful discussion, debate, and citizen-led, community-oriented development in the city.

The findings of this research indicate that corporate opacity, secrecy, and illusion, as enabled by lax government regulations which mutually benefit both corporate and state actors, allow for the abuse of power that we are seeing from contemporary tech corporations. These tech corporations are motivated by the singular aim of accumulating wealth and power, which in turn enables their penetration of public privacy, while at the same time granting their own business dealings and technological products/algorithms disproportionate privacy and protection from scrutiny. AI and smart city technologies are the newest profit-making frontier for these monopolistic tech corporations who have colonized the digital space of the internet, and now seek to colonize and exploit the data of our tangible lifeworld via smart city technologies (which operate according the same logics as exploitative internet platforms). These smart city technologies are embedded with sensors that read, define, and communicate information about the world according to capitalistic and positivistic logics, reducing individuals to exploitable data

subjects capable of being parsed and analyzed in the pursuit of profit and total information capture. The results of these authoritarian and neocolonial corporate tactics for citizens and city-dwellers include a risk of a surveillance state, eroded democracy, increased income inequality, rising costs of livings, lower wages and more precarious work, private control of governments, and more opaque and insidious, technology-enabled forms of discrimination along social, political, and economic lines (via social sorting processes). While the smart city may be “smart” and prosperous for some corporate, political, media, policing, and military elite within the oligarchic-corporate political emergence²⁹, it is thus harmful for the vast majority of people and city-dwellers who are unknowingly made exploitable, trackable, and vulnerable in the process.

While further research must be done to continually study the ways in which corporate secrecy, marketing illusions, and AI technologies allow for tech corporations like Sidewalk Labs and Google to accumulate and abuse power, the research in this thesis has shed light on the current state of the smart city development in Toronto and the relatively static, exploitative logics underpinning it. The aim of this research is not to prescribe solutions, but to begin addressing the many unanswered questions related to AI bias and the smart city, while creating space for oppositional discourses to develop. This work has offered oppositional language and theory for confronting the harmful biases and potential dangers of the smart city, while questioning dominant narratives and posing critical questions in line with the social justice-oriented lens offered through the theoretical frame.

This research has also drawn direct connections between corporate logics and behaviours, thus demonstrating the tangible dangers and repercussions of harmful biases and logics in the smart city project, process, team, technologies, and publicized promise. Utilizing a social justice-oriented lens, this paper has focused on locating, naming, and ameliorating oppressive biases in the conception, development, and use of corporate-made AI technologies and technological projects like the smart city. At the same time, this research has offered alternatives for achieving stronger, more inclusive, equitable, and sustainable cities with the aid of ethically-designed technology. The analyses, methods, and findings in this thesis have been deeply informed by the

²⁹ The *oligarchic-corporate political regime* defined in section 5.2.4.

social justice-oriented theoretical frame, which has been developed as a tool to analyze all current and future technological advances, AI technologies, and smart cities.

6.1 Recommendations

A significant and reoccurring finding from this research is that there is a need for formal mechanisms through which tech corporations can be held accountable to the public. We have already seen tech giants undercut democracy, accountability, and transparency as a result of the unregulated digital landscape in which they operate. For example: Cambridge Analytica used seemingly-private Facebook data to influence the 2016 U.S. presidential elections (Meyer, 2018). Amazon made 11.2 billion dollars in profits in 2018 and paid no federal tax, in fact benefiting from tax subsidies and credits (Ingraham, 2019). And secret algorithms and non-disclosure agreements (NDAs) allow for Google's content-sorting and profit-making logics to be free from public scrutiny (Pasquale, 2015).

Sidewalk Labs itself has already asked for limited regulation to experiment with commodifiable technologies in what they call the “testbed” of Quayside. But instead of allowing Google/Sidewalk Labs (which are both subsidiaries of Alphabet) to freely exploit our public lands, services, and data for profit, Toronto has the opportunity to do something very unique at this moment. We can set a precedent for how the rest of the world pursues technological urban innovation by creating a governance structure that protects our democracy and ensures accountability and transparency among tech corporations. As the #BlockSidewalk campaign argues, Waterfront Toronto's partnership with Sidewalk Labs is fundamentally undemocratic because it was made without prior consultation with the public. Based on the triangulated findings of this research, I thus offer five recommendations:

- 1) We must acknowledge the concerns of the citizen-led #BlockSidewalk campaign and restart this Quayside development from the RFP phase.**

Once restarted, this RFP process must involve meaningful and informed consent, and decision-making power afforded to disadvantaged communities and marginalized voices, including Indigenous communities, given their connections to the land and alternative epistemologies rooted in the relational and the collective. This also requires rethinking the

consultation process itself, which tends to reproduce unequal and colonial power relations, while limiting the power of the consulted.

- 2) Meaningful and educated consent also requires that the City offer easily accessible digital literacy campaigns, workshops, and educational resources to ensure that all citizens understand the implications of new technologies *before* we consent to them.**

Digital literacy should become a standardized part of the K-12 education system. The notion of digital literacy must also be expanded to entail an understanding of the ways in which technology can be biased and harmful, to ensure that the programmers and designers of our digital technologies are also literate in recognizing the harms and repercussions of their technological products.

- 3) We must develop an enforceable legislative and policy framework that prioritizes public interests in the digital age *before* we proceed with any technological urban developments.**

Just as the Canadian broadcasting system is regulated by the CRTC, we need to create enforceable laws and policies for publically protecting things like data, intellectual property, and privacy.

- 4) We also need our laws and policies to address and limit the unprecedented and monopolistic power of tech corporations, to retroactively compensate for over a decade of leaving the internet unregulated.**

Just as New York City designed legislation to promote transparency and limit NDAs when Amazon tried to build its headquarters there, we must limit corporate secrecy, lobbying, ambiguity, and obfuscation—trademarks of Sidewalk Labs’ conduct in Toronto thus far.

- 5) Finally, we must put critical-thinking activists and academics (with expertise in the humanities and social sciences) in conversation with programmers, technologists,**

and policy makers to ensure that our technologies and policies are developed with an equity, inclusion, and diversity lens.

This cross-disciplinary collaboration is essential in expanding the limited and positivistic worldview of the siloed tech industry, and in developing more ethical technologies, produced from a multiplicity of perspectives. This interdisciplinary thinking should also become a central part of all post-secondary programs, to ensure that people in both the arts and the sciences can think critically about the technologies that increasingly shape our lives and relationships.

Smart cities are a new frontier. We need to work together across disciplines and political affiliations to both envision and establish Toronto as a global leader in socially just and democratically-designed tech and innovation. The logics and assumptions with which we approach smart tech and AI development in these foundational years will shape our environmental, social, political, and economic landscapes for decades to come. This is why we must apply a social justice-oriented lens when thinking about AI, to ensure that we continually limit sociopolitical and economic inequities while maximizing long-term public benefit and sustainability.

While the recommendations in this section are not central to this research project, they offer a starting point from which future researchers and activists can begin to envision and investigate solutions to the issues identified throughout this paper. Future research on smart cities and technologies should also study and analyze how environmental, social, political, and economic landscapes and inequities shift in the years to come, as connected objects in the Internet of Things become more ubiquitous, and our lives become more technologically “smart.” Research conducted by critical and oppositional thinkers, and particularly Indigenous thinkers using Indigenous epistemologies to conceptualize AI, will be particularly valuable in designing an ethical framework for AI development and use. Continued critical and oppositional research on AI, smart tech, and smart cities will be crucial in resisting the naturalized capitalist and colonial logics of the tech industry and their technological products.

“Another world is not only possible, she is on her way... On a quiet day... I can hear her breathing” (Roy, 2003, p. 75).

APPENDIX A

Consent Agreement



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada



You are being invited to participate in a research study. Please read this consent form so that you understand what your participation will involve. Before you consent to participate, please ask any questions to be sure you understand what your participation will involve.

Toronto's not-so-“smart” city: Assessing the future of technology-driven urban innovation

INVESTIGATORS: This research study is being conducted by Sahar Raza, under the supervision of Stéphanie Walsh-Matthews, from the Communication & Culture master's program at Ryerson University.

This study is funded by the Social Sciences and Humanities Research Council.

If you have any questions or concerns about the research, please feel free to contact Sahar Raza at sahar.raza@ryerson.ca or Stéphanie Walsh-Matthews at swalsh@arts.ryerson.ca, phone number 416-979-5000 ex. 7357, and address 380 Victoria Street, Jorgenson Hall, Room 528.

PURPOSE OF THE STUDY: The purpose of this study is to critically analyze Sidewalk Toronto's smart city plan and associated smart technologies in order to highlight the benefits and risk of this project for residents of Toronto. The ultimate goal of this research is to encourage and inform public policy debates related to Toronto's smart city project, in hopes of mitigating and managing the risks associated with unregulated, corporate, and technology-driven urban innovation. This research will contribute to Sahar Raza's master's thesis.

Approximately 3-5 participants will be interviewed for this study. These participants may be professionals, public figures and/or experts in the fields of data privacy, surveillance studies, information technologies, artificial intelligence, ethics, policy development, community engagement, or urban planning in the Greater Toronto Area (GTA). I will target experts who have been involved with or voiced opinions about Toronto's smart city project, however any expert in these aforementioned fields who is interested in offering an analysis of smart cities and technologies may be included. People with no expertise in aforementioned fields will not be interviewed since the goal of these interviews is to gain an in-depth understanding and analysis of the potential benefits and risks of Toronto's smart city development.

WHAT PARTICIPATION MEANS: If you volunteer to participate in this study, you will be asked to do the following things:

- Meet at a location agreed upon by the researcher and interviewee – potential locations include private meetings rooms at Ryerson University (phone interviews are also possible).
- Spend approximately 1 to 1.5 hours in an interview where you will discuss smart technologies, privacy, surveillance, policy, and Toronto's smart city project with the researcher. This interview will be audio-recorded to ensure that your responses are used in the research study accurately.

- Some open-ended questions will be prepared by the researcher to guide the interview (sample questions can be found below), however participants are welcome to introduce any relevant topics, information, or opinions in this interview.
- No demographic data will be collected on participants unless a participant offers this information as relevant to the research (i.e. if a participant feels that identifying as a marginalized or minority group impacts their perspective on this topic, or if their professional background is relevant to their opinion). Participants are being interviewed for their expert opinions and insight on the study topic and not for any personal information.
- The research findings will be made available to participants via Google Drive once a full draft of the study has been completed. Participants will have a week to flag any concerns that they have with how their interview data was used, and can request that this data be changed or removed. Once the final version of the research study is completed, participants can access it at Ryerson's Digital Depository:
<https://digital.library.ryerson.ca/>
 - o NOTE: if Google Drive is not an ideal method of file-sharing, please inform the researcher, and an alternate method will be established (i.e. a physical USB key or printed version of the research report can be shared with a participant instead).

Sample interview questions:

- How do you think that the smart city project, in its current form, could positively impact Torontonians? How could it negatively impact Torontonians?
- Do you believe that the people, bodies, and/or organizations involved in making decisions for the smart city project are adequately diverse? Are they representative of Toronto's population? Please explain.
- Could any social or economic discrimination or inequities be heightened or lessened by the smart city project and technologies? How so?
- Do you believe that the corporate interests of Sidewalk Labs and/or Google will affect the outcomes of Toronto's smart city development? Why and how?
- Do you believe that there should be laws and/or policies in place to regulate the development and use of smart technologies in the city? Why? If so, what types of policies?
- Do you believe that the public data collected in the smart city will be used purely for the benefit of Toronto citizens and city planners? Why/why not?
- Do you believe that Toronto needs a technology-driven, "smart city" development? Please explain. (i.e. What are the greatest needs of Torontonians? How could smart technologies meet these needs? How could we meet the needs of Torontonians without smart technologies? Would these solutions be more or less effective than technological, "smart" solutions?)

POTENTIAL BENEFITS: By participating in this study, you will have the opportunity to publicly relay your in-depth concerns and hopes for Toronto's "smart city" project without concern for repercussion (see section on "confidentiality" for more information on remaining anonymous). You will have the opportunity to interact directly with a young scholar/researcher who is assessing smart cities from a social and critical perspective. Moreover, community members in Toronto (including myself, the researcher) may benefit from your participation by

gaining a more in-depth and critical understanding of smart technologies and cities. You will be able to offer both personal and community perspectives on the topic. You will have the opportunity to not only answer pre-defined questions, but also introduce your own information and opinions, even if they fall outside the scope of the questions that the researcher has prepared (given the semi-structured nature of these interviews). Finally, your participation will inform this study, which aims to assess and critically examine the current state of thought on smart cities, particularly in the context of Toronto.

Since the physical development of Toronto's smart city has not yet begun, there is still time for community members to become informed about the potential risks of technology-driven urban innovation in order to advocate for policy that will mitigate these risks. Your participation in this research may therefore (in the long-run) facilitate informed public policy debates. I cannot guarantee, however, that this will be a direct benefit from your participation in this study.

WHAT ARE THE POTENTIAL RISKS TO YOU AS A PARTICIPANT: The main risk of participating in this study is that your views on the smart city development may be controversial and could thus compromise your public image or reputation in your professional field. You may also feel uncomfortable about answering certain questions due to your position in the tech field and/or your connections with Sidewalk Labs and Waterfront Toronto.

In order to mitigate these risk, you will have full autonomy over: a) what questions you answer, b) what parts of your interview I utilize, and c) how I present your identity (i.e. real name or pseudonym). I will give you the opportunity to review and change your responses or withdraw from the study at any time before June 30th, 2019. To ensure confidentiality, I will securely store your interview data on a private hard drive within a private and locked cabinet.

DATA STORAGE: I will securely store your audio-recorded interview and any related data/transcriptions on a private hard drive within a locked cabinet in my private study. The audio-recording of your interview will be deleted immediately after it has been transcribed and verified, no later than June 30th, 2019. The transcription of your interview and any other identifying data will be deleted by September 1st, 2019, once this study is completed and approved by Ryerson University as an acceptable thesis submission. Upon completion of the study (i.e. September 1st, 2019), my private hard drive will be completely wiped to ensure all interview data is erased, and any paper documents or consent forms will be shredded and disposed of.

No one other than myself, the principal investigator, will have access to the raw data or audio-recorded interviews for this study. Only once the data has been written into my thesis according to your confidentiality requests (as selected on this consent agreement) will my thesis supervisor and supervisory committee gain access to this data, in the form of my completed written thesis.

CONFIDENTIALITY: If you would like for your identity to remain confidential in this study, I will ensure that I remove all identifiable information from your responses within my thesis, and I will send you any segments of my thesis that use your data, to ensure that you are comfortable with how your identity has been relayed. You can choose to be identified by a pseudonym rather than your real name on this consent agreement.

DATA DISSEMINATION: Your interview responses will be used in the analysis portion of this study, as expert (scholarly, industry, or practitioner) opinion on the various topics that I

analyze in relation to the smart city. This data will be discussed during my thesis defense (July 2019), and it may also be reference in any subsequent conference presentations that I make on this study. Your confidentiality will be maintained during these presentations, as per your confidentiality requirement selected on this consent form.

Once this study/thesis is completed and approved by the university, it will be publicly available on Ryerson's Digital Depository: <https://digital.library.ryerson.ca/>

VOLUNTARY PARTICIPATION AND WITHDRAWAL: Participation in this study is completely voluntary. You can choose whether to be in this study or not. If any question makes you uncomfortable, you can skip that question. You may stop participating at any time. If you choose to stop participating, you may also choose to not have your data included in the study. Your choice of whether or not to participate will not influence your future relations with Ryerson University or the investigators, Sahar Raza and Stéphanie Walsh-Matthews, involved in the research. You can withdraw and have your data removed from the study until May 30th, 2019, after which your data cannot be removed from the study.

QUESTIONS ABOUT THE STUDY: If you have any questions about the research now, please ask. If you have questions later about the research, you may contact: Sahar Raza at sahar.raza@ryerson.ca or her supervisor, Stéphanie Walsh-Matthews at swalsh@arts.ryerson.ca, phone number 416-979-5000 ex. 7357, and address 380 Victoria Street, Jorgenson Hall, Room 528.

This study has been reviewed by the Ryerson University Research Ethics Board. If you have questions regarding your rights as a participant in this study please contact:

Research Ethics Board
c/o Office of the Vice President, Research and Innovation
Ryerson University
350 Victoria Street
Toronto, ON M5B 2K3
416-979-5042
rebchair@ryerson.ca

Toronto's not-so-"smart" city: Assessing the future of technology-driven urban innovation

CONFIRMATION OF AGREEMENT:

Your signature below indicates that you have read the information in this agreement and have had a chance to ask any questions you have about the study. Your signature also indicates that you agree to participate in the study and have been told that you can change your mind and withdraw your consent to participate at any time. You have been given a copy of this agreement. You have been told that by signing this consent agreement you are not giving up any of your legal rights.

Name of Participant (please print)

Signature of Participant

Date

I agree to be audio-recorded for the purposes of this study. I understand how these recordings will be stored and destroyed.

Signature of Participant

Date

When I am being identified in this study, I would like for:

☐ My real name to be used.

☐ A pseudonym to be used.

(please choose only one option)

Signature of Participant

Date

I would like to receive a draft copy of this thesis before it is finalized, in order to review how my data is used. I understand that I will have five (5) days to review this draft and flag any concerns.

Signature of Participant

Date

APPENDIX B

Recruitment e-mail script

E-mail title: Seeking interview participants for a study on Sidewalk Toronto's "smart city"



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sciences humaines du Canada



Hello,

My name is Sahar Raza. I am a masters student at Ryerson University in the Communication and Culture program. I am contacting you to see if you might be interested in participating in a research study. This research is being done as part of my masters thesis, and my supervisor's name is Stéphanie Walsh Matthews. The focus of the research is Sidewalk Toronto's smart city plan and use of smart technologies. My research will critically analyze this smart city project in order to highlight the benefits and risk for residents of Toronto. The ultimate goal of this research is to encourage and inform public policy debates related to Toronto's smart city project, in hopes of mitigating and managing the risks associated with unregulated, corporate, and technology-driven urban innovation.

To participate, you need to live or work in the Greater Toronto Area and have expertise in one of the following fields: data privacy, surveillance studies, smart cities/technologies, artificial intelligence, Toronto's technology industry, public policy development, urban planning, community engagement, or ethics. You should also be knowledgeable about Sidewalk Toronto's smart city plan, and interested in offering an analysis of this project (or smart cities and technologies more generally). If you feel that you have no expertise in any of the above fields, you should not participate as the goal of these interviews is to gain an in-depth understanding and analysis of the potential benefits and risks of Toronto's smart city development.

If you agree to volunteer, you will be asked to participate in a one-on-one interview where we will discuss Toronto's smart city project. This interview will be a maximum of 1 hour and will take place in a private meeting room at Ryerson University. This interview will be audio-recorded to ensure that your responses are accurately used in my thesis, and will not be shared with anyone else. Other details about confidentiality can be found on the consent form that I will e-mail you if you are interested in learning more.

This research is funded by the Social Sciences and Humanities Research Council of Canada, and has been reviewed and approved by the Ryerson University Research Ethics Board (file number 2019-088).

If you are interested in learning more about the study or would like to volunteer, please reply to this e-mail (sahar.raza@ryerson.ca) or call my supervisor at 416-979-5000 ex. 7357.

Thank you for your time and consideration!

APPENDIX C

Recruitment phone script

Hi there, could I speak to _____?

(Ensure that the person I am speaking to is the correct person/potential participant.)

My name is Sahar Raza. I am a masters student at Ryerson University in the Communication and Culture program. I am contacting you to see if you might be interested in participating in a research study, as an interview participant. This research is being done as part of my masters thesis, and my supervisor's name is Stéphanie Walsh Matthews. The focus of the research is Sidewalk Toronto's smart city plan and use of smart technologies. My research will critically analyze this smart city project in order to highlight the benefits and risk for residents of Toronto. The ultimate goal of this research is to encourage and inform public policy debates related to Toronto's smart city project, in hopes of mitigating and managing the risks associated with unregulated, corporate, and technology-driven urban innovation.

Would you be interested in learning more about this study/if you qualify to participate in the study? Would you mind if I ask some questions to ensure that you qualify to participate?

(Ensure that the person is comfortable continuing the conversation and learning more about participating.)

To participate, you need to live or work in the Greater Toronto Area and have experience and expertise in one of the following fields: data privacy, surveillance studies, smart cities/technologies, artificial intelligence, Toronto's technology industry, public policy development, urban planning, community engagement, or ethics.

Do you live in the GTA?

Do you feel that you have experience or expertise in one of the listed fields?

(Clarify any questions that the person may have. Continue only if they feel that they meet the criteria thus far.)

You should also be knowledgeable about Sidewalk Toronto's smart city plan, and interested in offering an analysis of this project (or smart cities and technologies more generally). The goal of these interviews is to gain an in-depth understanding and analysis of the potential benefits and risks of Toronto's smart city development, so it is important that you are knowledgeable about the smart city project.

Do you feel that you have enough knowledge about Sidewalk Toronto's smart city project to participate?

(Clarify any questions that the person may have and ensure that they are comfortable speaking about the smart city project.)

Great – you meet the criteria for participation! Let me tell you a little about the study procedure.

If you agree to volunteer, you will be asked to participate in a one-on-one interview where we will discuss Toronto's smart city project. This interview will be a maximum of 1 hour and will take place in a private meeting room at Ryerson University. This interview will be audio-recorded to ensure that your responses are accurately used in my thesis, and will not be shared with anyone else. Other details about confidentiality, risks and benefits can be found on the consent form that I will e-mail to you if you are interested in learning more.

Would you like me to go over the risk and benefits now?

(If the person says yes, described the risks and benefits as outlined on the consent form. If no, remind them to read and review these sections on the consent form before signing the form!)

This research is funded by the Social Sciences and Humanities Research Council of Canada, and has been reviewed and approved by the Ryerson University Research Ethics Board (file number 2019-088).

Do you have any questions?

Would you like to be a participant in this study?

(If the person says yes, share my contact information with them, i.e. e-mail: sahar.raza@ryerson.ca. Get their e-mail address and send them the consent form to review. Explain that they can take a few days to review the consent form before proceeding.)

Thank you for your time and consideration!

APPENDIX D

Interview guide for semi-structured interviews

Personal and public perception:

1. What was your first reaction to hearing about the Sidewalk Toronto smart city project?
2. There has been a lot of discussion about this project in the news lately – has this changed your opinion of it?
 - a. Do you think that it is being presented properly/fairly in the media?
3. How do you believe the public is perceiving this project, and why?
4. How would you define AI in lay terms?
 - a. How do you feel about the future of AI?
5. What are some things that you think the average person/public should know about Sidewalk Toronto?
 - a. Sidewalk Labs?
 - b. Smart cities? AI?
6. How do we help to inform the average person? How do we make people care?

Question about Toronto's smart city project:

1. What are your hopes for Toronto's smart city project?
 - a. What do you think Torontonians need most from a technology-driven, "smart city" project?
 - b. How do you think the smart city project, in its current form, could positively impact Torontonians?
2. What are your concerns with Toronto's smart city project?
 - a. What are the greatest risks of the smart city to Torontonians?
 - b. How do you think that the smart city project, in its current form, could negatively impact Torontonians?
3. Could any social or economic discrimination or inequity be heightened or lessened by the smart city project and technologies? How so?
4. Do you believe that the people, bodies, and/or organizations involved in making decisions for the smart city project are adequately diverse? Are they representative of Toronto's population? Please explain.
 - a. Do you believe that in their current form, these decision-making bodies can make decision that will benefit most Torontonians? Why/why not?
 - b. Which voices or narratives are not being heard or represented?
 - c. How could the diversity of these decision-making bodies be improved, to better represent and account for the diverse needs of Torontonians?
5. Do you believe that the corporate interests of Sidewalk Labs and/or Google will affect the outcomes of Toronto's smart city development? Why/why not?
 - a. If so, what are these corporate interests and goals?
 - b. How will these corporate interests impact the development and outcomes of the smart city? How do they differ from the goals and interests of city planners and Torontonians?

- c. What benefit do these corporate bodies gain from participating in this project?
 - d. What do you believe are the pros and cons of having corporate actors help design and fund the smart city project?
- 6. Do you believe that Sidewalk Toronto is adequately equipped to make urban planning decisions in Toronto? Do they have the adequate support and advisory panels?
 - a. Do these support and advisory actors have adequate decision-making power and autonomy? Please explain.
- 7. Do you believe that the public data collected in the smart city will be used purely for the benefit of Toronto citizens and city planners? Why/why not?
 - a. What type of extraneous data could be collected, and why? Who could use or access this data, and who would benefit from this data?
- 8. Do you believe that adequate privacy measures are (or will be) in place for the public data that will be collected in the smart city? Why/why not?
 - a. Would a lack of privacy be problematic for Torontonians? Why/why not?
- 9. Are there any risks of data exploitation and/or surveillance in the smart city? Please explain.
 - a. Do the benefits of the smart city technologies outweigh the risks?

Question pertaining to policy for the smart city:

- 10. Do you believe that there is adequate government oversight for this smart city project? Why/why not?
- 11. Do you believe that there have been adequate policy discussions related to the use of smart technologies in Toronto?
 - a. What types of policy conversations have been had, to your knowledge?
 - b. What policy conversations need to be had?
- 12. Do you believe that there should be laws and/or policies in place to regulate the development and use of smart technologies in the city? Why/why not?
 - a. What types of policies need to be established prior to the development of the smart city?
 - b. What types of laws and policies need to be in place to regulate the development of smart technologies and artificial intelligence more generally?
- 13. How can we hold corporations like Sidewalk Labs and Google accountable to the public via legislation?
- 14. Do you believe that the general public in Toronto is adequately aware of the benefits and risks of the smart city project and technologies? Why/why not?
- 15. Does the public have adequate say, autonomy, choice, information, and/or decision-making power in the process of designing Toronto's smart city? Please explain.
- 16. In the smart city planning process thus far, what have been the most effective public consultation methods/techniques? What is lacking in terms of public consultation? Please explain.
 - a. Do you believe that there has been adequate public consultation?

17. Do you believe that intellectual property is being managed well in this smart city project?
Who will benefit from the intellectual property developed during this smart city project?
Please explain.
 - a. What type of policies do we need to better manage this intellectual property?
18. If you were to redesign this smart city project (including the planning process), what would be your biggest changes to ensure the best possible outcomes for Toronto and its citizens?
19. Do you believe that smart technologies can be biased or discriminatory? Why/why not?
 - a. How could these technologies be biased? Where do these biases come from?
 - b. Who do these biases benefit and harm?
 - c. How could we mitigate the risk of harmful bias?
20. Do you believe that Toronto needs a technology-driven, “smart city” development?
Please explain.
 - a. What are the greatest needs of Torontonians? How could smart technologies meet these needs?
 - b. How could we meet the needs of Torontonians without smart technologies?
Would these solutions be more or less effective than technological, “smart” solutions?
21. How can we ensure the most equitable and inclusive outcomes of this project, so that it improves the lives of Torontonians? (i.e. public consultation, more diversity in tech, more Canadian companies/businesses involves, digital literacy campaigns, etc.?)

Contextual Questions (if necessary)

1. What would you say is your professional or academic expertise in relation to Toronto’s smart city project? (i.e. Do you have knowledge of/experience working with data privacy, policy development, urban planning, ethics, community engagement/consultation, artificial intelligence, surveillance, and/or Toronto’s tech industry?)
2. Do you have any relationship with Sidewalk Toronto? Has your professional work intersected with this project in any way, and if so, in what capacity?
 - a. If so, how has your experience with this project impacted your perspective on it?

APPENDIX E

Interview Transcripts

Interview 1, Clean Verbatim Transcript

Participant: *Christie Castellano* – community engagement professional

Date: Thursday, May 23rd, 2019, 2:30 PM

Duration: 55 min 53 sec

Sahar: Okay, so I have some general questions first off. I'm wondering generally, how do you feel about artificial intelligence and the future of AI?

Castellano: So I have to confess, I don't think about it. I don't spend a lot of time thinking about it. When I do, I don't necessarily think I like it. And I can't tell if this is a horrible association with media and how film and television portray it, but I just – I don't have a lot of opinions.

Sahar: Okay cool. [*Castellano:* Sorry.] No, no – that's perfect. I just wanted to know you're going into it with.

Castellano: Ya, I mean which one of the five Will Smith movies come to my head. [Sahar: They're all dystopian, for sure.] Right, right.

Sahar: Okay, so then what was your first reaction when you heard about the Sidewalk Labs smart city project?

Castellano: A lot of concern. [Phone rings, we stop interview for approximately 2 minutes]. I have a lot of concerns about multinational massive corporations who sometimes pitch a really good social—socially conscious purpose kind of thing when it's pretty clear that their mandates are about making profit. So a whole lot of concern with what this could mean, who is included, who isn't included. I have a big problem with technology because while it can help some people, it excludes a whole bunch of people. So this idea of a smart city and innovation—I really hate the word innovation, right, like how are we going to be innovative? If you have the means to do it and to do it well, then great—but there's a whole bunch of people in this city who are barely surviving without any connection to it and who are just going to continue to be excluded. So I live in Scarborough. I've lived in the inner suburbs for 99% of my life. So this idea of haves and have-nots—and the inner suburbs have both—I can see a bit of an elitist world in this new Google, tech, Sidewalk-y neighbourhood that has the potential of really excluding people even though there's the mantra of "oh everyone's welcome, we want to build for the future." Those experiencing poverty and especially generational, are never going to be part of that world, and I'm not feeling confident, from my limited experience, that the people leading the work actually get it.

Sahar: So actually speaking of that, you recently went to the consultation, right? So how was that?

Castellano: Ya, am I allowed—I don't know if I'm allowed to talk about that.

Sahar: Oh, is that under NDA?

Castellano: I don't know, what did Emma (*pseudonym*) say to you?

Sahar: She told me that because you went to the consultation, I can talk to you—but you don't have to talk about it if you don't feel comfortable.

Castellano: Okay, ya, so I went. She was supposed to go but was not feeling well, so I went. And... you know... It was... Sometimes you get those big consultations where there are pretty slides with great images, and you think “wow! We can have all of that!” But when you start breaking it down, there is a way it gets white-washed. Like when you think about who is actually going to be included in all that, and I when I think who is traditionally in the tech sector, its not going to be the people for whom this world isn't theirs. When They talked about Quayside as their main area, and they showed the bigger picture of the community and the neighbourhood including Moss Park, Regent Park and St. James town, and I'm just thinking, “There is no bloody way Moss Park residents—and folks that are in a TCHC Tower, let alone the people living on the street—are going to be welcome in the fancy new neighbourhood that has a citizen assembly where you can take your cellphone, which is of course as smartphone that's probably going to need to be the latest in order to engage in whatever platform. There is no way that is going to be an environment where people are going to feel welcome, because many of us in this world make sure it doesn't feel welcome for people there. So it feels like a farce. So you can look at what they're proposing—community, and health spaces, what kind of services can be there.

I was sitting beside someone from a hospital—I've known her for years—and she muttered to me, “Do you think we can get a safe injection site in there?” Of course we are not. That would be completely out of the realm. But wouldn't that be amazing. What kind of arts are going to be there? Is it going to be a space where pretty privileged artists that tend to look like me, are they going to occupy the space? Or are you going to have young folks from Malvern or Rexdale actually have the ability to access that space and showcase.

And then the housing, which—it really is frustrating to see public land for private interests where we are begging for affordability—like actually affordable housing. And then how are layering in everyone else's reality? Like if we stick with income, are women fleeing violence going to be able to occupying that space? How are you also designing it for multiple identities and experiences? So just to say income, which is not going to be affordable, is it actually going to be accessible for people?

How is it helping people of color that are often discriminated? Are you going to set targets to say, “Actually, we’re going to be bold and we’re going to say X% is for this community.” I just don’t see it. My fear is that its going to be—not actually meet the needs of the people of the city. But instead what we are going to get is a neighbourhood and pathway for people who right now “can’t afford to live” but who are maybe living with their parents and can’t buy a home even though they are still pretty well off. So this is the next trendy thing, but If you’re a tenant who lives in TCHC right now and are thinking about something different, this is not going to be for you.

And then are we going to get businesses that are corporate? Or even when they’re not—again are they going to be spaces for people who otherwise may be able to make it in this market, and who are just looking for a trendy space? Or are we going to carve out space for people who are, again, often discriminated and are purposefully kept out of the market. It just irks me because its all public land, and the place I haven’t paid attention to is: how much are we giving up for this? What incentives did we have to give just to say that Google wants to be here.

Sahar: I don’t know if you read the article that came out a few weeks ago, it was a leaked document about how Sidewalk Labs wants a portion of property tax. [*Castellano*: Property – ya!] Ya, for, I don’t know, an indefinite amount of time.

Castellano: Sorry I curse a lot, but are you fucking kidding me? Really? I would rather see a whole bunch of small businesses and microentrepreneurs, and give them a percentage, but not giving Google the world—no, actually *you* should be giving the city much more than what you are right now.

So I was in that consultation, and I just thought—it didn’t feel like equity was really top of mind. Like they named it, like “oh we want an inclusive city and we want a neighbourhood”—I saw on their website—“people-centred,” and it’s like okay, which people? Because we can say we’re people-centred, but we can be talking about a particular group of people, kind of like what our provincial government talks about, right? Who’s in and who’s out? Because I’m pretty sure who’s traditionally out will stay out in this process.

Sahar: Mhm, so in the actual consultation meeting, were they asking the audience about what they are really interested in?

Castellano: So it was an invite-only, like 6 people. [Sahar: Oh! Only 6 people.] Ya, that’s why I don’t know if it was really public.

Sahar: Oh okay, so I won’t mention this then.

Castellano: Ya, I don’t know what it was. It was myself, someone from the United Way, a couple of health folks, hospital and community health, I think someone from a university—someone from UofT? Actually we were outnumbered by staff, people

working and consulting for Sidewalk Labs. It was mostly presenting, and then questions or feedback. Ya, so it wasn't great. But even looking at their website, looking at their consultation, and this is where my mind is blown, because I question where they say, "21,000 people engaged." Which 21,000? Like I really want to ask, which 21,000? And are they 21,000 unique people? Or is it the same people coming? What experiences are they coming with? Because I appreciate that it's local, but it's also not local. It's local, but it still has implications for inner suburbs. It city wide implications.

I had to write something, so I went on their website and noticed they mention Cabbage Town Association, well okay who's part that? And this resident association—well okay, who's part of that? It was established homeowner—for the most part—kind of associations, and that's not reflective. Like I didn't see Toronto community housing anywhere in there, right? Like I didn't see Moss Park or Regent Park. So it really concerns me, who is actually shaping this and how much of this is, "here's our plan." It's good ay. You can plan consultations and say, "Isn't purple the best colour? Because purple means this, this, and this," and then lead people into saying, "Ya purple, we should have everything purple." And I'm just curious about how much they're leading consultations as opposed to actually being objective and wanting to actually hear from people.

Sahar: yeah well actually, a lot of the critiques of the consultations—the public ones—were about how they're just kind of gaslighting people, feeding them information and ignoring the questions.

Castellano: Yeah, and the privacy stuff, I know people connected to it, but not necessarily top of mind for me because I'm naïve enough that I don't necessarily think of that stuff, even though I know I should. But it also feels like, if you actually want to be inclusive and you want this to be different, then be open and transparent, right? Like be honest with what's going on, because I think people are reasonable. But if it feels like you are hiding something, if it feels like you're not being truthful, then ya you're going to get a whole lot of resistance, and you're going to get a whole lot of questions. You should expect that peoples' backs are up about a multinational corporation who's not accountable to us coming in and proposing a whole bunch of things.

Sahar: Ya, and it's going to set a precedent for how we develop other cities in the future too.

Castellano: Right, right, and what about the other developments that are going to happen in this city? There is inclusionary zoning, conversations that are happening now, and the city's trying to figure out what they're going to do with it, and so developers are coming back and saying, "Where are our incentives?" You make enough money. You want the City to be paying you to build housing that isn't \$3000/month? So I don't know how much of what's happening outside of

Sidewalk influences it, but it does set a precedent because they will be quick to say, “Why them and not us?”

Sahar: Mmm, that’s true. Okay, that opened up so many other things.

Castellano: Sorry, I’m ranting.

Sahar: No, that’s okay, I love it. This is exactly what I need. These are semi-structured interview, so I only ask questions to get you talking about what you think about this.

I know you probably can’t talk about the consultation too much, but whatever you’ve seen from Sidewalk Labs, do you think they are adequately diverse? Do they have diverse advisors from Toronto?

Castellano: I don’t know. Maybe I just couldn’t find it properly on their website, but even from transparency....like who is it?

Sahar: Yeah, Sidewalk Toronto does not have a “team” list anywhere, I’ve looked for it.

Castellano: Yeah, right? Like of course I’m going to get defensive and think you’re doing something wrong because you’re not even saying who the team is, and there’s an advisory but you’re not naming who they are, and so I think about... I just keep going back to Scarborough because it is the centre of the universe.

Sahar: Haha, yeah I was born there so I know.

Castellano: So you know, right? Centre of the universe. And I don’t know if you’re as annoyed with transit conversations as I am, but I don’t know who the fuck is deciding we need a subway in Scarborough. When a different mode of rapid transit in Scarborough would actually serve more people. So you could say this advisory, which reflects “diversity”—so you could have, just to be crass, a person of colour, and a person from Scarborough and a person with a disability, but what experiences are they bringing? What critical thought and reflections are they bringing? Like if it’s just token, and again what they’re presented with is material where they’re expected to say, “Okay ya, that’s good enough,” I think that’s problematic. And again, I think about transit because I think about my neighbours. I have the privilege of owning a home on Sheppard, and I know the homeowners in my neighbourhood that are pushing for a stupid subway when there is no need for one at all. But they know the game, they know who to talk to, they know what buttons to push, they know the councillors and they can pick up the phone and call a trustee and they can do all that. And ya, they are of diverse ethnicities, but I’m not sure experiences. They are of a particular political persuasion. And yet they are the reflection of what we need in our riding, and they are the ones pushing for this stupid one-stop subway, and they’re representing what Scarborough needs, and it’s problematic.

So if you've got an advisory, how are they connecting back out, hearing from other people, thinking about it critically, and then bringing it to advise to others. Doesn't sound like they're doing that. It sounds like we've got, I don't remember the numbers—40 people who went through an application process, I'm assuming—because I think about the City's processes. So you go through an application process, and you get interviewed, and you can check off boxes about what identities you fill. But are we thinking about who even knows how these processes happen? Who knows how to participate in it? Who knows how to access it? Who has the language proficiency to read about it? Who has the comfort to think they are even good enough? The process is so skewed, and it excludes a whole bunch of people, so you end up with a particular perspective. That's not inclusion.

I just keep thinking, if they'd gone to Moss Park—one of the things I asked because I'm really fearful of poor doors in housing, Vancouver I think is bringing it back in one of their buildings—so I asked, "Oh, you talked about using timber to build housing—that seems weird, but okay. So are those standards for anyone, regardless of their rent? Or is that going to be the condo side, and not the affordable side, and the affordable side will get something of a different quality, because your business case says you can't afford to do it everywhere, so the people paying more get it." And they hadn't even thought about it. They just kind of looked at me like, "Well, no, we're just in the early design and we're not sure yet." Well okay, if you're saying equity is a priority, if you're saying inclusion is a priority, if you're saying all of this, commit to it. Name it. Like are you going to have a poor door? Are there going to be some services that—I lived for a year in a tower once and it was horrible, renting in a condo, tenant rights, you had none. So are there going to be some condo amenities that are only available for some people and not others? How are you setting a standard? Didn't really hear it.

I asked if they had talked to Regent Park. They're not entirely the same thing, but the revitalization was kind of similar in that we're talking about mixed-income, private towers, TCHC towers, people together—like have you talking to them? Because it hasn't been smooth sailing. They said "no." Well that's interesting. Have you talked to TCHC? They're like, "No, I don't think so." Have you talked to people who live in the neighbourhood? "No." Have you talked to the social service network or the businesses to see how hard it's been, because you can't just say we'll have people live together. It just doesn't work that way, and if you're planning it from a perspective of ignorance.

Sorry, I'm feeling very negative about it, but....I'm sure technology is great!
Haha. Right?

Sahar: Hahaha, well I would question that too.

Castellano: Ya, even the—I was at a Tamarack workshop, if you know Tamarack—they do conferences and workshops and anti-poverty stuff. Interesting group. And this guy

came in from Australia to talking about innovative—oh God, innovative—innovative community engagement strategies. And they talked about using online polls and something called citizen juries. So he talked about—well let's stick with the online polls, because I think the citizen juries are also problematic. He's like, "Oh, if you're in this event, make sure you have Wi-Fi available for people and you can ask these random questions and as you're going you can poll the room, and if people don't have one, just ask to borrow the person's beside you—ask to borrow their phone."

I was like, okay so I appreciate that practically from the perspective of, "Oh, lets share!" But have you ever been the person who doesn't have a cell phone? And this day in age, a person that does not have a smartphone that has the latest software, and that is compatible with whatever. Like have you ever been that person to not have it, and to be the one that has to consistently ask, "Can I borrow your phone? Is it okay?" What does that do for a person's dignity? So if you're only setting up a process where I am continuously feeling othered, I call bullshit on that "inclusion."

And so listening to them talk about this—I can't remember what they called it, but they want to focus on civic engagement—great. So I appreciate that they're looking at tech and integrating tech and so of course civic engagement sounds like it has a big tech component to it, but again are you really thinking about the people who don't have tech, and how they are going to feel excluded? And what it's like to have to be the person to consistently borrow and feel like you're begging. People are starting from a different starting point.

Sahar: Yeah, you can't assume that everyone has access to the things that will give you access to these "smart" processes.

Castellano: Ya, even the smartphone—I can't remember where it was... Oh, I was in a network meeting with people from Frontline Workers who do community engagement work, and we're planning a workshop, and we were talking about the City's deputation process and how exclusive they are. In the inner suburbs, and for most people that don't live around City Hall, it's difficult to get to. And so saying, "Okay, can we look at how we can use devices to record deputations and then people can take them in. And one person said, "Okay, well what kind of device do I need? Because mine's old." Right, because even a frontline worker is like, "Mine's old. Is mine going to be compatible?" How quickly tech updates, it's like, "Am I still compatible?" I have a laptop from four years ago that I can no longer update because I'm not paying extra to update whatever to be with the latest software. So what does that mean for the person who doesn't have the means to consistently update? What kind of "welcoming environment" are we setting, and are *they* setting by saying, "Ah, anyone can come"? Can they? Are they even going to walk in the door if they don't see people that looking like them, sound like them, experience things like them?

Sahar: Right. Okay, so policy. With the current trajectory of the smart city project, if we are going to be integrating technologies into this society, if we are going to let a corporation partake in this kind of city-building, what kind of policy conversations do you think we need to be having? [Pause.] ...Or should we just get rid of them all together, because #BlockSidewalk is a huge movement right now?

Castellano: This is where I struggle, because I want to say block them. Like, “No, get rid of them”... As I look at my board [points to a board of City Wards] I was to say, “Yup, the revolution, block them, kick them out,” but I just don’t think that’s going to happen, because we don’t have... yup, I’d say all levels of government—we don’t have governments that actually have people as their priority. I’d say any level of government, at this point. So whether its Google now or Google in 3 years, or whoever, I kind of feel like its going to be inevitable. Which feels kind of crappy to say, but it just feels that way. And so how do we get the best out of it? And the best not necessarily being money or tech, but something that is about people. Are we going to have something that... Are people from City Hall who, I guess are on the Waterfront Toronto board, actually pushing for and limiting their scope of what they can and can’t do? Are we setting parameters? Because I would hate to see us being bought out. Like, “Ya just let us do this, and we’ll give you X amount of dollars that you can put towards renovating housing.” And then we’ll do that, and we could have this huge monster on our hands that actually does more harm in the long-run than now. But I don’t know how the different City divisions are engaging in this, and how much they’re pushing back and being courageous to say, “No. So what are the planning implications around this? Are we...” When I think about housing, I feel like we’ve rolled over a little and just let them do what they felt their business case would allow for. But, what is it, like?

Sahar: It’s 40% of the 50%. Like 50% will be—

Castellano: “Affordable?” [Sahar: Yeah.] Which is 100% of average market rate—not income, market rate. And then what is it, 10 or 20% will be deeply affordable? [Sahar: Yeah.]

So what are we ending up with? Like 20 units? Sorry, I hate that word—homes? Okay. So all of this freedom that they’re having, and we’re being bought out for 20 deeply affordable homes. Where is our backbone as a government to say, “Actually, a) we demand more, and here are the parameters from which you can actually do it.” As opposed to, where is it feel like—and I might be wrong—but it feels like sometimes, if there’s something “innovative” we want to showcase that. Like, “We’re a world class city,” so we can say just that, but it’s actually going to do more harm for people who live in the city, than good.

This is where I think about your mother, haha: Where is the human rights office in this? And I have to be honestly, I don’t even know where they are lately, kind of in general... If you’re only focusing on internal staffing and that, you’re missing all of the systemic stuff. How are they involved in this to say, “Okay, how are

people's rights potentially violated, and how do we actually get the most for people out of this?"

Sahar: Well so far, it doesn't seem like anyone at the City knows what's happening, or has any oversight of the process thus far. I was watching some of the City Hall Executive Committee meetings, the videos, and people were like, "What is even happening?"

Castellano: Ya, and it was—who was it, Councillor Wong-Tam, or was it Fletcher?—[looks at the City Wards map.] I remember when Walmart was trying to build in Leslieville and there was this massive "No Big Box" campaign that Councillor Fletcher led. So if it's her and she's not being active then that fascinates me. But I don't know if this is accurate because of the redrawing—I don't know how much they were redrawn.

But also interesting that an ex-Councillor is on their staff team.

Sahar: Oh really?

Castellano: Mary Margaret McMahon was a Councillor, and she said she'd only be a Councillor for two terms, and the two terms are up. She's now on the staff team to, I think as she said it, "to help sell this." Because their "broader community" is the Moss Park, Regent, James Town, Cabbagetown, but also they are seeing the beaches East York kind of strip up, and she represented, I think a bunch of that area, so I think they are trying to leverage her past identity as a Councillor, and her networks, to pitch it.

Sahar: Well even that consultation you were describing sounds like—I have heard from people from ACORN that they pretty much lobby community groups to get support that way, and kind of use their networks. They have actually, random statistic, they lobbied the city 68 times in April. Just City Hall. [Castellano: Yaaaa.] That's crazy.

Castellano: Who did you talk to at ACORN?

Sahar: Sandra (*pseudonym*).

Castellano: See this is where I fully appreciate Sandra and ACORN. They have spent a lot of time with the people they say they represent. I've known Sandra for... I'm stumbling on math here... 12-13 years, and whenever we try and pitch her an idea, like, "Oh get involved in this campaign" and that, she will tell you, "I can't make any promises, we got to take it back to the membership." It's the membership that drive it. It's the members that talk to members, and who figure out what they want to do ...It isn't a few people in leadership positions who are driving it and then saying, "Okay, this is the direction we're taking." If there is even a small portion of what ACORN does that could be integrated into this, it

would be improved sooo much more, because there is a meaningfulness in it. It just feels cold. Right? Because you know they can just pick up and go, and wouldn't think twice about it, "the market wasn't there" or they didn't make enough profits, because in the end, it's their gig. Their gig is to make money, so they may have really kind hearts as individuals, but if they're not making the money that they're supposed to be making, that's what drives them, no matter where they stand.

Sahar: Mhm. That's true.

Okay, so there are some general questions that I'd like to ask everybody, because I'd like to know how it's being talked about and how the general public thinks about it, or what they know about it.

So what do you think the consensus is, how does the community feel about this, and how does that compare to the media, and Sidewalk's own portrayal of it?

Castellano: I think most people have no clue. Ya, and I've got to be honest, if it wasn't for... Sandra, actually. I remember last year, she was saying something about Sidewalk and I was like, "Oh sorry I have no idea, I feel like a horrible housing activist," which is part of my identity, "but I haven't been paying attention. Sandra, tell me what's going on!" So if it wasn't for Sandra flagging and Emma mentioning, I would have no idea. And again, I think of Scarborough, and I haven't heard—not that I know of, but I don't want to be that presumptuous person—but from the chatter, I haven't heard anyone talk about it. From my groups in Rexdale, I haven't heard anyone talk about it. Some of the groups in North York, not on the radar. And yet if we thinking about, again some of these city-wide implications, they talked about—Sidewalk talked about how yes, there's some very local things they need to be thinking about, but there will also be city-wide things, like transit. So in order for this to happen, we need better rapid transit. So does that mean we're going to bump other transit that might be a priority for other neighbourhoods, in order to make this happen faster, and first? Are they going to get the funding that is maybe better allocated to have rapid transit on Jane, which is so desperately needed? But I don't know that people necessarily on Jane Street are going to know. No that I think that's a priority right now—if we had transit city it would've been! But if that were going to happen, or the Eglinton East. There's a push to get the Eglinton East LRT built so it can go up to Malvern. And hearing the mayor say, "Yup, it's a priority, we just don't have money for it now." Are we going to have money for the Waterfront before that because Google's attached to it? And will folks in Scarborough know that's the case? I don't think so. Like I think if anyone's heard about it, I'm not sure people actually know what's going on.

Sahar: Definitely in the Greater Toronto Area, I would say, when I tell people about my research—

Castellano: Ya, they're like, "What?" After they get over the, "AI?" Haha.

And then I think it poses a problem because when you think about the #BlockSidewalk folks, and the couple of people that I'm thinking about are roughly downtowners, and then you get the, "Oh it's just those few trouble-makers." And it gets discredited because they're the few folks who maybe have more time to pay attention and are in the vicinity, I don't know. But it also means the pushback is harder. Especially in this environment, where it's so easy to be labelled a "special interest group." And it's like, "Uh, it's called democracy and accountability friends. Yes, I do have a special interest, and it's for you to be accountable."

Flashbacks to the City service review. I remember when Rob Ford was mayor, we were in an Executive Committee meeting for 24 hours. Like it was horrible, because it was kind of like what the premier is trying to do now, in saying "let's have efficiencies and find money." And so Rob Ford, that same thing, he had City staff do a full service review and actually see where we can save money, and brought KPMG—who, again, transnational corporations—they got KPMG come do this study, and there were deputations for 24 hours. Just person after person, and hearing some folks on Council just saying, "Ah, it's just special interest groups who are coming and speaking." Meanwhile, I remember this young woman from Scarborough—sorry. [Sahar: Haha, it keeps coming back.] Ya, again, for a separate thing! I know, I'm fully skewed, I'm sorry. But Anika, her deputation has been viewed thousands of times, but a 14 year-old young woman crying on camera about what the loss of a library could mean. Like are you really calling—there should be nothing wrong with a special interest group, but you've labelled it negative, and you're labelling this young woman who at 2:30 in the morning was there deputing. And I remember Amy from OCASI being there and being like, "Okay, here's Kleenex." It's like, fuck, it's called civic engagement.

So I'm curious to see, again, what Sidewalk will deem civic engagement. If it's just going to be these big, public meetings, for—I'll give them credit, they actually had ASL. That was impressive, because I would say 90% of the time it isn't there, and they had it—but these big TED Talk-y kind of things. If it's just going to be that, then that's not engagement. You're just talking at these people.

Sahar: Ya. Even in your consultation, I'm surprised that when you mentioned the affordable housing piece, and doors, they didn't say, "Oh! We need to think about that, write it down and get something in contact with *you*, since you know better." That would be consultation.

Castellano: Yeah, and I'm hoping someone wrote something down and I'm hoping that it doesn't sound like I have an ego because I really try not to, but there are some thing's that are like, "Okay well this is just kind of common sense." But I guess it isn't.

Like hearing some things about their retail space. Okay, you want to have some stuff for small businesses? Okay. But I'm just thinking, which small business? And sorry, I'm feeling kind of crass right now—but which trending coffee shop with a hipster with a cool beard and mustache is going to occupy that space? And are one of the entrepreneurs coming out of a newcomers' women's services entrepreneurship program? Are they going to occupy that space? One of the women from Thorncliffe who's starting her business in the park, are they going to be able to occupy that space? Set the fricken targets. Say, "If this is a priority for this, 10% of the spots"—I don't know the magic numbers to be quite honest, but "10% of the spaces are going to be for small businesses led by people with disabilities. Or newcomer women." Like, name it. Don't just say, "We'll be inclusive," or, "We'll be diverse." Cause diverse might be like my last name. People are like, "Oh we've got *Castellano*, we're diverse." Sometimes people use my name as like, "Oh diversity." It's like, "Ooooookay. Let's call bullshit on that one."

Sahar: Ya, that's true. A lot of this is more about the narrative and perception of it than meaningful engagement with the concepts.

Castellano: Ya, and where are the checks and balances in it? How is the City calling bullshit on it? Who is doing that, and when the #BlockSidewalk folks did it prior to forming #BlockSidewalk, they were stigmatized for it as "shit-disturbers" and "troublemakers" and just doing it for the sake of doing it. And it's like, no, it's about accountability. And if you feel like you actually have the answers to their questions, then maybe there's a problem with the communication. So, deal with it as opposed to labelling folks that are asking questions as "trouble-makers." But people don't like to have their power questioned, let alone sharing some of that.

Sahar: Yeah that's true.

Okay, let me see if there's anything else... I have asked all my "ask everyone" questions... So is there anything else you would like to comment on this? Or about technologies in general? I mean I know that you don't really have opinion about AI, but...

Castellano: But tell me! Tell me about AI, because I'm like, "Ummmmm, Will Smith?!" What drove you to have this as your thesis? [48:01]

Sahar: I guess I had read a lot of articles about the dystopian future that AI could unlock, and how we think of algorithms and technology as neutral, but obviously the way that you design algorithms—which are based on yes/no logic, like, "if this happens, do this, if this doesn't happen, do this"—the way that you design what happens in that algorithm is subjective. So I read a lot about that, and then I wanted to study how these "smart" systems that decide, say, who gets a mortgage, or who gets through airport security, how those could be biased towards certain interests and agendas. And that led me to the smart city, thinking about how a for-

profit corporation is coming in and designing it—does that mean that the entire city will be biased towards profit-making?

Castellano: Ya, ya, ya. Thank you. Ya, because who is setting the criteria?

Sahar: Ya, and even the datasets we use to inform the systems and stuff. [*Castellano:* Right.]

Even on social media and search engines, the way that the content is hierarchized is based on algorithms, and there are a lot of problems with that. Like I read that until maybe 5 years ago, if you Googled “black girls,” you’d get pages and pages of porn sites first. And black women were like, “I’m looking for a gift for my daughter... this is not what I want to see at the top of Google. So if this is what is coming up first, maybe we need to rethink the algorithm.” And of course when you Googled “white girls,” you’d get totally different responses.

Castellano: Ya, ya. Right. Huh. Thank you, because I never would have thought of that as AI.

Sahar: Ya. So with that in mind, do you have anything else you’d like to add? And actually, I have one more questions for you: If you could tell the average person one thing about this project, or some things that they need to know, what would you tell them?

Castellano: My gut was going to tell you, “run and hide.” *Laughs.* But I know that’s not right.

Oh, I honestly don’t know. I think it would be that most people *don’t* know, so find out and get involved. Right? Sorry, that feels corny, like “get involved!” So not necessarily in that corny kind of way, but... I think about, again, the implications of “this is going to move forward”—I don’t see anyone pulling out of anything at this point. And so we need to shape it to be what works for this city, and so the more people that are part of shaping it, both within their processes, but like ACORN, outside of it, the more pressure that can be...—ya, I will actually stay optimistic on this one—the more pressure to actually have the outcomes people deserve, and have a right to. So yes, corporations can do things and it doesn’t matter what the public wants—they’re not accountable to us. But this is going to Waterfront Toronto, and to the City, and they are absolutely accountable to the people, and so this is where we generally fail—for a bunch of different reasons—is that we don’t keep the City accountable. And so this is where we generally need to amp up on that, and the implications around Sidewalk and Waterfront are huge, and so we need to be keeping the City much more accountable.

Like I don’t know which number of strategy we’re on now that never gets funded or implemented properly, and yet they are able to get away with doing that and saying that we’re taxed too much, or we can’t afford a 2% cut and this and that. And again, people like myself don’t really feel the impacts, but there is a whole

bunch of people that do, and we enable it by not holding the City accountable. So I feel like being active to cut that enabling that we do around groups like Google getting away with what they want.

And then just like the revolution. *Laughs.* Let's add the revolution in there maybe? Whatever the revolutions could be.

Sahar: *Laughs.* Amazing. Thank you.

Interview 2, Clean Verbatim Transcript

Participant: Milan Gokhale – writer, technology consultant, and #BlockSidewalk organizer

Date: Tuesday, May 28th, 2019, 1:17 PM

Duration: 32 min 20 sec

Sahar: So first, just to get started, I'm wondering: what was your first reaction to the Sidewalk Toronto project when you heard about it?

Gokhale: Curiosity, I think. Cause I worked in the tech industry for, you know, 10 to 12 years I guess, and before that, even before I worked for a living in tech, I've been building software since I was 16, 17 years old. So I was really curious to learn about Google, and Toronto, and this big project, and what it was about, and whether I could help. And then I think as I began to see it more for what it was, and as I came to my own understanding about the role of technology, and the big players, like Microsoft – I worked for Microsoft for 3 years – and so I kind of knew from the inside that perspective. And then I sort of watched Google and Facebook pretty closely, obviously, because they're – in the industry, everyone knows them. And Apple, and those kinds of big players. So as I got more involved in it, and as my understanding of technology and the players improved, I think I became more and more concerned about what it meant for – what the project means, and what it signifies for people that I identify with in my community [inaudible].

Sahar: Okay, so then, digging into that a bit, what are some of your concerns, and what does it mean for these people?

Gokhale: I would say at the root of it is sort of abuse of corporate power, or abuse of power. So abuses of power can happen in lots and lots of different ways, so they can manifest as harassment, bullying, lobbying, surveillance, human rights violations, and there are probably lots of other ways. But basically they all kind of stem from the same basic premise which is that as technology companies become more powerful, they take away power from people, and that has real, real impacts and effects that manifest in lots of different ways.

Sahar: Okay, so actually, I read this stat the other day that Sidewalk Labs lobbied the city 68 times in April. [Gokhale: Right.] So I'm just curious, obviously they're trying hard to get this project up and running, so based on your experience working at Microsoft and in the tech industry, what do you think their corporate interests are? And how more specifically do you think they differ from Torontonians, or could support Torontonians?

Gokhale: Sorry, reframe the question for me. Are you asking how corporations alter the dynamic between people?

- Sahar: No, more that they obviously have interest, a lot of interest, in getting this project up and running. I guess I'm wondering, how are the corporate interests different from Torontonians interests, or how could their interests maybe support Torontonians with this Sidewalk Toronto project?
- Gokhale: Got it. Okay, so it basically means that the power – the interests become more narrow and narrow, and they become more and more designed for fewer and fewer people. So there are actually some – there are probably hundreds of people who would benefit from Sidewalk Labs coming to Toronto, Google coming to Toronto, and incorporating government. There's probably hundred of people who would benefit, but there are also thousands and thousands of people who would lose out. So, what happens is, as money and power and political influence creeps into government, it makes government less accountable to the majority of people in Toronto.
- Sahar: Okay so on that note, I'm sure you've heard about a lot of people concerned about the data exploitation and the surveillance possibilities of this kind of project. So from what you know about this project, do you think there is a possibility for data exploitation, and if so, what are the mechanisms that are allowing that to happen?
- Gokhale: So I guess that depends on how you define data exploitation, but I would say more broadly, to answer your question, I think there are very obvious and very clear paths to exploitation, and which data is utilized and which type of exploitation happens – those things are – we could speculate on those, there's lots of different ways that could happen depending on which data is collected, depending on how that power is used and how it is distributed. But I think the point is that I have grave concerns about exploitation and the use of, not just data, but also hardware, software, language, marketing. I have lots of concerns around how these things that the tech industry and tech companies use – data is just one component of it – they also use software, they use design, they use development, they use all kinds of different tactics, but that the root of it is that these tactics are designed to accumulate power, and that power can and likely would be abused and exploited in order to satisfy what we know tech companies are designed to do – 'cause like all companies, they're designed to make money. You really can't make money without some form of exploitation, and so the questions are open as to which type of exploitation, but I don't think we need to wait until we can clearly define which types of exploitation and which types of data get collected, and I think that conversation distracts us from the larger and more important point.
- Sahar: Okay, for sure. So along that vein, do you believe that there is adequate government oversight for this project, or are we kind of just letting them run free? And, also, do you think that we need to have some more policy discussions, and if so, what would those be?
- Gokhale: So no, I don't think government has appropriate oversight, and yes, we absolutely need to have more discussion around policies, standards, and norms. But probably

let's start with laws, and let's root those laws and those policies and those standards in a set of clear principles, and those principles should be rooted in democracy, justice, truth, human rights, accessibility, freedoms. You know, it's like simple – what I think we could call universal – values, and that's the place from which we start to create these pieces of legislation, and these standards and these norms and these ideas. Those are the outputs. The inputs are: what type of society, what type of values do we want to underpin all of them?

Sahar: Ya, definitely. Just to clarify, when you're saying that we absolutely do need laws, do you mean laws for AI and technology development more generally, or specifically the smart city?

Gokhale: You know what, I'm probably... Bianca's sort of knee-deep in the legal framework. I actually don't know how to answer that questions because I'm not sure, to be honest with you. But I think that's exactly why I'd prefer – I don't think we as residents need to make that distinction. That's for legislators and policy-makers to decide. What I think we should clearly articulate is what kind of a society we want to live in, and what we think the role of technology should be in that society, and I think those are the inputs that are important. So I don't have a specific answer to your question – I mean that could mean a reformation of our existing laws, but it could also be new laws that take on new technologies. I actually don't know the laws very well, so it's hard for me to say specifically.

Sahar: Ya, okay. So moving on to the section on technology specifically: based on your experience of working in the tech industry, and also obviously using technology, do you think that smart technologies and AI can be biased or discriminatory? And if so, how?

Gokhale: Yes, I think the people who make the tools are likely to have some type of value system that underpins those tools. And even if that value system is the best value system in the world, it's not a democratically, collectively assigned set of values. So I don't think – I think our current system right now does not incorporate collective, democratically sought perspectives, and so therefore, I think another thing about your question – so what if we built a house, if one person built all the houses in Toronto, they would almost certainly build all the houses with certain biases, with inherent ideas, with implicit ideas that are probably not ideal for the vast majority of people. So I think what we should do is reframe technology that's built by people – built by *certain* people – I think we need to reframe that as: how do we built technology that is produce and consumed by all people?

Sahar: Mhm, definitely. Okay, so then, do you think that the public, as in the average Torontonians, is asking these kinds of questions, or even aware of what's happening in this project, from your experience?

Gokhale: No. I don't think the vast majority of people – *I* don't fully understand this project, so I can't imagine how – and I've been researching it extensively for

almost 2 years – so I can't imagine how the average person in Toronto is following the majority of it, let alone some of it, or even any of it. So no, I don't think the vast majority of Torontonians know what is happening and what is involved.

Sahar: Okay, so then what do you think are the main things that the average person should know about this project, maybe to get them involved or more aware?

Gokhale: Sorry – what does the average person need to know about this project?

Sahar: Like if you could tell them a couple of things that every person should know about this project that they probably *don't* know, what would you tell them?

Gokhale: [Laughs.] This is an excellent question. I would say... that... there is a piece of land in Toronto, along the waterfront, that could be utilized in ways that help majority of Torontonians with things like housing affordability, or transportation mobility, or reduced costs and more access to childcare, or better public health outcomes, or better environmental choices, more economic opportunity for more people. And instead, that piece of land, 350 acres, the size of two downtown Torontos, is being utilized by a small group of people to enrich an even smaller group of people, many of whom aren't even in – don't even live in Canada, let alone Toronto.

So I would start from that premise to say, to the vast majority of Torontonians: it's not what's being done, it's what's *not* being done in your interests that should concern you.

Sahar: Mm, that's a good point. Okay, and then how could we help inform the average person? Or how could we make them care, based on your experience?

Gokhale: I would suggest we make it real to the vast majority of people. So the vast majority of people don't really think, and shouldn't have to think about data trusts, and wood timber materials, and architectural stuff – like it's just so inaccessible, so I guess I would start by talking to the average person and get a sense of what they're actually interested in and what they care about. And we don't have to look that far, we just need to look at our democratic systems, because elections are a great way of figuring out what it is that people care about. So I would say, let's look at the issues that are brought up through our democratically accountable processes, like transit, housing, the cost of living, jobs, and then let's try to find a way to utilize the waterfront and what we collectively own together to solve those problems. And I think that would be, that might be a good starting point. It also may not be a good starting point – I actually don't know the perfect answer to this question, but that may be one way of approaching it.

Sahar: Ya, for sure. And I mean this is more directed to you because you've actually worked in the tech industry, but one thing I've been thinking about is that maybe

if there were more women, and if there was more diversity in the tech field, maybe if there was an equity office in every tech company, maybe that would help ensure that these technological products would ultimately be more for the benefit for everyone. Do you think that kind of stuff would be beneficial, or should we just focus on government policy?

Gokhale: No, I think more equity in the tech industry would be really, really good. It's probably necessary, but insufficient for what we're doing – I think it's corporate power is the root of this, but corporate power is related to patriarchy, and white supremacy, and other systems of oppression, right – they're all connected. So yes, I think any effort by the tech industry to become more equitable is a good step forward, and would be a welcome step. Not enough, but it would be a welcome step in making this better.

Sahar: Mhm, okay cool. Okay, I have tons of other questions, but I feel like you've tangentially answered them and kind of touched on them, so knowing what my project is about – corporate power and looking at how we can improve this project if it does go forward to make it more beneficial to everybody, what else would you want to say about this smart city project or AI more generally?

Gokhale: I guess I've always thought of Sidewalk Labs as a canary in the coal mine, of sorts, for broader problems in the tech industry, more broadly in our technologies that we use in society, and technology's influence in society, so I guess I often think of Sidewalk Labs as a department of Google, and I think of Google as a department of the tech industry, and I think of the tech industry as a department of industry at large, and I think of industry as just being too powerful. I actually think all of those entities that I've just described have too much power, relative to their peers in their particular ecosystems. And I think what we need to think about is at every level, at every stage of our society and of our lives, how much power do we give to the entities I just described? And how much should we take away from them and give back to people. People who are not working there, that are not shareholders there, that aren't associated with those particular entities, but are still people, and they still deserve the basic human rights and the same basic protection from – by government, and they still deserve the same sort of rights and freedoms and values that everyone should have. That's probably what I want people to take away – how do we make people more accountable to people. I have an article that kind of sums that all up - how do we make technology work for all people.

Sahar: And do you have any suggestions for how we can make technology more accountable to everyone?

Gokhale: Yes, I think it starts with more of an emphasis on democracy. So I think every entity I described there – Sidewalk Labs, Google the tech industry, industry – I think we need to democratize all of those entities. So that might look like incorporating more collective action through our unions and our labour movements. It might mean giving back more power that is centrally located

through the federal government, or through national governments or international order – it might mean giving that back to local communities, and to Indigenous communities, and to neighbourhoods, and to people working together and living together in spaces. It could mean, to your point, equity officers in the tech industry, or maybe equity offices in the industry. There are lots and lots of ways to use democracy to collectively improve and give more power to more people, I think it's just a matter of what makes sense at every level at every stage. And I also think that people should decide for themselves, right, like I don't have a magic wand. So I think what we should do is we should ask people. I think the way we solve these problems is to ask them and let them come up with the right answers.

Sahar: Ya, I know a lot of the people on #BlockSidewalk were saying that we should have had a consultation before there was an RFP in the first place.

Gokhale: Ya, absolutely – ya, that was the original sin, was that we just kind of – one day you pick up the paper and read, “Google is coming to town,” Well wait, what? How did that happen? And how was I not involved? I'm *in* the tech industry. I probably – I would have loved to be a part of this, I would have loved to be part of the RFP, I would have loved to have collectively organized some type of company or be involved with a company that is either bidding or wanted to be involved, or maybe I'm involved as a volunteer or as a resident, whatever. But we found out about it after the fact, so ya I think a lot of us have started on the premise that *that* was actually the original sin, and if we just restarted from *that* starting point, we'd be a lot better off. So that's the purpose of #BlockSidewalk, at least that's kind of what we've decided is the overarching goal.

Sahar: Okay, so that also what your view is then? That going forward, we just reset this whole project basically?

Gokhale: Ya, I think we should restart the project, I think we need to start on a different premise, and I don't know specifically what restarting it would look like. Restarting could look like a lot of different things which we could have a separate conversation about – about the best *way* to restart it, but I think first we need an acknowledgement that we're going to restart it, so that's sort of where we landed.

Sahar: Okay. So one of the people I interviewed said that she doesn't think we'll be able to stop this project and that she thinks it'll go forward no matter what, so if that's the case, how do you think we could make the most of this situation? If it moves forward?

Gokhale: I think what I would say to that is, as long as the project continues, opposition and resistance to the project will continue, so I don't think it changes anything from our standpoint. If it continues, we'll continue to say it should restart, and if it gets built, I would say the fight becomes to tear it down and start all over again. And maybe one that changes, but that's where my head is at now, today, that's where we're at. If they plan to build it, we'll plan to restart it, if they put shovels in the

ground, we'll plan to stop shovels in the ground and restart it. If they finish building it, we'll advocate to tear it down and restart it. I think it is a longer term fight, I think the person you interviewed is probably correct. I think it's possible that it will continue, I don't want to say likely or probably, I'm not sure, but I don't think it really changes the overarching goal, which is democracy and accountability, and that will continue regardless of what happens in the next few weeks or few months.

Sahar: Okay, and I already asked you this, but do you have anything else to add? Or do you feel like you've already said it all?

Gokhale: Um, no, I can't think of anything. I probably said everything I wanted to say.

Additional question, via e-mail:

Sahar: Do you think that your educational experience, prior to and in the tech industry, prepared you to think critically about technology and its outcomes? Were you (and your colleagues) formally trained to considering the social, political, and economic impacts of technology and the tech industry on the broader society and world?

What kind of impact do you think this training, or lack thereof, has on both the tech industry and the technological products that they produce?

Gokhale: No, I think my educational experience (I completed engineering and MBA programs) actually prevented me from thinking critically about technology. Both experiences forced me into a narrow frame/lens around technology solutions to infrastructure and business problems. Those are narrow lenses that blind us from seeing larger, broader political and philosophical problems. I was very lucky to meet a woman who challenged my thinking, refused to buy into my value systems and convinced me over time to change the narrative about myself, my family, my friends and my communities. And I'm still working on that narrative with her as my partner in marriage. I think the lack of formalized training on humanity, society, welfare and public good is one of the biggest problems in the tech sector - and I spend an increasing amount of my life thinking of how to help solve that.

Interview 3, Clean Verbatim Transcript

Participant: Gord Perks – City Councillor for Ward 14, Parkdale-High Park

Date: Tuesday, May 30th, 2019, 3:00 PM

Duration: 34 min 18 sec

Sahar: Okay, so I have a couple of questions. First of all, what was your first reaction when you heard about the Sidewalk Toronto project?

Perks: I was flabbergasted. [Sahar: Laughs.] Staff from Waterfront Toronto and Sidewalk Labs came in to see me, I don't recall when. It was prior to the item going to the executive committee the first time, and what astonished me – well there were a couple of things that astonished me. First of all, listening to the pitch they gave me, I couldn't tell who was a public servant and who was from Sidewalk Labs—which is strange because there's two different sets of interests being represented—but the enthusiasm Waterfront Toronto had for something that had never received any public scrutiny struck me as odd. As an elected official, like I have a duty to ensure that the public interest is maintained when a private entity wants to make use of public resources, and there was nothing in that conversation that showed any thought had been given to that.

The second thing, I very directly challenged Sidewalk and said, “Okay, so I want to understand your interest here. What's your profit centre? How are you making money here?” The answer I got back was very vague. Corporate speak. So I pushed and pushed and pushed, and finally they admitted, “Ya, the real sure thing is land.” Land is always what it's about. And I just remember feeling – they were also making broad claims about how they could deliver city-type services better than we do. I pushed on that and said, “What do you mean? Do you mean like violating our collective agreements and replacing our public workers with something else? Changing standards for the building code? What do you mean?” And the answers I got back were just vague hyperbole. Like these guys, they could... Phew... They're just salesmen.

They also talked about all the wonderful environmental benefits that they would bring. I happen to have a background in environmental—its what I did in undergrad and I worked in the environmental movement for 20 years—and when I prodded and poked on that stuff, it was just buzzwords that they had gotten off the internet. There was no substance there. So I wasn't impressed.

Sahar: Ya, that's really interesting. So you asked the hard questions straight up, at the beginning.

Perks: Ya, and I got back fluff and buzzwords. And as soon as you talk concretely about specific things, it was very apparent that their sales pitch is: “We do things new and different, and new and different is always good.” Which, you know, having

worked in the environmental movement and looked at the catastrophes that “new and different” have caused humanity, I’m skeptical of.

Sahar: Ya, for sure. Okay, so speaking about how you said it was unclear which one the government organization is, do you feel that there is adequate government oversight, and power for city council, or the city, to make policy?

Perks: No, absolutely not. I could not tell you what the possible benefits to the public are, and I could not tell you what the possible costs to the public are. I don’t know, to this day, if we’re going to have to make changes to any of our service systems, I don’t know if we’re going to be providing infrastructure support, I don’t know how much land is involved, I don’t know what the terms—the financial terms—would look like. I don’t know anything that would allow me to make an informed judgement about what this is all about. I’m absolutely in the dark.

And, I mean, there are occasions when I get access to information that can’t be shared publically. There are specific things that I can’t tell you. You know, something about a private real estate deal between the city a vendor until the deal has been signed because I don’t want to alter the price and hurt the city financially. I’m bound that way. I can’t tell you about legal advice that the city gets, and I can’t tell you information about an identifiable individual and their job at the City of Toronto. Outside of that, anything that I know should be public information. The fact that I don’t have any information means that Torontonians to whom I’m accountable don’t have any information.

Sahar: And have you gotten any pressure or questions from your constituents about this?

Perks: An awful lot of people in the public are deeply concerned about three areas. One area is the lack—the utter lack of transparency. Another area is, what is actually going to happen with this public land, and is it the right thing? And the third area is, of course, what is Sidewalk’s intention in terms of surveillance and data monitoring. No one knows the answer to any of those questions.

Sahar: Ya, so you’re just as much in the dark as the rest of us.

Perks: That’s right. The only members of council who know anything are those members of council who have served on the Waterfront Toronto board.

Sahar: Joe Cressy?

Perks: Joe Cressy currently, and prior to that, deputy mayor Wong. He served up until the new term of council started and then was replaced by councillor Joe Cressy.

Sahar: Okay, cool. So on those three topics that you mentioned – the data privacy and surveillance aspect, and also just how they’re going to make their money – I know

that leaked document came out where they wanted a portion of property taxes from Toronto, I don't know if you read that?

Perks: Well ya, they had some blue sky stuff. And, again, that's an internal slideshow, that's not anything that I would ever base a decision on. I would need to see advice from city staff, and the city solicitor, city finance staff, laying out what their assessment would be. I've received nothing. Absolutely nothing. It's scandalous, frankly.

Sahar: Okay, so I guess you said that it would be based on advice from city staff, but are there any certain legislations that you think we should be talking about, or certain policy conversations we should be having before—

Perks: And this is the transparency mystery. Right now, a public agency is deep into negotiations with one of the modern robber barrens, Google, and no information is available to Canadians, Ontarians, and Torontonians on whose behalf we steward those lands. It's unlike anything I've ever seen.

Sahar: Interesting. Okay, so this is kind of shifting gears, because it seem like you don't actually know what's *in* the plan, so I'm not going to ask you about the plan. But based on the people that you've seen from the Sidewalk Labs team—or Sidewalk Toronto, because I guess it's kind of a combination with Waterfront—do they seem adequately diverse? Because I know from what I've heard, there's no Indigenous representation for example.

Perks: I haven't seen anybody from any Indigenous community. I have seen some, so-called “experts” who are from racialized groups, but they tend to be people who hang out in cool swanky think tanks in New York city, and are not attuned in any way to the issues of Toronto's very diverse population, and the opportunities and problems associated with how Toronto as a community deals with racialized groups. I haven't had any sense of that.

Sahar: Okay, and then along that vein, what do you think – I know that's not your zone or ward – but what do you think Torontonians *do* need from that land?

Perks: Well, there are a bunch of pressing needs in the city of Toronto. First and foremost is socially-owned affordable housing. I don't mean privately owned, I want to be very clear about that. My position has been, if we have public land and there's going to be housing on it, it should be socially-owned housing: public, co-op, or not-for-profit. Land—you don't get it back once you've given it away, and they're not growing any new land, so it should go to social purposes, and if there's going to be housing, it should be socially-owned.

There are other things we need land for: community centres, libraries, parks. We have a tremendous park deficiency, particularly in the more downtown areas in the city of Toronto. We need areas to serve as transit vehicles. There are a variety

of crucial systems that people who live in the city of Toronto use every single day—we use them so frequently that we don’t even notice them—but those are lands that we own together, and use to provide services for each other so that we can enjoy opportunity and a good quality of life. And if we start giving away scarce land, our ability to provide those services vanishes.

Sahar: So I’ve heard that they’ve shifted gears now and they’re saying that they don’t want the land, and they just want to partner with us, and maybe get the taxes, and then sell these technologies to other people later, but do you think—

Perks: So one of the things about being an elected official, if you’re trying to do your job well, is—any time anybody makes a claim, your response should be, “Prove it. Show me.” Right? So until I have a formal set of documents outlining specifically what they’re asking and what they’re offering, any claim they make in the newspaper, any claim that they make in a town hall meeting, any claim that they make in a lobbying session when they come in to talk to me, isn’t worth anything. I’m proceeding on the basis that I do not know what their actual plans are, and they haven’t told me. Any other claim they’ve made is just noise.

Sahar: Okay, and then speaking on that lobbying point—I don’t know if you can tell me about this, but maybe—I read a stat that they had lobbied city hall 68 times in April.

Perks: They came in and saw me a second time too.

Sahar: Oh they did? So what are they doing in these sessions? What are they trying—

Perks: They’re bullshitting me. [Sahar: *Laughs*. Okay.] Ya. So in the first meeting, it become apparent that I knew a fair bit about some of the technical systems that we have to operate, and a fair bit about the environment. So they brought in a guy who had crunched a bunch of numbers about how they were going to be fixing carbon because they were using wood construction. So I asked him a bunch of questions about carbon budgeting that he did not have answers for, so they bring in these people who, in front of an inexpert audience, sound like they know what they’re talking about, but when they run into someone who actually knows a thing or two, it’s very quickly apparent that it’s all an inch deep. Like it’s just the world’s biggest sales job, and there’s no substance behind any of it. They’re spitballing, and [inaudible], and using buzzwords. They’re honestly—like I said to one guy who they were selling as their great expert on the environment, that I had taught a course on the environment at UofT, and if he had handed that in as a paper I would’ve failed him. [Sahar: *Laughs*. Huh.] Ya, it’s just crap.

Sahar: Okay so I don’t know if you’ve heard of the #BlockSidewalk campaign?

Perks: Ya. Ya, I know Bianca and some of the others involved.

Sahar: Okay, ya, because she was actually in that Executive Committee meeting that I was watching. I guess I'm curious—their premise is that there should have been consultations prior to the RFP being released in the first place, and so pretty much, no matter what happens, they're going to resist this project, because it wasn't premised on a democratic decision-making process. So what's your take on that? Should we see what they have to offer?

Perks: Well, if it was anything other than Waterfront Toronto, the premise would've been completely different. We would have decided as a council, based on substantial consultation with the public, on what we would call a secondary plan. So we would've had several years worth of public meetings, asking the public very general questions to begin with, and then refining that down, ultimately into drawings and zones for what goes where, and then we would've invited either public agencies or private agencies, depending on what it was, to come in and bid to do the work. Right?

Waterfront Toronto functions a little bit differently. What's the old saying? If you're accountable to everybody, you're not accountable to anybody? Because they answer to three different governments, no one government has any real authority. So you have this board, which mostly seems to meet in secret to consider these things, which *was* beginning a planning process, *had* put out an initial request for expressions of interest, and decided to throw that out and take an unsolicited bid from Sidewalk.

If someone had tried that at city hall, they would've been tossed out on their ear. If they had tried it at the federal government, or the provincial government, there would have been some oversight and scrutiny perhaps from an auditor general about the value of the deal. But again, didn't happen in either of those places. I'm highly suspicious of these semi-independent legal entities that are dealing with public policy and public resources, but are not accountable to a specific publically-elected government. It's the worst of all worlds.

Sahar: Okay, so I have tons more questions, but I'm just curious about what you think is important about this project – like what would you want the average person to know? Because it seems like a lot of people don't know much about it.

Perks: I think what the average person needs to know is—I don't know if they still teach this stuff in schools, but North America, particularly the United States in America, went through a period of extensive expansion in the 18th century and early 19th century, where a bunch of very rich people manipulated government to get control of public resources, and basically ripped everyone off and made themselves billionaires. And that's what's happening now. One of the world's largest corporations is trying to *plunder* resources in order to make a lot of money, and they're doing it by stealth, and they're doing it in a way that avoids all accountability and scrutiny from the governments you elect to look after your interests. That's what I would want people to really know.

Sahar: That was nice. Okay, let me see if I have any other burning questions to ask, because I'm sure that you're exhausted.

Perks: No no no, ask me other stuff. This is my job. I can have a nap later on.

Sahar: Okay, sure. Well, a bit off topic from Sidewalk specifically, but what are your views on technology? More specifically, do you think that AI and technology can reproduce bias? Is that something that we should be talking about in policy? Because I know the city and a lot of governments are using tech more.

Perks: Ya... God, it's been a long time since I've read any of this stuff.

Sahar: I mean if you can't remember it, it's okay, you don't have to comment on it.

Perks: There is a very robust body of literature that the sciences, as far back as the enlightenment, have been largely responsible for reproducing power relations, as they are. Just entrenching them and deepening them. There's very good stuff that Foucault did on medical sciences and psychiatry, which are basically reproducing power relationships. There's an awful lot of stuff on the chemical industry, reproducing our dominance over nature, and also the dominance of the colonizing group over the colonized. Technology always, always reflects the societies that produce the technology, and Western civilization particularly, because we fetishize technology and technique as the way that we gain global dominance—"we have better technology than everybody, that's why we won"—has turned the notion of "new" into a virtue in and of itself. When you look back, though, at some of the major technological breakthroughs through the ages, they have been almost universally more destructive than they have been helpful. You know, I don't care how much electricity you generate, you'll never make up for Hiroshima and Nagasaki. I don't care about how many great products you can fabricate, the contamination of the Earth by synthetic chemicals—every inch of the Earth by synthetic chemicals—is not worth the fact that I can get my lettuce wrapped in plastic at the grocery store. So we should always begin conversation about a new technology with two questions in mind: who benefits? And, is it beneficial, broadly, socially? Neither of those questions have been asked about artificial intelligence and digital surveillance. None of those questions have been asked, at least in any meaningful, broadly inclusive and democratic way. That being said, the early evidence seems to be that unless you're like someone who enjoys playing chess and go on the internet, the only benefits of artificial intelligence to date seem to be in surveillance, which should be a giant red flag, right? The fact that the Chinese government and many police departments in North America and Europe are using artificial intelligence to surveil people, and that seems to be the biggest investment anyone is making, should immediately alarm us all, and should be causing us to very deeply reflect on how its being used and for whom.

The second thing that comes to mind, think about digital technologies, is the period when broadcast technology was just entering. When people were first

getting televisions. Governments around the world recognized—no, they made a claim. They made a claim immediately that frequencies on which broadcast technology would be broadcasting would be public goods. The very airwaves belonged to the public, and we were able to establish that in order to broadcast over those airwaves, we could make certain requirements on the private broadcasting companies. So in the United States for example, they were not allowed to broadcast unless they broadcast news. That's where news comes from, it was actually a legal requirement. Recently in Canada we auctioned off the rights to certain frequencies that hadn't been used before, and we made a fortune off of that. And you could go on and on and on. With digital stuff, we've just laid down the road and let them run over us. I mean, data we should be treating data as a public good the same way we treated broadcast frequencies as a public good, and we should license it, regulate it, and control it, and charge them money for the use of it. And only allow them to use it in ways that our regulations say they can. You know, we have Canadian content rules and broadcast, right?

Sahar: Yeah, for sure. Okay, let me see if I have any other burning questions... okay, this kind of pertains to one of my other questions, but do you think that the general public has any knowledge, or is aware of this project?

Perks: I think that the whatever percentage of people who follow urban politics—I'd like to flatter myself and think that it's as much as a third of the population, but it probably isn't—know that a company owned by Google wants to do something on the waterfront and people are concerned. I think most people don't even know that, and as I said, nobody knows what they're really up to. Not one person. We're making educated guesses, but it's based on, again, informal, public statements rather than any kind of proposal that they're legally accountable. So we know nothing—for all we know, they could put a server farm there, or a nuclear power plant—we just don't know.

Sahar: Ya, I've been researching about it for almost two years and I don't even know that much about it.

Perks: They're not going to tell us. They're not going to tell us. And they're not going to tell us because we're heads of two of the three governments—I know that Doug Ford seems to have some concerns—but before that, the heads of all three governments had private aspirations and private conversations with Google, and got all excited. That's all we know for sure. And the fact that staff who worked in Mayor Tory's office now work for Sidewalk, staff who worked on Mayor Tory's campaign now work for Waterfront Toronto, and one of Mayor Tory's closest allies on council now works for Sidewalk. [Sahar: Oh?] That should be pretty telling. Ya.

Sahar: Who?

Perks: Keerthana—she had been in the mayor’s office doing communications, she now works for Google. Andrew Tumilty had been staff on John Tory’s last election campaign, he now works for Waterfront Toronto, and Mary Margaret McMann, who had been a councillor, now works for Sidewalk.

Sahar: Ya, I had heard about her.

Perks: Ya, so all that indicates to me that there are relationships with heads of government that are cozier than I like, and that indicate that a level of conversation has taken place between the heads of government and Sidewalk that have not gone through formal channels, and therefore cannot be held to account, and are not transparent tot the governments that those three leaders represent.

Sahar: That’s interesting. I didn’t know about all of those people.

And then, as a last question, how can we make people aware and make people care? [Perks: Well that’s a campaign thing.] And do you think that would effect the progress of the project, or it is kind of out of our hands?

Perks: So, I think—I don’t start with the question “can you...when...?,” I start with the question, “do you have an obligation to try to win?,” and the answer to that is an obvious yes. If you believe like me that socially-owned goods should be, a) managed with democratic permission, and b) should be delivering social benefit, then you have a duty—if you’ve become aware of what is happening on the waterfront—you have a duty to fight back. The question of, “can we win?”—the future is unwritten.

Sahar: Right. Actually I have one more question, because I was thinking—for you guys as policy makers, if you do eventually get this actual plan, do you think that you are educated enough in tech and data to make policies and sound judgements on these kinds of projects?

Perks: Well you could ask that about anything we do. [Sahar: That’s true.] So we serve a very particular function. In law, members of council are all members of the government—its different from provincial and federal, where only members of cabinet are formally part of the government. So we are elected to represent people in managing the corporation of the City of Toronto, all the public assets we have and the public money that we collect through taxation and fees. We then hire a bunch of experts to give us advice as to what is in the public interest. I have received no advice from those experts, and without that advice, I cannot represent to the people that I represent my interpretation of what those experts are saying, and ask and solicit from them whether this meets their view of what the City of Toronto should do. A better process would have been to ask them first, “what do you think this chunk of real estate, which is probably one of the most valuable in North America, should be used for?” Then I certainly would have been in a position to understand and give my best advice here on council. Whether I ever

get anything other than a letter from the Waterfront Toronto board saying that, “we want you to waive the zoning requirements and the contract that you have with public workers to deliver services in this chunk of land,” whether I get anything more than that, I don’t know. I don’t know what I get to vote on. I hope they just go away, it would make my life a lot easier.

Sahar: Apparently they’re releasing their big plan this month—in June.

Perks: Ya but you see again—so one of the things that trains me to deal with this—I deal with a lot of development applications, right—so we go out in the neighbourhood and the developer shows a bunch of slides to the neighbourhood about what they intend to build. And I have learned through long, bitter experience, that whatever slides they show the public are irrelevant. What is actually relevant are the specific drawings that they submit to our planning staff for review, and more often than not, the presentation that they make to the community doesn’t match up to the document that they actually submit, saying “we’re building this many metres in height, that many parking spaces, and the loading will take place off of this street.” So just another public launch of a plan is irrelevant to me. What matters to me are the technical documents they submit for what the terms of sale of the land are, and what concessions they want from regulations and policies that I oversee here. Until I have that in hand, I—it’s like watching an Avengers movie and thinking that it actually happened.

Sahar: Ya, that’s true. So don’t get blinded by the pretty pictures, basically.

So is there anything else that you think is important about this, that you want to share?

Perks: I’m too tired to think of other stuff.

Sahar: Okay, well good thing I came with a lot of questions.

Perks: Ya, and if something comes up, give me a call.

Sahar: I will, thank you so much.

Perks: Ya, good luck.

Interview 4, Clean Verbatim Transcript

Participant: *Emily Earhart* – public policy professional in the AI industry

Date: Friday, June 7th, 2019, 1:15 PM

Duration: 35 min 42 sec

Sahar: First of all, I'm wondering—do you know a lot about this Sidewalk Toronto project, or not that much?

Earhart: Maybe slightly more than the average person.

Sahar: Okay. And you work at this really interesting space at the intersection of technology and policy, so I'm wondering – what's your general opinion about AI? I guess that you believe it can do a lot of good in the future with the right policy framework?

Earhart: Ya, general opinion is that certainly applications of machine learning via artificial intelligence can be used quote unquote “for good” to find efficiencies, to improve our lives, to improve our businesses, to improve our governments, but that doesn't mean that there isn't a regulatory role for our governance institutions to play. So not like a blind tech utopian—like, “ya, it's awesome and fantastic”—but I do believe that it's very promising.

Sahar: Okay great. So to give you some context, I've already interviewed a few people on their general opinions about the Sidewalk Toronto project. I've identified some of the dangers, hopes, and fears, and so on, and so now, given your expertise, I'm trying to think of solutions. Like what kind of policy framework do we need to make sure that people's data feels protected, or to make sure that technology progresses in a way that's beneficial to the public? That kind of thing.

Earhart: I mean lots of people have been writing, thinking about the potential for data trusts, I don't know any one person or place that has put forward the definitive guide or vision as to what that truly looks like, but it does need to be on the government's radar as well. There's some great work done by economist Glen Wail, he co-authored *Radical Markets*, which is about rethinking the economics of the internet. He has some ideas around more of a co-op model or a non-profit as an intermediary for managing data. I don't even know if we need another body to manage data, I just think generally people consent – there's broad agreement that consent and terms of service and privacy policies are broken, but there's not necessarily enough strength and protection around data that solves that. I mean, basically, despite building up all of these strong consumer protection regulations in Canada, consumer protection is essentially silent on the exchange that happens when you download a new app. And that's just because when we wrote them, we couldn't conceive of an exchange built around the way we do. So what do you get? You get people downloading a fun Tetris app that also tracks your locations

and maybe reads all of your text messages. And we've allowed Google Play, or whatever Android—the app store to essentially self-regulate, and that keeps the tech sector being the ones in power. Right? Like remember earlier this, there was an app taken out of the app store—do you remember what it was?

Sahar: No, I have no idea.

Earhart: Someone got pulled down—it was a big tech app. Apple... they were threatening to remove Facebook...and they were like “ya, this app violates our terms for being on the app store.” So I mean that’s interesting, and that’s good, right—it’s not a bad thing, but actually the exclusivity of having these platforms be the ones that are determining what’s permissible and what’s not in terms of giving consumer access is probably not great. And from the consumer perspective, we have these other instances where if I buy something that’s defective, or make a deal with a store that they change, I have recourse. But I don’t have any recourse for that weird Tetris app that I made up.

Sahar: [Laughs] That’s true. Okay, so from that perspective then, what was your first reaction to hearing about the Sidewalk Toronto project, knowing that it would be embedding sensors and AI technologies into the city, but that we have no real policy framework for that kind of thing?

Earhart: I was very intrigued when it was announced. I thought that it was a good thing for the City of Toronto, that it was good to have this innovation homegrown in our backyard, I was excited that previously completely under-utilized land would be developed in this novel way, and that jobs would be created for talent in that sector. And I wasn’t necessarily aware that all the other underlying components hadn’t been thought out when they announced it. I think there was the assumption that the project was more sophisticated than it may actually have been.

Sahar: Mmm. Okay, so has your opinion changed at all since then, or are you still hopeful?

Earhart: I’m still hopeful that it can be good for Toronto. I think that this project is going to happen no matter what, and it’s a question of where. I think that our government is starved for dollars. You know, one of the same days on social media that we were talking about Sidewalk Labs and their self-heating sidewalks, or self-driving bots to shovel sidewalks, we were tweeting about all the sidewalks that weren’t get cleaned enough and how that’s hurting people—particularly women and seniors. And it was just an interesting juxtaposition. Unless we are willing—unless our political leadership who are in Toronto, their powers being very eroded by the province—unless we’re willing to increase property taxes so that we can actually afford the city that we want, then maybe the future of city building *is* public-private partnerships, which are not historically new, but big tech having a large role in those is not new at all.

Sahar: Mhm. Okay, so then if it is going to go forward, which it seems like most people think is going to happen, what kind of policies do you think should be in place? Or at least, what kind of policy discussions should we be having prior to these kinds of technologies being implemented? Because I know beyond the sidewalks and stuff, I know that this project is premised on embedded sensors and data-collection technologies all through the city.

Earhart: Well, apparently people weren't consulted on the red light speeding cameras—that's a form of surveillance in our city. Or the data is used in a particular way. I have no idea how that data is stored, how long that data is stored, who has access to it. But I would have some of the same questions for this project. I think truly achieving and documenting informed consent is an important part of this project, the disclosure piece, how is data being used, probably importing a couple of important GDPR principles, which I'm sure they're thinking of. You know—can I access the data that company has on me, can I request that it be dropped, all those pieces I think are being an active part of the conversation. I think Toronto is doing a great job with ensuring accountability with the project, and pushing for more transparency. I don't really understand why Sidewalk wasn't more transparent to start. I think everyone agrees that they kind of blew it out of the gate, and I feel like they will kind of agree too, and they've just sort of protested that they are...consulting. That it was always part of their plan. But many have judged that to be not satisfying.

Sahar: Mhm. Okay, so changing gears a bit because you work in an AI company, I'm curious—do you believe that technologies can be discriminatory? And is that something that you think about when you're making policy, or is that kind of out of your scope?

Earhart: I mean, I don't really make policy where the technology can discriminate on someone. A couple of years ago when I chaired a panel on youth employment for the federal government, we did broadly speak with people about matching platforms for people finding jobs, and I think it was just in the Logic yesterday that I company called—not Pandora, but something with P—received some funding from the federal government, and what does that do? It helps match job candidates on opportunities. I have engaged with the federal government on their algorithmic something imperative—I'm saying the wrong phrase, but their policy on understanding algorithms, but no I'm not directly thinking about it. It's called Palette for Skills Retraining, so it's an organization that'll match companies with talent, and I mean ya, that would be a platform that I'm sure is built on machine learning and is matching people.

Sahar: Okay, so just to clarify on that point then—you're not working in that field, but is that something we should be concerned about? Given the data that we use in these machine learning technologies and in these algorithms, and given the perspectives of the people making these technologies, do you think that there is a risk of them being discriminatory?

Earhart: I would say people are definitely thinking about this in the sector—it's not a new thought. It seems to be a newer thought in terms of general public awareness and this knee-jerk reaction to hearing machine learning or artificial intelligence is to say, "woah, what about bias?" Which is good. That's a really healthy thing, I just think there's a lot more public awareness and education pieces to be done where we can help people get out of—we're kind of locked in this discovery phase, and it makes it harder to go to phase two. But absolutely, can bad, biased data be used? Yes. Is it being used sometimes? Probably. Are we correcting for it? Ya. I think back to the public awareness piece, when those poor products come out people are pushing against them and rejecting them.

I also think with governments procuring this technology, which they are increasingly doing—you look at the federal order of government, they have AI companies listed, and I don't know if the phrase is "preferred" vendors or just "permitted" vendors, something like this, those are all artificial intelligence companies. So I think they're a great model in terms of what are the thresholds you need to meet for the government to even consider integrating, implementing your technology. And a big part of that is explainability of the algorithm, and talking about data sources, and I guess that would be a policy related to, "How do you actually apply these things in real life?"

Sahar: Ah, okay what you're suggesting is that if there's transparency is how the data is being used, and transparency in how the algorithm works, and then we can educate people on that, that should solve a lot of these issues, or fears on discrimination? Basically?

Earhart: Maybe. I hope so.

Sahar: Okay, so then do you have any specific ideas for how we can ensure public awareness and transparency? Like is that something we need to do through policy, or maybe digital literacy campaigns, or some other techniques?

Earhart: I think that there's an opportunity to have more of a pan-Canadian framework for the computer sciences across the K-12 system. So when we look at how curricular changes happens, it's kind of one by one and course by course. So what does digital literacy mean, and how do people beef it up—it's not necessarily one conversation that can happen over the dinner table with family, and people build a facility using the internet but not necessarily understanding it. You know, how is the internet being commercialized? Why are the terms of this app important? How do I protect myself online, protect my identity? What are cookies? Why am I getting this ad? Part of it—and I don't that work erases the very real and harmful, scary risks of bias, but I think it's definitely part of improving.

Sahar: Mhm. Okay, and then on that point as well—a lot of my research has pointed to the fact that for example women are hugely underrepresented in the tech industry, and the way that people are graduating from computer science programs, women

are outnumbered 4:1, and in major tech firms like Google they have very few Black and Indigenous people. So do you think that kind of stuff has an outcome on how these technologies are produced? And do you think we should be making policies to increase diversity, or maybe do something else? What do you think?

Earhart: Ya, I'm sure it's related. I've read a lot about—ya sure, the dominant programmer is a White American male, and that's the perspective they're brining. I just read about the book that's all about how we've designed a world for men, it's called *Invisible Women*, I believe. And that goes beyond tech to all facets of life, but I also don't think it's the inherent responsibility of women or people of colour to bring that particular perspective to their work, right? Like that's a pretty big burden to place on them as technologists in those fields, with those skills. Do I think that there needs to be policies? I think there's an increasing demand from consumers to see what a diversity policy is from a particular firm, to have firms reporting out annually on their hiring practices to try to—I think firms are doing a lot to reduce bias in their hiring practices, like at the end of the day, we all want the same thing which is the best possible talent at the best possible price, probably. And I think we're—especially with the millennial generation coming of age—I think we're increasingly achieving that. So do I think there needs to be a policy that mandates this in the tech sector? No, but in Ontario we're seeing mixed results with the comply or explain policy that was brought in under Premier Wynne which basically said, “improve the representation of women on your board and if you can't do that, explain why you're not.”

But I also—the reality is that, though I'm a fan and practitioner of policy, I don't think that just making a policy solves anything. [Sahar: Mhm.] Right? Like it can be quite a blunt reaction. You could be like, “we have a policy that you have to have unbiased hiring.” Okay, that's great, you have a policy, but what's the jurisdiction of the state to actually do that, and how is that explainable, how are people going to demonstrate that? So that's why I'm cautious about the application of policy intervention in those spaces.

Sahar: Mmm, because it would have to be very specific and enforceable, and things like that, ya.

Earhart: Ya, and people do look for companies with good policies in that regard too, right. But I think universities, they have to report out annually on gender stuff. I'm not being articulate and I don't know details for sure.

Sahar: No they do. Even Google has that report now—that's actually how I knew about their breakdown of women and people of colour and stuff.

Okay, so one thing that I've also been thinking about that you briefly touched on is how much power tech corporations have these days, and I think a lot of that does have to do with the fact that Canada has historically regulated most industries sooner to when they begin. Like the broadcasting industry is regulated

by CRTC and so on, whereas the internet, because it was this beacon of freedom and communication, we didn't regulate for over a decade, which has probably led to this unprecedented power and wealth of tech corporations. Is that something that you think we need to try and reign in with policy, or any other techniques? What do you think about that?

Earhart: Well I mean, where did Canada miss out in regulating the internet? We're seeing Canada make movement in the tax space for sure. Quebec was the first mover in that regard, I believe the legislation was Bill 150 which imposed the QST Quebec sales tax on big tech companies' service fees, so that was one way—pretty interesting way, that a place in Canada has thought to regulate the internet. Back to being blunt—basically taxes. Are we going to regulate speech on the internet only in Canada?

Sahar: Sorry going back to the Quebec situation, I don't know exactly how that works—what are they taxing?

Earhart: They're taxing platform companies' service fees.

Sahar: So for even existing in Quebec, pretty much?

Earhart: For their transactions in Quebec, ya.

Sahar: Okay, so any sort of advertising and things like that?

Earhart: No no, so for example when you make a booking with AirB&B. [*Sahar:* Ahhh, those kinds of transactions.] There's a service fee from a guest and a service fee from the host which is a micro proportion of the transaction. So in Quebec they're taxing that.

Sahar: Ahhh, so not like Google search or Facebook—free services are not being taxed, obviously...

Earhart: I don't know the other tech companies that have signed onto it, I'm not familiar, but it's definitely worth looking into actually as an example. I think the Canadian government is doing a great job *trying* to push for more transparency, like with political ads on platforms, and they're investing in awareness. But I think we're seeing that the state may be a little starved for a strong toolkit in that regard.

Sahar: Mmm, okay. So I guess going back to the premise of that question then, do you think that companies and Google and Facebook which don't really pay taxes in Canada because they're offering free services which we perceive as like, public goods, so they don't really get regulated, is there something we should do about that? Or just kind of let the markets do their thing?

Earhart: I don't know if that's the choice, right. Just letting them continue on or having the markets do their thing, I think we have to be clear about what's possible to tax them on when they're operating here, and just ask ourselves if we're doing that. I mean they have satellite offices here, they're hiring people and paying people, they're paying commercial rents and they're paying commercial taxes. That's participating in our broader tax system. But they're not—none of the big tech companies are based in Canada, which does allow us to other them. You know, Shopify is not one of the big tech that everyone is taking aim at. You don't have the tension of simultaneously protecting our economic growth and moderating our regulation. So do I think that governments should be ensuring there are checks and balances to protect people and capture revenue so that we can have a government and good social policies? Yes. Are we doing that effectively now to the farthest degree of what's possible and reasonable? I'm not sure, but I also don't have a comprehensive map in front of me kind of outlining what those missed opportunities are. And I don't know if we tax them a little bit more if that makes what they're doing any more okay than it is now. To my mind, it doesn't, but it's also a little dangerous from a broader public perspective to use taxes in that way—like, “because we're taxing something more, we have a dominance or authority over it.” If paying a small tax is the quote unquote “price” for these companies to continue to exploit people for their data and their information then I don't know that taxing them changes those behaviours at all. We definitely need to continue to be comprehensive in our response.

Sahar: Mhm. I agree. So then in your work, working in the tech and policy space, what kind of policy conversations are you party to? What kind of policy conversations *are* happening at that intersection of tech, AI, and policy with the government?

Earhart: There was an interesting policy announcement yesterday that the national standards council of Canada is going to be creating—they have a new initiative to map Canada's need for data governance standards, and they're going to be fleshing out their steering committee and having some working groups, so that's pretty cool. Like that's great policy leadership from Canada and that's something that other people can be a part of it.

There's the Digital Charter that was released where there will be a bunch of follow-up work where industry will be consulted. There was a privacy paper released around the same time looking at PIPEDA and other adjacent policies and how they might be improved for the digital age, so those are kind of the broad, bigger conversations that are really interesting in Canada right now.

There's a really interesting value for data policy conversation kind of quietly happening in the state of California where Governor Gavin Newsom what he's calling a data dividend. That's basically that big tech should be remunerating people in some way for the value of their data.

Ya, so those would be the kind of pieces that we're interested in. I mean at our company we're working on a way for people to invest their data as well, so not just money. So appropriately awarding people for that value. So what are we interested in? I mean these aren't policies but ya, how can we help more people invest that may not see themselves as investors or may not have money right away, how do you make that valuable for them? And how to build those good habits.

Sahar: Ya, that's a fascinating idea by the way. I've never heard of that—to invest data. That's really cool.

Earhart: Thank you for saying that. I think it's really cool too, and really important. So that's what we're working on over here.

Sahar: Ya, that's awesome because it basically is a currency anyway these days, so may as well use it as one. [*Earhart:* Ya.]

Okay, hmm, that gave me a lot to think about actually.

Earhart: Okay, I tried to give you a different perspective maybe than you sort of already saw, so I hope that's useful.

Sahar: Oh ya it is super useful, thank you. Because you're right, most of the perspectives I've gotten are highly critical but they're also sort of high-level critical, whereas you're working in that space, so it's nice to hear.

Earhart: Yaaa, it's like—if they had a better consultation process—I think we, not need to be careful what we ask for, but keep our eyes on the core issues. The core issues and the core opportunities, and I don't know that our public debate has been satisfying for the average person. There was that poll recently that basically suggested that most Torontonians are not familiar with the project at all. I mean that's a failure on all our behalf, but that doesn't mean I think it needs to be quote unquote “blocked”—blocking just puts it somewhere else. I think we should use this power of accountability and the push for more transparency to push Google and Alphabet to articulate this project in a more sophisticated way so that it *can* happen here. That is my hope. That it *can* happen here, but it doesn't mean that I want it to happen here without those rigorous checks and balances and without that company listening, etc. etc., that's all.

Sahar: Ya definitely. You know I think most people's complaint has been that we didn't really—if you start the partnership without the consultation, it's kind of trapping us, like we have to work with Sidewalk Labs and Google, whereas you can do a smart city without them, and if you asked people they would have had other suggestions. Because I think a lot of people from the tech sector in Canada were kind of upset that they were not consulted, and they were not given the opportunity to bid for this in the same way. So that's where a lot of concerns are

coming from. [Earhart: Mhm.] But you're right that we can still make this work in our favour if it's going to go forward anyway.

Okay, so just as a broad last question then: what are your hopes and what are your fears for this smart city project that you think we should be keeping in mind?

Earhart: I hope that the City of Toronto will be able to capture the appropriate amount of tax. I hope that Canada will be able to benefit in some way from the intellectual property that will be generated, even though I understand that it will be proprietary to Sidewalk Labs and they are not a Canadian company. I wonder, though, what other Canadian cities will be able to learn from this project and potentially implement. My fear is that we will commercialized urbanization, even though we've commercialized lots of aspects of it, and that we stay vigilant when it comes to guarding our personal data and guarding our privacy. You know, it's definitely scary to think about the public realm being a place where you don't have privacy, and it's important to be able to move through the world in a private way.

Sahar: Mhm, for sure. And actually, I have one more question on that because you also mentioned that most people don't know about this project, and my research has definitely corroborated that. [Earhart: Mhm.] So I'm wondering, if you could tell the average person some main, key takeaways from this project, or things that you think they should know, what would those things be?

Earhart: If I had to give people some information on what they need to know about this project?

Sahar: Ya, either information, or a perspective that you think they need to have on this project, going forward.

Earhart: I mean I wouldn't want to give people a perspective, thinking they need to have it as well, but I guess I would offer that perspective that we touched on earlier, which is: let's contextualize this. We can't afford the city that we want right now. So is this an opportunity to capture some value, keep Toronto on the map, create some great jobs, and be a leader in responsible cities, and be a voice—you know, be the mayor, be the premier, be the prime minister that advocates for this being done in the right way without being too polite about it. Maybe Canada's reputation for being polite—maybe we're seen by these big tech companies as pushovers or small fishes because of our small population that's just spread out on a big, beautiful land. I think the opportunity for Canada is to show everyone that that's wrong—that designation isn't right.

Sahar: Mhm. Okay that's great, that's actually a really great perspective that I needed in my research, so thank you so much for talking to me.

Earhart: You're welcome.

Sahar: If you have anything else that comes to mind that you think I should include or look at, feel free to e-mail or call me.

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