

PIPE DREAMS, AND OTHER SUCH STRUCTURES:

TECHNOLOGY, SPACE, AND POWER IN
UTOPIAN URBANISM FROM 1888 TO 2018

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ABSTRACT

Alphabet Inc.'s *Sidewalk Toronto*, a 'smart city' project under development in the Quayside district of Toronto, is touted as a utopian panacea, promising to use ubiquitous Internet-connected sensors to redefine urban life. However, the ways in which this plan imagines controlling civic data and invisibly restructuring systems of power has provoked public outcry. This thesis positions *Sidewalk Toronto* within the chronology of technological utopian literature as a means to examine how historical visionaries have conceptualized models of citizenship in changing technological landscapes, and consequently to ask what contemporary visionaries can learn from these implications. In paralleling utopian spatial and societal form with changing modes of telecommunication technologies, I find that the ways in which flows of urban information are controlled have the power to create or destroy publics, and establish or erase notions of democracy. From these perspectives, this thesis aims to warn of the dangers of the 'smart city' typology if a more interdisciplinary mode of thought isn't established — for as visions of the utopian city veer towards images of technocratic control, so too will our realities.

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INTRODUCTION: THE SMART CITY AS A TROUBLED UTOPIA

On October 17th, 2017, Waterfront Toronto announced the creation of the *Sidewalk Toronto* project to develop the Quayside District in Toronto's Eastern Waterfront, with a mission to "use technology to redefine urban life in the 21st century."¹ *Sidewalk Toronto*, a joint venture between Toronto's tri-governmental waterfront development organization and Alphabet Inc.'s Sidewalk Labs (a Google sibling-company), aims at solving myriad contemporary urban problems of mobility, sustainability, affordability, and economic opportunity through a full embrace of Google's advanced urban technologies. The high-end renderings produced by Sidewalk Labs present us with a world of self-driving cars, underground recycling robots, and wooden Passive House high rises.² At the core of the plan lies a "digital layer" wrapped intangibly around the physical city of Toronto — a system of ubiquitous Internet-connected sensors that track and interpret environmental, social, and infrastructural data. The vision of Quayside is a neighborhood that is truly "built from the Internet up."³

Canadian Prime Minister Justin Trudeau hailed Sidewalk Labs in an introductory press conference as an "extremely promising partner" that "will help us build smarter, greener, more inclusive cities, which we hope to see scaled across Toronto's eastern waterfront, and eventually in other parts of Canada and around the world."⁴ Eric Schmidt, the Executive Chairman and CEO of Google, claimed that *Sidewalk Toronto* "will be a global draw for new ideas, for economic growth and development."⁵ The project has been lauded locally as a means to make Toronto "the envy of cities around the world."⁶

¹ Sidewalk Labs, "Vision Sections of RFP Submission," October 27, 2017. 1

² Sidewalk Labs, "Vision." 47, 29, 84

³ Sidewalk Labs, "Vision." 15

⁴ Sidewalk Labs, *Announcing Sidewalk Toronto: Press Conference Live Stream*, 2017. 15:22-15:47

⁵ Sidewalk Toronto, *Introducing Sidewalk Toronto*, Youtube Video, 2017. 2:29-2:34

⁶ Mike Filey, "The Way We Were: Sidewalk Toronto May Be the Envy of Cities around the World," *Toronto Sun*, October 21, 2017.

Public opinion, however, is far less optimistic. A summary report released by Sidewalk Labs shortly after the public announcement of the project found that, while there was enthusiasm for innovative embedded technologies, “many residents expressed significant concerns related to privacy, information management and storage, and the commercial sale of data.”⁷ Experts warn of the risks of becoming a “Google City”, in which Sidewalk Labs’ motives are to “benefit their own interests as a private company, as one of the most profitable, most wealthy companies in the world.”⁸ Skepticism of how and why Sidewalk would use data it collects from its ubiquitous sensors have surrounded the project with criticism, fear, confusion, and anger. Former BlackBerry CEO Jim Balsillie eloquently bashed the development as “a colonizing experiment in surveillance capitalism attempting to bulldoze important urban, civic and political issues.”⁹

These same concerns have also been expressed from within the organization. Less than a year into the project, Saadia Muzaffar stepped down from her position with the Digital Strategy Advisory Panel due to concerns that *Sidewalk Toronto* evaded questions about privacy and showed “apathy and a lack of leadership regarding shaky public trust.”¹⁰ A few weeks later, privacy expert Dr. Ann Cavoukian resigned from her role as Privacy Advisor after learning that Sidewalk Labs had plans to allow third parties to access personally identifiable information gathered in the district. In her resignation letter, she wrote that she “imagined us creating a Smart City of Privacy, as opposed to a Smart City of Surveillance.”¹¹ Clearly, embedded deeply within this plan are struggles of power and control. Without extremely careful considerations, Sidewalk’s proposed technological utopia — one that promises freedom, efficiency, and transparency — could very easily devolve into dystopia.

⁷ Sidewalk Labs, “Summary Report: Roundtable 01” (Sidewalk Labs, March 20, 2018). 7

⁸ David Rider, “The Risks of Becoming a Google City,” *The Star*, March 5, 2018.

⁹ Balsillie, “Sidewalk Toronto Has Only One Beneficiary, and It Is Not Toronto.”

¹⁰ Tara Deschamps, “Sidewalk Labs Advisory Panel Member Saadia Muzaffar Quits, Citing ‘Deep Dismay,’” *Financial Post*, October 5, 2018, sec. Tech Desk.

¹¹ Gabrielle Canon, “City of Surveillance: Privacy Expert Quits Toronto’s Smart-City Project,” *The Guardian*, October 23, 2018, sec. World news.

While Sidewalk Labs may be offering unprecedented technological advancements, the notion of using technology as a panacea for urban problems is nothing new. Technological utopianism runs deep, and themes of physical, functional, and moral improvements can be traced throughout the history of technology. The *Sidewalk Toronto* project shares with the vast corpus of technological utopian literature a desire to use technology not as an end, but rather as a means to enact a new social order, to redefine citizenship, and to establish a new understanding of public. Urban planning is inherently an act of power, and in a utopian vision pushed by a singular agent, this power becomes heightened and concentrated. To understand where power resides in *Sidewalk Toronto* and how visionaries like Sidewalk Labs might use and misuse technology as systems for public participation and involvement within the public sphere, I turn to historic utopian plans that construct idealized societies by embracing and furthering technological realities. I argue that communication technologies themselves are not determinative of social freedom or empowerment alone, but the rules and systems (or absences of such) that guide their use can make them tools to concentrate or equalize power, embrace or reject space, and create or erase publics.

COMMUNICATION TECHNOLOGIES AND SOCIETY

In order to understand the role of telecommunication technologies in shaping structures of power in the urban imagination, I must first define “technology” through a brief literature review, and examine its involvement with and within urban society. At the most limited perspective, technology is thought of purely as machines or tools. Late nineteenth century French inventor Franz Reuleaux defined the machine as “a combination of resistant bodies so arranged that by their means the mechanical forces of nature can be compelled to do work accompanied by certain determinant motions.”¹² Most scholarly understandings of technology,

¹² Lewis Mumford, *Technics and Civilization*, 1st ed. (Harcourt, Brace, 1934). 9

however, expand beyond this reductionist view and show that technology is embedded deeply and inseparably within human culture and society. Herbert Marcuse, sociologist and critic of modern technology from the Frankfurt School, aimed to dismantle any separation of machine and society by defining technology as “a social process in which technics proper (that is, the technical apparatus of industry, transportation, communication) is but a partial factor.”¹³ Urbanist and technologist Lewis Mumford corroborated this distinction in *Technics and Civilization*, claiming that “no matter how completely technics relies upon the objective procedures of the sciences, it does not form an independent system, like the universe: it exists as an element in human culture and it promises well or ill as the social groups that exploit it promise well or ill.”¹⁴ Among modern commentators, sociologist Ron Westrum in his 1990 book *Technologies & Society* defines technology as consisting of “those material objects, techniques, and knowledge that allow human beings to transform and control the inanimate world.”¹⁵ Similarly, historian Howard Segal, in *Technological Utopianism in American Culture* employs “technology to mean not only technological hardware itself, but, more broadly, its use in establishing and maintaining an entire society.”¹⁶

Technology, then, exists in two discrete but inseparable frames: Technology as a machine, tool, or utility; and technology as an intangible driving force shaped by social and cultural powers. Not only do humans shape our technological systems, but these systems come to define our very societies. “In manipulating the machine,” Marcuse says, “man learns that obedience to the directions is the only way to obtain desired results.”¹⁷ Segal elaborates on French philosopher Jacques Ellul’s notion of the “technological society” by claiming that a society which has fully and irreversibly embraced technology “ultimately patterns itself after the

¹³ Herbert Marcuse, “Some Social Implications of Modern Technology,” *Studies in Philosophy and Social Sciences* 9, no. 3 (1941): 138–62. 138

¹⁴ Mumford, *Technics and Civilization*. 6

¹⁵ Ron Westrum, *Technologies & Society: The Shaping of People and Things* (Belmont, CA: Wadsworth, 1991). 7

¹⁶ Howard P. Segal, *Technological Utopianism in American Culture* (University of Chicago Press, 1985). 12

¹⁷ Marcuse, “Some Social Implications of Modern Technology.” 144

structures and machines and technical knowledge that at the outset helped to bring it about.”¹⁸ Just as systems of power and oppression are deeply interwoven with our societal formations, so too are they built in to our technological systems.

In particular for this thesis, the technics, or “hardware”, that I will trace revolve specifically around communication devices as a subset of technology, adopting Stephen Graham and Simon Marvin’s approach that “looking at city-telecommunications relations is a part of the broader process of analysing the relations between technology and society.”¹⁹ I focus on communication technologies — the telegraph, telephone, television, mainframe computer, personal computer, the Internet — as ubiquitous systems that integrate closely with how humans interact within society. Graham and Marvin state that “remarkable leaps in the capability and significance of telecommunications” are central to the transformation of “accepted notions about the nature of space, time, distance and the processes of urban life.”²⁰ Indeed, they argue the significant ability for communication technology to extend beyond its compartmentalization as interconnected devices: “Telecommunications are absolutely central to current innovation and restructuring all of the activities that combine to make cities: in manufacturing, transportation, consumer and producer services; in leisure, media and entertainment industries; in education, urban government, public services and urban utilities; and in social and cultural life.”²¹ Media historian Carolyn Marvin furthers the bilateral entanglement with communication technology and society, arguing that “the early history of electric media is less the evolution of technical efficiencies in communication than a series of arenas for negotiating issues crucial to the conduct of social life; among them, who is inside and outside, who may speak, who may not, and who has authority and may be believed.”²² Beyond

¹⁸ Segal, *Technological Utopianism in American Culture*. 14; Jacques Ellul, *The Technological Society* (Knopf, 1965).

¹⁹ Stephen Graham and Simon Marvin, *Telecommunications and the City: Electronic Spaces, Urban Places* (London: Routledge, 1996). 78

²⁰ Graham and Marvin. 2

²¹ Graham and Marvin. 6

²² Carolyn Marvin, *When Old Technologies Were New* (Oxford University Press, 1988). 4

simply interconnecting humans, the ways in which communication technologies are designed have implications about who is in control.

In this thesis, I refine Mumford and other thinkers' notions of the interconnected nature of technology and society to focus on communication technologies not just as a means to allow instantaneous conversation and business transaction, but as a fundamental aspect of humanity that has undergone significant, if nearly invisible, change. The seemingly innate drive of human nature to unceasingly develop our technological capabilities and our urban environments has deep ties to the shapes and structures of our societies and cultures. In measuring and tracing this nuanced relationship, I turn to utopian literature as imagined by thinkers, scholars, architects, and writers to envision these interconnections of communication technology and society.

THE IMPORTANCE OF VISIONARY PLANS

Communication technologies and urban form are both interdependent and independent: the development of technology progresses at a rate that far outpaces that of urban planning and culture. Furthermore, the integration of communication technologies within living cities takes time. Even as integration takes place, the development of technology continues to march on and create new infrastructural dependencies, while plans accommodate obsolescent forms. The telephone, for example, was afforded the time in the early- and mid-20th century to dominate the landscape of America with wires hanging over every sidewalk, and telephone culture solidly established itself in the core of American life. However, at the end of the 20th century, the mobile cell phone began to drive the telephone into redundancy, and American cities and suburbs alike became left with collages of modern cell towers and vestigial hanging telephone

wires, a near-permanent reminder of a technology that once was.²³ Even while Internet infrastructure is developing at a rapid pace — fiber optic cables now weave through our streets, WiFi hotspots are increasingly becoming more prevalent — the city as a structural form remains largely out-of-date. Change at an urban scale is slow — imaginations, on the other hand, disseminate to and can become engaged with the public as fast as the publishing of a book, drawing, or idea.

These utopian illustrations, on the other hand, may be seen as escapist, as “the unreal and impossible,” with little to no connection to the real world.²⁴ Graham and Marvin warn of the dangers of the techno-futurist’s “breathless and excited” speculations as providing a weak and baseless connection to humanity.²⁵ Manuel Castells furthers this hesitation about the credibility of utopian thought by claiming that “futuorologists predict the evolution of society on the basis of linear extrapolation of characteristics of new technologies, without taking into account the historical mediation exercised by social organization between the potential of new technologies and their effects in actuality.”²⁶ This uncertainty is even embedded within the understanding of the concept of ‘utopia’. According to sociologist John Gold, “‘Utopia’ was a term deliberately coined by Sir Thomas More to embrace ambiguity, being a deliberate pun on the two Greek words that supply the ‘u’ sound: *eu* (good) and *ou* (not). When taken together with *topos* (place)... it may be seen that utopia can be interpreted as either the ‘good place’ or the ‘not place’, the place that does not exist.”²⁷

I acknowledge the inherent limitations of utopian thought as separate from the real world as lived and experienced by real humans. However, I believe in the ontological power of studying utopian storytelling: whether by examining literature, visuals or other media,

²³ John R. Stilgoe, *Outside Lies Magic: Regaining History and Awareness in Everyday Places* (Bloomsbury Publishing USA, 2009). 21

²⁴ Lewis Mumford, *The Story of Utopias* (New York: Boni and Liveright, 1922). 11

²⁵ Graham and Marvin, *Telecommunications and the City*. 85

²⁶ Manuel Castells, *The Informational City* (B. Blackwell, 1989). 1

²⁷ John Gold, “A Wired Society?: Utopian Literature, Electronic Communications and the Geography of Future City,” *The National Geographical Journal of India* 36, no. 1–2 (June 1990): 20–29. 21; Thomas More, *Utopia*, Penguin Classics. (Penguin Books, 2003).

embracing this ambiguity can reveal much about real social, cultural, and technological structures, shed light on how systems of power are injected into urbanism, and enact change. While the future-oriented technological predictions may often miss the mark, utopias are necessarily inseparably tied from the social, political, and economic realities in which they are written. Gold argues that utopias can “be read profitably as much for their critical commentary on present-day life as for the value of their conceptions of a better world.”²⁸ Segal agrees with the claims that utopianism has the power to reflect and criticize the society that produces it: “Far from necessarily being escapist, genuine utopianism is intended to be played back on the real world in order to change it — that is, to make the real world more nearly perfect.”²⁹ Mumford extends this argument by going so far as to say that the real world and the imaginary worlds of utopias cannot be separated: “The more that men react upon their environment and make it over after a human pattern, the more continuously do they live in utopia; but when there is a breach between the world of affairs and the overworld of utopia, we become conscious of the part that the will-to-utopia has played in our lives, and we see our utopia as a separate reality.”³⁰

There is not one ‘factual’ way of studying communication technologies and the urban society; instead, we must rely on the dialogue produced through a study of fictional narratives and social theories.³¹ There are other, non-technological ways to study the societal implications of utopias; however, my inquiry approach will parallel that of Gold’s, adopting the view that “electronic media as the key to utopia” is one such utopian constellation out of many.³²

As of 2018, Sidewalk Labs has yet to break ground in Toronto. Their ideal city is illustrated solely through various marketing campaigns, podcast episodes, articles, videos, and online buzz. *Sidewalk Toronto*, however, is distinct from myriad utopian urban societies because of its realization potential: the company is backed by Alphabet Inc.’s near-limitless

²⁸ Gold, “A Wired Society?” 21

²⁹ Segal, *Technological Utopianism in American Culture*. 9

³⁰ Mumford, *The Story of Utopias*. 11

³¹ Graham and Marvin, *Telecommunications and the City*. 78

³² Gold, “A Wired Society?” 22

financial and technological resources, has support from many governmental organizations in Toronto, and hosts a large and diverse team of experts in many fields. While *Sidewalk Toronto* exists in this moment purely as a theoretical conception of the idyllic environment for people and technology, it is possible that the city — or some version of it — will indeed be constructed in the near future. While a fascinating topic ripe with areas for inquiry, the realization of *Sidewalk Toronto* lies beyond the scope of this thesis. Instead, I will read the project as a utopian text in a broader historical context of the technological utopianism typology, and critically analyze it with established sociological frameworks of agency, democracy, control, and notions of the public.

READING UTOPIAN URBANISM

For many generations, including mine, new technologies of communication have been touted and experienced as means to rethink urban society. To question the role of contemporary urban participatory technologies, I will analyze different formal structures of past technological communication as seen through utopian plans, literature, and imagery. In particular, I will analyze how these urban conceptions construct systems of power, and model citizen agency within a public sphere. In doing so, I aim to understand how technology has been thought to control information structures, and in turn shape social interaction, discourse, and democracy.

Chapter One will establish the interconnections between power and space, and examine the changing conceptions of spatiality in utopian plans as composed through communication technologies, and aim to identify where power resides. I introduce an overall trend towards the dissolution of physical space, beginning in 1898 with Ebenezer Howard's hyper-centralized and controlled *Garden Cities*. Edgar Chambless' linear *Roadtown* from 1910 parallels early teletechnology's limited bi-directional capabilities, yet embraces this in an attempt for a

flattened social hierarchy. As more advanced teletechnologies, including the radio and television, created greater spatial freedom, Frank Lloyd Wright's *Broadacre City* from the mid-twentieth century envisioned decentralized but linked urban forms. With the mass cultural adoption of the personal computer and the global Internet in the early 1980's, Alvin Toffler's idea of the Electronic Cottage, along with various avant garde projects such as Steven Roberts' *Winnebiko* and Hans Hollein's *Mobile Office*, erode spatiality from society, creating alternative and intangible "dataspace" environments. I argue that utopian illustrations of a progression toward this "despatialized" urban form also complicates notions of power, public citizenship, and public participation in democracy.

My exploration of the interactions between communication technologies and society is rooted in Jürgen Habermas' conception of the public sphere as an open platform for rational-critical discourse, as laid out in *The Structural Transformation of the Public Sphere*. While often disputed, this understanding of public is rooted in a framework described by space and communication, and so is pertinent for this thesis. Chapter Two will parallel the evolution of Habermas' exploration of democracy to spatial and communicative systems; namely, the transition of architectural public space from centralized to distributed space, as caused by advanced technological communication systems. This is not a chronological advance, but a difference in vision. Hence, I introduce Edward Bellamy's vision of Boston from the year 1888 in *Looking Backwards* and Archigram's *Plug-in City* from the 1960's to tell a contrasting story of the development of public space and the public sphere through the emergence of telecommunication technologies. I will argue that public agency and involvement in a rational and critical society depend not only upon the technological systems in place, but the structures in which they are controlled.

Chapter Three aims to resituate the contemporary utopian vision of Sidewalk Labs within this dialectic, and analyze the effects of hyper-advanced technological communicative systems against the architectural grain. Here, I argue that despite promises of a digitally

distributed neighborhood, the model proposed by Sidewalk Labs reverts back to the pre-bourgeois public sphere through total centralization of data flow, and thus power. Given this conclusion, I ask what we can learn from the past about the dilemmas facing urban participatory technologies of the present and the future.

In selecting utopian cases to illustrate the overall trend towards despatialized environments, I recognize that there are inherently limitations. The corpus of technological utopian literature is far too broad to include, let alone read, every book, plan, or drawing; however, the selections I have examined include a combination of popular and obscure sources which nonetheless individually define the unique characteristics of their eras. To refine my scope, I kept the selection of spatialized utopias to within the borders of North America; Howard's *Garden City* was created in the UK, however is of such a scale of popular acceptance that I viewed it as worthy to include. Similarly, some projects, such as Hollein's *Mobile Office* and Archigram's *Walking City*, attempt to ideologically remove themselves from placement within physical boundaries, and as such I deemed them appropriate and fitting for discussion.

In selecting a small number of sources, I necessarily left many others out, forcing me to think critically about not only the projects I included, but the kinds of people who authored them. My authors were homogeneously white and male, unfortunately affirming Segal's observation in *Technological Utopianism in American Culture* in 1985 that "the technological utopians were nearly all white, Protestant, and male. There were no females and, as far as I can determine, two Jews and one Catholic and no nonwhites among them."³³ Recognizing that this limited author base also limits the diversity of perspectives on democracy and citizenship, I conclude this thesis by discussing the work of Octavia Butler as a counter-hegemonic viewpoint on technology and utopian literature, and asking what we can learn about democracy and citizenship from the valuable voices who have historically been silenced.

³³ Segal, *Technological Utopianism in American Culture*. 46

CHAPTER 1: E-SPACE, E-COMMUNICATION, E-POWER

In an interview entitled *Questions on Geography*, philosopher Michel Foucault commented that “endeavouring... to decipher discourse through the use of spatial, strategic metaphors enables one to grasp precisely the points at which discourses are transformed in, through and on the basis of relations of power.”³⁴ Foucault believed that organizations of space implicitly structure knowledge, and thus power: “Once knowledge can be analysed in terms of region, domain, implantation, displacement, transposition, one is able to capture the process by which knowledge functions as a form of power and disseminates the effects of power.”³⁵ He visualized this theory in studies of prison layouts, most notably with a discussion of Jeremy Bentham’s Panopticon, a circular plan radiating from a central, obscured surveillance tower (*figure 1.1*).³⁶ Here, the spatiality of the prison form elevated the central watchguard not only physically, but in terms of hierarchical social control. “By the term ‘Panoptism’,” Foucault writes, “I have in mind an ensemble of mechanisms brought into play in all the clusters of procedures used by power. Panoptism was a technological invention in the order of power, comparable with the steam engine in the order of production.”³⁷

The ability to read space as interconnected with structures of knowledge and embedded notions of power is not limited to carceral dystopias. The utopian city — described in a wide range of visual, literary, and spatial forms such as “a blueprint, a novel, a prospectus, a political tract, a manifesto, a philosophical discourse, an actual state, or just a plain fantasy” — is by definition a political statement, as it responds to the contemporary socio-cultural environment

³⁴ Michel Foucault and Colin Gordon, “Questions on Geography,” in *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977* (New York: Pantheon Books, 1980), 63–77.

³⁵ Foucault and Gordon. 69; Jeremy W. Crampton and Stuart Elden, eds., *Space, Knowledge and Power: Foucault and Geography* (Aldershot, England ; Burlington, VT: Ashgate, 2007). 1

³⁶ Michel Foucault, *Discipline and Punish*, 2nd Vintage books ed. (Vintage Books, 1995).

³⁷ Foucault and Gordon, “Questions on Geography.” 71

and reimagines an ideal society, space, and set of rules.³⁸ While perhaps not structuring such a strong spatial metaphor as the Panopticon, power is embedded in some level in all descriptions of space, from ancient texts to today's schemes.

In an effort to later analyze how the spatial form and knowledge structures in Sidewalk Labs' contemporary utopia shapes mechanisms for power and social control, this chapter will use this critical perspective, inspired by Foucault, to withdraw elements of power from within historical utopian plans. In doing so, this chapter narrates one dominant strain of the spatial progression of technological utopian literature: space as a parallel to the technological evolution of communication systems. It will depict an overarching trend towards the 'despatialization' of the physical urban form in contemporary visions — an inhabitation less in the physical environment and more in an imagined, intangible realm — and in turn a supposed but ambiguous similar dissolution of institutional control.

This narrative begins in the late-1800's, the technological era immediately prior to the emergence of the telephone. Ebenezer Howard's limited notion of technological communication spurred his popular *Garden City*, a centralization of utopian urban form and administrative power. The early twentieth century saw Edgar Chambless' *Roadtown*, a linear urbanism that mirrored the linearity of the early telephone and attempted to model a cooperative organization. Frank Lloyd Wright's *Broadacre City* two decades later illustrated how a fuller embrace of the spatially emancipatory powers of a fuller suite of teletechnologies allowed for a distributed urban form linked together by sprawling highways and endless telephone lines, where power became embedded in these physical and telephonic linkages. Finally, Alvin Toffler's conception of the Electronic Cottage, as described in *The Third Wave* from 1980, describes a city that exists in the realm of the Internet rather than in physical space, and offers a complex notion of individualized yet limited control.

³⁸ Ian Tod and Michael Wheeler, *Utopia: An Illustrated Survey of the History of Utopian Ideas* (New York: Harmony Books, 1978). 7

The utopian texts and projects that I have chosen to include in the conversation are not representative of all utopian thought of their eras. However, these cases are similar in so far as they use the most advanced technologies of their eras to construct urban forms which attempt to solve social and urban problems that the authors identified as significant, providing a backbone for analysis and illustrating a general evolutionary trend. Further, I recognize that these selected texts do not cover the entire chronology of communication technologies (which includes the telegraph, semaphore, the newspaper, the postal service, smoke signals, etc.). Due to the scope of my research, I chose to begin in the realm of texts formed around electric communication.

Through this spatial comparison, I argue that the transcription of power upon geometry reveals hidden elements of both the structures of power, and the form of the geometry. As the mechanics of communicative technological systems gradually depended less on an involvement with the physical environment, utopian plans also generally led to imaginations of erosion of the physicality of the city and of established forms of control.

CENTRALIZATION

In 1898, urban planner Ebenezer Howard released his seminal text that described plans for *Garden Cities*, his vision of a utopian world. These plans were hyper-centralized spaces, where all public and private institutions were situated concentrically around a central garden. Expanding from the centralized gardens lay rings of decreasingly important social spaces: the first ring contained public services such as the town hall, museum, library, theater, and hospital. After a ring containing a large park lay a ring containing the “Crystal Palace,” one of the “favorite resorts of the people.”³⁹ After this lay the residential ring, succeeded by the industrial ring, a metaphorical border to the circular city (*figure 1.2*). As historian Robert Fishman writes,

³⁹ Ebenezer Howard, *Garden Cities of To-Morrow* (London: Faber and Faber, 1898). 54

“within the clearly defined borders of Howard’s city, everything is compact, symmetrical, urban — in a word, *centralized*.”⁴⁰ This spatial form was aimed to rationalize the urban chaos that Howard saw in his day, and to extend this logic into every part of society.

Howard’s utopia, as is the case with all examples in this chapter, was heavily formalized around systems of communication. “Seeing the enormous progress which has been made in the means of rapid communication,” Howard wrote, “it is high time that we availed ourselves more fully of those means, and built our cities upon such some plan as that I have crudely shown.”⁴¹ Despite development of the telephone actively occurring while Howard was authoring his text, *Garden Cities* were constructed without any inclusion of electronic communication, and relied upon systems of communication that demanded physical and spatial propinquity. Indeed, individual and discrete *Garden Cities* were interconnected solely with enormous high speed train lines (*figure 1.3*). “These trains would not stop between the towns — means of communication for this purpose being afforded by electric tramways which traverse the high roads, of which, it will be seen, there are a number — each town being connected with every other town in the group by a direct route.”⁴²

This relatively primitive form of communication upheld the centralized power that Howard established spatially. “There is also a system of railways by which each town is placed in direct communication with Central City. The distance from any town to the heart of Central City is only three and a quarter miles, and this could be readily covered in five minutes.”⁴³ Communication became mediated by the center, restricted by limits of space, time, and regulatory planning.

Similarly to Foucault’s Panopticon, the centralized form of *Garden Cities* also inherently centralized authoritative power. Both metaphorically and physically residing at the center of the

⁴⁰ Robert Fishman, *Urban Utopias in the Twentieth Century* (Basic Books, 1977). 92

⁴¹ Howard, *Garden Cities of To-Morrow*. 145

⁴² Howard. 144

⁴³ Howard. 144

plan, the “Central Council” constituted the “rights and powers of the community as sole landlord of Garden City.”⁴⁴ This group had full control over the workings of the city, as “the powers possessed by the Central Council are... more ample than those possessed by other municipal bodies, for... the Central Council of Garden City exercises on behalf of the people those wider rights, powers and privileges which are enjoyed by landlords under the common law.”⁴⁵ With a lack of effective telecommunication technologies, and thus a dependency upon spatial modes of efficient communication, Howard depicted a centralized, hierarchical power structure, one which withdrew social and economic power from the citizens and concentrated it into a small, central group.

LINEARIZATION

With the introduction and mass ubiquity of basic telephonic systems in the early 20th century, ideas and messages were able to be easily shared without the required propinquity of the Garden City. Real-time delivery (as opposed to the temporal fragmentation of the postal service) and real-time understanding (as opposed to the necessary decoding of the telegraph) was for the first time separated from spatial proximity. This allowed for early imaginations of equality. At the same time, however, the limited capabilities and sensorial spectrum restricted the early telephone to a strict bidirectional mode of communication unusual to Howard.

The metaphor of urban bidirectionality imposed by the telephone is illustrated by Edgar Chambless’ 1910 *Roadtown* (figure 1.4). *Roadtown* proposed a reformalization of an urban environment along a linear path, consisting of an endlessly sprawling line of row houses continuously and contiguously connected by a roof-based monorail. All functional systems were contained within this uniform path: Water pipes, sewage, heating, refrigeration, gas, vacuum power, electric power, and finally telephone wires, were all laid out along the shared backbone,

⁴⁴ Howard. 92

⁴⁵ Howard. 92

creating a “civilization through pipes and wires.”⁴⁶ By containing the congestion of cities into a simple geometric organization, Chambless’ utopia envisioned a new society — a society where citizens of *Roadtown* were liberated from the hierarchical power organizations of the centralized city.

Founded on Chambless’ claim that communication, or “intelligence transmission,” is one of the “three great essentials of a new civilization” along with transportation and house building, the form of Roadtown became a physical incarnation of the communication technologies available at the time.⁴⁷ A greater spatial freedom than the previously centralized cities is provided through new technologies: “Telephones, telegraphs, teleposts, parcel-carriers, freight service, compact, punctual, prompt, accurate, enabling you to live along the line from part to part and from end to end, and be served with the best at the cheapest at all times, while sitting in your easy chair.”⁴⁸ Chambless’s world embraced technologies that limited movement of people, goods, and ideas to within a linear track from one discrete point to another, and viewed these simplified interactions as fundamental to a vision of equal empowerment and dissolution of uneven social control.⁴⁹

In Chambless’ *Roadtown*, power resides within the cooperative. He writes that “the Roadtowns will be built by the people who believe in its principles and who have money to invest at 5 per cent, or the market price of a security better than municipal bonds.”⁵⁰ While there are financial barriers to entry, ownership over the city is distributed evenly among those who reside in it, and as each resident is given a row home of exactly equal size and shape, Chambless claims that equality is inherent in the design. The collective community is again

⁴⁶ Edgar Chambless, *Roadtown* (Roadtown Press, 1910). 59

⁴⁷ Chambless. 72

⁴⁸ Chambless. 4

⁴⁹ Chambless. 70

⁵⁰ Chambless. 140

revered, as “Roadtown will be a great equalizer of present life by the removal of special privileges of the rich and those who are ‘in’ to reap where they have not sown...”⁵¹

In the pursuit of collective equality, however, individual power is rejected, leading perhaps to notions of conformity rather than social liberation. The detached villa, a house that exists outside of the strict linear form, would normally be thought of as reserved for the rich. Deviating from the spatial norm, however, is “impractical and undesirable,” for it means simply that one does not have access to shared resources and transportation, nor would one feel part of the overarching group.⁵² The linear model presents a complex notion of power for the collective and lack of power for the individual: “The Roadtown will tend to perfect transportation as applied to people, commodities, and intelligence. Highly perfected transportation means... socialism for the socialist, together with all the advantages of individualism, and individualism for the individualist, together with all the advantages of cooperation.”⁵³

As has been illustrated by Chambless’ *Roadtown* model, a limited and bidirectional usage of the telephone and other early communication technologies began to shape utopian urbanism around the relinquishment of communication from a dependence on individual, spatially-bound human interconnection.⁵⁴ As relationships to telecommunication technologies became more complex, so too did utopian imaginations of the urban form. With the development of later technologies such as the television and the radio along with the further

⁵¹ Chambless. 143

⁵² Chambless. 145

⁵³ Chambless. 169

⁵⁴ Interestingly, linearity made a reappearance decades later in both Paul Rudolph’s 1967 idea of the *Lower Manhattan Expressway*, a core megastructure straddling a highway, and Paolo Soleri’s 2012 *Lean Linear City*. Much like Chambless’ assumed spatial infinitude, *Lean Linear City* stands alone with no presupposed context; the *Lower Manhattan Expressway*, on the other hand, was an intervention directly within New York City, perhaps the epitome of urban centralization. Both projects complicate the idea of the line as an equalizing form — rather than a singular endless one-dimensional line, Rudolph proposed “seeing the city as a system, a huge, interconnected web of physical structures and transportation modes, all of which he wanted to weave together into a beautiful object.” Similarly, Soleri writes that “Lean Linear channels both the physical and the hyperphysical (civilizational and cultural) presence in self-contained complexes and intense urban ribbons capable of lining the continent in the leanest possible mode.” Paul Goldberger, “Paul Rudolph’s Manhattan Megastructure,” *The New Yorker*, November 8, 2010.; Paolo Soleri et al., eds., *Lean Linear City: Arterial Arcology* (Mayer, AZ: Cosanti Press, 2012). 20

cultural embrace of the telephone, visions of the urban form adopted higher levels of dimensionality, and modeled more complex distributions of power.

DISTRIBUTION

When the radio was invention and adopted ubiquitously into American culture in the early 20th century, visionaries began viewing communication technology not merely as a bidirectional connection between two individuals, but as an interconnection within groups, and with institutions. In doing so, these views came to define a distributed communicative and urban form, one which retained the physicality of societal institutions, yet allowed for their spatial dispersal. This reconfiguration of space again altered mechanism of social control and repositioned elements of power, by enforcing rules regarding the spatial and communicative linkages.

Frank Lloyd Wright published the initial plans for *Broadacre City* in 1932 — four years after Ebenezer Howard’s death — as a cultural and social rejection of Howard’s hyper-centralized *Garden City*, a plan that he saw being incorrectly implemented in dense urban centers.⁵⁵ Wright blamed the overcrowdedness, overcongestion, and social isolation of his urban reality on ineffective communication technologies of the past, and the misuse of contemporary technologies.⁵⁶ The demands for centralized spatial propinquity for communication from previous generations were perceived to be out of date: “Centralization itself is the old social principle that made kings an appropriate necessity and is now become the uneconomic force that overbuilt them all...”⁵⁷ *Broadacre City*, his utopian idea for “the salvation of America,” embraced “universal automobilization, ubiquity of movement, thought voice and vision now penetrating distance and walls” to distribute the social and economic

⁵⁵ Frank Lloyd Wright Foundation, “Revisiting Frank Lloyd Wright’s Vision for ‘Broadacre City,’” Frank Lloyd Wright Foundation, Spring 1991.; Frank Lloyd Wright, *The Disappearing City* (W.F. Payson, 1932).

⁵⁶ Frank Lloyd Wright, *The Living City* (Horizon Press, 1958). 64, 67

⁵⁷ Wright. 31

requirements of the city across all of America, creating what he believed to be the ultimate democratic environment.⁵⁸

Wright described partitioning an unlimited, borderless landscape into one acre parcels, inhabited and maintained by each individual family. Athletic clubs, schools, government offices, factories, aquariums, clinics, and country clubs were spread out evenly and indeterminately across the limitless horizontal (*figure 1.5*).⁵⁹ These destinations — perceived as nodes — were linked together by massive, sweeping motorways. Wright envisioned that in this automobile-centric plan, the gas station naturally adopted a central position as a social and cultural organization, and as such was dispersed often throughout *Broadacre*. As a rejection to earlier times when “human intercommunication could only be had by direct personal contact” and “commercial or social communication was slow and difficult,” these nodes were also connected through a complete embrace of the telephone, television, and radio as substitutes for many social and economic needs.⁶⁰ A node-based spatial approach allowed Wright to perceive of the city as a metaphor for equality, where “each and every citizen would become the center of his or her city.”⁶¹

Despite his passionately worded claims, Wright never dreamed of destroying the city — instead, he reconfigured the traditional functions of the centralized city to be “spread out far away and thin,” where “any citizen may choose any form of production, distribution, self-improvement, enjoyment, within the radius of say, ten to forty minutes of his own home...”⁶² Historians Ian Tod and Michael Wheeler state that “Wright retains all of the benefits of the city and private enterprise industry, linking them all up with the wonders of modern transport.”⁶³ Spatial distribution, paired with extreme communicative interconnectedness, led Wright to

⁵⁸ Wright. 84

⁵⁹ Frank Lloyd Wright, *Broadacre City* (New York: Horizon Press, 1958).

⁶⁰ Wright. 90

⁶¹ Michiel Dehaene, “Broadacre City: The City in the Eye of the Beholder,” *Journal of Architectural and Planning Research* 19, no. 2 (2002): 91–109. 91

⁶² Frank Lloyd Wright, *Writings and Buildings*, Meridian Book. (World Publishing, 1960). 161;

⁶³ Tod and Wheeler, *Utopia: An Illustrated Survey of the History of Utopian Ideas*. 137

believe that “given modern electrification, distance is all but annihilated so far as human communications go... Radical change in the entire basis of civilization.”⁶⁴ Countering “centralization as the ideal of monarchy,” Wright wrote of the inherent democratic strengths of a distributed plan, with “many free units developing strength as they learn to function and grow together in spacious, mutual freedom.”⁶⁵

Wright’s reconceptualization of space as a series of interconnected social institutions foreshadowed the notion of spatial distribution defined in modern cybertheory. Paul Baran, an early UNIVAC engineer and pioneer in the development of computer networking, advocated for the distributed model of computer connection, rather than having a centralized mainframe within which other terminals connected back to. Joining the RAND Corporation in 1959, the same year that Wright died, Baran was tasked with designing the “digital transmission systems of the future,” aimed to withstand nuclear attacks during the Cold War.⁶⁶ The computer networks prior to Baran’s involvement linked many individual computer terminals to a centralized mainframe, which was an easy target for Soviet bombing to wipe out all military and governmental communications (*figure 1.6a*). Even a decentralized approach composed of interconnected node clusters (*figure 1.6b*) proved easily susceptible to destruction, for the removal of as few as one or two nodes can disconnect many other node clusters, bringing down the entire system. Baran reimagined the spatial composition of computer communications by linking each computer node directly to a finite number of other nodes, thereby erasing any dependency upon one specific node (*figure 1.6c*). Not only did this distributed perception increase the flexibility, efficiency, and adaptability of the larger communicative structure, but it dissolved notions of a centralized, dominating power: “The links could also be cut and altered,

⁶⁴ Wright, *The Living City*. 64, 67

⁶⁵ Frank Lloyd Wright, *When Democracy Builds* (University of Chicago Press, 1945). 45-46

⁶⁶ Paul Baran, “On Distributed Communication Networks” (Santa Monica, CA: RAND Corporation, September 1962). 2

yet the network would relearn... There is no central control; only a simple local routing policy is performed at each node, yet the overall system adapts.”⁶⁷

While Baran’s proposed combination of telephone wires, buried cable, satellite links, microwaves, and television stations composing “a wide mixture of different digital transmission links [that] combined to form a common resource divided among many potential users” succeeded in increasing the system’s overall resiliency, it also defined a new structure of power.⁶⁸ In a centralized connection model, such as Howard’s *Garden City* or a mainframe computer server, whomever owns the central node controls the flow of information. Baran reconfigured this perspective to embed communicative power not within any individual master node, rather within the “universal standardization” of the linkages used to organize the multidimensional movement of data.⁶⁹ Control — such as what can be communicated, how, and to whom — became a product of rules, rather than ownership. In Baran’s computer network system, as is the case in Wright’s utopian vision, whomever dictates the specifications of the universal standardizations controls the flow of information.

Wright envisioned the kernel of democracy lying within “true individual independence,” where every citizen in *Broadacre* — indeed, every node — had equal spatial and economic freedom.⁷⁰ Without a centralized power, citizen control became moderated by how the individual could communicate with others and maneuver to different spatial nodes — power became tied to teletechnology and superhighway standards. So while Wright claims that a total dispersion of social institutions led to mass equality, it actually constructs systems that, as seen in Baran’s network analogy, wield power to those who construct the infrastructure. Government is typically the source that establishes regulations; however, Wright’s plan effectively erases

⁶⁷ Baran. 37

⁶⁸ Baran. 24

⁶⁹ Baran. 25

⁷⁰ Wright, *The Living City*. 25

government. Wright is well known as having an outsized ego; as such, it is not a surprise that he envisioned himself (“the Architect”) as the ultimate, concentrated authority.⁷¹

DESPATIALIZATION

From 1932 until his death in 1959, Frank Lloyd Wright envisioned the use of telecommunication technologies as causing “the death of distance.”⁷² With the invention and ubiquity of the Internet as the successor to the telephone, television, and radio, new visions of the urban form began to lead to imaginations of an annihilation of space itself. Although the Internet as a useful and near-ubiquitous tool didn’t occur until the early 1990’s, its function — of allowing a user to communicate and share high resolution knowledge with any other user with a terminal, anywhere in the world — had been envisioned a decade earlier, and with it a parallel vision of a society completely removed from its physical environment. Accompanying this aspatial utopian urbanism (if one can call such a non-physical plan “urban”) was a model of power in which every individual with an advanced level of technological know-how, rather than a government or third party, had full control over themselves.

Alvin Toffler, a businessman, writer, and futurist, laid out his plans for life shaped around a mass-interconnected network of computers in his 1980 book *The Third Wave*. Toffler presciently discussed the Telecomputing Corporation of America’s proto-Internet service simply called “The Source.”⁷³ This software would be installed on a user’s home desktop computer, and “for minuscule costs provide the computer user with instant access to the United Press International news wire; a vast array of stock and commodity market data; education programs to teach children arithmetic, spelling French German or Italian; membership in a computerized

⁷¹ Wright. 112

⁷² Frances Cairncross, “The Death of Distance,” *The Economist*, September 30, 1995.

⁷³ David Carlson, “The Source,” 2009.

discount shoppers' club; instant hotel or travel reservations..."⁷⁴ While these features, typical of the present-day Internet, were groundbreaking for the time, the "most popular category is communications."⁷⁵ Embracing this notion, in the early 1980's The Source developed the ability to communicate within private networks, allowing intimate groups of users the potential to "communicate, disperse news and information quickly, transmit files and hold closed teleconference. In effect, these groups became their own systems operators within the larger network."⁷⁶

The Source was founded just two years before Toffler published his book; however, that did not stop him from imagining its full potential and illustrating a society constructed around ubiquitous usage of what the tool could become. Toffler saw his contemporary world plagued by the residual effects of Frank Lloyd Wright's own automobile-centric vision, with "mass transit systems strained to the breaking point, roads and highways clogged, parking spaces rare, pollution a serious problem, strikes and breakdowns almost routine, and costs skyrocketing."⁷⁷ He offered his vision as a rejection against the idea of America as an endless expanse fit for decentralized sprawl; as a rejection against "the growth of privatism and the new allure of small-city and rural life" which Wright championed.⁷⁸ Toffler's imagination was of a society that interacted, communicated, socialized, and conducted business entirely on the digital ecosystem offered by the Internet. Rather than demand physical, discrete spaces for individualized societal needs, the digital age meant that any person with access to an Internet-connected computer terminal could inhabit virtual reflections of the same, previously spatially-dependent social, cultural, and economic institutions.⁷⁹ Toffler's world was structured around computer terminals based out of an individual's home. He believed that society would return to a pre-industrial

⁷⁴ Alvin Toffler, *The Third Wave*, 1st ed. (Morrow, 1980). 186

⁷⁵ David Carlson, "The Source," 2009.

⁷⁶ Carlson.

⁷⁷ Toffler, *The Third Wave*. 216

⁷⁸ Toffler. 219

⁷⁹ William J. Mitchell, *E-Topia* (MIT Press, 1999).

“Electronic Cottage” industry where the majority of people would work in the new “information sector” and could maintain their entire economic and social livelihood without leaving their house.⁸⁰ Cities would become relics of the past, like archeological museums of a past age.⁸¹

Despite this striking reconceptualization of space, Toffler never provided any visual imagery for his utopia. This is intentional, for his imagined society is entirely independent from physical form, and embodies a theory I call ‘despatialization.’ Despatialization describes a non-physical environment, in this case the Internet, in which every facet of life — interpersonal interaction, economic generation, cultural consumption, etc. — take place. This is a loose definition, one that aims to conceptualize a moment rather than be entirely accurate; physical movement, for example, cannot take place online (although virtual reality threatens to change that too).

DATASPACE CONSTRUCTED

While Toffler was unable to visualize his despatialized utopia, some of his contemporaries did. Embracing the fact that a despatialized society cannot take the traditional visual forms of maps, plans, and drawings that we have seen in all past cases, Hans Hollein’s *Mobile Office* and Steven Roberts’ *Winnebiko* series both illustrate attempts to bring the elusive despatialization that Toffler articulated into the real world through physical manifestations.

⁸⁰ Toffler, *The Third Wave*. 215; Manuel Castells, *The Informational City* (B. Blackwell, 1989). 13

⁸¹ Complicating the logic of the Internet as erasing space, there is actually an abundance of physical infrastructure required for supporting the platform for a virtual environment: “As part of this transformation, cities are being filled with what Judy Hillman calls ‘gigantic invisible cobwebs’ of optic fibre, copper cable, wireless, microwave and satellite communications networks. The corridors between cities, whether they be made up of land, ocean, or space, are in turn developing to house giant lattices of advanced telecommunications links. These connect the urban hubs together into global electronic grids. Such grids now encircle the planet and provide the technological basis for the burgeoning flows of global telecommunications traffic: voice flows, faxes, data flows, image flows, TV and video signals. Instantaneous electronic flows now explore into the physical spaces of cities and buildings and seem to underpin and cross-cut all elements of urban life.” Stephen Graham and Simon Marvin, *Telecommunications and the City: Electronic Spaces, Urban Places* (London: Routledge, 1996). 3; Hu, Tung-Hui. *A Prehistory of the Cloud*. Cambridge, Mass: MIT Press, 2016.

In 1969, avant-garde architect Hans Hollein was filmed disembarking an airplane and walking to a grassy spot at the airport. He opened his suitcase and pulled out a transparent piece of folded plastic, which he then connects to a portable compressed air machine. Crawling into the inflating bubble, Hollein begins to take phone calls and work on architectural drawings. At its final state, the bubble stands vertically around Hollein, fully engulfing him yet remaining see through and passive, almost nonexistent (*figure 1.7*).⁸² *Mobile Office* aimed to show that advanced telecommunication technologies proved static, permanent architecture redundant — that one could engage in an unbroken stream of life irrespective of physical environment. “Instead of built architecture, Hollein conceives an immaterial architecture of pure affects — a kind of exceeding atmospheric simulation.”⁸³ Similarly, *Mobile Office* also formally defines Toffler’s prediction that constant access to communication will cause work and life to merge. “[Hollein’s] workplaces have no boundaries: his office is not only everywhere and mobile but also extended,” writes architectural theoretician Andreas Rumpfhuber; “Living and working become one and the same.”⁸⁴

Perhaps the most extreme physical incarnation of Toffler’s despatialized city was Steven Roberts’ *Winnebiko* series, initially created three years after the publication of Toffler’s book.⁸⁵ Roberts adapted Toffler’s idea of information as a detached entity from the spatial city and built it around a bicycle, allowing him to take his informational environment with him wherever he chose on his “electronic cottage on wheels” (*figure 1.8*).⁸⁶ Roberts, who called himself a “high-tech nomad,” claimed to “live in a world that is part bicycle, part computer network, and part kaleidoscopic amalgam of lifestyles that span the full spectrum of human behavior.”⁸⁷ This utopia envisions a world not only without functional cities, in accordance with Toffler, but goes

⁸² Hans Hollein, “Mobile Office,” *Das österreichische Portrait*, 1969.

⁸³ Andreas Rumpfhuber, *Into the Great Wide Open* (Barcelona: dpr-barcelona, 2017). 44

⁸⁴ Rumpfhuber. 42-43

⁸⁵ Steven Roberts, “Computerized Bicycles, 1983-1991,” *Nomadic Research Labs* (blog), accessed October 19, 2018.

⁸⁶ Steven Roberts, “Electronic Cottage on Wheels,” *Whole Earth Review*, March 21, 1987.

⁸⁷ Roberts, “Electronic Cottage on Wheels.”

one step further and imagines a world without houses, without any fundamental connection to a physical space. It imagines a society completely liberated: from space, from others, from hierarchy. The technologized bicycle — not too far off from the smartphones of today — becomes the societal unit; the human becomes the city. As Roberts says in a 1988 interview, “I’ve come to think of home as ‘Dataspace,’ which is this global vaporous network where geography has no significance, other than the hill that you’re climbing at the moment.”⁸⁸

It is difficult to locate where within these various visualizations of ‘Dataspaces’ power resides, as the forms are so individualistic and the users are so separated from others. Certainly, those who construct the virtual platforms hold much of the power, as is the case with the contemporary Internet. However, in despatialized utopia as imagined by Toffler, Hollein, and Roberts, the majority of power is found in the individual, in a way that is at once both truly liberating and oppressively limiting. Toffler writes that the Electronic Cottage Industry runs counter to the bureaucratic “fortress of managerial power” established in the earlier industries. “Demands for participation in management, shared decision-making, for worker, consumer, and citizen control, and for anticipatory democracy are welling up in nation after nation.”⁸⁹ When everyone has the capabilities to generate and freely disseminate information, power structures get turned on their head and deconcentrated. “Managers become more and more dependent upon information from below,” writes Toffler. “Elites themselves, therefore, are becoming less permanent and secure.”⁹⁰

This liberatory power to the individual, however, does not come without stipulations. Inhabiting a fully virtual world demands fluency in the technics of virtual environments, something many lack or do not wish to obtain. Roberts’ technologized bicycle allowed him infinite personal freedom; however, his final version involved 160 corporate sponsors and

⁸⁸ Steven Roberts, “Computing Across America,” *Bernson’s Corner* (Louisville, KY: WHAS11, April 1988). 2:20

⁸⁹ Toffler, *The Third Wave*. 83-84

⁹⁰ Toffler. 84

required “fiberglassing, sheet-metal fabrication, machining, FORTH software, system architectures, harsh-environment packaging, networking, bike tech, power management, embedded systems, audio processing, haptic interfaces, antenna design, and more.”⁹¹

Furthermore, differing abilities of technical knowledge unfairly stratifies social groups. In the late 19th century, women had been perceived to understand the mechanics of the telephone less than men, and accordingly “demonstrated the reassuring conclusion that women would always depend on male prowess to conquer the world for them.”⁹² Similarly, the hyper-complex technological systems proposed by Toffler, Hollein, and Roberts inherently demand a hyper-complex knowledge in order to gain power; otherwise, the user becomes slave to the machine.

SPACE AND CONTROL

This chapter aimed to illuminate the connections between the evolution of communication technology, utopian urban form, and embedded structures of power, to provide a foundation for critically analyzing the spatiality and inherent elements of control in Sidewalk Labs’ contemporary utopian plan. As technology progressed from low-bit, bidirectional communicative systems to interconnected networks of high-resolution communication data, and finally to hyper-advanced virtual simulations of the real world, ideas of urban imagery progressed similarly. Traditional, centralized concepts of power become challenged as decentralized, distributed, and despatialized forms overcome. As a mega-corporation, Alphabet Inc., Sidewalk Labs’ parent company, is perhaps one of the most centralized forms of power today. What form does their utopian city take? In an effort to fully realize their plan, to what extent does Sidewalk Labs implement notions of despatialization, and to whose benefit? Before examining these question, the next chapter will explore notions of publics and the Habermasian

⁹¹ Steven Roberts, “Behemoth: Big Electronic Human-Energized Machine... Only Too Heavy (1989-1992),” *Nomadic Research Labs* (blog), accessed December 14, 2018.

⁹² Carolyn Marvin, *When Old Technologies Were New* (Oxford University Press, 1988). 30-31

public sphere as represented in utopian plans. Just like space, publics are also embedded deeply and inseparably from power, social control, and desires for liberation.

IMAGES

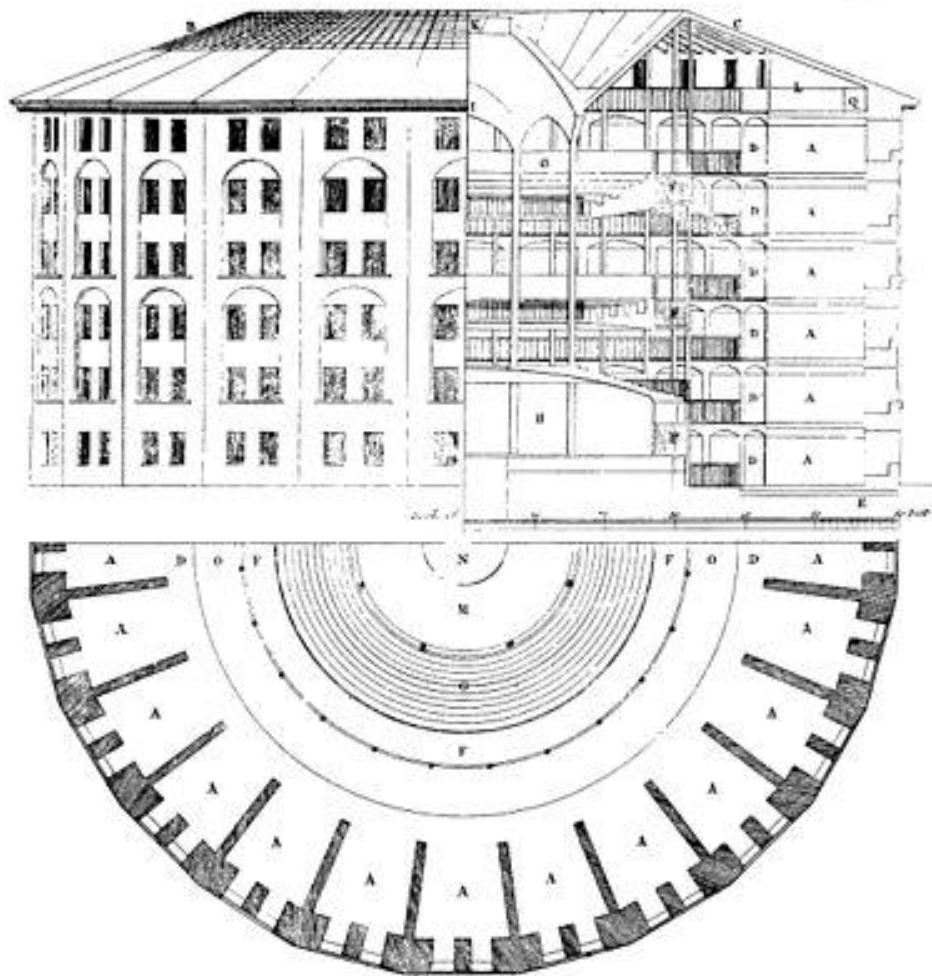


Figure 1.1 - Elevation, section and plan of Jeremy Bentham's Panopticon penitentiary.

Drawn by Willey Reveley, 1791 in Bentham, Jeremy, and Sir John Bowring. *The Works of Jeremy Bentham*. W. Tait, 1843. 172-173



Figure 1.2 - Concentric plan of a typical Garden City, depicting spatial and social hierarchy.

Howard, Ebenezer. *Garden Cities of To-Morrow*. London: Faber and Faber, 1898. 53

N^o 5.

DIAGRAM

**ILLUSTRATING CORRECT PRINCIPLE
OF A CITY'S GROWTH - OPEN COUNTRY
EVER NEAR AT HAND, AND RAPID
COMMUNICATION BETWEEN OFF-SHOOTS.**

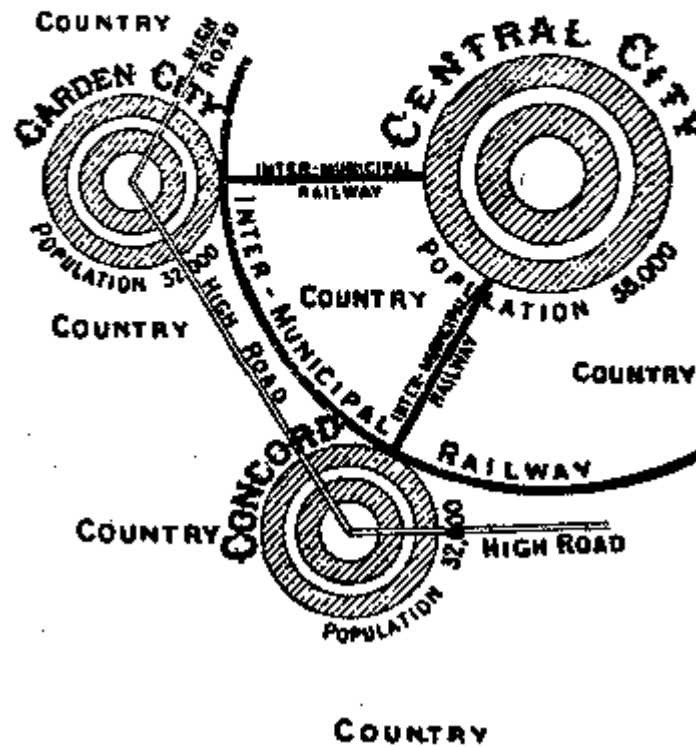


Figure 1.3 - Garden Cities interconnected with spatially-bound communication technologies.

Howard, Ebenezer. *Garden Cities of To-Morrow*. London: Faber and Faber, 1898.

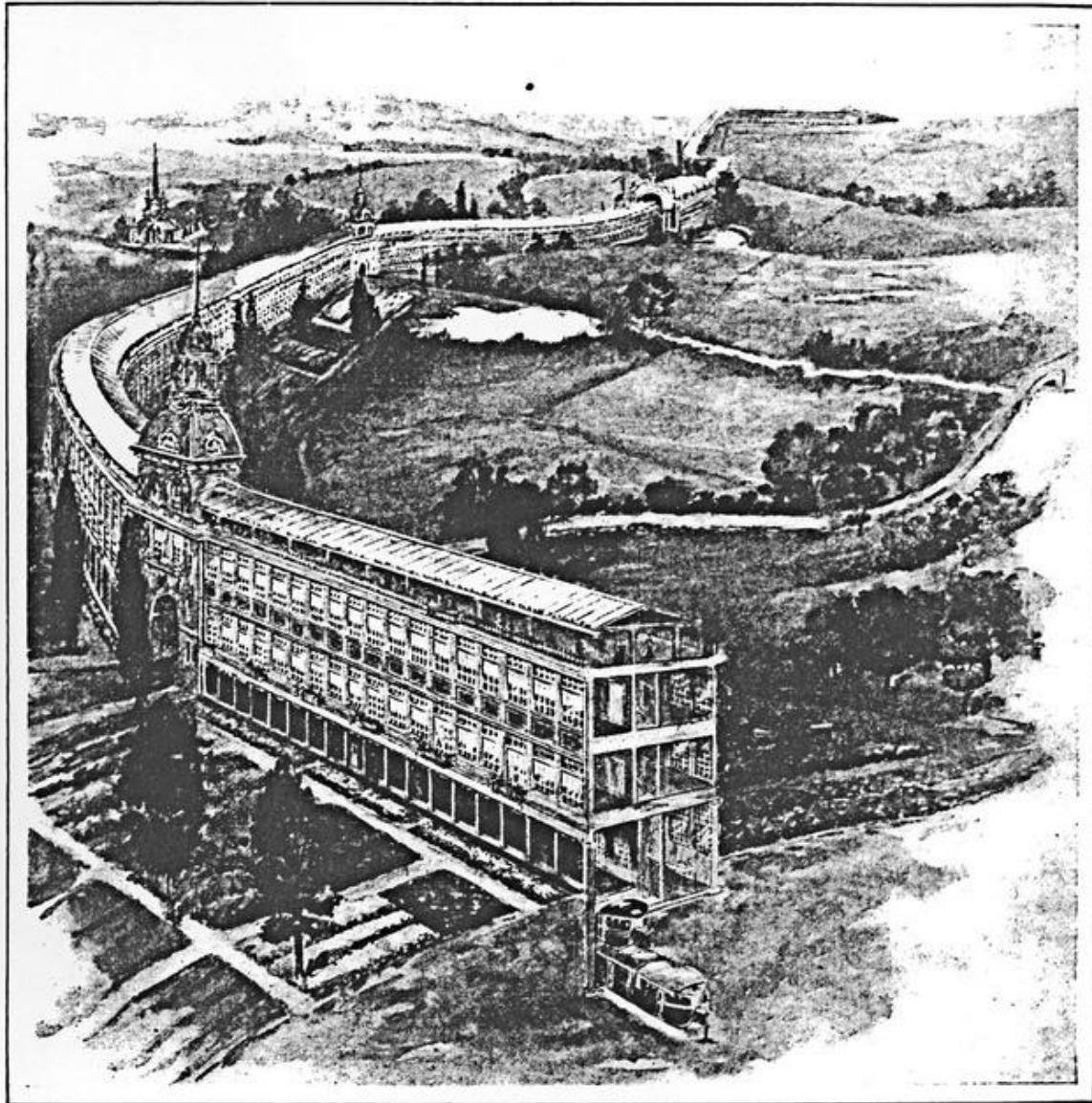


Figure 1.4 - View of Roadtown as a spatial metaphor for bi-directionality.

Drawn by Milo Hastings in *The Independent*, 1910.

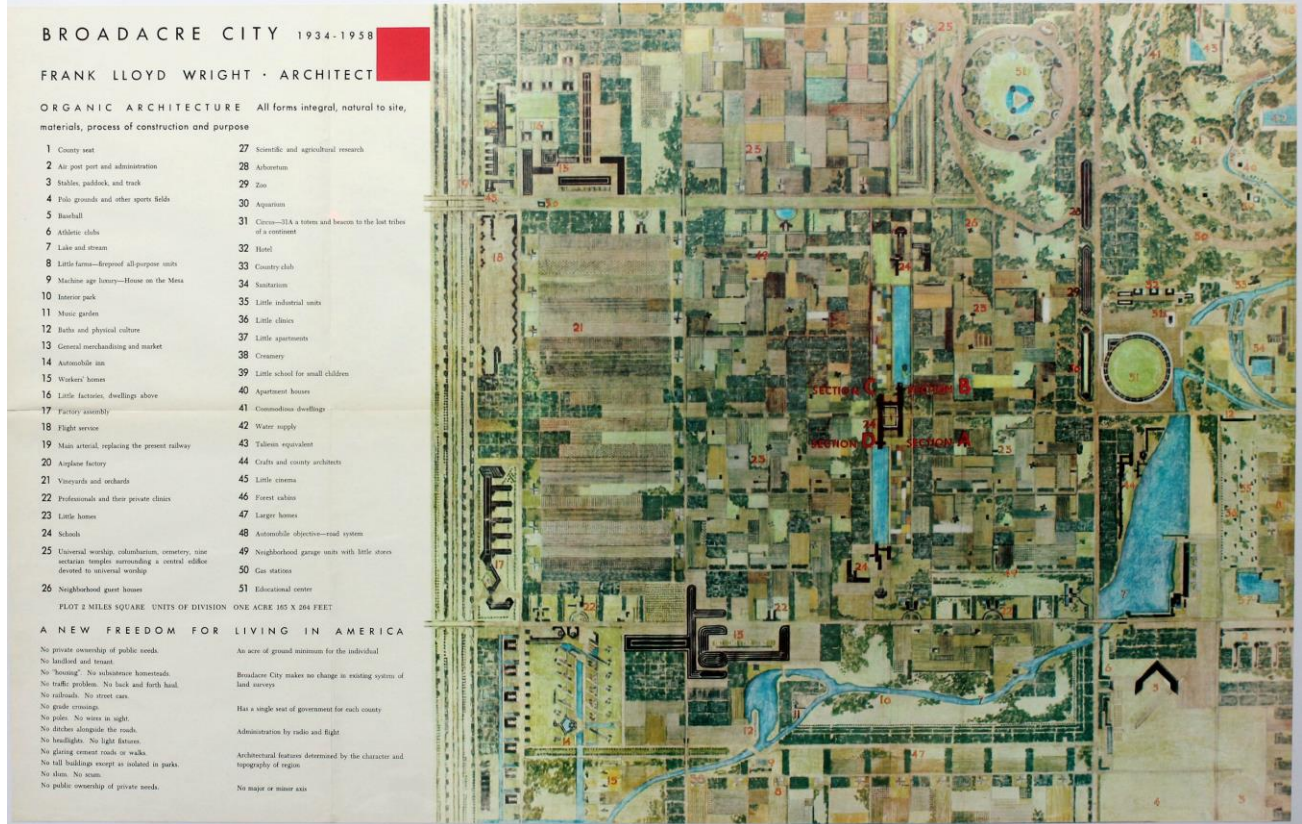


Figure 1.5 - Broadacre City's distributed and interconnected personal-cities.

Wright, Frank Lloyd. *The Living City*. Horizon Press, 1958.

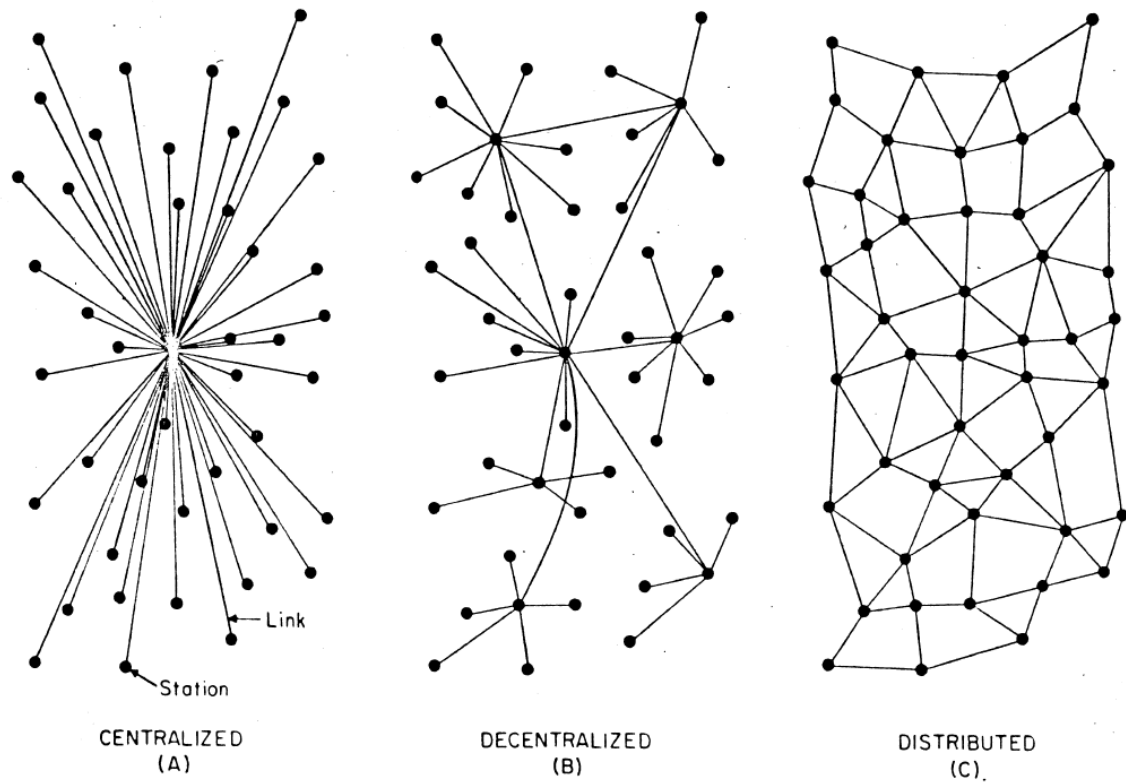


Figure 1.6 - Progressional diagrams moving towards a distributed network, depicting increased resiliency, flexibility, and modularity.

Baran, Paul. "On Distributed Communication Networks." Santa Monica, CA: RAND Corporation, September 1962. 4



Figure 1.7 - Hollein's aspatial Mobile Office; reconceptualizing work as life.

Photograph by Gino Molin-Pradl via Archive Hollein, 1969.

<http://www.hollein.com/eng/Architecture/Chronology/early-projects/Mobiles-Buero-Mobile-Office>



Figure 1.8 - Winnebiko II; the city as people without space.

Photograph by Dan Burden in Roberts, Steven. "Anatomy of the Winnebiko II." *Nomadic Research Labs* (blog), March 16, 1987. <https://microship.com/anatomy-of-the-winnebiko-ii/>.

CHAPTER 2: UTOPIA AND PUBLICS

The transition from linear to distributed space, as imagined by utopian thinkers and described in the preceding chapter, embodied an intersection among changing communication technologies, despatialization of urban form, and re-establishments of power. Chambless, Wright, Roberts, and other thinkers visualized their schemes with drawings, maps, diagrams, and in some cases machines, and in these ways we can understand the ideologies embedded within the spaces they describe. In these ideas, however, radical changes of urban spaces were not the only end goals; rather they were platforms for enacting their broader visions of functioning societies that ran counter to the social, political, and economic ills of the contemporary days in which the thinkers lived.

In narrating the spatial evolution of technologies of utopian space, I conducted a spatial analysis on the plans, reading against the more formal architectural grain with an attempt to hold constant my mode of critical analysis. In a similar fashion, critically interrogating the societal constructions of the technologies of utopia as described by the authors reveals greater insight into what public space, and indeed communication itself, looks like in these societies. In this chapter, I will introduce the social theory of the public sphere as conceived by sociologist Jürgen Habermas as a means to explore definitions of public, citizenship, democracy, and, ultimately, power. I will discuss Habermas' understanding of a public as an extension of physical space and communication technologies, and show that the trend of despatialization as tracked in the previous chapter leads to a contrasting narrative of a strengthening public sphere. Additionally, I find that advancing technology alone is not enough in establishing and maintaining publics; rather, the power structures guiding technologies, which in turn manipulate communication, can be used as a weapon.

After a discussion establishing Habermas' theory of the public sphere in relation to changing communication technologies and conceptions of space, I will analyze the imagined

models of publics within a series of utopian cases. I begin with Edward Bellamy's *Looking Backward*, an 1888 vision of Boston in the future. I find that, despite imaginations of relatively advanced communication technologies, overbearing governmental control intentionally limits the freedom of such use, thereby erasing a notion of the public. I then bring in the 1960's avant-garde architecture group Archigram and discuss their *Walking City* project, amongst others. Paralleling the late stage of Habermas' public sphere, these projects present an anarchistic perspective on urban communications that, through a contrasting lack of media control, similarly destroys the public.

DEFINING A PUBLIC

Although only translated to English in 1989, 27 years after the original publication in German, Jürgen Habermas' seminal book *The Structural Transformation of the Public Sphere* aimed to define participatory public citizenship.⁹³ Sociologist Craig Calhoun claims that this work has been deeply influential in shaping thought on “problems of the relationship of state and civil society, the origins of and prospects for democracy, and the impact of the media.”⁹⁴ In *The Structural Transformation*, Habermas aims to elucidate the complexities embedded in the term ‘public’, and show how different sociocultural eras have embodied varying levels of publics. Fundamentally, Habermas introduces the notion of the ‘public sphere’ as the collective thought of private individuals coming together and engaging in rational-critical discourse. Subsequent critics such as sociologist Manuel Castells have labelled the public sphere as “the space of communication of ideas and projects that emerge from society and are addressed to the decision

⁹³ Jürgen Habermas, *The Structural Transformation of the Public Sphere*, Studies in Contemporary German Social Thought. (MIT Press, 1989).

⁹⁴ Craig J. Calhoun, ed., *Habermas and the Public Sphere*, Studies in Contemporary German Social Thought (Cambridge, Mass: MIT Press, 1992). vii

makers in the institutions of society.”⁹⁵ A functioning public sphere, in other words a public that is able to think critically about hegemonic governmental rule, is a platform for the creation of public opinion, defined as a vehicle of political communication intended to put the goals of the state in line with the desires of the society.⁹⁶ Therefore, according to the social theory, a functioning public sphere is vital to a true democratic society.⁹⁷ In this model, structures of power typical to hierarchical rule are flattened; for a public sphere to be a successful tool for a public to assert itself politically, it must “let arguments and not statuses determine decisions.”⁹⁸

I acknowledge that Habermas’ understanding of the public as laid out in *The Structural Transformation* is limited, and often criticized. Habermas’ views on the role of women in the public sphere, for example, are exclusionary, as is his ignoral of minority groups.⁹⁹ Additionally, there are those who believe that a functioning democracy requires action rather than merely discussion.¹⁰⁰ By utilizing Habermas’ framework of embedding structures of public discourse within architectural and communicative systems, however, I maintain a consistent mode of analysis among utopian urbanist literature, of the past and of today. Utopian theorists construct their own systems of political and social engagement, and so Habermas’ spatial definition of the public sphere — with both utopian and factual elements — provides a strong foundation for analysis.

Habermas narrates a progression that begins with historical models of public space, which, through their limited structural capabilities to support rational-critical debate, failed as

⁹⁵ Manuel Castells, “The New Public Sphere: Global Civil Society, Communication Networks, and Global Governance,” *The Annals of the American Academy of Political and Social Science* 616, no. 1 (March 2008): 78–93.

⁹⁶ Historian Keith Baker defined public opinion as “the universal reason of the generality of thinking individuals continuously engaged in open discussion. Under its aegis, power and domination in human life were to give way to free acceptance of the enlightened order of human rationality.” Keith Baker, “Defining the Public Sphere in Eighteenth-Century France” in Calhoun, *Habermas and the Public Sphere*. 183

⁹⁷ Habermas, *The Structural Transformation of the Public Sphere*. 30-31

⁹⁸ Calhoun, *Habermas and the Public Sphere*. 1

⁹⁹ Lincoln Dahlberg, “The Habermasian Public Sphere and Exclusion: An Engagement with Poststructuralist-Influenced Critics,” *Communication Theory* 24, no. 1 (June 5, 2013): 21–41. 2

¹⁰⁰ Michael Schudson, “Was there Ever a Public Sphere?” in Calhoun, *Habermas and the Public Sphere*. 144; Sherry Arnstein, “A Ladder of Citizen Participation,” *Journal of the American Planning Association*.

platforms for effective public spheres. This progression leads to the bourgeois public sphere as a unique entity among other historical conceptions of publics: “We conceive bourgeois public sphere as a category that is typical of an epoch. It cannot be abstracted from the unique developmental history of that ‘civil society’ originating in the European High Middle Ages; nor can it be transferred, idealtypically generalized, to any number of historical situations that represent formally similar constellations.”¹⁰¹ In a comparative fashion to the utopianists analyzed in the previous chapter, Habermas’ conception of the public sphere of the European bourgeois class in the late-eighteenth and early-nineteenth centuries imagined an ideologically structured perfect society, if only for a brief era. Habermas’ described bourgeois public sphere does not exist in our contemporary moment, however, and was a product of the social, political, spatial, and technological factors of the time. Despite much of *The Structural Transformation* elaborating on the creation and destruction of the bourgeois public sphere, that discrete era can be thought of as a utopian vision. This unique account — one which ties power and public with both historical and utopian perspectives — provides a foundation for examining the roles of communication and social control present in Bellamy’s *Looking Backward* and Archigram’s utopian work.

What differentiates Habermas’ utopian society from the myriad urban plans discussed in the previous chapter is the spatial ambiguity of Habermas’ vision. The public sphere is not a space: Habermas does not touch on whether a city resembling a line or a network would uphold his vision better, nor does he attempt to construct his idealized vision in spatial terms. “In Habermas’s account... the ideal public sphere is deemed universal,” Neil Smith and Setha Low write, “and thereby, in any meaningful sense, spatially undifferentiated.”¹⁰² Smith and Low argue that this “lost geography” of political thought necessarily comes with a diminishment of

¹⁰¹ Habermas, *The Structural Transformation of the Public Sphere*. xvii

¹⁰² Setha M. Low and Neil Smith, eds., *The Politics of Public Space* (New York: Routledge, 2006). 5

meaningful political engagement, however partial.¹⁰³ Reconceptualizing the public sphere as an outcome of physical public space, they claim, acknowledges that “its emergence clearly has a history, but it has an equally clear geography. Once recognized, that spatiality of the public sphere potentially transforms our understanding of the politics of the public.”¹⁰⁴

I agree that the notion of the public sphere is intricately linked to spatial constructions, and demands to be located within public space. As we will see in the next section, Habermas established truly public spaces in coffeehouses, salons, reading societies, theaters, and museums, among others. I will track Habermas’ historical account of the development of publics as defined by space with the similar spatial progression tracked in the previous chapter, depicting an overall trend from centralization towards distribution.

Additionally, communication is viewed as fundamental to maintaining a public. For a public (a group of private individuals engaged in productive and critical discourse) to uphold public opinion, discretized groups must be connected. Spatially separated groups, whether they are organized into coffeehouses, salons, or other spaces (as will be discussed), can only sustain a greater collective conversation when these physical boundaries are gapped by newspapers, journals, and other communicative media and technology. As stated by sociologist Nicholas Garnham, “the rights and duties of a citizen are in large part defined in terms of freedom of assembly and freedom to impart and receive information.”¹⁰⁵ Furthermore, he argues that “without such freedoms it would be impossible for citizens to possess the knowledge of the views of others necessary to reach agreements.”¹⁰⁶ Habermas agrees with these thoughts on the importance of communication systems, stating that “the media, like the press, which provide communication among members of the public, may be counted as ‘public organs.’”¹⁰⁷

¹⁰³ Low and Smith. 6

¹⁰⁴ Low and Smith. 6

¹⁰⁵ Nicholas Garnham, “The Media and the Public Sphere” in Calhoun, *Habermas and the Public Sphere*. 364

¹⁰⁶ Nicholas Garnham, “The Media and the Public Sphere” in Calhoun. 364

¹⁰⁷ Habermas, *The Structural Transformation of the Public Sphere*. 2

Integral to Habermas' understanding of publics, then, are notions of public space and public communication. Hence, looking at the bourgeois public sphere not as the archetypal and sole model of a functioning public sphere but rather as a phase in an evolution, we see that the historical narrative Habermas describes in *The Structural Transformation* following the rise and fall of the bourgeois public sphere parallels a similar spatial and communicative progression to that of technological utopias. I find that despatialization of the public sphere in terms of constructions of public space leads to an enrichment of the public sphere and the creation and eventual downfall of the bourgeois public sphere as the height of a public engaged in productive rational-critical discourse.

NARRATING A SPATIALIZED PUBLIC

Habermas' construction of the public sphere around a notion of evolving spatial and communicative form begins with a description of Ancient Greek public space, the foundations for the earliest generally recognized large-scale functioning democracy. Social interaction in the Greek *polis* took place in the *agora*, the central hub for interaction, socialization, and business.¹⁰⁸ Habermas distinguishes the public life present in this realm from the private sphere in Greek city-states, known as *oikos* (home). With centralization of form came centralization of power: "Rights in the polis were highly restricted to a very narrow and privileged social class recognized as free citizens, and many others were excluded — women, slaves, and the throng of common people."¹⁰⁹ The physical spatiality of the *polis* centering around the *agora* served as a stage to further stratify the social inequalities of the few powerful to the many powerless.

With the development of the French castle park in the mid-seventeenth century, the imagery of public and private became more strongly defined. The castle park (*figure 2.1*)

¹⁰⁸ Calhoun, *Habermas and the Public Sphere*. 4; Habermas, *The Structural Transformation of the Public Sphere*. 3

¹⁰⁹ Low and Smith, *The Politics of Public Space*. 4

presents itself as an image of impenetrable private space embedded within an open public realm, and indeed that reflected how this typology functioned in France: “Like the baroque palace itself, which was built around the grand hall in which the festivities were staged, the castle park permitted a courtly life sealed off from the outside world.”¹¹⁰ Intentionally protective and secretive, the iconography of the castle contrasted with the communal environment of the surrounding park. While political discourse and decision making at this point took place exclusively by the aristocratic class within the walls of the castle, “the common people, content to look on, had the most fun. Thus even here the people were not completely excluded; they were ever present in the streets.”¹¹¹ As an early understanding of public space, this plan is structured in a linear, single-directional manner; discourse originates within the castle, and is presented to the public with no intention for response or integration.

The restrained public media present in mid-seventeenth century France also limited the ability for individuals to engage in critical discursive activity. Public arts such as dance and theater were concentrated within the enclosures of the castles parks. The lack of infrastructure upholding public critical discourse, however, meant that this media was also one-directional and linear — passed from the central aristocracy to the individual, with no room for public opinion.¹¹²

Finally, Habermas’ developmental arc of the bourgeois public sphere solidified in the French salons, the London coffeehouses, and the German *tischengesellschaften* (table societies) of the late-eighteenth and early-nineteenth centuries. Members of this public sphere were for the first time not just propertied and educated businessmen but “the wider strata of the middle class, including craftsmen and shopkeepers” who benefitted from opinion becoming

¹¹⁰ Habermas, *The Structural Transformation of the Public Sphere*. 10

¹¹¹ Habermas. 10

¹¹² Habermas. 9; Keith Baker, “Defining the Public Sphere in Eighteenth-Century France” in Calhoun, *Habermas and the Public Sphere*. 193

“emancipated from the bonds of economic dependence.”¹¹³ These social institutions provided platforms for collections of individuals to spatially transcend their individuality and come together as a public.

Development of more advanced communication technologies served as an integral platform for supporting the newfound bourgeois public sphere. With newspapers originally containing economic information to inform capitalist long-distance trade, this “traffic in commodities” soon expanded to contain publically available private correspondences, establishing a parallel “traffic in news” and defining a broader interest in political and current events.¹¹⁴ An increase in literacy and a proliferation of small-scale journal publications allowed for the groups of people meeting in coffeehouses and salons to extend their conversations beyond the physical constraints of their spaces.¹¹⁵ These journals became the means to interconnect the coffeehouses, moving from a linear communicative system of the French castle parks to the networked, distributed system of the bourgeois salon.

DISTRIBUTED COMMUNICATION SYSTEMS AS DESPATIALIZED PUBLICS

One of the aspects that upheld the success of the bourgeois public sphere was its spatially defined adaptability, flexibility, and resiliency. Paul Baran’s model of computer network distribution (*figure 1.6c*) was designed such that critical importance was removed from any individual server node, and the strength of the system was embodied in the overall collection. Similarly, Habermas’ vision of the bourgeois public sphere was composed of many autonomous yet interconnected hubs of rational-critical discourse, and created a certain amount of

¹¹³ Habermas, *The Structural Transformation of the Public Sphere*. 33

¹¹⁴ Habermas. 16

¹¹⁵ Habermas. 15

redundancy.¹¹⁶ As such, the erasure of a singular node (coffeehouse) or linkage (journal) was within the bounds of the system's "survivability," and could continue and strengthen.¹¹⁷

Habermas, initially writing *The Structural Transformation* in 1962, was amongst the beginning of the critical 1960's movements — with stronger formalizations later by Toffler and others — to historically recognize and champion the despatialization of the public.¹¹⁸ Finally allowed by the ubiquity of the news media as a separate but consecutive extension of the printing press in the fifteenth century, productive conversation taking place within the physical spaces of the coffeehouses and salons reached beyond the walls of the physical institutions and into the realm of a public sphere that existed more in literary magazines, journals, and "webs of social relationships"; in other words, in non-spatialized environments.¹¹⁹ Here, I posit a strong parallel between Habermas' description of the late-eighteenth century "world of letters" and the late-twentieth century "dataspace" as understood by Toffler, Hollein, and Roberts: Both attempted to create extra-spatial realms for public inhabitation and transcend physical borders, and in doing so aim to dismantle previous systems of spatialized power structures. As Habermas viewed the aristocratic physical institutions — the French castle parks and other centers of government — as oppressive towards the bourgeois and the masses, Roberts saw the drab twentieth century workspaces of "bedrooms, living rooms, industrial parks, basements, cubicles, and posh offices" as stifling to a collective and critical public thought.¹²⁰

However, not all utopian visionaries reconfigured public space as dramatically as Toffler and other thinkers in the Internet age. As described in his novel *Looking Backward*, Bellamy's dream of Boston in the year 2000 showcased how communication technologies can be politically manipulated to stifle functional and productive communication, thus inhibiting a

¹¹⁶ Paul Baran, "On Distributed Communication Networks" (Santa Monica, CA: RAND Corporation, September 1962). 2

¹¹⁷ Baran. 3

¹¹⁸ "Despatialization" as defined in the previous chapter as the public inhabitation within and engagement of an environment beyond the physical.

¹¹⁹ Calhoun, *Habermas and the Public Sphere*. 12; Habermas, *The Structural Transformation of the Public Sphere*. 16

¹²⁰ Steven Roberts, "Electronic Cottage on Wheels," *Whole Earth Review*, March 21, 1987.

healthy public sphere. On the other end of the spectrum, Archigram's *Plug-in City* project from the 1960's displayed a utopia that embraced an uncontrollable oversaturation of communication technologies and media, which paralleled the downfall of the bourgeois public sphere as described by Habermas.

A BACKWARDS LOOK AT TECHNOLOGICAL CAPACITY

Born in Massachusetts in 1850, Edward Bellamy was quiet and soft-spoken. While traveling abroad during his schooling, he wrote that "it was in the great cities of Europe and among the hovels of the peasantry that my eyes were first fully opened to the extent and consequences of 'man's inhumanity to man.'"¹²¹ With a newfound perspective on the evils of his industrialized, capitalist reality, Bellamy became impassioned by a dream for healthier, more equal society. In 1888, he published his ideas in a single narrative story called *Looking Backward, 2000-1887*, in an effort to "reason out a method of economic organization by which the republic might guarantee the livelihood and material welfare of its citizens on a basis of equality corresponding to and supplementing their political equality."¹²² Met with widespread acceptance and popular support, Bellamy became an energetic advocate for Nationalist-Socialism, establishing the *New National* weekly journal and giving public lectures on socialist ideals. A decade after publishing *Looking Backward*, Bellamy continued the story in *Equality* to expound upon his earlier ideas and to further establish a framework for his utopian vision.

Like most utopian texts, *Looking Backward* begins with contemporary social and economic ills which the vision aims to contrast. Initially set in 1887, the story begins with Julian West, a rich, young Bostonian, living in a city overrun with poverty, unemployment, competition, crowding, greed, corruption, industrialization, and other problems that Bellamy

¹²¹ Edward Bellamy, *Equality* (D. Appleton and company, 1913). iv

¹²² Bellamy. v

perceived to plague his world.¹²³ In an effort to solve his insomnia, West attempts hypnosis, which fails and leaves him asleep for 113 years. Awakening in the year 2000, West witnesses a Boston quite unlike that of when he fell asleep: one of order, cleanliness, happiness, and, most importantly, social and economic equality. In learning more about the city, West realizes that this society was created not through revolution nor bloodshed, but rather as a result of “replacing private capitalism by public capitalism, and organizing the machinery of production and distribution, like the political government, as business of general concern to be carried on for the public benefit instead of private gain.”¹²⁴ In true National-Socialist spirit, the centralized Republic controls and has standardized means of production and consumption, labor, wealth distribution, education, infrastructure, and all other societal elements. In this way, Bellamy’s utopian society is as much a product of technological capabilities of his time as a political and cultural overhaul.

With the establishment of telephone systems giant AT&T just one year after the publication of *Looking Backward*, Bellamy’s teletechnological climate was relatively primitive, but rapidly expanding.¹²⁵ Therefore, Bellamy’s foresight into the social impact of the technology remains outstanding, although his view on its uses are intentionally limited to further his political ideology. West’s guide explains to him how the sole purpose of the telephone in the Boston of the future was to transmit musical performances: “There is nothing in the least mysterious about the music, as you seem to imagine... We have simply carried the idea of labor-saving by cooperation into our musical service as into everything else. There are a number of music rooms in the city, perfectly adapted acoustically to the different sorts of music. These halls are connected by telephone with all the houses of the city whose people care to pay the

¹²³ Edward Bellamy, *Looking Backward, 2000-1887* (Signet Classics, 2009).

¹²⁴ Bellamy, *Equality*. ix

¹²⁵ “The History of Telecommunication,” accessed December 4, 2018.

small fee, and there are none, you may be sure, who do not.”¹²⁶ Besides for music, the telephone systems were also used to broadcast religious sermons.¹²⁷

TECHNOLOGICAL CONTROL AND THE INHIBITION OF THE PUBLIC SPHERE

Interestingly, Bellamy never mentions his view of telephone technologies being used for their more typical purpose of linear interpersonal or interinstitutional connection; rather, they are described more in terms of the centralized radio, connecting the State with the masses. Despite the semblance of consumer choice (“There are... distinct programs of four of these concerts, each of a different order of music from the others, being now simultaneously performed, and any one of the four pieces now going on that you prefer, you can hear by merely pressing the button which will connect your house wire with the hall where it is being rendered.”¹²⁸), the production of such media content is directly and unquestioningly centralized in the State. In order for a National-Socialist State to function, utmost trust in the centralized State is required by all citizens. Accordingly, citizens of the future Boston feel the same blind and absolute confidence in the powers of technology: “If we could have devised an arrangement for providing everybody with music in their homes, perfect in quality, unlimited in quantity, suited to every mood, and beginning and ceasing at will, we should have considered the limit of human felicity already attained, and ceased to strive for further improvements.”¹²⁹

Such reverence towards technological advancements shows a particular lack of interest in the actual content of the media, and thus the structures of control inherent in the systems. The utilization of the communication systems not on interpersonal dialogue, but rather government issued entertainment, is characteristic of a Socialist government, as has been explored by Hegel, Marx, and Engels. Mass communications in Soviet Communism, for

¹²⁶ Bellamy, *Looking Backward, 2000-1887*. 73

¹²⁷ Bellamy. 178

¹²⁸ Bellamy. 74

¹²⁹ Bellamy. 74

example, have been criticised as “the practice of journalism and propaganda not only was designed to create a new communist man and help carry out party policy, but it was also designed to repress political dissent and to involve its participants as active supporters of the communist system.”¹³⁰ In Bellamy’s world, while citizens can listen to sermons reflective of the goals of the State (“The enfranchisement of humanity in the last century, from mental and physical absorption in working and scheming for the mere bodily necessities, may be regarded as a species of second birth of the race...”¹³¹), the structures of the technological systems describe restricted methods for citizens to discuss, criticize, or otherwise think rationally and collectively against such pointed propaganda.

Bellamy’s utopia designs physical spaces, along with communicative systems, to intentionally inhibit a public sphere from developing. While there is a strong private sphere (as emphasized by West’s long conversations within the realm of the private home), the closest mention Bellamy affords to public space are shopping outlets and restaurants. While both spaces provide close propinquity, they are both inadequate for extended multi-group conversation and large-scale public discourse. In Bellamy’s utopian world, there exists no such equivalent to Habermas’ bourgeois public sphere; in fact the technological and physical constructions that Bellamy idolizes actually aim to destroy any notions of a rational-critical public, as that runs counter to the State-centric vision of knowledge, and cultural production and dissemination.

Interestingly, Bellamy’s time traveling narrator confronts his hosts about this lack of public opinion: “Now, if your system is so perfect that there is never anything to criticize in the conduct of affairs, this arrangement may answer. Otherwise I should think the lack of an independent unofficial medium for the expression of public opinion would have most

¹³⁰ Owen V. Johnson, “The Press of Change: Mass Communications in Late Communist and Post Communist Societies,” *National Council for Soviet and East European Research*, October 1990.

¹³¹ Bellamy, *Looking Backward, 2000-1887*. 190

unfortunate results.”¹³² And indeed Bellamy describes a unique publication system where any person may put forth a self-funded pamphlet relating their counter-hegemonic ideas. While this appears to provide a basis for a public sphere, the absence of physical spaces required for generation and distillation of public opinion, as well as the financial barrier to entry (not to mention the inherent individuality of the pamphlets) stifles a productive public sphere. This describes the difference between the public citizen, where one can publicly contribute to a greater whole, and a public sphere, which can strengthen the rights and freedoms of the whole.

Habermas believed that the one-directionality of Bellamy’s technological communicative system inhibited the creation of a functioning public sphere. He idealized newspapers and journals not only for their ability to stimulate productive conversation among citizens; more importantly, they provided a platform for a multi-directional flow of information. Any member of the public sphere, Habermas claimed, could propose their ideas in the form of a “periodical (the handwritten correspondence at first, then the printed weekly or monthly).”¹³³ The value of such ideas, independent of the status or social position of their originators, would be argued and criticized through the public sphere machine, and only ideas of true value would survive and propagate. Single directional audio transmitters, then, intentionally stifle public response, thus dissolving natural idea distillation. As Habermas says:

“Under the pressure of the ‘Don’t talk back!’ the conduct of the public assumes a different form. In comparison with printed communications the programs sent by the new media curtail the reactions of their recipients in a peculiar way. They draw the eyes and ears of the public under their spell but at the same time, by taking away its distance, place it under ‘tutelage,’ which is to say they deprive it of the opportunity to say something and to disagree.”¹³⁴

An open and uninhibited flow of communication is vital for a public to sustain itself, and in Bellamy’s National-Socialist idealization, the lack of a public is precisely what perpetuates his utopian vision.

¹³² Bellamy. 109

¹³³ Habermas, *The Structural Transformation of the Public Sphere*. 41

¹³⁴ Habermas. 171

Bellamy was in no way subtle about his use of relatively advanced technology to analogize the political and social structures of his utopian world. In the year 2000, the privately owned umbrella had been replaced by the ubiquitous sidewalk covering, as a metaphor for collectivism: “In the nineteenth century, when it rained, the people of Boston put up three hundred thousand umbrellas over as many heads, and in the twentieth century they put up one umbrella over all the heads.”¹³⁵ Almost a century after the publication of *Looking Backward*, the British avant-garde architecture group Archigram began self-disseminating utopian plans that were as metaphorical as Bellamy’s, as technologically driven, as radical, and as destructive to Habermas’ public sphere; however, as a product of their unique contemporary contexts, they envisioned a climate tending towards the post-bourgeois public sphere that Habermas described, where the anarchism and consumerism of the popular media led to an erasure of productive public thought.

COMPUTATIONAL ANARCHY

In the early 1960’s in London, a group of friends who had all recently graduated from various architecture schools got together to chat. They were fed up with the conservative architectural status quo of work produced in London firms, and could not find the same “polemic and enthusiasm” they experienced in university.¹³⁶ They began to meet regularly, “to criticize projects, to concoct letters to the press, to combine to make competition projects, and generally to prop one another up against the boredom of working in London architectural offices.”¹³⁷ They decided that they needed a publication to disseminate their counter-hegemonic ideas, and to further extend their architectural discourse into “the general sterility of the

¹³⁵ Bellamy, *Looking Backward, 2000-1887*. 100

¹³⁶ Peter Cook, ed., *Archigram* (New York: Princeton Architectural Press, 1999). 8

¹³⁷ Cook. 8

scene.”¹³⁸ Led primarily by Peter Cook, David Greene, and Mike Webb, the group chose the name ‘Archigram’ as a portmanteau of ‘architecture’ and ‘telegram’, signalling the importance of the communication of ideas. Inspired by the space age, science fiction, and robotics, Archigram aimed to establish a firm break from the past, and to reinvigorate architecture towards the technologized future. As member Warren Chalk stated, “In this second half of the twentieth century, the old idols are crumbling, the old precepts strangely irrelevant, the old dogmas no long valid. We are in pursuit of an idea, a new vernacular, something to stand alongside the space capsules, computers, and throw-away packages of an atomic/electronic age.”¹³⁹ Indeed, they were searching for the utopia of their technological age, for the “radical valid images of cities” characterized primarily by the computer and the vast advancements in communications and information processing that it created.¹⁴⁰ As a group that focused on publishing their ideas rather than building structures, they used “architecture is a medium of communication” to comment on the speed and incomprehensibility of the computer age.¹⁴¹

Many of Archigram’s social critiques centered around the oversaturation and consumption of computerized media, or ‘hyper-media,’ that they believed was to substantially redefine the city. This was most overtly metaphorized in the medium in which the Archigram group communicated their ideas. The nine (and a half) issues of the *Archigram* magazine featured many-layered collages, neon colors, wildly oriented text, dynamic typography, and ironic iconography (*figure 2.2*). Friend of the group Arata Isozaki claimed that the intentionally over-stimulating visuals were necessary in inducing radical change in the society where “information is privileged above all else.”¹⁴² The group witnessed media in their age becoming all encompassing, and as such the two-dimensionality of the paper magazine became limiting:

¹³⁸ Cook. 8

¹³⁹ Warren Chalk, “The Living City” in “Amazing Archigram 4: Zoom,” *Archigram*, 1964, Archigram Archival Project. 6

¹⁴⁰ “Amazing Archigram 4: Zoom.” 2

¹⁴¹ Hans Hollein, “A comment from Hans Hollein” in Cook, *Archigram*. 6

¹⁴² Arata Isozaki, “A comment from Arata Isozaki” in Cook. 4

“Ideas and situations now involve movement and sequences that need film, colour, magnification and explanation in length: Magazines will dissolve into hybrid networks of all media at once.”¹⁴³ Archigram realized that computational communication was causing media to permeate into the city in an unprecedented way, and sought to capture these implications in their work.

HYPER-MEDIA AND THE IMPLOSION OF THE PUBLIC SPHERE

The formation of the Archigram group followed the structures of Habermas’ bourgeois public sphere: Intellectual populations met in partially public establishments (or, more accurately, in Peter Cook’s apartment), engaged in organized yet non-hierarchical critical discourse, proposed counter-hegemonic ideas, and interconnected with other similar groups through publication-based media. It is interesting and perhaps ironic then, that, with this idealized beginning, the utopian proposals put forth by the Archigram group tended towards the end phase of the bourgeois public sphere that Habermas later illustrated, one in which an oversaturation of mass media led to the destruction of rational-critical discourse and the breakdown of democratic control.

The Archigram group was among the first of experimental architects to recognize that new models of communication caused by interconnected computers would not necessarily liberate the individual from space, as proposed by Toffler, Roberts, and Hollein; instead, they could create environments dominated by the meaningless production and consumption of mass media. In their first gallery exhibition at the ICA Gallery in London titled “Living City,” Archigram created a space intended to overwhelm the viewer with a conglomeration of imagery, sound, text, and other sensory stimulation (*Figure 2.3*).¹⁴⁴ This exhibition, along with many of their individual projects, sought to spatialize the notions of expendability, transience, and

¹⁴³ “Archigram 7: Beyond Architecture,” *Archigram*, 1966, Archigram Archival Project. 4

¹⁴⁴ Cook, Peter et al., “Living City Exhibition” (August 19, 1963).

impermanence of opinions brought on by the computer and high-speed, networked communications.

Peter Cook's 1964 *Plug-in City* project provided an apt visual metaphor for a utopian urbanism in the computational age, both ideologically and structurally, and responded to the expendability, upgradeability, and interconnectedness of computers. *Plug-in City* contains a "large scale network-structure" megaskelton, within which are placed standard modular units that are planned for obsolescence. These units are replaced over time, and manoeuvred throughout the structure by internal cranes (*figure 2.4*).¹⁴⁵ As the demands of *Plug-in City's* citizens change, the structure evolves and expands accordingly.

While *Plug-in City* maintains a rigidly structured networked form consistent with the node-based layout described by Baran, the Archigram group sharply criticised past utopian designers for their simplified, diagrammatic plans. Says Cedric Price in *Archigram 7: Beyond Architecture*:

"For centuries now it has been both convenient and at times practical to represent existing or proposed urban settlements (cities, towns, camps) in two-dimensional, diagrammatic form. Where, for instance, defence was of prime importance, such diagrams could, with little alteration, serve as a scaled blueprint for the real thing. While Ebenezer Howard was still prepared to put a physical scale to his theoretical Garden City, succeeding though less successful folk-utopians have produced diagrams (plans) purporting a two-dimensional validity while avoiding both measurable physical commitment, and in so doing avoiding a degree of integrity in their chosen genre."¹⁴⁶

While attempting to imagine a despatialized city similar to Toffler's, Hollein's, or Roberts' creations, *Plug-in City* nonetheless is bound to the constraints of physicality and space; however, it expands and shrinks according to use, and, like Ron Herron's complementary *Walking City* project (*figure 2.5*), it is spatially indeterminant and transient. *Plug-in City* attempted to be a physical manifestation of the commodification of hyper-media . The mega-structure skeleton, which was inspired by the London Underground transit system and

¹⁴⁵ Cook, *Archigram*. 39

¹⁴⁶ Cedric Price, "Archigram 7: Beyond Architecture," *Archigram*, 1966. 11

contained high-speed elevators and multi-directional travel tubes, was a metaphor for the constant, rapid motion of communications. This was elaborated upon by the University Node, the “centre from which information is piped” to other nodes.¹⁴⁷ Seen through the lens of Habermas’ chronology of the bourgeois public sphere, *Plug-in City* showcases a dystopian urban conception where any notion of a public has been wholly consumed by hyper-media and oversaturated communication.

“The world fashioned by the mass media is a public sphere in appearance only,” Habermas argues, describing the post-bourgeois public framework.¹⁴⁸ Rational-critical discourse can exist in both systems, he claims. The difference is not in the generation of counter-hegemonic thought; rather, the way in which these discussions are communicated. In the functioning bourgeois public sphere, rational-critical discourse was *engaged* with by the greater public, primarily through openly circulating public journals. But when public criticism and cultural dialogue becomes reframed as consumerist production intended to be capitalised on, as it is in mass media and consequently *Plug-in City*, then “the public sphere in the world of letters [becomes] replaced by the pseudo-public or sham-private world of culture *consumption*.”¹⁴⁹ Habermas writes that when communication within the public sphere is under the influence of market forces, all aspects of free and productive discourse are compromised: “Discussion, now a “business,” becomes formalized; the presentation of positions and counterpositions is bound to certain prearranged rules of the game; consensus about the subject matter is made largely superfluous by that concerning form.”¹⁵⁰ Similarly, Habermas argues that the continual stream of content from the mass media inherently diminishes the value and significance of messages, as “serious involvement with culture produces facility, while the consumption of mass culture leaves no lasting trace; it affords a kind of experience which is not

¹⁴⁷ Cook, *Archigram*. 43

¹⁴⁸ Habermas, *The Structural Transformation of the Public Sphere*. 171

¹⁴⁹ Habermas. 160. Emphasis mine.

¹⁵⁰ Habermas. 164

cumulative but regressive.”¹⁵¹ In essence, Habermas is most critical of the mass media for how it transforms the citizen from engaged member of the public to uninvolved consumer of content.

POWER AND PUBLICS

Bellamy’s Boston in *Looking Backward* and Archigram’s *Plug-in City* are two starkly different utopian views of the future, in terms of physical organization, ideological metaphor, and communicative structure. As we have seen, they both design their internalized information flows in ways that limit an active Habermasian public sphere, a core tenant of public citizenship. As a National-Socialist state where the government maintains full power, Bellamy’s vision of Boston enforces such a strict and limited flow of information that any sort of public debate — whether a strike, an uprising, or nearly everything besides discussion about last night’s telephone performance — is repressed. Archigram’s future vision, as illustrated by *Plug-in City*, *Walking City*, and their various other projects, describes an anarchic urbanism, one in which no institution other than the city structure itself has any power whatsoever — a city that expands and contracts at will and exerts control over its residents. Here, power is fully stripped from any social or political group, leaving society in a state of confusion, overwhelmed and suffocated by an endless stream of unintelligible media.

The exploration of technology and public in this chapter does not aim to state that any advanced use of technologies as a platform for public communication is inherently detrimental to the democratic nature of a plan; rather, it attempted to elucidate the role of power in manipulating communication technologies to consequently uphold or erase publics. Rules and systems, rather than Mumford’s “technics,” define public citizenship and the potential for urban democracy.

¹⁵¹ Habermas. 166

With the perspectives of the utopian urbanisms created by Archigram and Bellamy, and further that of Toffler, Wright, Howard, Chambless, and others, the following chapter will move into the present to examine Sidewalk Labs' *Sidewalk Toronto* project. Using insight from the first chapter, I will explore how the urban communicative technologies employed in Sidewalk Labs' plan — namely, ubiquitous sensors and big data processing — manipulate information flows to alter spatial organization and models of the public sphere. I will interrogate how Sidewalk Labs' control of technology and space establishes the group as an invisible force of power.

IMAGES

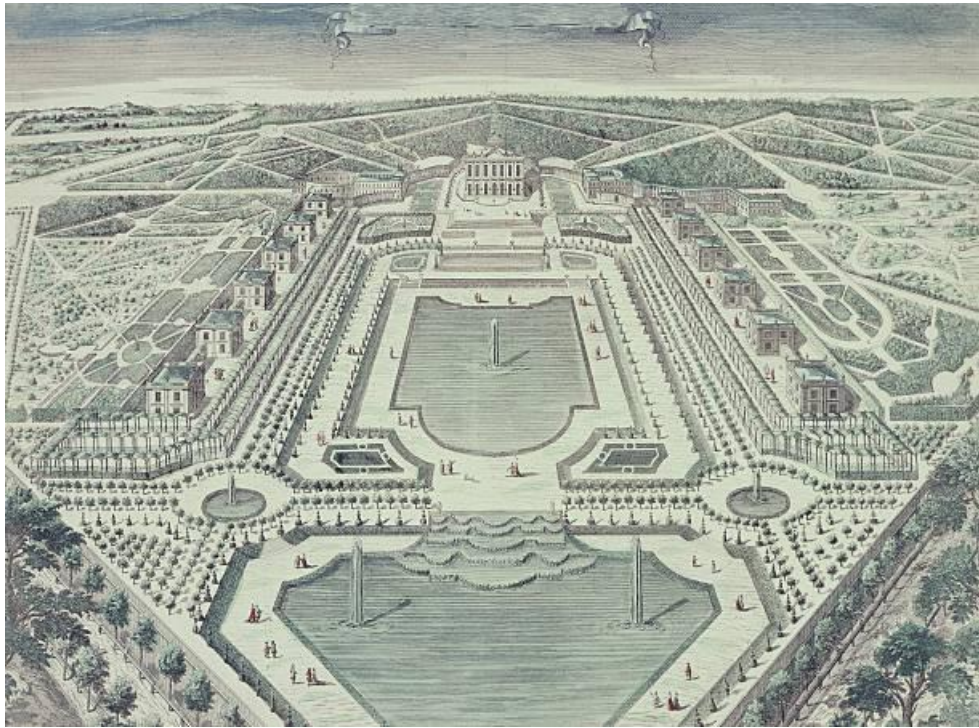


Figure 2.1 - A private castle embedded within a semi-public park in Marly, France.

Photo by DeAgostini via Getty Images. Engraving, mid-17th century.

<https://www.gettyimages.com/detail/news-photo/the-castle-and-park-at-marly-france-17th-century-engraving-news-photo/142085619>



Figure 2.2 - Cover of Archigram Issue 4; overstimulation of hyper-media communications.

Cook, Peter, David Greene, and Michael Webb. "Amazing Archigram 4: Zoom." Archigram, 1964. Archigram Archival Project. 3



Figure 2.3 - Archigram's Living City exhibition at the ICA, London; visualization of computerized media.

Cook, Peter, Warren Chalk, Dennis Crompton, Theo Crosby, David Greene, Ron Herron, Peter Taylor, and Michael Webb. "Living City Exhibition." ICA Gallery, London, August 19, 1963.

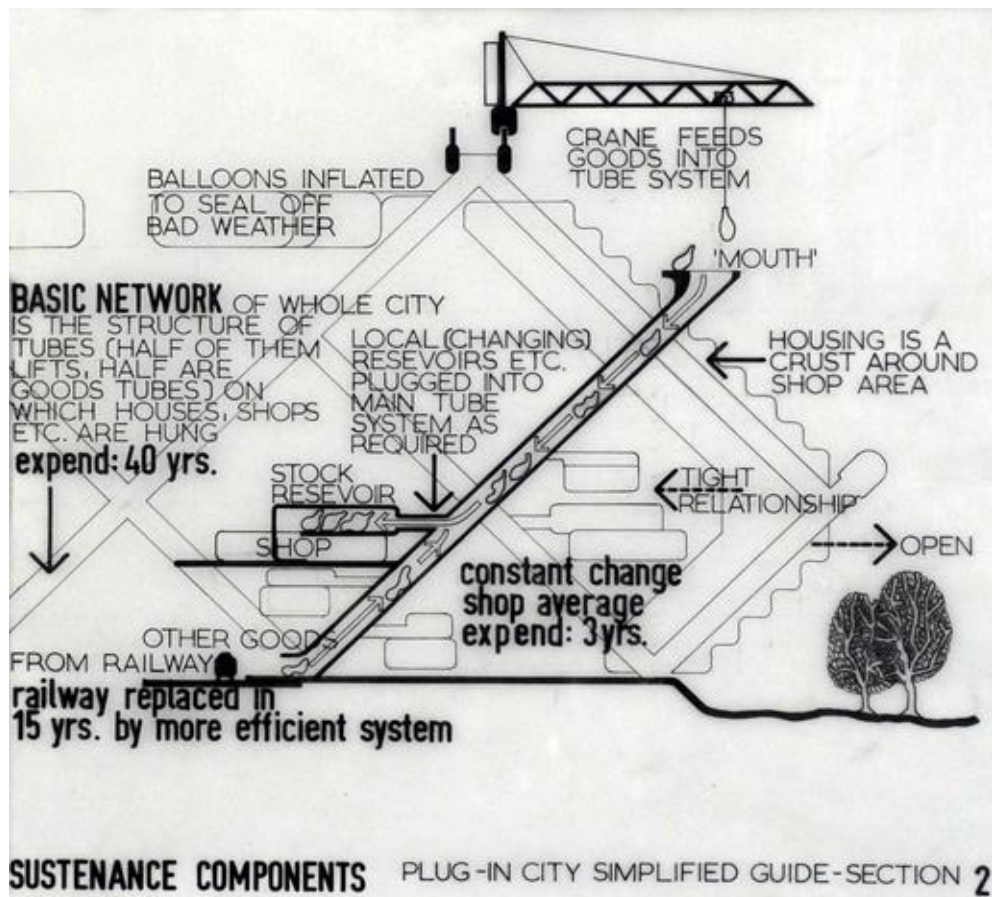
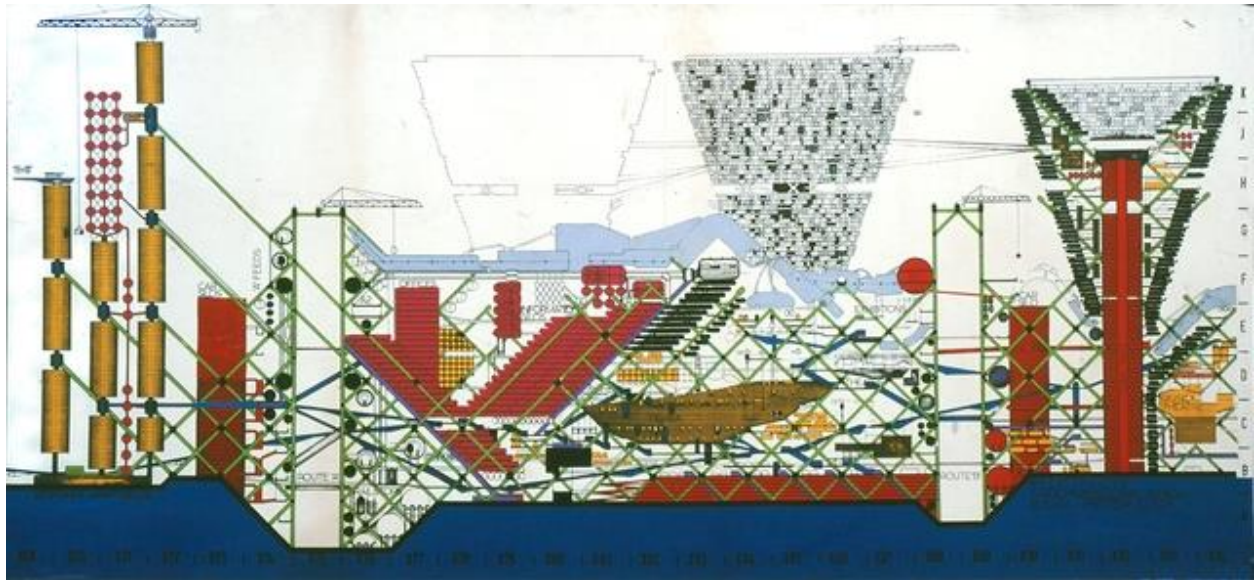


Figure 2.4 - Plug-in City; metaphor of the city as a computer.

Cook, Peter. "Plug In City." Archigram Archives, 1964



Figure 2.5 - Spatial anarchism of Archigram's Walking City.

Herron, Ron. *A Walking City*. in "Archigram 5: Metropolis." Archigram, 1964. Archigram Archival Project.

CHAPTER 3: DISCOURSE OR DATA?

In the past two sections, I aimed to show that utopian urbanism throughout history has framed communicative systems in ways that can create or destroy publics, and construct or dismantle space in ways that can liberate or exert control over the individual. Urban planning is inherently an act of power, and communication technologies wield power to those who structure them by controlling content and structure of information and knowledge flow. Whether it's the mass media in Archigram's *Plug-in City*; the State in Bellamy's *Looking Backward*; the technology expert in Roberts' *Winnebiko*, Hollein's *Mobile Office*, or Toffler's *Third Wave*; the Architect-king in Wright's *Broadacre City*; the collective in Chambless' *Roadtown*; or the Central Council in Howard's *Garden City*; all of these imagined societies have elements of power residing somewhere within. Such power structures are similarly embedded in Sidewalk Labs' *Sidewalk Toronto*, where, by reframing the citizen as generative of data rather than discourse, Sidewalk Labs establishes itself as the dominant form of authority. Most dangerously, by concealing such centralization and erasing individual ownership over data, Sidewalk's power becomes invisible. While much of the public outcry over this project revolves around citizen privacy, I aim to extend this perspective to examine its structures of democracy and citizenship, of which privacy is an important but singular element.¹⁵² From the perspectives on space and publics as laid out in the previous chapters, I reconceptualize Sidewalk's model of the 'smart city' not as a platform for freedom as they purport, but rather as an engine for concentrating power and social control, and as a tool to erode public space and citizenship.

¹⁵² Andrew Clement, "Sidewalk Labs' Toronto Waterfront Tech Hub Must Respect Privacy, Democracy," *The Star*, January 12, 2018.; Blayne Haggart and Zachary Spicer, "What Quayside Has Taught Us about Smart Cities and Data Governance," *The Conversation*, April 2, 2018.

SIDEWALK TORONTO — THE PHYSICAL REALM...

Sidewalk Labs' utopian city, based in the Quayside district in Toronto, is initially and most thoroughly laid out in the company's nearly 200 page submission in response to Waterfront Toronto's Request For Proposals to redevelop the industrial area.¹⁵³ The plan appears simple on the surface, with two fundamental elements. The first aspect of the plan is the physical form, focused on human- and environment-centered design, which is further deconstructed into four main areas (*figure 3.1*). At the lowest level lies infrastructure, followed by the public realm, then mobility, and finally buildings at the highest physical scale (*figure 3.2*). "The physical layer is essentially the core infrastructure that frames any city," the company writes, which is composed of "utility channels to carry wires, waste, and water; a street grid to direct movement; a public realm to provide an array of parks and amenities."¹⁵⁴ Within this realm, Sidewalk aims to incorporate many progressive urban design techniques. These include prioritizing bicycles through physical infrastructure; reducing the amount of automobiles on the road with an on-demand self-driving car system; building in an environmentally-conscious way by using prefabricated structures and cross-laminated timber in construction; and designing mixed use public spaces which contain residential, retail, and office spaces throughout.

While safe and healthy mobility, clean infrastructure, affordable and green housing, and thriving public spaces are almost unanimously considered to be good for people, a deeper look at Sidewalk's deconstructed map reveals an underlying problem with their approach: as a subsidiary company to Alphabet Inc., they are, at their core, a technology company, and not urbanists. The layers of separation — infrastructure, public realm, mobility, and buildings — can be read as being organized hierarchically not only in terms of spatial prominence, but also societal significance. Humans, while not at all visually represented on the map, reside within the "public realm," which here is envisioned as solely the space that is left over after buildings

¹⁵³ Sidewalk Labs, "Vision Sections of RFP Submission," October 27, 2017.

¹⁵⁴ Sidewalk Labs. 18

and mobility systems are established — it is disconnected, empty, and an afterthought. This map makes clear the emphasis Sidewalk places on the role of the human in their plan: merely a cog (or rather a transistor) of the city, where, to borrow from tech-jargon, the citizen is a ‘user’ inhabiting a city ‘optimized’ for Sidewalk’s own purposes, rather than a city constructed for and around its human inhabitants and embedded within an interwoven urban fabric.

This separation from traditional urbanist organizations continues internally. Despite Sidewalk’s claim that “when you put technologists and urbanists on the same team you have the potential to transform the urban environment,” a look at the team’s makeup shows where their true passion lies: the majority of Sidewalk employees are software engineers, data scientists, and product designers, while very few are architects or urban designers; similarly, many come from a department within Google.¹⁵⁵ Technology journalist Christine Bjerke believes that this basic perspective is incomparable to that of the architectural industry, where “architects are trained to care about the past, and often refer to historic value and the legacy of architecture. This stands in stark contrast to the technological logic of constantly thinking forward.”¹⁵⁶ It is this radical perspective which separates *Sidewalk Toronto* from a typical progressive development, and drives the plan’s overarching utopian vision of continuous and ubiquitous environmental and social data collection.

...AND THE DIGITAL REALM

Sidewalk Labs’ utopian vision is founded in the belief that the city should behave like a computer, where the urban fabric and social interaction are understood as software that can be manipulated, edited, and optimized. As seen in the deconstructed project map, the fifth and final layer is the “digital layer,” which literally and metaphorically extends triumphantly beyond

¹⁵⁵ Sidewalk Labs, “Team,” Sidewalk Labs, accessed December 6, 2018; Christine Bjerke, “Data-and-Mortar: Will the Technological Revolution Render Architects Obsolete?,” *Archinect*, November 10, 2018.

¹⁵⁶ Bjerke, “Data-and-Mortar: Will the Technological Revolution Render Architects Obsolete?”

the physical (*figure 3.2*). This layer has four main components. The first is an infrastructural element called Sense, which “knits together a distributed network of sensors to collect real-time data about the surrounding environment.”¹⁵⁷ This consists of establishing a ubiquitous array of “existing sensors, cameras, lidar, radar, and accompanying computer vision and machine learning techniques.”¹⁵⁸ The second component, called Map, collects the data output by Sense and uses artificial intelligence to withdraw meaningful insight from it. This is followed by Model, which uses this raw environmental data and interpreted social patterns to construct a digital mirror of the physical city, supporting a “virtual laboratory to experiment with changes in infrastructure, policy, and the built environment.”¹⁵⁹ Finally, every user (read: resident) interfaces with this online simulation through a component called Account, which “will provide access to places and resources they want to take advantage of... [and] enable them to connect... with each other and with municipal employees.”¹⁶⁰

Indeed, Sidewalk views data collection through ubiquitous sensors as an extrapolation and modernization of the urban monitoring techniques popularized by urbanists Jan Gehl and William H. Whyte. However, while Gehl’s and Whyte’s observations provided landscaping and urban design suggestions intended to increase livability and usage, Sidewalk Labs’ reverence of observation and application of this data to every structure embedded within the city goes beyond the previous urbanist’s intentions and installs Sidewalk as an invisible yet dominant force of power.

VIRTUAL SPACE

In terms of spatiality, Sidewalk Toronto extends beyond the perception of despatialization as established by Toffler, into a more nuanced area I term ‘virtualization.’

¹⁵⁷ Sidewalk Labs, “Vision.” 17-18

¹⁵⁸ Sidewalk Labs. 78

¹⁵⁹ Sidewalk Labs. 74

¹⁶⁰ Sidewalk Labs. 76

Rather than viewing citizenship as entirely independent from, and in fact a rejection of, the spatiality of the physical environment, the virtualized city is a mirrored image of the city — a simulation — within which are embedded notions of society, citizenship, publics, discourse, and power. This phenomena is at once both an embrace and a rejection of physicality: it depends upon the natural and built environment as source material for the simulation, and from which it draws continuous updates; yet the social and civic inhabitation within this city is not dependent upon space. One could foreseeably access their *Sidewalk Toronto* Account from anywhere in the world; however, this virtual portal is specific to and inseparable from the spatially-bound parameters of Quayside.

One interesting note here is that in the current transition from utopian vision to built reality, many of the ideological values are getting lost, reflecting Sir Thomas More's sentiments of utopia as an impossible, non-existent place.¹⁶¹ Released just over a year after the initial RFP submission, Sidewalk's Quayside Draft Site Plan, which outlines the first concrete plans into construction of the development, presents a far more conservative image than that illustrated in the RFP submission. In the Site Plan, they focus entirely on opportunities for job creation, positive environmental impacts, affordability, and an overhauled mobility system, while making no mention of omnipresent cameras, data governance, digital privacy, or the now mysterious "digital layer."¹⁶² Either Sidewalk has adjust their vision in accordance with the overwhelming criticism and negative public opinion of the data-collection plan, or it has intentionally been removed from the forefront of the conversation. Sidewalk Labs still lists a large number of employees focused on developing the Model platform, however, so the latter seems more likely.¹⁶³ With the release of the more reserved plan came a statement pivoting away from the project's previously voiced utopian roots, saying "what we're planning here is neither cheerful

¹⁶¹ Thomas More, *Utopia*, Penguin Classics. (Penguin Books, 2003).

¹⁶² Sidewalk Toronto, "Quayside Draft Site Plan" (Sidewalk Labs, November 29, 2018).

¹⁶³ Sidewalk Labs, "Team."

science fiction — like *The Jetsons* — nor dark and dystopian — like *Black Mirror*.”¹⁶⁴ With this in mind, as the project not only continues to imagine a reconfiguration of space but also a reconceptualization of society, the project nonetheless defines a utopian moment demanding interrogation.

VIRTUAL POWER

Virtuality of space inevitably virtualizes control, and in turn renders structures of power invisible from the citizen. Many of the urban problems that Sidewalk is planning on addressing — like increasing mobility and safety, decreasing congestion and greenhouse gas emission, using resources more efficiently, and creating lively public spaces — have been areas of municipal focus for a long time. By viewing these issues as manipulations of data, rather than as anthropological or physical complexities, Sidewalk conceptualizes the city as on a separate realm, one that is removed from the people or urban fabric of the space. Viewing the city just as a flow of data is not inherently a dangerous thing. However, when the ability to affect urban and political change is exclusively and inseparably tied to the ability to manipulate such data, then power over the city — as manifested in terms of altering the physical form, designing public social spaces, and adjusting public policy — similarly becomes virtualized, and removed from the hands of the citizens.¹⁶⁵

This is most visible through Sidewalk’s employment of Google’s advanced machine learning technologies to process and interpret the enormous collection of urban data. In the Information Technology subfield termed “Big Data,” there exists a fundamental difference in value between raw aggregations of data and parsed data that reveals patterns, trends, and

¹⁶⁴ Donovan Vincent, “Sidewalk Labs Reveals Plans for Housing in Quayside District on City’s Waterfront,” *The Star*, November 29, 2018.

¹⁶⁵ David Rider, “The Risks of Becoming a Google City,” *The Star*, March 5, 2018.; Bianca Wylie, “How to Build a Democratic Smart City,” Centre for International Governance Innovation, accessed September 13.

associations.¹⁶⁶ Similarly, an individual data point measuring an element of social use of public space — sitting posture, for example (a real element of data collection included in Sidewalk’s prototypical CommonSpace smartphone application, one of the socials aspect of the Sense component) — reveals less about the city than the patterns extracted from a mass collection of such data points, which could illustrate patterns describing where people meet for informal gatherings or formal meetings, where friends stand to have conversations, or in this scenario’s extreme case, where the homeless sleep on the street.¹⁶⁷

It may true that Sidewalk’s artificial intelligence software will be able to provide superhuman insight about social and environmental patterns; however, the forced dependency upon Sidewalk and their proprietary technology as the only key to unlocking the valuable inner insight of the city quietly establishes the business as the central urban power, in a way that supersedes democratic methods of policy and decision making. Data becomes a black box, with Google’s technology as the gatekeeper. *Figure 3.4* confirms this as Sidewalk’s mindset, where collected transportation information is represented quite literally as an uninterpretable box that only Sidewalk can convert into a usable Application Program Interface.

Additionally, Sidewalk’s implicit control over the technics of the city — the ubiquitous sensors, the centralized digital platforms, and the high-speed fiber-optic networked web of communication lines — similarly assists in shifting control over the city solely into the hands of Sidewalk. In order to “maximize future flexibility and reduce the hassle and worry of last-mile connectivity for end users, Sidewalk will deploy a shared wired and wireless backbone that creates seamless coverage” of the neighborhood.¹⁶⁸ The company claims that “a significant benefit of bringing all radios in the neighbourhood under a single management structure is that it minimizes interference and allows for the greatest possible coordination, synchronization, and

¹⁶⁶ Saint John Walker, “Big Data: A Revolution That Will Transform How We Live, Work, and Think,” *International Journal of Advertising* 33, no. 1 (January 1, 2014): 181–83.

¹⁶⁷ Craig Nevill-Manning and Prem Ramaswami, “How Quayside Will Make Data Work For Toronto - And Protect It,” *Medium* (blog), December 7, 2018.; Jake Tobin Garrett, “Working to Make Studying Public Life Easier: A Pilot Project in R.V. Burgess Park,” *Park People* (blog), accessed December 8, 2018.

¹⁶⁸ Sidewalk Labs, “Vision.” 68

adaptability, resulting in the best internet experience for all consumers.”¹⁶⁹ This unprecedented level of infrastructural monopolization under a private corporation presents a number of major problems. The dominance provided by Google’s nearly unlimited technological and financial support drives out any other significant competition.¹⁷⁰ Entrepreneurs can compete amongst themselves by building 3rd party applications that interface with Sidewalk Labs’ underlying infrastructure and API (Application Programming Interface, *figures 3.3 and 3.4*); however, this innovation is fundamentally and intentionally isolated from Sidewalk’s more substantial technological and economic control. Ultimately, what 3rd party competitors, as well as the City of Toronto itself, can attain from Sidewalk’s interfaces are decided upon by Sidewalk, not the outside parties.

One of the ways that Sidewalk Labs differs from the utopian visionaries discussed throughout this thesis is their need to develop a business model and to profit off of the implementation of the utopian vision. Daniel Doctoroff, the CEO of Sidewalk Labs and former CEO of Bloomberg, unequivocally stated that they are “in this business to make money,” with an intention to use what they learn in Toronto to expand to cities around the world.¹⁷¹ Therefore, Sidewalk has demanded full control over all intellectual property generated from the project.¹⁷² Similarly, Google’s funding for the project was conditional upon the Canadian government promising to “reach a final agreement that aligns with Google’s interests.”¹⁷³ And as Alphabet Inc. generated over \$90 billion in revenue in 2016, 88% of which came from advertising, it is doubtful that Alphabet Inc.’s interests are aligned with the desires of the residents of Toronto.¹⁷⁴

¹⁶⁹ Sidewalk Labs. 68

¹⁷⁰ Jim Balsillie, “Sidewalk Toronto Has Only One Beneficiary, and It Is Not Toronto,” *The Globe and Mail*, October 5, 2018.

¹⁷¹ Andrew J. Hawkins, “Sidewalk Labs Hires ‘Dream Team’ to Tackle City Design in the Self-Driving Age,” *The Verge*, February 22, 2016.; Larry Page, “Announcing Sidewalk Labs,” *Google Plus* (blog), June 10.

¹⁷² Josh O’Kane and Alex Bozikovic, “Sidewalk Labs Taking Steps to Control Intellectual Property on Toronto’s ‘Smart City,’ Document Shows,” *The Globe and Mail*, August 31, 2018.

¹⁷³ Balsillie, “Sidewalk Toronto Has Only One Beneficiary, and It Is Not Toronto.”; Susan Crawford, “Beware of Google’s Intentions,” *Wired*, February 1, 2018.

¹⁷⁴ Bianca Wylie, “Think Hard Before Handing Tech Firms The Rights To Our Cities’ Data,” *Huffington Post*, November 8, 2017.; Alphabet, “2016 Annual Report,” 2016.

Beyond economic control over the city, Sidewalk's use of technology also creates structures of hegemonic social control.

INHIBITION OF THE VIRTUAL PUBLIC SPHERE

While Sidewalks' initial Project Vision section from their RFP submission stands as their most genuine expression of their utopian vision, their process of implementing this plan into the neighborhood of Quayside presents a dichotomy in their desire to create and destroy a notion of the public sphere. It is clear that early in the implementation phase Sidewalk realized the importance of working with the Quayside and Greater Toronto communities in developing mutual trust, respect, and support for themselves and the project. In a nearly continuous series of open public forums, community roundtable discussions, design charrettes, and even a children's summer camp, Sidewalk emphasized its desire to provide the diverse group of locals a platform to communicate their ideas about the fate of the neighborhood.¹⁷⁵ David Fraser, Sidewalk's consultant on Canadian Privacy, wrote that he has "never seen any project, of any scale, that has sought and processed so much input and so much discussion from the community."¹⁷⁶ In terms of community inclusion, it appears as if Sidewalk has created a public sphere, at least a temporary one, intended to stimulate rational, critical, and productive public opinion about the development of the project.

However, Bellamy illustrated in *Looking Backward* that hegemonic control — in his case the State, and in this case Sidewalk Labs — over the platform that provides the ability for counter-hegemonic discourse, results in a deliberate erasure of a functioning public sphere capable of critical debate. As most visible public discourse in conjunction with the Sidewalk Labs team has taken place within the walls of Sidewalk's Toronto office, the corporation has

¹⁷⁵ Sidewalk Labs, "Summary Report: Roundtable 01" (Sidewalk Labs, March 20, 2018); Sidewalk Toronto, "Summer Kids Camp Report," November 8, 2018.

¹⁷⁶ David Fraser, "Sidewalk Labs' Toronto Project Offers a Chance to Get Smart City Building Right," *The Globe and Mail*, October 31, 2018.

been easily able to manipulate this public opinion to further their ideals. This is visible through the News section on the Sidewalk Toronto main webpage, which is filled entirely with articles that praise the project, such as “What’s not to love about a mix of 19th century planning mixed with 21st century technology?”, “Why Toronto is the ideal place to build a neighbourhood of the future”, and “How Sidewalk Labs could make a vital contribution to Toronto’s evolution”, amongst others.¹⁷⁷ Absent are the myriad articles that are vehemently yet rationally critical of the project and those that demand further answers by the company; nor are these concerns acknowledged among the greater conversation.¹⁷⁸ This control over public opinion through control over the platforms for debate extends beyonds the development of the plan, into the foundational principles of the vision’s ideology.

Through the virtualization of the public realm into software operated and maintained by Sidewalk, the company is effectively inhibiting meaningful developments of publics within the residents of Quayside. Habermas’ bourgeois public sphere thrived partially due to the technological freedom of the bourgeois class to develop their own platforms of counter-hegemonic discourse and dissemination, typically in the form of the journal. Today, the Internet has at times provided a free and open platform for rational debate. Websites like Reddit and Wikipedia can be viewed as spaces where members of the virtual community can define their own rules and guidelines for community engagement, much like the coffeehouses and salons that Habermas described.¹⁷⁹ However, Sidewalk’s model describes a centralized, universal platform for communication and civic engagement, namely the Account and Model

¹⁷⁷ Sidewalk Labs, “Sidewalk Toronto,” accessed December 10, 2018.

¹⁷⁸ Canadian Press, “More Info Sought on Sidewalk Labs’ Proposed Waterfront Neighbourhood,” *Toronto Sun*, May 2, 2018; Bianca Wylie, “Civic Tech: A List of Questions We’d like Sidewalk Labs to Answer,” *Torontoist*, October 30, 2017.

¹⁷⁹ This is not without its criticism of the Internet as a means to spread unthoughtful, fleeting, and meaningless media, recounting Habermas’ late-stage decay of the public sphere that commodifies media. Lincoln Dahlberg, “The Internet and Democratic Discourse: Exploring The Prospects of Online Deliberative Forums Extending the Public Sphere,” *Information, Communication & Society* 4, no. 4 (January 2001): 615–33; Dounia Mahloul, “Rethinking the Public Sphere in a Digital Environment: Similarities between the Eighteenth and the Twenty-First Centuries,” *New Horizons*, no. 20 (2013): 21; Sean Hansen, Nicholas Berente, and Kalle Lyytinen, “Wikipedia, Critical Social Theory, and the Possibility of Rational Discourse,” *The Information Society* 25, no. 1 (January 8, 2009): 38–59.

components of their digital layer. As the ubiquitous urban sensors and the digital infrastructure would be designed, built, and maintained by Sidewalk Labs, it seems wholly implausible that any critical discourse could emerge without following the rules that Sidewalk formalizes in its interfaces. Indeed, here we see a recreation of the early, pre-bourgeois public sphere structure that Habermas condemned, except structured around a technocracy and corpocracy, rather than aristocracy.¹⁸⁰ Alphabet Inc. serves as the monarchy, Sidewalk Labs as the willing lord; the common people remain voiceless and unable to enact meaningful change.

GOOGLE AS GOVERNMENT

Finally, the ways in which Sidewalk Labs co-opts existing civic and democratic guidelines further reveal the invisible power structures embedded within their utopian plan. In establishing an unprecedented form for citizen interaction and engagement with Quayside, Sidewalk recognized the importance of simultaneously founding a set of rules that govern such interactions, which they call Standards. However, in the nearly 200 page Project Vision in which Sidewalk introduces their plan, this component is only mentioned briefly and vaguely:

“The platform’s standards layer defines the rules for residents, administrators, and developers using and building atop the platform. Good platforms encourage the most innovation and collaboration with the fewest barriers to entry. The platform must attract participants by being open, and it must connect producers of new goods and services with consumers. The platform must have clear data standards and well-supported application programming interfaces (APIs) to accelerate development. And the platform must have an uncompromising and transparent approach to data and privacy protection.”¹⁸¹

This description of the set of laws defining the foundational interactions and policies of the plan focuses almost entirely on upholding an efficient capitalist supply chain, with only a small

¹⁸⁰ Jürgen Habermas, *The Structural Transformation of the Public Sphere*, Studies in Contemporary German Social Thought. (MIT Press, 1989). 10

¹⁸¹ Sidewalk Labs, “Vision.” 18

mention (“data and privacy protection”) of one discrete aspect of maintaining a democratic, humanistic society.

Since the publication of this initial vision, Sidewalk Labs has further articulated their rules for citizen privacy, promising to view the “protection of personal privacy as a key value in the work that we do involving the collection and use of personal information.”¹⁸² While this does succeed in giving more rights to the individuals within the community, this move, as well as the Standards in general, represent a much deeper dismantling of established structures of democracy. Bianca Wylie, founder of the Open Data Institute Toronto, claims that these guidelines should be viewed not as mere terms and conditions, as is typical in the tech world, but rather laws and public policy which have serious underlying implications for citizens.¹⁸³ Moreover, by outsourcing the development of these laws to an “unelected agency and a future vendor,” not to mention a subsidiary of one of the largest global corporations, the structures of democracy are torn down.¹⁸⁴ In essence, it doesn’t matter that Sidewalk chose to give greater rights to the citizens — the fact that it had the power and ownership to decide shows the company’s invisible stranglehold over democratic processes. Technology ethicist Jathan Sadowski expounds on the dangers of allowing a corporation to assume the positional status of a municipal government: “These partnerships cannot be a way for city governments to abdicate responsibility and accountability to citizens by handing over (parts of) the city to corporations. Nobody elected Alphabet or Uber or any other company with its sights set on privatizing city governance.”¹⁸⁵ In illustrating the elevation of the private corporation to the scale of government (*figure 3.5*), some even go so far as to claim that “Google Urbanism means the end of politics.”¹⁸⁶

¹⁸² Sidewalk Labs, “Our Approach to Privacy,” October 16, 2017.

¹⁸³ Bianca Wylie, “Sidewalk Toronto — We’re Consulting on What, Exactly?,” *Bianca Wylie* (blog).

¹⁸⁴ Wylie.

¹⁸⁵ Jathan Sadowski, “Google Wants to Run Cities without Being Elected. Don’t Let It,” *The Guardian*, October 24, 2017, sec. Opinion.

¹⁸⁶ Evgeny Morozov, “Google’s Plan to Revolutionise Cities Is a Takeover in All but Name,” *The Guardian*, October 21, 2017, sec. Technology.

Perhaps most dangerous of all is how Sidewalk has made this power invisible by design. ‘Public’ meetings stand in the place of local governmental forums; privacy policies appear on the surface as democratically achieved bill of rights, yet do nothing to stop the fact that data will be collected. In the visual maps and diagrams depicting the infrastructural and societal movements through the proposed city, the Standards are never shown as playing a role in guiding how data will be used (as seen in *figures 3.3 and 3.4*).

FROM UTOPIA TO REALITY

This chapter aimed to use the perceptions gained by a close reading of historic technological utopian planning to critically examine Sidewalk Labs’ contemporary developments in Quayside, with a focus on revealing invisible power structures that reside in the plan. Sidewalk’s various publications, myriad community engagement efforts, and future developments are all made possible by Alphabet Inc., which endows Sidewalk Labs with an enormous amount of financial, technical, and political sway. Therefore, *Sidewalk Toronto* is fundamentally different from the more traditional visionary plans discussed in previous chapters — while Chambless and Wright had to settle on books and models, Sidewalk’s city of the future may in fact get built. In making this vision a reality, we can only hope that Sidewalk Labs has explored the vast literature on technological utopias, and realized that it is in no way the first, nor the last, to have such radical ideas about technology and the city.

IMAGES



Figure 3.1 - Idyllic human-focused imagery of Sidewalk Toronto.

Sidewalk Labs. "Vision Sections of RFP Submission," October 27, 2017. 47

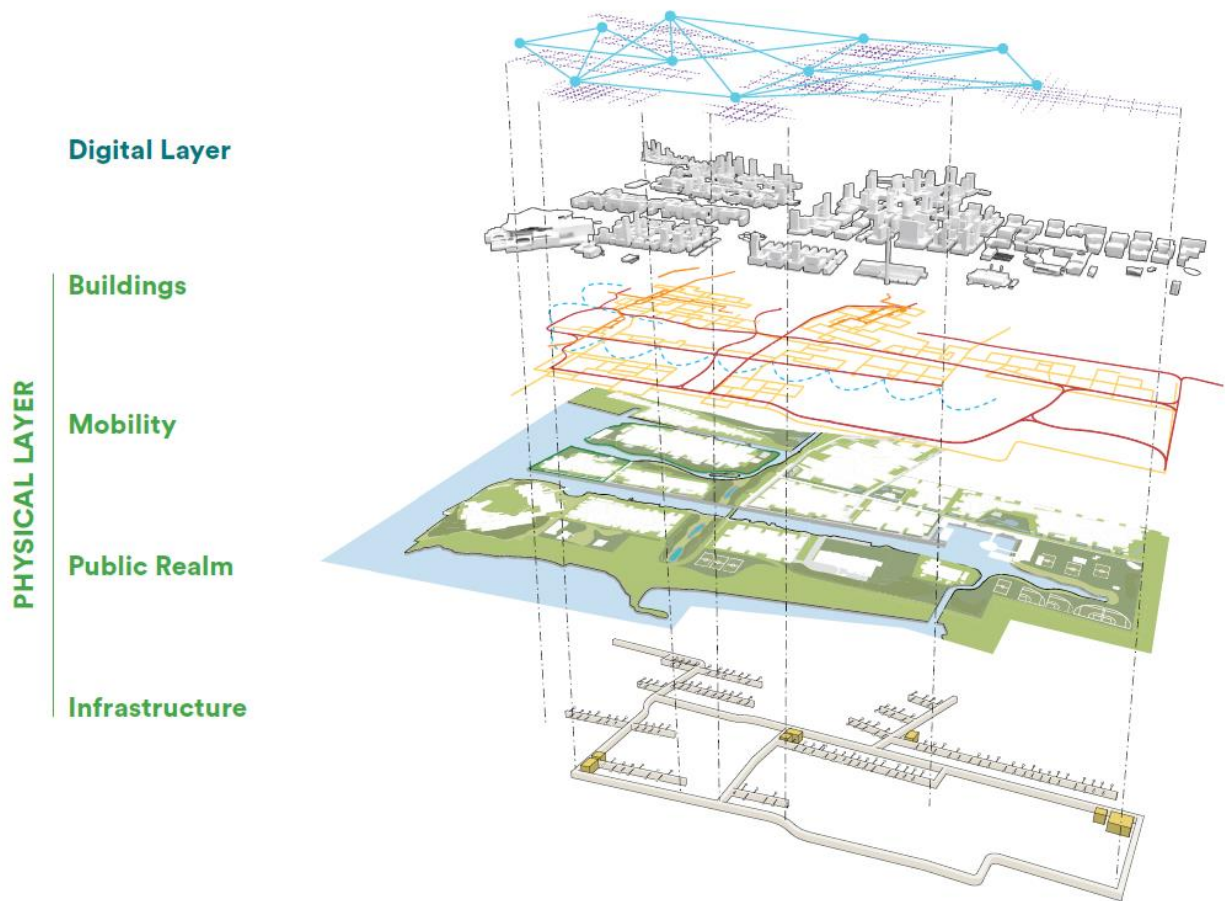


Figure 3.2 - Deconstructed map of Sidewalk Toronto, showing the physical and digital layers and depicting the spatial and social significance of each.

Sidewalk Labs. "Vision Sections of RFP Submission," October 27, 2017. 19

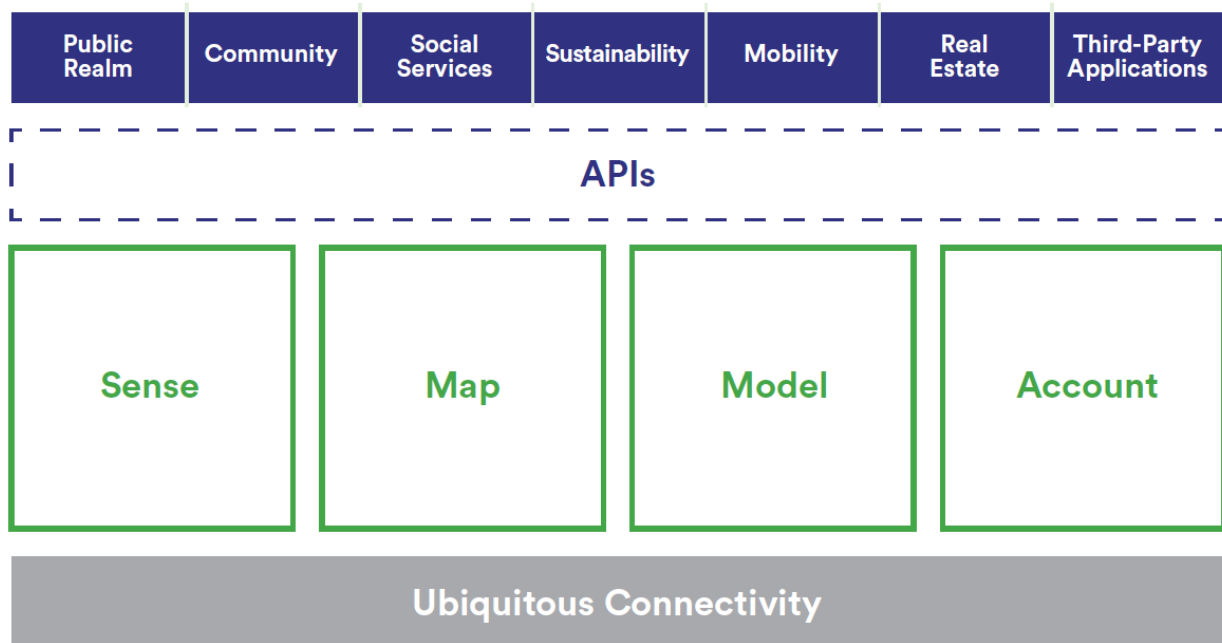


Figure 3.3 - Diagram of Sidewalk Toronto's digital layer, from sensing to engaging.

Sidewalk Labs. "Vision Sections of RFP Submission," October 27, 2017. 67

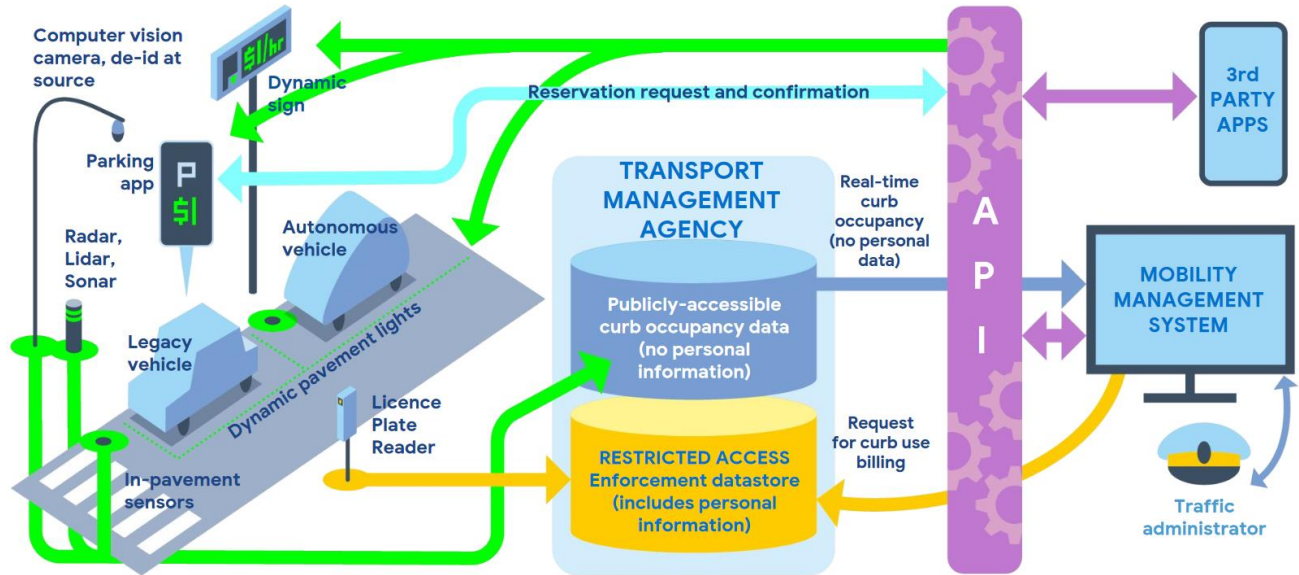


Figure 3.4 -Diagrammatic example of Sidewalk Labs' controlled flow of data.

Sidewalk Labs. "DSAP Technology Update," December 13, 2018. 28

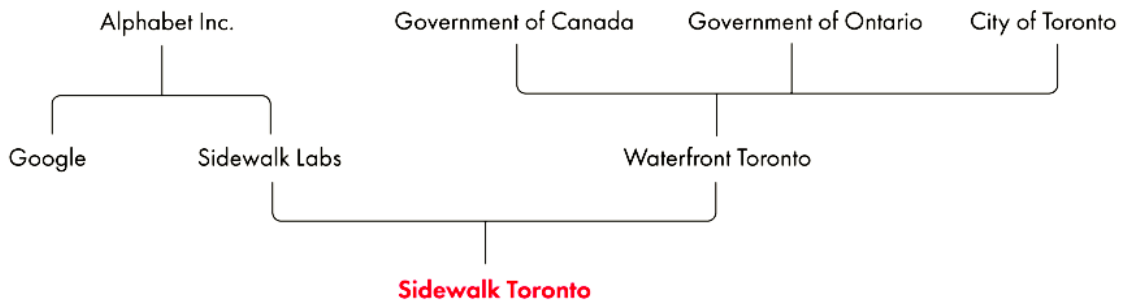


Figure 3.5 - Alphabet Inc. as a municipal government, yet composed of unelected officers.

Wylie, Bianca. "Searching for the Smart City's Democratic Future." Centre for International Governance Innovation, August 13, 2018. <https://www.cigionline.org/articles/searching-smart-citys-democratic-future>.

CONCLUSION: DO YOU ACCEPT THE TERMS AND CONDITIONS?

This thesis set out to examine how visionaries in the past have used technology to structure urban communication systems, and to study the consequent impacts on society and democracy. By following the spatial evolution of utopian urbanism in parallel with the technological states of their times, I aimed to show that space and power are inseparably linked, and as communication technologies have the ability to manipulate our understandings of space, so too can they alter mechanisms of control. I then used Habermas' chronology of the rise and fall of the bourgeois public sphere to show that urban visions can similarly model different functional or dysfunctional publics and forms of democracy, as constructed by their communicative systems.

Finally, I connected these historical perspectives with Sidewalk Labs' contemporary urban utopian vision, to examine how the company models space, publics, and power. I found that Sidewalk's communication system is designed to extract and manipulate information from the public realm in a way that stifles meaningful public discourse, and shifts ownership of the city and the public solely into the possession of the private company. By mimicking institutions such as local governments, planning agencies, police, and news agencies, Sidewalk Labs establishes itself as a technocratic ruler, invisibly consolidating control over the city.

With their radical conceptions of data tracking, processing, and manipulation, it is clear that Sidewalk Labs' urban utopia, seen as embedded within a long technological utopian history before it, will indeed "redefine urban life in the 21st century" — now we need to ask ourselves whose definition we want to enforce. In an age plagued by data leakages, privacy exploitations, and an overwhelming distrust in corporate technology giants, who do we really want envisioning our future cities? Perhaps rather than accepting Howard Segal's initial declaration that the field of technological utopianism is naturally dominated by white, privileged males, we can look with a critical perspective and ask why — what does it mean when only a small few are able to

propagate their urban ideals? More importantly, what do those who haven't traditionally had their voices heard at the conversation have to say?

Octavia Butler, a female, African American science fiction author who wrote prolifically in the late twentieth century, constructed many fictional worlds around perspectives of communication and technology — perspectives that come from a fundamentally different place than those studied in this thesis. Her race, gender, and self-described crippling shyness all defined her as outside of the hegemonic image of the outgoing, white, male utopian writer, who traditionally has been thought to embody power and allowed to bury this power within his urban vision. Butler's work forcibly breaks from this structurally imposed silencing to share her alternative visions of the future — to assert her voice, and in doing so to reposition power as to elevate the voices of those who have been oppressed and who have had their agency and citizenship erased.¹⁸⁷

In her short story *Speech Sounds*, the future citizens of Los Angeles have succumbed to a terrible sickness that has caused society to forget how to process language.¹⁸⁸ They are mute, illiterate, isolated, with no way to communicate to each other except for primitive grunts and gestures. Their technologies are relics of the past: books, maps, phones, and radios are all rendered useless and irritating. Irresolvable misunderstandings lead to fear, fights, wars — a firmly dystopian yet eerily realistic image of a post-communication world.¹⁸⁹ Through *Speech Sounds* and many other stories, Butler shows that “the will to communicate, to read, write, and speak, seem basic to humanity — at least to the way [she] defines humanity through her fiction. And Butler's science fiction is all about what makes us human — often understood only at that moment when our humanity starts to mutate into something fundamentally different.”¹⁹⁰

¹⁸⁷ Octavia E. Butler, “Positive Obsession,” in *Bloodchild* (Four Walls Eight Windows, 1995).

¹⁸⁸ Octavia E. Butler, “Speech Sounds,” *Asimov's Science Fiction Magazine*, December 15, 1983.

¹⁸⁹ Henry Jenkins, “Octavia Estelle Butler,” *Media in Transition*, July 29, 1998.

¹⁹⁰ Jenkins.

So, as Sidewalk Labs attempts to mutate our humanity before our very eyes, perhaps they need to look back not only at the documented chronology of technological utopianism; alternative, dystopian visions too. These warnings, perhaps, can show how to truly give power over the city to all people.

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