Dumb Cities: Spatial Media, Urban Communication, and the Right to the Smart City

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A majority of the global population is now concentrated in cities, and the "smart city" model has emerged as the predominant paradigm for contemporary urban development. Employing networked infrastructures and big data for urban governance, the smart city promises innovative solutions for longstanding urban problems—using computer technologies to automate or monitor everything from traffic patterns to voting practices—while also posing new questions and dilemmas for city dwellers. The smart city model reworks traditional notions of urban rights, such as access to housing and public space, by implementing communication technologies that offer new possibilities for connection even as they create conditions for division and unequal access. How do the communication infrastructures deployed in smart city programs alter the communicative functions of urban spaces, and how might critical urban theory be updated in order to account for these emerging technologies? Focusing primarily on Pittsburgh, Pennsylvania, this project addresses these questions by investigating policies, practices, and infrastructures mediating civic engagement and urban communication in technologically-driven urban development. I survey several salient examples of smart city approaches including the use of “big data” approaches for urban governance, networked transportation infrastructures, and media interfaces for visualizing and interacting with space. This work focuses especially on how notions of citizenship and civic engagement are constructed in "smart" urban imaginaries, as well as the role of emergent technologies in mediating experiences of space and place. I advance the rhetorical skill and cunning intelligence of mêtis as a conceptual lens for assessing and cultivating an engaged

urban citizenship. I argue that rhetorics of "smart" urbanism discursively delegate ideals of civic engagement to technical infrastructures and processes, thereby occluding both longstanding and emergent disparities in urban communities.

Table of Contents

1.0 Introduction

What happens to the city when it is pushed to its limits? What becomes of urbanism when extended to extremes? Cities today face a host of challenges and existential threats that promise to test the thresholds of urban resilience. Climate change and ecological catastrophe, refugee crises and mass migrations, unprecedented economic inequality and urban poverty are among the foremost threats confronting cities worldwide. Further complicating matters is the contemporary development paradigm of "smart urbanization." Smart city programs are often touted as uniquely capable of addressing the aforementioned predicaments through wide-ranging implementation of information and communication technologies (ICTs), networked digital media, and infrastructures for gathering and processing vast amounts of data. These tools are poised to augment if not outright intensify aspects of city life long considered quintessential characteristics of urbanity such as concentrated complexity and contingent connections. When positioned as a solution or salve for pressing urban problems the "smart city" model seems premised on preserving the urban condition by heightening it to extremes.

Toward the end of his life the pioneering media theorist Marshall McLuhan attempted to formulate an empirical and replicable heuristic out of his idiosyncratic perspective on the psychological and social effects of mass communication. These efforts resulted in the posthumously published Laws of Media (1988) in which McLuhan presented his tetradic model of media effects based on the four eponymous laws. The tetrad can be applied to any technology or cultural artifact and the four laws are framed as questions: What does the medium enhance or intensify? What earlier forms does the medium make obsolete? What older, previously obsolesced form is retrieved by the new medium? And, lastly, what does the medium reverse into when pushed

to the limit of its potential? McLuhan drew on examples from the history of urban development to illustrate how the tetrad might be applied to analyze technological change. For instance, the automobile enhanced personal mobility and obsolesced "the old organization of the city in favour of the suburb" (p. 99). It is easy to imagine that the smart city, infused with and embedded within emerging media technologies, would be of particular interest to McLuhan and his vision of a Global Village connected by communication networks. If one were to apply the tetrad of media effects to the smart city, how might McLuhan's four questions be answered? What does it enhance, obsolesce, or retrieve, and how does it ultimately retrogress? Does a "smart" city reverse into a "dumb" one?

Concerns over urban adversity have mobilized policy and governance initiatives. In October 2016 members of the United Nations and participants from around the world convened in Ecuador's capital city of Quito for Habitat III, the third U.N. conference on housing and sustainable development. Habitat conferences have been held every twenty years starting with the inaugural event in Vancouver in 1976 and followed in 1996 by Habitat II in Istanbul. Promotional materials for Habitat III described the conference as especially significant for being the first such event to be held in a majority urban world. The claim is based on the oft-cited statistic that more than half of the global population is now concentrated in urban areas, with an estimated 54% of humanity living in cities. In an essay charting salient trends in contemporary urban theory Neil Brenner and Christian Schmid (2015) refer to this pronouncement of a majority-urban world population as the "urban age" thesis, citing it as the "most influential contemporary metanarrative of the global urban condition" (p. 155). Despite this broad influence - or perhaps because of it - they consider the "fifty percent urban threshold" statistic among "the most quoted, but therefore also among the most banal, formulations in contemporary urban studies" (p. 156). Fran Tonkiss (2013) similarly

describes the declaration of majority urban habitation as "either a very profound or a very banal proposition" (p. 18), while noting that an even greater majority of people are imbricated with urban centers through economic and transportation networks. Nevertheless, this planetary milestone provided the context in which Habitat III was convened with the goal of ratifying and adopting the New Urban Agenda.

The New Urban Agenda (NUA) refers to a visioning document described in conference materials as "an action-oriented document which will set global standards of achievement in sustainable urban development, rethinking the way we build, manage, and live in cities" (UN, 2016a, p. 1). The NUA retains core concerns emphasized in previous Habitat conferences—such as the need for secure and adequate housing in urban centers—and adds new commitments to environmental sustainability, gender equality, and the abolition of poverty. The document outlines a comprehensive array of political positions and practical approaches for addressing these issues, including those of the smart city model. The NUA commits to adopting "a smart city approach" defined as utilizing "opportunities from digitalization, clean energy and technologies, as well as innovative transport technologies" (UN, 2016b, p. 10). Brenner and Schmid (2015) situate smart city frameworks within the broader trend of "technoscientific urbanism" in which "information technology corporations are aggressively marketing new modes of spatial monitoring, information processing and data visualization to embattled municipal and metropolitan governments around the world as a technical 'fix' for intractable governance problems" (p. 157).

In addition to proposing measures for optimal urban governance the NUA also makes connections to a legacy of emancipatory urbanism by invoking "the right to the city." After broadly outlining the core tenants and ambitious aims of the new urban agenda the document notes "the efforts of some national and local governments to enshrine this vision, referred to as right to the

city" (UN, 2016b, p. 2). The phrase "right to the city" is most closely associated with the French urbanist Henri Lefebvre. Lefebvre coined the expression in an eponymous 1968 book (Le droite à la ville), presenting the right as a radical claim for autonomy of urban inhabitants over their shared environments. The evocative phrase and the transformative politics it portends have sparked the imaginations of urban theorists, activist groups, and social movements. U.N. initiatives have adopted language and ideas from the right to the city in order to articulate an overall human rights agenda. UNESCO has promoted a World Charter for the Right to the City, and in 2001 Brazil codified the right to the city with an urban land-use law called the City Statute (Purcell, 2013). When in 2004 the World Urban Forum affirmed every citizen's "right to the city" scholars noted the evident influence of Lefebvre's thought and mused whether the urbanization of the globe had finally caught up to his ideas (Merrifield, 2006). Other scholars, however, have suggested that the codified "right to the city" expressed in these policy discourses falls far short of the scope and transformative potential of Lefebvre's original concept. As Margit Mayer (2009) argues, Lefebvre conceived the right to the city as "less a juridical right, but rather an oppositional demand" (p. 367) that challenges the powerful interests of state and capital that seek to shape the city to their ends.

If Lefebvre's radical conception of the right to the city appears absent from the Habitat III proceedings it may perhaps be found in the Quito Papers, the intellectual companion piece to the New Urban Agenda (UN-Habitat, 2018). To coincide with the ratification of the NUA urban sociologists Richard Sennett, Saskia Sassen, and Ricky Burdett collaborated on an accompanying statement on contemporary city planning. The co-authors initially conceived of their project as a response to an earlier treatise on urban planning and design from the great architect of modernism Le Corbusier. Corbusier conceived of the city as analogous to a computer that could be programmed for specialized functions and maximal efficiency. The spaces he designed are

distinguished by monumental master-planning and typified by vast planar surfaces, high-capacity highways, and monolithic housing towers. The authors of the Quito Papers positioned their document as a counterpoint to the "Athens Charter," a 1933 treatise in which Corbusier outlined his vision of an urban design that is rational, bounded, and orderly. Against Corbusier's totalizing prescriptions for urban planning the Quito authors advocate an approach that is "open" and flexible, attuned to the street-level needs of urban denizens rather than the instrumental abstractions of planners. This "open urbanism" accords with emancipatory urban politics and the right to the city as it seeks to balance the need for providing structure with empowering citizens to shape their environments.

The Quito Papers authors seek to relegate Le Corbusier's planning ideology to the past, casting his approach to urban design as inadequate for addressing contemporary challenges and meeting the needs of urban inhabitants. Smart city discourses similarly promote the capacity of emerging technologies and amorphous "innovation" to mitigate modern predicaments. Many of the terms employed to describe smart frameworks evoke the Quito Papers' notion of "open" urbanism through their emphasis on dynamic, flexible, and responsive technologies and methodologies. Despite this rhetorical resonance with more radical urban theories smart city programs can also be seen as reproducing or retrieving core characteristics of modernist urban planning. As Brenner and Schmid (2015) note, technoscientific urbanism reinforces "the basic urban age understanding of cities as universally replicable, coherently bounded settlement units" (p. 157). The technocratic ethos underpinning these initiatives is conducive to a universalizing and depoliticized approach that equates good urban governance with shrewd management. Smart city imaginaries are thus situated at a nexus of urban order and unruliness, a dialectical tension that the Quito Papers render as a spectrum between totalizing top-down abstractions and ground-up

participatory engagement. This dissertation project probes this dialectical tension in order to theorize and interrogate smart urbanism, opening an interstitial space for inquiry and intervention.

If Le Corbusier viewed the city as a computer, my approach in this dissertation considers cities as media. Drawing on my specialization in communication and media studies, I conceive cities as both constitutive of and constituted by communicative processes. My investigation into smart cities is guided by two distinct yet interrelated questions. First, how does the infusion of ICTs and digital media within smart urbanism affect the communicative functions of cities? The material spaces of urban environments have historically provided channels for communication and interaction. Emerging technologies and approaches to city governance portend a salient augmentation of these spaces, prompting a reconceptualization of the means and ends of urban communication. The opportunities for connection offered by the communicative infrastructures of smart cities simultaneously present possibilities for disconnection and disparities of access. Designations of "smartness" typically refer to the capacity for information sharing amongst networked infrastructures, raising questions about what "counts" as communication in these frameworks. The second guiding question is rooted in my personal and intellectual commitment to a critical and emancipatory urban politics. What does a call for the right to the city look like within the smart city paradigm? The smart city emerges from a historical moment of not only technological change but also shifting social and economic landscapes. The contours of smart urbanism reflect developments of neoliberalism and digital capitalism in particular. In light of these transformations since Lefebvre's original formulation, how might the cry and demand for the right to the city be articulated in the era of smart urbanism? Of key concern for the present project is the capacity for communicative infrastructures to foster critical engagement and foment radical politics when communication circuits are thoroughly integrated with processes of

neoliberal governance and capitalization. As I will argue, the extension of communicative media in urban life may indeed "overheat" and reverse "smartness" into "dumbness," creating the potential for both silencing dissent and realizing resistance.

1.1 The City as Medium: From Spatial Media to the Communicative City

Urban communication theorists Gary Gumpert and Susan Drucker (2008) suggest that cities "function as a medium of communication in so far as messages are carried through communication in those spaces," and posit that urban spaces "are arguably among the oldest forms of communication and media" (p. 196). From this perspective city streets and public plazas are the forerunners of spatial media. Cities are themselves cultural constructs and also function as engines for cultural production. As Adam Chmielewski (2014) notes, "cities are sites of production, distribution, and consumption not only of material goods, but also of symbolic ones" (p. 34). The spaces of urban environments further serve as media for molding identities, shaping interactions, and encouraging certain forms of sociality. Robert Pfaller (2017) identifies the condition of "urbanity" as a particular communicative and rhetorical virtue. Pfaller traces a lineage from classical notions of "urbanitas" as refined speech to the modern understanding of "urbane" as suave sophistication. The idea of urbanity as a distinct way of life has thus long been associated with linguistic facility, rhetorical aptitude, and the ability to skillfully maneuver amongst different communicative contexts.

Urban spaces have also long been associated with political participation and the performance of citizenship in particular. The ancient Greek polis and the central space of the agora remain potent metaphors for contemporary democratic practice. In The Human Condition, Hannah

Arendt (1958) drew on the spaces and social structures of the ancient Greek city-states in order to draw a distinction between life in the market versus life in public space. Arendt considered the market an impoverished place where subjects are treated as animals—mere consumers driven to satisfy bodily and selfish needs. In the market one's human identity and individuality is of no importance: in order to purchase a commodity you need only pay the appropriate price, irregardless of personal identity. In the public realm, by contrast, subjects or speakers are recognized as unique human beings. This then is the key idea in Arendt's distinction between the private and public realms: people live privately as animals, and as humans only in public. For Arendt, the polis does not refer to the material built environment of the city-state but to the relations that emerge from acting and speaking together: "Not Athens, but Athenians, were the polis" (p. 195).

With the advent of mass communication in the 20th century researchers turned their attention to these new technologies and to the industries of media production which were largely concentrated in urban centers. The "Chicago School" sociologists examined how media and mass communication affected urban communities, producing a body of literature that is considered foundational for both modern urban studies and mass communication research. The work of Richard L. Meier (1962) represents an early approach to studying cities through a distinctly communicative lens, drawing on germinal mass communication theories like the Shannon-Weaver model of information transmission to theorize urban development. Noting that cities "evolved primarily for the facilitation of human communication" (p. 13), Meier suggested that the "communications framework is most suitable for appraising the culture of cities" (p. 7). Contemplating processes of urban development in light of these communication models led Meier to the insight "of a city as an open system that must, if it is to remain viable, conserve negative entropy (information)" (p. v). Meier's application of information theory to the study of

urbanization accords with the prevailing communication theory of the time as well as the "ecological" models of urban communities developed by the Chicago school sociologists.

Other theorists have considered the connection between media and urban form more broadly. In Technics and Civilization ([1934] 2010) Lewis Mumford presented a view of human history divided into epochs based on the driving technology of the time. The advent of steam power, for example, "increased the areas of cities" and "increased the tendency of the new urban communities to coalesce along the line of transportation and travel" (p. 163). Harold Innis evinced a similar view of historical progress in The Bias of Communication ([1951] 2008), combining classical political economy with a theory of the unique role played by communication media. Innis argued that the material characteristics of a communication medium displayed biases toward either movement through space or movement through time. Whether time-bias or space-bias was predominating in any era was evident in the prevailing forms of social organization and patterns of development. Marshall McLuhan's approach to media studies was heavily influenced by both Mumford and Innis. For McLuhan, a medium was anything that mediated between the human organism and the environment, and he considered all media "extensions" of some human faculty. So clothing and housing are both extensions of the skin, and cities "are an even further extension of bodily organs to accommodate the needs of large groups" ([1964] 1994, p. 169). McLuhan ascribed particular significance to transportation technologies, connecting the grid layout of American cities to the historical role of the railroad and noting how the advent of the automobile "refashioned all of the spaces that unite and separate men" (p. 301).

The theoretical trajectories established by Mumford, Innis, and McLuhan have been taken up by subsequent scholars. German media theorist Friedrich Kittler boldly affirmed the connection between urbanism and media in an essay titled "The City is a Medium" (1996). Kittler refers to

Mumford's work in particular, stating that "Mumford clearly understands cities to be analogous to and compatible with computers – and therefore media" (p. 721). Using language reminiscent of Meier's vision of the city as an open system, Kittler describes aspects of cities in relation to computer systems and programs: cities are networks transmitting information in a variety of forms and through a multitude of channels. This, Kittler states, "is reason enough to bring together the workings of the city with concepts from general information science" (p. 722). Yara Araujo (2008) has similarly extrapolated the notion of "the city as medium" in McLuhan's media theory, employing the term "device city" to refer to the networked connectivity and communicative potentialities in modern metropolises.

Araujo's formulation of the "device city" alludes to a major shift in the urban communication landscape: the proliferation of personal media devices and their role in mediating everyday experience. The research into communication technologies and urban environments initiated in the early 20th century focused on mass communication and the burgeoning modern metropolis. Mass media in the form of newspapers, public advertisements, and radio and television broadcasts were addressed to a general audience and premised on mass consumption. The advent of mass communication thus also entailed the creation of "the masses." The development of personal media devices allowed for individualized experiences of both content and usage, troubling traditional approaches to the study of mass media reception. Joshua Meyrowtiz provided an early exploration of the impact of electronic media on spatial experience in No Sense of Place (1985). Meyrowitz argues that electronic media have "decreased the significance of physical presence in the experience of people and events" (p. vii) and "altered the significance of time and space for social interaction" (p. viii). Successive urban media research has considered the wide array of personal media technology available to urban denizens. For instance, Michael Bull (2013)

examined the ability of urban denizens "to create their own privatized sonic bubbles" through the use of personal music devices (p. 495). Recalling Meyrowitz's pronouncements of spatial diminishment, Bull argues that personal media use "transforms any urban space into a non-space" because the devices permit "users to control and manage their urban experience" (p. 498). The present ubiquity of mobile media devices offers urban inhabitants myriad means for implementing a personalized experience of the city.

As the preceding survey indicates, scholars have studied the city as a communication medium using a variety of theoretical perspectives. A recent initiative has attempted to provide a unified and comprehensive approach to urban communication under the rubric of "the communicative city." The communicative city concept emerged from the Urban Communication Foundation (UCF), an organization with the mission to "promote research that enhances our understanding of communication patterns in the urban environment and encourages collaboration between communication scholars, urban planners and policy-makers" (Gumpert & Drucker, 2008, p. 196). Over a series of meetings in summer 2007 UCF members sought to establish a list of criteria that defined a "communicative city." Participants advanced toward a definition of the communicative city by posing two interrelated questions: how does a city communicate, and how does it facilitate communication? (p. 195). The resulting inventory featured a range of attributes including the material elements and physical structures of the built environment, social arrangements, regulatory structures, and both fictional and non-fictional depictions of cities. These meetings also produced the Urban Communication Audit, a methodology for identifying components of the communicative city framework present in a particular municipality and gauging the extent to which residents were linked to local communication networks (Jeffres, 2008).

In addition to foregrounding the constitutive role of communication in city life the communicative city framework also echoes the calls for openness and informal interaction found in the Quito Papers and other formulations of critical urbanism. UCF founding members Gary Gumpert and Susan Drucker (2008) explicitly situate their project in relation to tensions between order and unruliness. While recognizing that structure is necessary to address the pressures of urbanization, they argue that "too much control results in rigidity, stifling the vibrant and energetic nature of urban life" (p. 203). Gumpert and Drucker evince a similar predilection for ground-up ingenuity as the Quito Papers authors, identifying the potential for change and opening of possibilities with "the dynamic feature of flexibility, the ability to adapt to different circumstances" (p. 203). The communicative city model thus accords with a lineage of critical urban theory that conceptualizes the urban condition as a negotiation between impositions of order and irruptions of unruliness, and locates the potential for an emancipatory urban politics within this tension. Cees Hamelink (2008) further affirms this connection by directly linking the "communicative city" and the right to the city. For Hamelink, the "notion of the communicative city is the embodiment of a fundamental human right" (p. 298) and entails a suite of related rights such as privacy, free association, and participation in cultural life. Citing the critical role of communication in how citizens manage a host of urban conflicts, Hamelink argues that communicative capacity should be a key element in how the right to the city is envisioned and proposes the formulation of a "human right to the communicative city" (p. 298).

1.2 Smart Cities and Neoliberal Urbanism: "Smart" Power, Communicative Capitalism, and Interpassivity

Appeals based on the Lefebvrian right to the city have emerged as a popular response to the conflicts and inequalities associated with neoliberal urban development. Since their initial conspicuous emanations in the 1990s the trends most associated with neoliberal urbanism have included the radical prioritization of market mechanisms for driving development, the increasing privatization of city service provision, and the mobilization of city space for economic growth (Mayer, 2009). Cities face extreme economic pressures under neoliberalism as the mercurial movements of finance capital and flexible geographic strategies of corporations have resulted in increased competition between metropolitan regions vying to attract economic resources (Ronneberger, 2008). The neoliberal landscape has spurred interest in the right to the city as a strategy for urban denizens to exercise a shaping influence in the development of their communities and shared spaces. David Harvey (2012) cites neoliberalization as a key factor behind the adoption of clauses guaranteeing the right to the city in the 2001 Brazilian Constitution. This codification of the right to the city, Harvey argues, "has nothing to do with Lefebvre's legacy, but everything to do with ongoing struggles over who gets to shape the qualities of daily urban life" (p. xii). As John Balzarini and Anne Shlay (2015) indicate, the "idea that city and community spaces should be produced for the benefit of residents and not for a profitable return on investment situates the right to the city as an alternative to neoliberalism" (p. 513).

The smart city model developed against the backdrop of neoliberal urbanism and reflects contemporary realities of urban governance and economics in significant ways. The promotion of "smart" initiatives is closely linked to neoliberal development policies where "the construction of a smart city image becomes useful to attract investments, leading sector professionals, and

workers" (Albino, Berardi & Dangelico, 2015, p. 16). The nominal designation of "smart" in these discourses is typically understood as referring to the prominence of ICTs and other networked infrastructures in these programs, yet notions of "smartness" are also implicated with practices of neoliberalism more generally. Slavoj Zizek (2008) identifies "smart" as a keyword of contemporary capitalist management: "smart indi-cates the dynamic and nomadic as against centralised bureaucracy; dialogue and cooperation against hierarchical authority; flexibility against routine; culture and knowledge against old industrial production; spontaneous interaction and autopoiesis against fixed hierarchy" (p. 16). In Zizek's formulation "smart" management designates a range of ideological and operative adjustments necessitated by neoliberal disruptions of Fordist capitalism. This notion of "smartness" can also be applied to the economically precarious neoliberal subject who is rhetorically reconfigured as a flexible, entrepreneurial, and "empowered" agent.

Neoliberal "smartness" also features in Byung-Chul Han's (2017) theoretical frame of "psychopolitics." Psychopolitics represents an inversion of bureaucratic governance in which neoliberal processes function through the exploitation of freedom rather than its repression. In the current era of information abundance and prolific communication hegemonic governance strategies no longer rely on strict coercion and are instead premised on permissive participation. Neoliberal power is "smart power with a liberal, friendly appearance" (p. 15). Rather than imposing order or threatening punishment smart power "stimulates and seduces" (p. 15). Smart power "does not impose silence" (p. 14) but is rather "constantly calling on us to confide, share and participate: to communicate our opinions, needs, wishes and preferences - to tell about our lives" (p. 15). Han views the ubiquity of social media as uniquely illustrative of how psychopolitics operates, describing the aggregate of online outlets as collaborative panoptica in which "the

occupants of today's digital panopticon actively communicate with each other and willingly expose themselves" (p. 8). The combination of participation and collaboration produce a far more efficient surveillance apparatus than the isolationist disciplinary panopticon envisioned by Bentham. Han argues that individuals under psychopolitics "subjugate themselves to domination by consuming and communicating" (p. 15), and as such "unbounded freedom and communication are switching over into total control and surveillance" (p. 8).

Han's characterization of pyschopolitics closely corresponds to Jodi Dean's (2009) notion of "communicative capitalism." Dean defines communicative capitalism as "the materialization of ideals of inclusion and participation in information, entertainment, and communication technologies in ways that capture resistance and intensify global capitalism" (p. 2). She argues that discourses and practices of networked communications media fetishize speech, opinion, and participation in such a way that the exchange value of a message overtakes the use value. Messages are thus unmoored from "contexts of action and application" (p. 26) and become part of a circulating data stream that relieves institutional actors from the obligation to respond. Thus, for Dean, communicative capitalism is "democracy that talks without responding" (p. 22). Changes in communication networks represented by the acceleration and intensification of global telecommunications have consolidated democratic ideals and logics of capital accumulation, resulting in a "strange merg-ing of democracy and capitalism in which contemporary subjects are produced and trapped" (p. 22).

Dean argues that the ostensible democratic possibilities offered by participatory media merely serve to provide a semblance of participation by substituting superficial contributions of message circulation for real political engagement, a phenomenon she connects to the theoretical concept of "interpassivity." The theory of interpassivity was first articulated by Austrian

philosopher Robert Pfaller to describe trends in interactive artwork. Pfaller's original formulation was directed as a response to discourses on interactivity predominating in art theory during the 1990s, but the concept has since been taken up to theorize modes of quasi-interactivity or mediated engagement, such as the practices online "slacktivism" highlighted by Dean. In most applications interpassivity refers to phenomena in which activity, behavior, or belief is delegated or "outsourced" to another agent. In a recent book Pfaller (2017) repositioned interpassivity as the delegation of enjoyment. Rather than having other people or machines work on your behalf, "interpassive behaviour entails letting others consume in your place" (p. 1). Through interpassivity, Pfaller argues, "people delegate precisely those things that they enjoy doing" (p. 2). For Pfaller, interpassivity is marked by a double delegation, involving a transfer not only of pleasure but also of belief to a representative agent.

This delegation of belief in interpassivity theory has been central to Slavoj Zizek's use of the term. Zizek employs the theory of interpassivity to argue that cynical distance and doubt buttress rather than undermine ideological function by positing the existence of an "other supposed to believe" and "illusions without owners." Zizek cites examples of interpassive operation from electronic media. The "canned laughter" on the soundtrack of a TV sitcom "performs" laughter on behalf of the viewer "so that it is the object itself that 'enjoys the show' instead of me, relieving me of the superego duty to enjoy myself" (1998, p. 5). Video recording of TV programs allows one to continue working in the evening "while the VCR passively enjoys for me" (p. 7). Advertising messages perform the enjoyment of commodities on behalf of the consumer ("Coke cans bearing the inscription 'Ooh! Ooh! What taste!'" p. 5). Zizek has also frequently used the example of the Tibetan prayer wheel as a key analogy in his theory of how ideology is perpetuated through disavowed belief. The prayer wheel allows the user to delegate religious belief, as spinning

the wheel executes the prayer ritual on the subject's behalf. For Zizek, the situation is analogous to capitalist subjects who act "as if" they believe the economic system works while professing a cynical distance. As with the prayer wheel, ideology allows subjects to dispense with belief or conviction while persisting in the routines and behaviors through which the belief is enacted.

Dutch philosopher Gijs van Oenen has further developed the theory of interpassivity, expanding the scope of interpassive operations to the domains of politics and citizenship. For van Oenen, interpassivity emerges as a response to the overwhelming demands for interactivity and expectations of civic responsibility facing modern subjects. The "privilege of self-realization" has come to be experienced as a burden as an "imperative to participate" (2011, p. 10). Interpassivity provides subjects with a means to "outsource the burden of interactivity" and promises repose in the form of institutions and objects that "appear prepared to assume the load of emancipation and self-realization" (p. 11). Van Oenen thus considers interpassivity as "a form of resistance to the pressures exerted by successful emancipation" and a relief from the obligation to always live up to our emancipatory promise (p. 1). In relation to smart urbanism, van Oenen cites the emergence of "smart" infrastructures as potential interpassive agents and suggests that "interpassivity will manifest itself in a spatial way" whereby citizen interactions in public space are progressively mediated and the "public sphere increasingly becomes a stage upon which interpassive roles and sentiments are played out" (2010, p. 304).

Other theorists have also theorized interpassive phenomena in the context of urban life. Following van Oenen, René Boomkens (2008) argues that interpassivity "perfectly express[es] the fate of the contemporary urban dweller" and that "the selfaware and outspoken citizenship that was traditionally associated with public life in democratic societies is definitively a thing of the past" (p. 8). Adam Chmielewski (2014) offers a more critical perspective, suggesting that

interpassivity "adversely affects the civic agency of urban citizens" (p. 31). Chmielewski notes that "cities are a particularly fertile ground for the development of interpassive attitudes" owing to the division of labor and forms of instrumental sociality prevalent in urban environments (p. 40). Processes of commodification have intensified the level of sophistication required for participation in contemporary urban life resulting in a "mental and political withdrawal of individuals from the active participation in urban life" that Chmielewski terms "public agoraphobia" (p. 32). Interpassivity progenitor Robert Pfaller (2017) has also applied the theory to urban relations. Returning to the interpassive formulation of "illusions with owners," Pfaller argues that "urbanity is based on beliefs without believers" and that "the urban bond of organic solidarity is formed by interpassivity" (p. 126). Urban civility is premised upon the individual abandonment of the narcissistic ego and adoption of a "civilized" persona. In this view urban public life is a performative space in which "flexible masks encounter each other in the city" (p. 126). For Pfaller, urbanity is predicated on an interpassive relation that involves "having respect for a fiction even if it is not one's own, and keeping up appearances" (p. 128).

The preceding perspectives on communicative practices within neoliberal capitalism pose pivotal implications for a critical politics of the smart city. The formulations of neoliberal "smart" power and communicative capitalism upend previous dichotomies between dynamic ingenuity and stagnating governmentality as expressed in documents like the Quito Papers and the communicative city inventory. The integration of communication technologies and message circulation into neoliberal governance calls the very possibility of an emancipatory communicative practice into question. Han's model of psychopolitics identifies permissive communication and participation as the very means of modern subjugation and domination. From this perspective the smart city framework portends a conjunction of "communicative capitalism" and "the

communicative city." Do these elements coalesce into a repressive regime of "communicative urbanism"? The phenomenon of interpassivity further troubles traditional schemas of urban resistance. Whereas Dean identifies interpassivity with the capture and neutralization of resistance van Oenen sees interpassive operations as a form of resistance in themselves. If van Oenen is correct that citizens are burdened by interactivity and the imperative to participate, then how might an emancipatory urban politics be formulated in the post-emancipatory era of interpassivity? Is the "right to the smart city" fated to be an illusion without owners?

1.3 Project Overview

This dissertation advances the perspective of the city as communication medium to examine salient manifestations of technologically-mediated urban development. The project is guided by two related questions. First, how does the infusion of ICTs and digital media within contemporary urban design affect the communicative functions of cities? Secondly, what does a call for the right to the city look like within the smart city paradigm? In order to operationalize the first of these questions I identify discourses relating to the application of emerging technologies to issues of urban design and governance. Rather than attending to the technical operations of these infrastructures, my analysis focuses on ways in which these technologies feature in discourses of urban development. In regards to the second research question, this project tracks the ideals of the "right to the city" in academic and policy discourses that explicitly invoke the phrase, critiques extending Lefebvre's analysis of capitalist urbanization, as well as perspectives foregrounding tensions between order and unruliness in city life.

As with the aforementioned examples from the New Urban Agenda and the Quito Papers, the object of my analysis in this project is not the "smart city" per se, but rather with prevailing approaches to urban governance, particularly those that employ rhetorics of technological solutionism in advancing the abilities of emerging technologies to address urban issues. To explore these approaches my project focuses on articulations of development agendas in urban policies and discourses, similar to the New Urban Agenda, in light of critiques that draw upon legacies of Lefebvrian-inspired urban theory, such as those represented in the Quito Papers. Thus, this project approaches contemporary urban development and technologically-oriented initiatives associated with "smart" urban imaginaries from the starting point of critical urban theory. This approach accordingly informs my selection of literature and the theoretical perspectives I draw upon.

While there is a growing body of literature explicitly invoking the "smart city" nomenclature, many of the texts produced in recent years as the signifier gained prominence offer technical and practical perspectives on smart urban development. For example, a Worldcat database search for books containing the phrase "smart city" conducted on March 5th, 2020 returned nearly six thousand results. Of the top 20 results of the english-language texts relating to smart city planning and practices, one quarter are oriented around technical and administrative aspects of implementing "smart city" policies (Rodríguez-Bolívar, 2015; Rocco and Fistola, 2016; Morandi, Rolando and Di Vita, 2016; Stamatina and Pardalos, 2017; Paulin, 2019). Another quarter of the results represent promotional texts in the vein of technoscientific urbanism touting the capacity for "smart" urban solutions to create economic value, improve urban "livability," and facilitate "innovative" business environments (Komninos, 2015; Calder, 2016; Etezadzadeh, 2016; Tokoro, 2016; Vives, 2018). While these texts are informative and offer valuable examples of the policies and approaches that discourses of urban "smartness" have served to mobilize, their

analysis is not situated in the lineage of critical urban theory upon which my project is grounded. My approach to imaginaries of urban "smartness" is rooted in critiques of planning rationalities and urban governmentality, and I am primarily interested in applying conceptual frames from these perspectives in my analysis of urban discourses. My selection of literature from critical urbanism and spatial theory also represents the scholarly dialogue to which I believe this project may most readily contribute. Furthermore, as established by the historical argument made in Chapter Two, my approach in this project views contemporary strategies in city design and associated "smart" urban imaginaries as recent emanations in a lineage of urban ordering discourses, rather than treating the "smart city" as a sui generis phenomenon. Accordingly, my consideration of "smart city" discourses is situated in relation to a longer iteration of urban discourses and critiques predicated on dynamics of order and disorder.

The first chapter develops the concept of "unruly urbanism," a theoretical frame that emerges from a staged conversation between theorists of critical urbanism and the broad critique of governmentatlity, power, and space with literature on the rhetorical practice of mêtis. The concept of mêtis originated as an ancient Greek term for a form of cunning intelligence and a dynamic rhetorical skill. Deployments of mêtis, or metistic operations, are closely associated with subterfuge and subversion, as well as unpredictability and unruliness. It is also linked with emancipatory political projects because of its association with tactical operations by which the disadvantaged can overpower, outwit, or evade a superior force. Scholars addressing the emplaced experiences of city dwellers from the perspective of critical urbanism and other fields have argued for the importance of not only recognizing the role of unplanned and informal activity in constituting cities, but also the importance of designing urban systems and interfaces that are open and adaptable to this emergent complexity. Many of the characteristics of metistic practice are

therefore resonant with the ideals of subversion and unruliness found in critical urban discourses. Furthermore, the identification of mêtis as a means by which disadvantaged individuals can overcome superior forces offers clear correspondences with the prescriptions for ground-up interventions and empowerment of local populations that are central to "right to the city" critiques and related approaches. While some subsequent scholars working in the vein of critical urbanism have explicitly invoked mêtis in order to analyze spatial practices and emplaced experiences, I suggest in this chapter that metistic attributes and values have informed studies of urban governmentality even when the specific rhetorical intelligence is not directly identified. I argue that the conceptual frame of mêtis enables the identification of certain thematic trajectories across these bodies of literature, and offers an orientation for applying these critiques from earlier periods of urbanization to trends in prevailing technology-centric or "smart" development discourses.

Chapter Two situates the theoretical perspective of "unruly urbanism" and metistic practices developed in the first chapter and situates them in a history of select urban discourses from the nineteenth century to the present. This chapter illustrates the contours and consequences of unruly urbanism through a historical survey of policies and design schemes implemented in U.S. cities throughout the 20th century. Attempts to understand the emergence of the modern metropolis tended to cast these spaces as inherently disordered. Early social scientific studies of urban spaces viewed the industrial city as a site of chaos, community disorganization, and pathological deviance. Furthermore, such disorder discourses have been used to promote and implement research programs and policy applications that have shaped city space and fundamentally affected the lives of urban communities. These chapters explore urban discourses that view cities primarily as sites of tension based on binaries of order/disorder, coherence/complexity, and as open or closed systems. These discourses include scholarly

critiques, policy initiatives, and impactful models of urban design that have delineated and regulated "disorder" in urban space. This survey charts how the introduction of media and communication technology into the built environment has affected conceptions of the tension between order and disorder. The heterogeneous conditions of urban life give rise to subjectivities and practices that develop outside the purview of official state and economic abstractions. These policies and discourses of urban disorder thus cast urban spaces and populations as "unruly" so as to render them legible to and bring them under control. This survey also founds a political and economic context for the emergence of smart city policies and discourses. The chronology presented in this chapter connects the changing discourses of disorder to state needs of altering governance strategies in response to shifting economic conditions. These discourses are therefore not "mere rhetoric," but have material consequences in the lived experiences of urban populations.

Having set out my primary theoretical apparatus in the first chapter, and situating it within a historical trajectory in the second, the following three chapters apply this framework to specific examples of contemporary urban discourse rooted in the U.S. city of Pittsburgh, Pennsylvania. Pittsburgh is a critical site and valuable case study for situating the emergence of these discourses in several respects. As the historical survey in Chapter Two indicates, the emphasis on "tech sector" companies and workers for spurring urban economies that often features in "smart" urban strategies can be seen "creative city" development programs. It is worth noting that Richard Florida developed the "creative city" model while he was living in Pittsburgh as a professor at Carnegie Mellon University. His initial book outlining the "creative class" concept cites his experiences in and perceptions of Pittsburgh as inspiring his creative cities framework (Florida, 2012). Furthermore, Pittsburgh's history of urban development offers examples of pre-industrial, industrial, and post-industrial urban forms. The city reached its economic and population peak in

the industrial era, and this period of the city's history remains the age most associated with its image and identity. Pittsburgh's place in U.S. urban imaginaries was aptly illustrated in 2017 by U.S. president Donald Trump, who justified his decision to withdraw from the Paris climate accords by asserting his responsibility "to represent the citizens of Pittsburgh, not Paris" (Shear, 2017, p. 1). Trump's invocation of Pittsburgh's industrial legacy is at odds with the city's contemporary economy. In the 21st century Pittsburgh sought to reinvent itself as a center of post-industrial technological innovation. The city has since attracted technology-oriented entrepreneurial investment and been a site of many smart city policies and technological innovations. It follows then that Pittsburgh is a concrete case study that allows me to both highlight important parts of this scholarly representation of the smart city in critical urban studies and development discourses, and thereby contribute to that conversation via a consideration of unruly urbanism and metistic intelligence. In selecting Pittsburgh as my central case study I recognize that other city discourses may not be represented in this particular account. Instead, what I have produced is the starting point of understanding how a medium sized city that has undergone deindustrialization in the U.S. can help us understand modern emanations of the broader dialectic that I outline.

The case studies selected for this analysis are geographically limited to the city of Pittsburgh and chronologically constrained to the period from 2014 to 2019. Each chapter highlights an emergent issue that highlights connections between city planning, urban discourses, and potentialities of metistic intervention. The primary source materials comprise discourses of urban planning and development initiatives premised upon the application of "smart" technological infrastructures as represented in policy documents, promotional texts, and news coverage of civic initiatives and urban change in Pittsburgh. For instance, the first chapter

introduces the Pittsburgh Roadmap for Inclusive Innovation. Released in 2015 by the city of Pittsburgh, the Roadmap is a visioning document outlining the city's goals for using digital technologies to overhaul existing approaches to city services and operations. The Roadmap proposes several new initiatives which were subsequently introduced, including the Western Pennsylvania Regional Data Center (WPRDC). The WPRDC is described as a "public information clearing house" and represents Pittsburgh's approach to data-driven civic governance. In addition to considering the data center's mission statement and how its work is represented in local press accounts, I also examine the display of WPRDC data through the Burgh's Eye View web service. Burgh's Eye View constitutes the data center's primary outlet for distributing and making its information accessible to users, and highlights the critical role that data visualization plays in connecting datasets to local application.

The fourth chapter focuses on urban infrastructure and transportation initiatives in particular. The primary sources in this chapter include promotional texts outlining the U.S. Department of Transportation Smart City Challenge. This program offered a $40 million investment in urban infrastructure and is the first federal initiative in the U.S. to be framed around "smart city" rhetoric. I also analyze the city of Pittsburgh's application for the Smart City Challenge. Pittsburgh was selected as a finalist city in the challenge, and the application indicates how city officials framed Pittsburgh's material and institutional resources as uniquely able to capitalize on the prospective transportation investments. This chapter also surveys popular press reporting on Pittsburgh's Smart City Challenge bid and the city's mercurial relationship with the Uber transportation company. These texts chart varying stages of cooperation between the city and Uber, and trace how this relationship played out in public discourse.

The fifth chapter focuses on applications of emerging media for visualizing and interfacing with urban space. It first presents news articles and editorials covering the release of the Pokemon Go augmented reality smartphone game. These articles and opinion pieces attest to the immense general interest surrounding the game's launch, the game's immediate popularity and financial success, and myriad ways in which the game's use of location-specific augmented reality has been linked to fostering exploration and interaction in urban environments. The chapter proceeds by examining discourses surrounding the removal of the Lend Me Your Ears mural in the Pittsburgh neighborhood of East Liberty. Originally commissioned by a nonprofit public arts organization, the mural was a prominent piece of arts-driven placemaking and neighborhood landmark in a community that has been a focal point of contemporary gentrification in Pittsburgh. I survey discursive texts that demonstrate controversies over the mural's removal, various plans to virtually preserve the mural's imagery in digital space, as well as how residents related the mural to community identity and its removal to the erosion of local culture.

The three analysis chapters are organized thematically around a trio of urban topoi: the square, the street, and the map. These topic areas also correspond to the three clusters of communicative features identified in the Urban Communication Foundation's communicative city framework: civil society, infrastructure, and places of interaction (Drucker & Gumpert, 2016). Each chapter deploys these archetypal examples of urban infrastructure to frame communicative aspects of city life and examines how they have been reconceptualized in the context of "smart" urbanization. Beyond the thematic or generic threads that cohere each individual chapter, the sequencing of these chapters further represents initiatives corresponding to varying scales or levels of intervention by institutional and other actors. For example, the cases highlighted in Chapter Three offer instances of planning discourses and policies initiated and undertaken at the level of

municipal governance. This chapter centrally looks at how city-level planners approach technological approaches to the administration of city services and processes of civic engagement. The cases reviewed in Chapter Four present a broader scalar focus to consider how city governments and officials interact with institutions at the regional, state, and national levels. These levels of interrelation are demonstrated by considering the national Smart City Challenge and the city of Pittsburgh's application for the competition that leveraged local and regional resources and stakeholders. This chapter also considers how city governments navigate collaborative partnerships with private companies by examining Pittsburgh's political relationship with entrepreneurial "disruptor" Uber. The cases and discourses featured in Chapter Five represent the project's closest consideration of daily life and on-the-ground perspectives from the neighborhood scale. Unlike the preceding analysis chapters, the fifth chapter does not include specific government interventions but rather examines how the broader discourses discussed in the earlier chapters manifest in street-level experiences and contribute to changing dynamics in local communities and environments. Rather than laying out a chronological survey of the included initiatives this organization of chapters offers perspectives on an overall "moment" in urban processes in which key issues arise in different areas, at different levels, and involving different actors. The progression of chapters and selected cases proceeds through consideration of top-down approaches initiated at the local government level, the influence of federal and private investment on local urban development, and culminates in a chapter primarily focused on street-level experiences in a single Pittsburgh neighborhood.

Chapter Three is framed around the "smart square" and foregrounds how civic engagement and public participation are approached in smart city initiatives. Throughout the history of urban settlements city squares have served as centers of public life and civic identity. The agora of

ancient Greece is iconic of public life and democracy, and as a public space is metonymic of Western civilization. Social and technological changes have called the purpose and function of city squares into question, but public space has remained a symbol of political life and democratic practice. Furthermore, new means of connection and participation have challenged traditional notions about the political function of public spaces. Physical spaces are increasingly interpenetrated by invisible and immaterial flows of digital signals and information. The predominance of information and communication technology has given rise to electronic governance, or e-governance models, which utilize ICTs for administering government services and facilitating citizen participation. This chapter looks at how models of urban governance and citizen participation have transformed in the age of "big data" and smart city initiatives.

The notion of the "smart square" is developed by investigating how the city of Pittsburgh has implemented civic participation and e-governance initiatives. Foremost among these initiatives is the Pittsburgh Roadmap for Inclusive Innovation. Launched in 2015, the Inclusive Innovation plan represents the city's concerted and comprehensive efforts at a robust e-governance program. The roadmap features several focus areas including addressing the digital divide, improving city operations, and empowering city-to-citizen engagement. The Western Pennsylvania Regional Data Center (WPRDC) is an associated initiative that is also integral to Pittsburgh's e-governance efforts. The WPRDC is jointly-managed by the city of Pittsburgh, Allegheny County, and the University of Pittsburgh Center for Urban and Social Research. Official materials describe the data center as "a data intermediary within a regional open data infrastructure," and its stated goal is to support community initiatives by making information easier to access. In addition to these state-initiated, top-down examples of civic engagement, this chapter also explores citizen-initiated, bottom-up projects. These include ICT initiatives undertaken by neighborhood and community

associations, digitally-coordinated protest actions and demonstrations, and citizen-sponsored calls for so-called "open government" practices in city administration.

Chapter Four is oriented around the "smart street" and focuses on the role of transportation infrastructure and policy in smart city development, as well as the street as a central component of urban design and city life. The street is an elementary urban infrastructure and exemplary of city life. Developments in transportation and communication afforded by urbanization are lynchpins of cities' historical significance and their transformative impact on human civilization. Forms of urban transportation and street design are so closely associated with urban environments as to be synendochic of particular cities and periods of urban history. Sidewalks lined with row house stoops, apartment buildings flanked by elevated railways, and the modern eight-lane urban highway are all archetypal of transportation planning patterns that have predominated at various times. Streets have been celebrated for facilitating the intermingling of urban populations, but they have also been the bane of urban existence. Baron Haussmann's 19th century renovation of Paris aimed to update the city's medieval streets and created the broad boulevards that have remained emblematic of that city ever since. Modernist architect Le Corbusier viewed the modern street as a chaotic tangle of traffic congestion and sought to streamline urban roads for efficient and high-speed travel. In the 1960s New York City planner Robert Moses earned the ire of urbanists for his ambitions to build expressways through the heart of Manhattan, threatening some of the city's historic neighborhoods with demolition. Each of these schemes represent attempts to deal with the perennial urban problems of traffic congestion and commuting patterns. This chapter explores how cities are implementing technology-centric "smart city" planning for transportation, and the effects that these developments may have on the life of city streets.

The advent the information superhighway and tele-commuting have not alleviated the dilemmas over transportation planning and street design. Although an ever increasing amount of web traffic is being carried by fiber optic cables, vehicle traffic remains a critical issue for cities. From Songdo, South Korea to Pune, India, traffic-monitoring and parking solutions are being prioritized in many smart city agendas. The same is true in the U.S. and for Pittsburgh's attempts to achieve smart city status. In 2016, the city of Pittsburgh was a finalist in the inaugural Smart City Challenge offered through the U.S. Department of Transportation. The DoT pledged a $40 million grant to the city that offered the best "smart transportation system that would use data, applications, and technology to help people and goods move more quickly, cheaply, and efficiently." One of the key elements of Pittsburgh's bid was the city's role as a hub for autonomous vehicle research. Transportation company Uber opened an advanced technology research center in the city in 2015, raising Pittsburgh's transportation profile and giving a boost to the city's efforts to brand itself as a post-industrial center of technological innovation. The self-driving vehicle research is a significant component of smart transportation initiatives in the city, which also include a joint effort between Google and Carnegie Mellon University to outfit the city's streets with networked sensors and Internet of Things technology. Finally, this examination of transportation planning also considers how new services and infrastructure are affecting neighborhood development in Pittsburgh. The "smart street" initiatives have often overshadowed less glamorous developments in public transportation and physical infrastructure. Although they receive less media interest, these initiatives are implicated with new housing developments and neighborhood gentrification in the city, raising concerns about unequal access to transportation infrastructure and services.

Chapter Five is organized around the theme of "maps and territories" and explores how abstractions and representations of space are implicated in smart city services and technologies. Visual representations of urban space - whether in mapping projects or media representations - are applied by institutions to organize and manage spaces, and used by urban denizens to navigate and make sense of their everyday environments. Location-based media and augmented reality (AR) technologies provide novel ways of interfacing with liminal and hybrid spaces constituted by the intermingling of material and virtual elements. Locative media devices may also enable users to creatively customize their experience of the urban environment, as has been previously argued in regards to personal music players, mobile phones, and distributed internet connectivity. Locative media applications offer new modes of sociality and environmental interactivity, and the technological infrastructures themselves introduce additional complexity and opportunities for malfunction and unpredictable use. These technologies may therefore support the mapping and reifying of territory, as well as efforts to unsettle the imposition of order on urban space.

The Pittsburgh-based cases recounted in this chapter further illustrate another aspect of "virtual space": the production of generic and enclavic spaces within urban environments. These spaces are typically designed for specialized use such as work or consumption and marketed toward an upwardly-mobile urban demographic. The proliferation of these real estate projects is often associated with cultural and economic globalization predicated upon the confluence of transportation and communication networks. The production of virtual spaces also reflects how capital financialization has impacted cities, wherein networked communication technologies facilitate real-time transactions and global circulations of value that are unmoored and disconnected from local spaces and inhabitants. This indicates another way in which digital media are implicated in contemporary processes of gentrification and housing precarity. The role of these

technologies and firms in shaping urban discourses pose vital questions regarding who imagines the city of the future and who will set the terms of how the right to the city may be understood and actualized in the smart cities to come.

2.0 Mêtis in the Metropolis: Theorizing Order and Unruliness in the Urban Experience

Cities have long served as loci for political contestations and as spatial media for practices of citizenship. The physical and psychic spaces of cities have also been subject to ordering regimes based on instrumental rationality and control enacted in a dialectical relationship to emergent or unplanned uses of the built environment. Against these instrumental ordering regimes critical scholars have sought to preserve or enhance the unruly features of cities for their communicative and civic function and as shared spaces for habitation and encounter. The following chapter surveys prominent critiques of certain institutional applications of ordering regimes based on logics of instrumental rationality. More specifically, it considers how cities have served as sites for this struggle, and of significant ways by which urban spaces have been represented as chaotic or unruly as a means to institute regimes of organization and control. This survey further highlights how the selected theorists have conceptualized alternatives and modes of resistance to these ordering mechanisms.

This chapter proceeds in two parts. First, I survey prominent theories of social and spatial ordering in the works of Michel Foucault, Henri Lefebvre, and Michel de Certeau. Taken together, these theorists delineate the characteristic operations of order-based governance and its deleterious impact on the everyday experience of urban environments and the possibilities for emancipatory politics. In the second part, I continue this consideration of order and disorder by introducing the concept of mêtis. Mêtis is an ancient Greek term for cunning intelligence and is associated with agonistic engagements of both rhetorical sophistry and athletic competition. As a rhetorical tactic defined by guileful inventiveness, mêtis represents a mode of operation for realizing inherent potentiality and artfully negotiating contingent circumstances. Applying this concept to the study

of cities, I suggest that the notion of mêtis is a useful metric for conceptualizing the vibrancy of urban life, as well as a product of engaged urban experience. I argue that critical theories of vibrant urban citizenship may be elucidated and actualized through a productive engagement with the rhetorical skill of mêtis.

2.1 Theories of Urban Ordering: Governmentality, Abstract Space, and Everyday Practice

As this project concerns discourses of urban disorder and their use in the social ordering of cities, it has obvious correspondences with Michel Foucault's writings on discipline and governmentality. In Discipline and Punish (1977), Foucault traces a history of institutional punishment and explores the role played by various disciplinary methods and paradigms in subject creation. Opening with a vivid description of a brutally violent and publicized execution characteristic of premodern punishment, Foucault proceeds to consider the similarly public but less spectacularly-violent practice of chain-gang incarceration produced by 18th century reform movements. The third period, and the subject of much of Foucault's study, is distinguished by the emergence of the prison and of the modern disciplinary society. Discipline, Foucault writes, is not to be identified with a specific institution or technique but is rather "a type of power, a modality for its exercise" (1977, p. 215). While each of these modes of punishment share certain elements and techniques, the modern disciplinary system can be differentiated from premodern punishment in that it replaces spectacular corporeal violence with the control of bodies through a succession of smaller and more subtle measures. Rather than focusing on physical pain as the site of retribution these mechanisms seek to affect attitudes and habits within the subject through modes of spatial, temporal, and bodily comportment. Under the pervasive control of the modern

disciplinary society, Foucault says, “the soul is the prison of the body” (1977, p. 30). Foucault uses Jeremy Bentham’s proposed design for a panoptical penitentiary building to extrapolate a range of disciplinary procedures that characterize what he identifies as a modern carceral society. These techniques are not solely the province of the prison but have become the model for other sites of discipline and control such as schools, factories, and hospitals.

Attempts to bring order upon various forms of disorder are inherent to disciplinary procedures, as Foucault says the “disciplines are techniques for assuring the ordering of human multiplicities” (1977, p. 218). In the influential and oft-cited chapter on panopticism, Foucault uses the model of a plague-stricken 17th century town to exemplify the perfectly disciplined and ordered city. He quotes from a directive issued in such a town detailing the measures to be enacted upon the appearance of the plague, including the strict sequestering and isolation of the infected along with pervasive surveillance and observation (p. 195). Through such procedures the “plague is met by order” so as to “sort out every possible confusion” (p. 197). Through the partitioning of space and extensive observation an order is realized that Foucault calls “the utopia of the perfectly governed city” (p. 198).

Christine Boyer (1983) has similarly commented on the effectiveness of this imposition of immediate hierarchical order onto the city as “the most efficient and economical method to spread a disciplinary order” (p. 59). Foucault refers to the plague as a form of disorder “at once real and imaginary” (1977, p. 198) and says that “in order to see perfect disciplines functioning, rulers dreamt of the state of the plague” (p. 199). For Foucault, the dream of the plague continues to underlie disciplinary projects of ordering as “the image of the plague stands for all forms of confusion and disorder” (p. 199). Characterizing the ideal of total panoptical control as inherently unrealizable, Chris Philo (2012) situates Foucault’s project on the Nietzschean “tragic battle-

ground" between Apollonian order and Dionysian disorder (p. 500). Discipline is thus understood to be "predicated on the reality of a Dionysian chaos that calls forth ordering propensities", and this chaos "dwells within the multitudes of churning bodies upon which modern disciplinary power is supposed to train its (panoptic) gaze" (p. 500).

It is clear from Foucault's example of the plague-stricken town, as well as his use of the panopticon as a paradigmatic more of power, that urban space plays a central role for the functioning of disciplinary power. For Boyer (1983), disciplinary order "begins with a fear of darkened places of the city" where "the perpetrators of crime and disorder can hide" (p. 33). Such spaces are therefore to be subjected to illumination and ventilation in order to eliminate potential sources of disorder. These disciplinary procedures "treat the city as both object and instrument of their control" (p. 65). Patrick Joyce (2003) has shown how urban infrastructures that emerged in the 18th century modern city were instrumental in constructing liberal political subjectivity. The liberal state depended on identifying the objects of its governance, as well as cultivating a liberal subject that was "reflexive and self watching" (p. 4) so as to facilitate liberalism's goal of "governing at a distance." The construction of broad streets designed to allow unimpeded traffic flows and freedom of movement, along with new technologies of lighting and surveillance, contributed to the development of a liberal subject constituted by a tension between freedom and order. As David Harvey (2003) has noted in relation to Hausmann's modernization of Paris, the new boulevards and sources of illumination opened up a radically different experience of urban space. These conditions also contributed to the emergence of the modern police force, whom Joyce (2003) notes were accurately called "the watch" in accordance with their primary activities of surveilling citizens and looking after private property (p. 110). This metonymic designation for

the police also recalls Foucault's emphasis on the role of visual practices and technologies for mobilizing disciplinary power.

The infrastructures and methods for governing and policing the liberal city illustrate essential aspects of governmentality. Foucault developed the notion of governmentality in his later lectures to describe technologies, practices, and rationalities of government, as well as the modes of subjectivity they constitute (Leslie & Hunt, 2013, p. 1173). The concept has been further developed through the work of other scholars including several influential papers by Peter Miller and Nikolas Rose. In Rose and Miller's (1992) formulation, governmentality is understood as "a kind of intellectual machinery or apparatus for rendering reality thinkable in such a way that it is amenable to political deliberations" (p. 179). Governmentality is thus reliant on language and other forms of information (including statistics, graphs, and pictures) because they provide "a mechanism for rendering reality amenable to certain kinds of action" (Miller & Rose, 1990, p. 7). Often these mechanisms are built upon an intellectual framework of academic, economic, and bureaucratic documents produced by specialist experts. "Reality" always eludes these discursive mechanisms, however, because "it is too unruly to be captured by any perfect knowledge" (p. 11). In more recent history these mechanisms have rendered reality amenable to "neoliberalization," a transition from liberal governmentality that Miller and Rose chart through a Foucauldian perspective.

Foucault offered a prescient view of neoliberalism in his lectures on biopolitics, describing the emergence of a governing rationality that constitutes the political subject as "homo oeconomicus," or "economic man," a rational subject driven to maximize economic utility. Miller and Rose (1990) describe this subject as an "entrepreneurial self" striving for fulfillment in a world where all barriers between the economic, the social, and the psychological have been erased (p.

27). The policy discourses undergirding this neoliberal governmentality are distinguished by the proliferation of market-based solutions to all manner of problems and increased commodification in all areas of public life (Harvey, 2005). The pervasive effects of such policies has led Wendy Brown (2015) to characterize neoliberalism as "a governing rationality that disseminates market values and metrics to every sphere of life and construes the human itself exclusively as homo oeconomicus" (p. 176). Neoliberal policies have been enacted at the national level as well as the city-scale, being increasingly implicated in the realms of urban planning and governance.

Henri Lefebvre has potently articulated further effects that governing rationalities pose for urban populations in his work on the social production of space. Lefebvre's trialectic model of spatial production, his critique of the homogenizing abstractions underlying capitalist urban development, and his enunciation of a right to participatory democratic praxis in city life have all proven generative for a variety of urban analyses. The central through line across his writings is the diminishment of socially meaningful and politically dissident spaces in the wake of instrumental conceptualizations of urban environments. In Everyday Life in the Modern World (1984/2017), Lefebvre referred to capitalist urban society as a "bureaucratic society of controlled consumption" (p. 68). Everyday life in this society has become "the province of organization" with "spontaneous self-regulation" being replaced by "programmed self-regulation" designed to ensure a closed circuit of production and consumption (p. 72).

As made evident by his use of terms such as "robotization" to describe this process (p. 73), Lefebvre is concerned not only with the bureaucratic management of everyday life but also with the intrusion of advanced technology into society. He posits a new technocratic class whose rationalizing influence in organizations and institutions has led to a "technocratico-bureaucratic society" (p. 50). This inquiry into the technocratic colonization of everyday life is further

developed in The Production of Space (1991), where Lefebvre delineates the categories of abstract space and social space. Abstract space is the "dominant form of space, that of the centres of wealth and power" and it shapes the spaces it dominates while removing (often violently) "the obstacles and resistance it finds there" (p. 49). Abstract space thus represents the space imposed by powerful institutions of state and capital to facilitate instrumental control and capital flows. Social space, on the other hand, is the space of everyday experience. Whereas abstract space is instrumental and associated with exchange value, social space supplies only use value (p. 70). Much of Lefebvre's urban theory aims toward preserving social space against the totalizing rationality of abstract space and realizing the city as an oeuvre or work rather than a commodity product.

Homogenization and fragmentation are essential to the implementation of abstract space, and are also understood as the effects of its production. As Eugene McCann (1999) has argued, abstract space is "represented by elite social groups as homogeneous, instrumental, and ahistorical in order to facilitate the exercise of state power and the free flow of capital" (p. 164). The image of homogeneity is maintained through "a continued state-sponsored process of fragmentation and marginalization that elides difference and thus attempts to prevent conflict" (p. 171). The Lefebvrian notion of social space is thus closely associated with difference and ambiguity against homogenous abstraction. According to Lefebvre (1991), abstract space "erases distinctions" while social space "subsumes things produced, and encompasses their interrelationships in their coexistence and simultaneity - their (relative) order and/or (relative) disorder" (p. 73).

Andy Merrifield (2006) characterizes Lefebvre's ideal urbanity as on "the side of Anti-Logos, of Dionysus, [as] forces seeking to reappropriate abstract space" (p. 117). To support this connection Merrifield points to Lefebvre's acclamation of rural festival traditions as Dionysiac disruptions of everyday life. The festival represents "a jarring antithesis of bureaucratic domination

and systematized ordering" in which participants can give themselves "over to Dionysus, to excess and unproductivity, to Eros rather than Logos, to desire rather than depression" (p. 14). In Merrifield's reading, Lefebvre "opts for Nietzsche's figure of Dionysus, walking a kinfe-edge path between coherent, ordered, dialectical logic [and] irrational Dionysian spontaneity and creativity" (p. 116). Lefebvre himself referred to Nietzsche's distinction between Appolonian and Dionysian forces as "inadequate" yet "certainly meaningful" (1991, p. 178), and he employed the metaphor to describe an emerging species of technocratic manager that he called the "cyberanthrope." As a representative of the technocracy, the cyberanthrope "adheres to a cult of equilibrium" and erodes social contradictions through the application of economic principles (Lefebvre cited in Merrifield 2006, p. 90). For the cyberanthrope, Lefebvre says: "There are only needs, clear and direct needs. He despises drunkenness. As an Appolonian, the Dionysian is a stranger to him." (p. 90).

Lefebvre's critique of capitalist spatialization resonates with Foucault's conceptualization of homo oeconomicus and other critical theories of the commodification and technocratization of public life, notably Hannah Arendt's concern with the marketization of the public realm and Jurgen Habermas' theorized refeudalization of the bourgeois public sphere. Each of these theories evinces concern with the diminishment of political capacity and engaged public life in the wake of technologically-mediated incursions by capital and state forces. These theories are also typically interpreted to suggest that the effects of such incursions are total and irreversible. Noting that abstract space is buttressed by seemingly overwhelming forces of bureaucratic capitalism with the capacity for violence, Lefebvre (1991) asks, "must we conclude that this space will last forever?" (p. 52). Lefebvre offers a response to this question from "a less pessimistic standpoint" (p. 52) to suggest that abstract space harbors inherent contradictions that may produce its own opposition.

The production of homogeneity and abstractness that capitalist space seeks to maintain also produces contradictions that open up opportunities for resistance. Lefebvre calls this space of opposition "differential space" because it is produced through the accentuation of difference as opposed to abstract space's tendency toward homogenization and "the elimination of existing differences or particularities" (1991, p. 52). For David Harvey (2012), the notion of differential space "delineates liminal social spaces of possibility where 'something different' is not only possible, but foundational for the defining of revolutionary trajectories" (p. xvii). Harvey's formulation indicates how differential space not only opens opportunities for challenging dominant capitalist order but also enables democratic practice through the social expression of difference and the articulation of political demands. Differential space can thus be considered a precondition for the realization of Lefebvre's influential notion of a "right to the city."

Lefebvre posited the right to the city as the claim of urban denizens to access city spaces and to actively participate in the processes of urbanization. The right to the city, Lefebvre (1996) says, "is like a cry and a demand" which "can only be formulated as a transformed and renewed right to urban life" (p. 158, emphasis in original). It is a call for inclusion in city life and for participatory democratic praxis in envisioning and shaping the urban environment. As Eugene McCann (1999) has emphasized, the right extends beyond mere access to public space to include "the right of every social group to be involved in all levels of decision-making which shape the control and organization of social space" (p. 181). As it is dependent on difference and concerned with social rather than abstract space, urban theorists have associated the right to the city with Dionysian impulses and forms of unruliness.

Timothy Gibson (2014) cites the importance of city streets and other public spaces for political demonstrations in explaining why "the imposition of order on unruly streets has been a

crucial goal of social authorities, property owners, and the technocratic planners in their employ" (p. 225). Against this oppressive ordering of urban spaces, Lefebvre and other critical urbanists maintain that "it is precisely this disorder that needs to be nurtured and protected" so as to provide space for public dissent (p. 225). Reinhold Martin (2016) locates the right to the city as emerging from the "dialectical constitution of the urban realm" borne from contestation of "unalienated human life against abstract technical processes" (p. 20). He relates this process to a longstanding tension in urban development in which "Dionyisan dissonance summons Apollonian beauty" (p. 9), leading him to identify "Dionysus, the stranger" as the "subject" of Lefebvre's urban right (p. 17). For Sara Westin (2014), the right to the city "is about the right to urbanity, to urban life" (p. 47). This urbanity is predicated on "the right to difference, to desire, to a life beyond basic needs," and thus belongs to the realm of Dionysian drives and "chaos" (p. 48). Westin thus distinguishes the Lefebvrian "right to the urban" from how organizations like the United Nations have codified urban policies by invoking the right to the city. While such policies may not capture the full scope of Lefebvre's radical formulation, the adoption of the right as a rallying cry by urban denizens around the world testifies to the concept's potent potentiality.

Michel de Certeau's writings on everyday practices provide a salient corollary to Lefebvre's articulation of engaged urban life. Lefebvre identified the inherent contradictions of capitalist spatialization as opening up opportunities for difference and resistance. Certeau similarly believed that the dominating abstractions produced by technocrats and urban planners provided an infrastructure that could be reappropriated through practices of everyday use. The emphasis on resistance to power in Certeau's theory recalls the Foucauldian analysis of discipline and governmentality, and his concern with everyday practice shares Lefebvre's prioritization of quotidian experience. The three theorists are also linked through their respective focus on the urban

as the paradigmatic site where infrastructures of social ordering are realized and lived. In the opening passages of The Practice of Everyday Life (1984) de Certeau orients his approach in relation to Foucault's study of disciplinary society. The "ways of operating" at the center of Certeau's analysis pose "questions at once analogous and contrary to" those dealt with by Foucault in Discipline and Punish (p. xiv). Analogous, Certeau says, because they concern the "microbe-like operations proliferating within technocratic structures," yet contrary because "these procedures and ruses of consumers compose the network of an antidisicipline" (p. xiv). Against the commonly held view of users as "passive and guided by established rules" (p. xi), Certeau seeks to chart oft-overlooked user trajectories in the "technocratically constructed, written, and functionalized space in which the consumers move about" (p. xviii).

This notion that users actively and creatively traverse the ordered systems produced by the powerful, and that they do so in ways both unseen and unforeseeable, is central to Certeau's distinction between strategies and tactics. In Certeau's terminology strategy refers to the governing rationalities employed by powerful institutions whereas "a tactic is an art of the weak" (p. 37). Tactical actions manipulate strategic systems in ways that the strategists did not intend. If Foucaldian governmentality is understood an "art of government" then tactics may constitute a subversion as "an art of using those imposed on it" (p. 31). Certeau identifies political, economic, and scientific rationality as "constructed on this strategic model" (p. xix) while tactical actions rely on ruses and displacements "that scientific reason has eliminated from operational discourses" (p. 23). Tactics employ "makeshift creativity" (p. xiv) rather than strategic rationality, and "must play on and with a terrain imposed on it and organized by the law of a foreign power" (p. 37). Certeau's predilection for spatial metaphor again highlights the city as locus for both strategic and tactical interventions.

In his celebrated essay on “walking in the city,” Certeau (1984) explores everyday tactical practice through the topographic traversals of the urban pedestrian. The essay begins at the summit of New York’s World Trade Center where the sky-high perspective allows a viewer “to be a solar Eye, looking down like a god” (p. 93). This panoramic perspective fulfills a scopic drive and “lust to be a viewpoint,” but this view of the city is a fiction “whose condition of possibility is an oblivion and a misunderstanding of practices” (p. 93). A visitor to the Trade Center’s peak is “lifted out of the city’s grasp” (p. 92) and thus removed from the “murky intertwining daily behaviors” of the ordinary users down below (p. 93). By beginning his essay from a vantage point overlooking Manhattan and continuing down into the city streets Certeau associates modern urban planning with other modernist practices of ordering and governing. The grid of Manhattan island viewed from above, and the crux of modernist planning in general, represents a spatial rationality defined by the "planner's gaze," a procilivity for top-down totalizing abstractions that reductively simplify the actual topography in attempting to visually apprehend a coherent whole. The prominence of scopic regimes in Certeau's analysis recalls Foucault's use of the panoptical gaze to illustrate disciplinary power, as well as Lefebvre's emphasis on the role of representation in spatial production, particularly through visual representations such as maps and diagrams. According to Certeau, the wanderings of everyday practice escape the "imaginary totalizations produced by the eye," not surfacing but rather "outlining itself against the visible" (p. 93). Everyday practice and tactics are thus characterized as inherently unruly operations that play on the systems and structures produced by ordering discourses. The “actual order of things is precisely what ‘popular’ tactics turn to their own ends” (p. 26), and through the cunning evasions of tactical practice “order is tricked by an art” (p. 26). While the planner's gaze envisions a fictive city that is static and

coherent, the urban walker dynamically moves through and makes use of urban space in ways unseen and perhaps unseeable by instrumental rationality.

Certeau's aggrandizement of the everyday shares an attentiveness to quotidian urban experience with Lefebvre's spatial theory, but his formula of strategies and tactics has not seen the same widespread adoption by urban activists that the Lefebvrian right to the city has incurred. Lefebvre advocated a communal management of all levels of urban decision-making while Certeau sees opportunities for appropriation through daily use that are not dependent on mutual participation or political practice. Certeau's conception of everyday practice could thus be considered overly passive from the perspective of Lefebvre's more radical and politically committed notion of revolutionary urban praxis. Yasminah Beebeejaun (2017) reads these two approaches to everyday urbanity as articulating a common concern with the "right to everyday life" (p. 323). While acknowledging that Certeau's tactics "are not the collective and political acts of the right to the city" (p. 326), Beebeejaun presents a productive interpretation of tactics as "ways of claiming the city" (p. 327). She connects tactical operations to the realization of Lefebvrian urban rights by understanding embodied everyday practice "as the mediator of rights underpinning the usage of urban space to its fullest extent" (p. 327).

The work of both Certeau and Lefebvre also evinces concern with the liminal spaces produced when systems of order are imposed on unruly everyday life. These spaces are seen as opening up possibilities for divergence and contestation, as in Lefebvre's notion of differential space and Certeau's abiding interest with the spaces between official power and everyday resistance. There is also correspondence with Foucault's notion of "heterotopia," spaces of otherness populated by disorderly bodies and understood as sites of deviation and "uncertain space" (Hetherington, 1997, p. 43). In contrast to the other two thinkers, however, Certeau seems

to identify the productive capacity of such different spaces not in the potential political subjectivities that these liminal spaces may engender but rather in liminality itself. Certeau's elevation of the ordinary carries an implicit romanticism that Colin McFarlane (2011) has identified as the "latent potential" for "romanticizing marginality" (p. 54). Nevertheless, the preeminence of everyday practices advanced by Certeau and his conception of tactical operations continue to influence critical scholarship in areas such as subaltern politics, informal urbanism, and everyday resistance.

Considering these works by Foucault, Lefebvre, and de Certeau alongside each other allows one to discern the contours of a capacious critical project centered on the ways in which systems of order are enacted, experienced, and challenged in everyday life. Each of these thinkers interrogates the invasive and alienating effects of governing rationalities associated with modernist projects of identifying, classifying, and organizing social bodies. These projects often rely on deploying discourses of Dionysian chaos and disorder to call forth ordering regimes based on appeals to Appollonian coherence and rationality. Such disorder discourses may materialize in any number of domains, whether in the medical practitioner's pathological diagnoses, the police officer's regulation of criminal deviance, or the urban planner's subjugation of spatial disarray. These scholars highlight the deleterious effects that prevailing logics of efficiency and instrumentality have on the public realm, and how these logics might circumscribe possibilities for individual autonomy and emancipatory political praxis. Finally, the work of these theorists testifies to the unruly ambiguities of everyday experience and evince a concern with preserving lived vitality in the everyday social world. These concepts and concerns constitute much of the theoretical framework undergirding the present project, but it is necessary to introduce another key term before proceeding with the analysis.

In delineating the essential characteristics of strategies and everyday practice, Certeau (1984) associates the evasive and guileful character of tactics with certain rhetorical techniques employed by the ancient Greek sophists in order to "make the weaker position seem the stronger" (p. xx). The Greeks referred to these "clever tricks" and related "ways of operating" (p. xix) with the term mêtis, a word that denotes a particular type of intelligence distinguished by craftiness and cunning. Just as tactics makes use of strategic infrastructure through playful traversal or creative reappropriation, mêtis is characterized by a resourceful seizing of opportunities as they emerge from the vagaries of a world in flux. Certeau refers to mêtis throughout his study to illustrate the dynamic intelligence underlying the evasions and ruses of tactical practice, and it is this concept of cunning intelligence that the following section attends to in detail.

2.2 The Cunning Intelligence of Mêtis: Artful Negotiations of Order and Disorder

The ancient Greeks developed a number of specialized terms to distinguish among varieties of knowledge or intelligence, each with particular attributes and idiosyncratic appropriateness for different situational contexts. Techne, for instance, referred to technical expertise; common belief or opinion was deemed doxa; and wisdom was designated as sophia, providing one part of the etymological root of "philosophy." Among these myriad forms of knowledge the word mêtis described a type of intelligence defined by artful cunning and practical efficacy. Marcel Detienne and Jean-Pierre Vernant have presented the most comprehensive and influential modern treatise on mêtis in their book Cunning Intelligence in Greek Culture and Society (1991). In this work Detienne and Vernant survey examples from classical Greek texts and myths to demonstrate the "coherence and amazing stability" (p. 2) that the mêtis concept has maintained across an array of

sources and a multitude of years. Mêtis is first and foremost a "wiley intelligence" (p. 1), a way of knowing and responding to "a shifting reality whose continuous metamorphoses make it almost impossible to grasp" (p. 20). To gain victory or mastery over such a mercurial domain requires an even greater degree of flexibility and capriciousness, and metic intelligence provides precisely this sort of dynamic ingenuity.

Through their analysis of classical sources Detienne and Vernant argue that the Greeks' use of mêtis displays "a complex but very coherent body of mental attitudes and intellectual behavior which combine flair, wisdom, forethought, subtlety of mind, deception, resourcefulness, vigilance, opportunism, various skills, and experience acquired over the years" (p. 3). The prominence of resourcefulness and opportunism in accounts of metic operation suggests a link between mêtis and kairos, the Greek term denoting a proper and opportune moment. Kairos indicates the most apt or appropriate time for a certain action. A skillful rhetor, for instance, will avoid inappropriate occasions and seize the kairotic moment in order to buttress the persuasive impact of their address. Detienne and Vernant identify an inherent swiftness in mêtis that allows it to seize opportunity as it arises, not acting impulsively or lightly but "with the weight of acquired experience" (p. 15). The swiftness and "quick-wittedness" of mêtis is realized in a time "too short to be observed", operating in "an instant so fleeting that it escapes the notice of even the most vigilant man on the look-out" (p. 308). Mêtis thus actualizes an intellect that is both nimble and deft enough to respond felicitously to the vicissitudes of lived experience.

The innate cunning of metic intelligence arouses associations with such ignoble attributes as illusiveness, trickiness, and deceit. This element of artful deception is elaborated by Detienne and Vernant (1991) who associate mêtis with "the cunning stratagems of war, frauds, deceits, [and] resourcefulness of every kind" (p. 11). The sort of operations that are informed by mêtis are thereby

associated with such methods as “the disloyal trick, the perfidious lie, [and] treachery,” which the Greeks, Detienne and Vernant note, identified as “the despised weapons of women and cowards” (p. 13). As a power of cunning and deceit mêtis “operates through disguise” and beguiles its opponents by assuming “a form which masks, instead of revealing, its true being” (p. 21). These arts of guileful deception, the skill in duplicity and disguise, are exemplified in the Homeric figure of Odysseus. Laura Slatkin (1996) describes Odysseus as “the ultimate man of mêtis,” noting also that he is the only mortal in the Homeric canon to receive the superlative epithet of “polymêtis” (p. 236). Odysseus’ exploits throughout the Iliad and Odyssey embody many of the traits associated with mêtis, most notably in his scheme to surreptitiously deliver Greek troops into the city of Troy within the famed Trojan Horse. By utilizing the contrivance of the Trojan Horse the Greeks achieved victory through subterfuge and the cunning intelligence of mêtis rather than bie, a Greek term meaning brute force.

Jay Dolmage (2009) cites the triumph of trickery over force as an essential feature of metic intelligence, enabling those with mêtis “to turn the tables on those with greater bie, or brute strength, than they have access to” (p. 9). Odysseus again employed mêtis to overcome bie in his encounter with the cyclops in the Odyssey. During their voyage home following their victory at Troy, Odysseus and his shipmates are captured by a cyclops and held captive in his cave. After Odysseus and his men blind the cyclops with a burning timber he calls out for help from his cyclopean compatriots. Odysseus had earlier given his name as “Outis” which means “no one,” and the cyclops’ attempt to summon aid is thus stymied by his declaration that “no one” is attacking him. Debra Hawhee (2004) connects Odysseus’ duplicitous nom de guerre with his skill in mêtis as it is “the rhetorical trickery of mêtis that facilitates his and his men’s movement out of the cave”

(p. 51). Faced with enemies possessing greater bie or brute strength than him, Odysseus utilizes the cunning deceit of mêtis to escape.

Portrayals of metic operation from Greek thought and myth demonstrate the multifarious facets and applications of this intelligence. Even though Detienne and Vernant (1991) identify a conceptual coherence across Greek accounts of mêtis they also note that mêtis is "multiple and diverse" (p. 18) because "its field of application is the world of movement, of multiplicity and of ambiguity" (p. 20). The manifold aspects of the concept can court comparison with other types of knowledge and action, so it is instructive to further distinguish mêtis by delimiting what it is not and contrasting it with other forms of intelligence recognized by the Greeks. Episteme, for instance, refers to scientific understanding and depends on systematic rationality as opposed to the mercurial machinations of mêtis. Episteme is itself distinguished from techne which denotes technical expertise and the applied practice of craftsmanship. James Scott (1998) notes that techne can be expressed through "hard-and-fast rules" and principles while the extemporaneous nature of mêtis defies such communication (p. 319). Scott further differentiates mêtis and techne based on their respective fields of application, stating that "mêtis is contextual and particular [whereas] techne is universal" (p. 320).

The emphasis on practical effectiveness in metic intelligence also invites comparison to phronesis, a type of wisdom characterized by practical action that is prudent and virtuous. Rebecca Pope-Ruark (2014) considers mêtis as "an underexplored rhetorical counterpart to phronesis" (p. 323) owing to their shared concern with practical application. For Pope-Ruark, phronesis is distinguished by "the ability to carefully deliberate about rhetorical actions for the greater good" whereas mêtis involves more flexible "on-your-feet rhetorical thinking" (p. 324). Jay Dolmage (2009) argues that phronesis is more closely linked with episteme than mêtis is, but that the two

types of intelligence share an important connection since prudent action requires cunning and cunning action requires prudence (p. 11). Dolmage further suggests that the Greeks may have devalued mêtis as a form of "bad phronesis" due to its association with sophistic rhetoric (p. 11). Plato notably discriminated between sophistry and true philosophy in casting aspersions on the sophists' rhetorical techniques for making the weaker argument surmount the stronger, techniques that Michel de Certeau celebrated in his appraisal of tactical maneuvers. Hawhee (2004) identifies an inherent corporeality in mêtis that enables maneuvering in the heat of the moment, whether these are the maneuvers of a philosopher or a charioteer. Understood as "the mode of negotiating agonistic forces" (p. 46), Hawhee depicts mêtis as an embodied intelligence utilized by both the sophist and the athlete in their respective enterprises. Whether in the agon or the agora, in physical combat or rhetorical contest, it is the athlete or interlocutor with more mêtis who has the advantage over his opponent.

The discussion of mêtis so far has highlighted its function in the impromptu navigation of emergent circumstances and contingencies. This role of mêtis in managing ambiguity implicates metic intelligence with the preceding section's consideration of the dialectical tension between order and disorder. The connection to order and disorder is also evident in the representation of mêtis in Greek mythology. The mythological figure of Mêtis was a Titaness, one of the primordial predecessors of the Olympian gods, and a daughter of the divine personification of the ocean. As the deity of metic intelligence Mêtis was considered "the patroness of wisdom, good counsel, cunning and prudence" (Letiche & Statler, 2005, p. 2). Mêtis helped Zeus defeat the other Titans with her superior ingenuity and they subsequently married. However, Zeus soon came to consider the same ingenious abilities that facilitated his triumph as a potential threat, fearing that Mêtis might bear children with the power to overthrow him. In Detienne and Vernant's (1991) telling,

Zeus anxiously dreaded “all the unexpected possibilities which cunning time conceals” (p. 109) and so decided to attack Mêtis "by turning her own weapons against herself” (p. 21). The exact means by which Zeus managed to outwit the patron of cunning intelligence is a subject of scholarly debate, but most accounts depict Zeus consuming Mêtis by swallowing her. Detienne and Vernant characterize Zeus' incursion against Mêtis as a decisive strike of encompassing order against unwieldy disorder. Zeus’ surprise attack on Mêtis thus “eliminated the element of unpredictability and disorder” from the world of the gods and “replaced it with an order which was immutable” (p. 305). Yet as Hawhee (2004) emphasizes, Zeus does not merely destroy Mêtis and eliminate her dynamic intelligence from the world, but rather "Zeus takes on the cunning and resourcefulness characterstic of Mêtis" (p. 49). The dynamic and shapeshifting qualities of Mêtis facilitated a sort of merger between her and Zeus, and Zeus thereby gained Mêtis' cunning abilities and claimed them for his own.

By swallowing Mêtis and absorbing her cunning intelligence Zeus becomes the mediator of all future deployment of ruses and trickery among gods and men. He is thus able to reconcile the tension between the chaotic disorders engendered by Mêtis and the ideal of an ordered cosmos. Detienne and Vernant (1991) link this tension to the radical dichotomy in Greek thought between being and becoming. The philosophy of Plato and Aristotle concerned static ontological order and eternal essences, and gave primacy to theory over practice or to the intelligible over the sensible. But mêtis concerns becoming not being; it is "an intelligence which, instead of contemplating unchanging essences, is directly involved in the difficulties of practical life" (p. 44). The operations of mêtis defy rational ordering or systematization, being characterized instead by resourceful invention, and it is therefore outside Plato's conception of wisdom and truth. As the logic of becoming rather than being the "cunning of Mêtis constitutes a threat to any established order" (p.

108), and is thereby unsuitable for either the rational society of Plato and Aristotle or the orderly world of Zeus' Olympus.

For Hugo Letiche and Matt Statler (2005), Zeus' devouring of Mêtis represents the supplanting of becoming by being, as “the logics of chaos and dynamic change are digested and consumed” (p. 3) in the process. The merger of Mêtis and Zeus results in the birth of Athena who supersedes Mêtis as the goddess of wisdom, but it is “a different form of wisdom that is appropriate to an orderly cosmos” (p. 3). Rather than demarcating a clear distinction between mêtis as chaotic disorder in opposition to a rationally ordered cosmos, Letiche and Statler identify an inherently paradoxical relationship to control in representations of metic intelligence. The realization of cunning intelligence involves both the assertion of individual action as well as an abandonment of personal control and reliance on emergent practical circumstances. Due to this twofold condition, "mêtis can simultaneously be associated with the rhetoric of control and repression [,] while at the same time retaining a rhetoric of creativity and release" (p. 4). Detienne and Vernant (1991) discerned a similar dynamic in mêtis, noting that "the intelligence of cunning needs the circular reciprocity between what is bound and what is binding" (p. 305). Mêtis thus involves a dialectical tension between freedom and constraint similar to the mutually constitutive relationship between order and unruliness.

The bifold aspect of mêtis that utilizes both fixity and contingency is central to how Michel de Certeau (1984) deploys the concept in The Practice of Everyday Life. Certeau praises the sophistic use of mêtis to make the weaker position seem the stronger, and he relates metic intelligence to the everyday practices and other “ways of operating” whereby the weak may prevail over the strong (p. xix). The field of rhetoric thus provides a schema for tactical operation and mêtis can thereby be seen as the basis for Certeau’s concept of tactics. Mêtis and tactics are both

concerned with “making do” by exploiting emergent circumstances, and are associated with ploys of the weak or marginalized in navigating the strategies of powerful institutions and structures. These ways of operating are therefore dependent on existing infrastructures to furnish their field of action.

As delineated by Helga Wild (2012), Certeau’s tactical system requires governmentality to provide “a dominant rationality as an endoskeleton that makes society cohere,” but also posits a space for freedom and resistance such that individuals might “escape from complete submission to this rationality” (p. 3). This dynamic is aptly illustrated in Certeau’s account of the urban walker’s street-level traversals as a tactical appropriation of the modernist planned city. Certeau does not use the term "mêtis" in his essay on urban walking, but its cunning intelligence is clearly implicated through its relation to tactical operation and Certeau's allusions to wiley schemes. For Certeau, walking in the city exemplifies the "tricky and stubborn procedures that elude discipline without being outside the field in which it is exercised" (p. 96). The city dwellers' spatial practice typifies "the ruses and combinations of powers that have no readable identity" and whose lack of legible rationality makes them "impossible to administer" (p. 95). As with other forms of tactical everyday practice, the meandering traversals of the urban user are tracings that leave no trace as the tactic "disappears into its own action, as though lost in what it does" (p. 82). Certeau's articulation of urban walking evokes many of the qualities of mêtis identfied by Detienne and Vernant (1991), as they posit that “mêtis proceeds obliquely [by] taking a detour” (p. 308) and depends on the paradoxical invisibility of dissimulation, “the art of seeing without being seen” (p. 30). It is therefore evident how mêtis informs Certeau's conception of everyday tactics.

The anthropologist James C. Scott (1998) has further elucidated everyday practices through the concept of mêtis in his book Seeing Like A State. Scott studies the practices of agrarian peasant

communities through an anarchist lens to explore how they realize forms of subaltern politics and resistance, what he terms “weapons of the weak." These groups interest Scott because they tend to operate outside the purview of modern systems of statecraft, what Scott calls "state simplifications." State simplifications are the methods of comprehension or representation deployed by institutions so as to render territories and populations amenable to observation, prediction, and control. Scott likens these simplifications to "abridged maps" because they do not endeavor to represent the actual activity of society but rather "only that slice of it that interested the official observer" (p. 3). The design and management of cities necessarily involve such reductive abstractions, and Scott identifies high-modernist urban planning as a paragon of state simplifications. In selectively representing social realities as fixed and manageable, these simplifications omit or overlook mêtis, which Scott describes as "a wide array of practical skills and acquired intelligence in responding to a constantly changing natural and human environment" (p. 313).

Scott likens mêtis to other ways of knowing such as common sense, indigenous knowledge, and folk wisdom (p. 311). As the logic of responding to shifting circumstances, mêtis contains an inherent complexity that "resists simplification into deductive principles which can successfully be transmitted through book learning" (p. 316). While state simplifications rely on monolithic rigidity and generalizability mêtis by contrast is plastic and local. The essence of mêtis is knowing when to apply "rules of thumb" in concrete situations and its litmus test is practical success (p. 316, 323). State simplifications not only minimize or diminish mêtis but threaten its very existence, as Scott says the destruction of mêtis and its replacement by standardized formulas "is virtually inscribed in the activities of both the state and large-scale bureaucratic capitalism" (p. 335).

Scott's study makes no mention of Certeau, an especially conspicuous absence considering the many similarities in their respective projects. In addition to their mutual investment in the everyday practices employed by marginalized individuals in navigating powerful systems, Certeau's juxtaposition of the panoptical planning gaze with the street-level city life is echoed in Scott's distinction between state simplifications and lived experience as "facts on paper" versus "facts on the ground" (p. 49). Both theorists also relate mêtis to language, as Certeau did in drawing from rhetorical concepts and in likening the city to a grammar or language and walking to enunciation or an individual speech act. Scott also uses linguistic analogies in describing mêtis, metaphorically comparing utilizations of metic intelligence to speech acts, and noting that mêtis and language are both "best learned by daily practice and experience" (p. 319). Scott even considers language as offering "the best model" of an institution shaped by mêtis, being "a structure of meaning and continuity that is never still and ever open to the improvisations of all its speakers" (p. 357). Yet Scott also presents a significant inversion or extension of Certeau's position regarding the relationship between metic invention and systems of order. For Certeau and other interpreters of cunning intelligence, mêtis relies on stable structures of order for its deployment and so depends on both the concrete and the contingent. This dynamic is evident in Certeau's assertion that tactics "make do" by playing on or appropriating strategic mechanisms. By contrast, Scott argues not that metic operation is dependent on dominant structures, but rather that state simplifications are reliant on mêtis because "all socially engineered systems of formal order are in fact subsystems of a larger system on which they are ultimately dependent" (p. 351). Scott therefore understands mêtis not as merely contrary to or outside of state simplifications, but instead as a foundational base upon which the abstractions of systematic order are built. It is through the countless tactical operations of metic intelligence that the ostensible coherence of the

whole system is made possible. The many gaps and abridgments inherent to reality as depicted by "facts on paper" are completed and actualized by those negotiating "facts on the ground."

James Scott's work on local knowledge and "weapons of the weak" has influenced a diverse body of research in the areas of everyday resistance, subaltern studies, and infrapolitics (Johansson & Vinthagen, 2016). Drawing on Scott's use of the terms, Vinthagen and Johansson (2013) understand both "everyday resistance" and "infrapolitics" as dispersed tactical practices used by exploited people "in order to both survive and undermine repressive domination" (p. 4). Unlike open resistance, such as riots or demonstrations which are public and easily recognized, everyday resistance "is typically hidden or disguised, individual and not politically articulated" (p. 2). Everyday resistance evinces many key aspects of mêtis as it is based on contingency rather than universal strategy, and is "both subordinate and rebellious at the same time" (p. 37) since it is never fully outside the networks of power with which it intersects. Scholars have further drawn upon Certeau's and Scott's respective treatments of mêtis to analyze phenomena such as the displacement of slum dwellers in New Delhi, practices of domesticity among displaced Syrians living in refugee camps, and the usefulness of metic intelligence for organizational settings (Kalyan, 2014; Beehner, 2015; Letiche & Statler, 2005).

Michael J. Shapiro (2009) has developed the concept of "urban mêtis" to describe a type of practical intelligence unique to the negotiation of city spaces and social relations. Using examples from detective fiction and police procedurals Shapiro identifies an everyday pragmatics that urban denizens utilize to make cities legible and negotiate structures of surveillance, policing, and control. In Shapiro's framework urban mêtis "maps the city's class and ethnic fault lines, the non-material walls around which much of an urban micropolitics, involving a dynamic of securitization and resistance, proceeds" (p. 453). This urban contextualization of mêtis as a tactical

negotiation between dominant top-down strategies and alternative bottom-up practices evokes contemporary concerns in urban studies with forms of marginality, liminality, and informality. Urban informality refers to infrastructures, settlements, and underground economic activities that are neither sanctioned nor monitored by any state institution. Libby Porter (2001) argues that informality emerges as a policy problem for urban governance because it is seen as "unregulated, uncontrolled, messy and inefficient" compared to the ordered and regulated character of planned land use (p.116). The tension between formal and informal practices recalls Scott's dichotomy between state simplifications and mêtis, and like mêtis informality does not exist outside or separate from formality but is "produced by formal structures and always intimately related to them" (p. 116).

The contemporary paradigm of "smart city" approaches to urban planning and governance has provided new contexts for understanding strategic and tactical urban practices. Smart city initiatives promote technology-centric solutions to urban management and are typically tied to discourses of sustainable development, economic growth, and citizen engagement. These projects commonly rely on accumulating and analyzing data collected from networked ICT infrastructures to facilitate efficient resource management and e-governance programs. Smart city initiatives can therefore be seen as the most recent manifestation of the impulse in urban governmentality toward abstracting and managing the city as a rational and coherent whole. In his classic book The Uses of Disorder Richard Sennett (1970) argued that the inherent diversity and complexity found in city life was a potent impetus for personal development, and that this productive disorder was threatened by a stultifying preponderance of pre-determined order produced in modernist urban design. Through the experience of negotiating among diverse strangers and unplanned situations, and thereby learning to tolerate ambiguity and uncertainty, city dwellers develop into mature adults

and broadminded democratic citizens. The simplification of the social environment as seen in affluent districts and suburbs results in a lack of complex experience that deprives individuals of opportunities for spontaneous social interaction and results in a diminished public realm.

More recently Sennett (2012) has considered the implications that smart city projects pose for urban life. Sennett notes technology well-used can be a powerful tool, but warns that "this information-rich city may do nothing to help people think for themselves or communicate well with one another" (p. 1). Cautioning that "a city is not a machine," Sennett argues for "a more open, indeterminate city" that functions well enough for its citizens while remaining "open to the shifts, uncertainties, and mess which are real life" (p. 1). Shannon Mattern (2017) expands on Sennett's claim that "a city is not a machine" in arguing that "a city is not a computer" (p. 1). She argues that smart city developers should recognize ephemeral and performative forms of knowledge that cannot be reduced to information or transmittable data as "vital urban intelligences that live within bodies, minds, and communities" (p. 1). Sennett's and Mattern's respective prescriptions for an urban form that is open to contingency and place-based knowledge demonstrate affinity with James Scott's (1998) guidelines for incorporating mêtis in planning projects. An institution shaped by mêtis, Scott says, will be "plastic, diverse, and adaptable" (p. 353), allowing for surprises as well as human inventiveness. These urban ideals of openness are reflected in many official smart city discourses, which emphasize dynamic functionality such as real-time responsiveness and adaptable flexibility (Albino, Berardi & Dangelico, 2015). The rhetoric and infrastructures undergirding smart city development thus challenge traditional understandings of the strategies and tactics of everyday urban practice.

Through their collective emphasis on local knowledge and street-level ingenuity each of the theorists discussed in the preceding section posit the importance of organic vitality and

unpredictability in the urban experience. This concern lies at the heart of Richard Sennett's (1970) claim that "certain kinds of disorder need to be increased in city life" (p. xvii). In surveying the impact of modernism on urban environments Marshall Berman (1982) identified a "contemporary desire for a city that is openly troubled but intensely alive" (p. 171), a desire marked by the "celebration of urban vitality, diversity and fullness of life" (p. 316). Sara Westin (2014) refers to this aspect of urban life as "urbanity," and differentiates this quality of lived experience from the built environment or material urban form. Unlike the practitioners of high-modernist planning who sought to eliminate or exclude any perceived chaos and disorder, these critical urbanists consider the heterogeneity of city life as a more complex and productive form of order.

Yasminah Beebeejaun (2017) evokes the generative potential of urban complexity in describing everyday urban life as "a shifting terrain of spatialization [wherein] continuous forms of unspoken negotiation with other urban dwellers are worked through" (p. 4). This emphasis on the continual negotiation of urban life recalls Hawhee's (2004) conception of mêtis as "the mode of negotiating agonistic forces" (p. 46). Drawing on how the aforementioned scholars have defined and operationalized the concept, mêtis may be understood as the practical intelligence which facilitates the successful negotiation of a contentious and unruly urban experience. Mêtis can be seen to underly the communicative competence required to constructively interact with diverse and disparate strangers. Mêtis is therefore akin to the unruly and unpredictable elements of experience which instrumental rationality is unable or unwilling to represent. Yet as Hawhee also notes, "mêtis exists only where it is put into practice" (p. 53). As an intelligence of practical application "mêtis, by its very nature, needs to be deployed" and consequently "does not exist on its own, but only in connection with its use" (p. 53). The space of metic operation is therefore the point of intersection where the rubber meets the road, or rather where the walker meets the urban

street. Mêtis is actualized in the mutually constitutive interstitial spaces between static order and unruly contingency. From the standpoint of Scott's schema of mêtis and state simplifications, metic intelligence is realized in the liminal space between the map and the territory, where facts on paper intersect with facts on the ground. Mêtis operates where potentialities are seized, where practical knack utilizes available implements, and where the incommensurable disparities between abstraction and lived experience are negotiated through everyday practice.

2.3 Conclusion

The preceding chapter has traced a history of urban discourses and theories rooted in a tension between order and disorder. This history demonstrates how successive regimes of actants and institutions have sought to eliminate unpredictable and uncontrollable elements from urban space by imposing models based on efficiency and instrumental rationality. These regimes have often utilized economic theories and models to remake urban spaces for maximal circulation and accumulation. Adam Greenfield (2013) refers to such processes as the creation of a "generic space" intended to facilitate the frictionless flow of capital and state power. This imagined generic space of unimpeded traffic idealizes movement without collision, presenting a situation in which urban denizens are deprived of the unplanned intersections and chance encounters that urbanists have long associated with the vibrancy and intensity of urban life. The preceding discussion has also shown how critical urban theorists identify a Dionysian element of unruliness and unpredictability as a necessary condition for realizing non-instrumental practices and an engaged urban politics. From this perspective the notion of mêtis as a dynamic and cunning intelligence can be seen as a model for forms of polymorphous ingenuity, which were theorized as eluding the machinations of

order under modernist planning and Fordist capitalism. This model is challenged, however, by the policies and discourses undergirding neoliberal development.

The attributes and applications of mêtis so far elucidated bear significant correspondences with the previous section's discussion of imaginations of urban disorder and governing rationalities based on order. Theorists across both conversations evince a dichotomous split between reductive abstractions that represent cities as a coherent and stable as opposed to the contingent and ephemeral experiences associated with lived reality and mêtis. For instance, Scott's notion of state simplifications as "abridged maps" used to render reality amenable to calculation and intervention is highly resonant with Foucault's conception of governmentality, Lefebvre's model of abstract space, and Certeau's outline of strategic operations. Drawing on the preceding discussion of mêtis, and the ways in which the aforementioned theorists have defined and utilized the term, we can conceptualize mêtis as an analogue for the various forms of unruliness and elusiveness underlying everyday lived experience as indicated in each of these thinkers' respective frameworks. The cunning intelligence of mêtis can thus be associated with the qualities of vital urban life as delineated by Lefebvre and Certeau, as well as with the practical knowledge required of urban citizens in order to successfully navigate both the unruly contingencies of city life and the intractable structures of urban order. Mêtis may then be considered both a prerequisite for and an indicator of a robust urbanity, as well as fulfilling the conditions for a participatory democratic politics as advocated by critical urbanists like Sennett and Lefebvre.

Scott (1998) considered mêtis crucial for navigating the vagaries of human interaction and for political practice, suggesting that "democracy itself is based on the assumption that the mêtis of its citizenry should, in mediated form, continually modify the laws and policies of the land" (p. 356). By synthesizing these various perspectives the concept of mêtis can be related to the local

distinctiveness and dynamism associated with vibrant urbanity, the possibility for an emancipatory political practice, and an understanding of urban life that is not dominated by economic efficacy or instrumental rationality. Through this analysis I have attempted to demonstrate that mêtis is a salient and useful term for analyzing the tensions between urban order and disorder. Mêtis may therefore serve as a useful metric for critical urban analysis, and may also be considered an object of analysis itself as the conceptualization and use of the term can be traced across discourses and texts.

3.0 A New Spirit of Urbanism: Dreaming Disorder and Capturing "Creativity" in Urban Discourses

Oli Mould's Against Creativity (2018) opens with an anecdote set in New York City. The author recounts how, after leaving a Manhattan bar one evening, he encountered a destitute man on the street who delivered a request for money in the form of a song. Mould recalls previous encounters with homeless persons on city streets to which he responded with automatic evasion, yet this encounter left him charmed and enthused that someone in dire straits could demonstrate such entrepreneurial verve. This anecdote serves to illustrate a nexus of economic inequality, urban space, and notions of creative activity. At issue for Mould is whether the homeless man's use of performance as persuasive strategy should be understood as properly "creative." Mould argues that neoliberal capitalism has redefined "creativity" in order to harness an increasing range of activities so as to feed its own growth and maintain the economic status quo. The redefinition of creative practice functions to recast activities traditionally understood to lie outside economic instrumentality as the very means of economic expansion. Mould surveys examples from "austerity" economic policies, precarious labor practices, and urban development discourses to demonstrate how notions of "creativity" are co-opted within neoliberalism. In addition to furthering the expansion of market rationality into previously untapped areas of everyday life, the neoliberal co-optation of creativity also appropriates the ethos of creativity in order to neutralize any subversive or revolutionary potential of "authentic" creativity.

This critique of the neoliberal recuperation of resistance resonates with the broader trend in economic policy discourses French sociologists Luc Boltanski and Eve Chiapello (2017) have termed "the new spirit of capitalism." Boltanski and Chiapello identify this "new spirit" by

analyzing transformations in capitalist discourses and practices as reflected in managerial texts. These shifting attitudes in managerialist texts exemplify many of the tenets of post-Fordist flexible accumulation that have come to be understood beneath the conceptual umbrella of neoliberalism. Although their work is not posited as a contribution to urban theory it resonates with critical approaches to the culture of cities in several significant ways. For example, the managerial discourses they analyze in order to outline the contours of the new spirit of capitalism all come from Parisian firms. Additionally, they employ the term "city" (French "citè," which has multiple possible translations) to theorize the new spirit of capitalism as the emergence of the "projective city." What is especially pertinent to the present study is Boltanski and Chiapello's argument that the new spirit of capitalism was shaped through dialectical interaction with, and subsequent incorporation of, prominent anti-capitalist critiques.

In the spirit of Boltanski and Chiapello, the following chapter also attends to transformations in academic and policy discourses with particular attention paid to urban contexts. I survey influential examples of U.S. urban rhetoric to trace how planners and policymakers have incorporated and adopted salient concepts from critical urbanism to accommodate the needs of urban economies within neoliberal capitalism. In this way the "anti-urbanism" of past generations is transformed into the "new urbanism" of today. The examples of U.S. urban rhetoric discussed below represent influential discourses of urban disorder that have depicted cities as unruly sites in order to implement programs of intervention and control. This history outlines impactful academic and economic discourses whose respective visions of urban disorder have shaped specific policies of urban governance, as well as how these discourses have been critiqued, rebuffed, and transformed over time. Many of these discourses employ pathological perspectives of urban spaces and populations, supporting Foucault's notion that "the image of the plague" underlies all projects

of disciplinary order. Each also demonstrates particular approaches to urban governmentality based on rationalizing cities as disordered so as to render them amenable to remaking them in the image of an idealized order. I argue that just as neoliberal discourses integrate and assimilate critiques of capitalism, contemporary urban development discourses similarly capture and gentrify past urban critiques in such a way as to neutralize the critical edge of their terminology and subsequently deploy their master signifiers in furtherance of neoliberal economic projects.

The following survey begins with the emergence of the modern metropolis within industrial capitalism and efforts to forge spatial and social coherence into the city; it continues with the modernist approaches to architecture and urban design that predominated in the first half of the twentieth century; the next phase concerns revanchist strategies of class-based urban orderings undertaken through order-maintenance policing; this is followed by the influential creative class discourse and its associated metrics and policy implementations; and the survey concludes by considering the contemporary model of "smart city" development. The phases identified do not cohere around a single salient discourse for each period outlined below, but rather represent successive eras of urban ordering discernible by the influence of particular predominating policies and their impacts on urban design, governance, and life. These examples also illustrate many of the concerns raised in the preceding chapter through their application of instrumental logic to everyday life, their implications for modes of local intelligence or mêtis, and their role in changing notions of the form and function of cities.

3.1 The Modern Metropolis: Shaping Spatial and Social Order

The industrial cities that developed in the nineteenth century were shaped by a chaotic urbanization patched together from inchoate infrastructures. Rapid technological innovation and the sudden social and economic transformations they engendered did not lend themselves to programs of deliberate and methodical urban planning. In their studies of industrial capitalism Marx and Engels viewed the industrial city was an outgrowth of capitalist production rather than the other way around. The modern city comprised a spatial form driven by a developmental logic of aggregating and harnessing the accumulated productive capacities of a vast wage laborer population. Engels highlighted the miserable living conditions and health crises that arose from industrial urbanization in his survey of the working class in Manchester, England. The tensions of industrial urbanization and their resultant impact on modern urban planning lead David Harvey (2003) to designate Paris "the capital of modernity" in his study of the city's transformation under the planner Baron Haussmann. Haussmann was appointed to oversee urban renewal efforts intended to address the "chaos, disorder and congestion that beset the city center" (p. 84) in the wake of Paris' rapid and uncoordinated expansion in the early nineteenth century. Haussmann's renovation of Paris sought to regularize the spatial complexity and disarray that had gradually developed over centuries by imposing a view of space that was holistic, rational, and ordered. This was a new conception of urban space as a totality, and Haussmann's general plan sought to bring the city's various districts and functions "into relation to each other to form a working whole" (p. 111). Haussmann's imposition of spatial order resulted in the demolition of crowded medieval neighborhoods, the creation and expansion of broad new boulevards, and the construction of sewers and aqueducts. Yet these attempts to ameliorate anxieties of spatial disorder were inexorably linked to pervasive fears of social disorder. Harvey notes that "fear of disorder was

inordinate" among the bourgeoisie, and included fears not only of the collapse of public order but also "the horror of uncaged emotions, unbridled passions" and other latent threats posed by the dangerous classes (p. 268). The working class posited their own culprits for perceived disorder, including immigrants, foreigners, and "an uncaring state that accorded them neither dignity nor rights" (p. 268).

Huassmann's renovation of Paris has become emblematic not only of modern planning but of the emergence of modernity itself through its association with such characteristically modern practices as the imposition of rationalizing regimes and the standardization of time and space. It is also paradigmatic of a modern spatial order predicated on ideals of circulation and flow. Stephen Graham and Simon Marvin (2001) have described the broadening of boulevards and creation of sewage systems as "integrated infrastructure networks that were explicitly designed to foster free circulation both within and between cities" (p. 53). The construction of these circulatory channels thus evinces a clear concern with building networks of urban infrastructure to facilitate unimpeded movement whether above or below ground. Patrick Joyce (2003) terms this approach to urban development the "sanitary city," understood as "a social imaginary of the city as a place of flows and movement" (p. 145). Joyce considers Haussmann's redesigned Paris "the epitome of the city of free circulation" (p. 149), but cites examples of this urban imaginary from other nineteenth-century industrial cities including London and Manchester. He designates this mode of urbanization "sanitary" because it enacted new standards of cleanliness and hygiene that involved "creating spaces around and between bodies, protecting them from others' contact and smells" (p. 73). The sanitary city aimed to exact control over not only pedestrian and vehicle traffic in the streets but also water, waste, and blood from animal slaughterhouses. Joyce connects these implements of managed circulation to the operations of liberal governmentality as they constituted

a political subject situated in a "tension between the city as a place of order [and] the invitation to a sort of freedom" (p. 215). These urban infrastructures were also linked to the state's vested interest in ensuring the navigability of the built environment so as to control the circulations of money, laborers, and other material instruments of state wealth.

The industrial modernization of Europe's capital cities occurred contemporaneously with the advent of the modern American metropolis. The same year that Haussmann began his redevelopment of Paris a world's fair celebrating industrial innovation was held in New York City. By this time Manhattan island had already been subject to the Commissioners' Plan of 1811 which implemented the city's distinctive and determining urban street grid. M. Christine Boyer (1983) situates the emergence of U.S. city planning in the context of American imperialism and market expansion, and suggests that "every spatial barrier that thwarted this development had to be overcome" (p. 64). Boyer argues that American urban discourse following the Civil War fixated around two central problems: first, how to discipline the urban masses so as to "eradicate the dangers of social unrest, physical degeneration, and congested contagion; and second, how to control the spatial growth of urban agglomerations in order to "support industrial production and the development of a new civilization of cities" (p. 9). City planners thus defined these dilemmas as problems of discipline and order, and "the rational treatment of spatial development" (p. 9) emerged as the preferred response. The multiplicity of the industrial city appeared as a tumultuous maelstrom of disparate land uses, insoluble traffic congestion, and ubiquitous social conflicts. Against this vision of chaos and disorder stood the ideal of "the city as a perfectly disciplined spatial order" (p. 60). New forms of transportation and communication introduced further complexity and disjointed multidimensionality into the urban environment. Planners lamented the apparent lack of common interest and identity by which "to link the mass of individuals to the

whole," and consequently feared that "the growing complexities of everyday life fragmented the ragged ensemble into expanding disorder" (p. 187). The problem of cities was thereby not merely a question of spatial order but rooted in the desire to forge social cohesion and a national consciousness.

It was against this backdrop of chaotic industrial urbanization and the search for social cohesion that modern urban sociology developed. Much of the foundation of social scientific research was laid by scholars working in and around the University of Chicago's sociology department at the turn of the twentieth century. The work of these researchers, commonly referred to collectively as the Chicago School, shared a commitment to empirical data collection with the aim of practical application, and their methodology typically involved the combination of social scientific theory and ethnographic fieldwork. This research was foundational to the development of modern social science but also to the emergence of the "city" as a unit of societal analysis, an invention that Reinhold Martin (2016) attributes to "a first-order misreading of social relations under industrial capitalism" (p. 15). Several members of the Chicago School had been influenced by the work of German sociologist Georg Simmel, particularly his landmark essay "The Metropolis and Mental Life" (1903). Simmel viewed the modern metropolis as a site of continual flux and transformation, and contrasted the smoother and more stable social relations of the rural town with the tendency toward increased specialization under industrial urbanization. In the essay "Urbanism as a Way of Life," Chicago School member Louis Wirth (1938) proposed a sociological definition of the city as "a relatively large, dense, and permanent settlement of socially heterogenous individuals" (p. 8). For Robert Park (1915), the social relations of the city were inscribed in the spatial patterns of the urban environment, such that a city's spatial order was implicated in its moral order. Along with his Chicago School colleague Ernest Burgess, Park

advocated an ecological model of the city in which different social classes and ethnic groups were seen as competing for resources and space. Park thereby viewed the movement of people through neighborhoods as a key problem for social order, as he believed that a sufficiently homogenous urban area could produce an orderly and homeostatic coexistence.

Across the various writers and texts that comprise the tradition, the Chicago School sociologists suggested that the moral order of a city formed out of communal ties and relations based on an idealized understanding of traditional rural social organization. They believed that these ties were developed at the scale of the neighborhood as the smallest unit of analysis and essential building block of the urban form. Their theories also evinced a pathological perspective wherein the innate heterogeneity and anonymity of urban life were seen as contributing not only to diminished social ties but also the emergence of criminal, immoral, and antisocial individuals. These approaches to urban sociology are considered pathological because they categorize city spaces and residents as either desirable or undesirable, or "healthy" and "unhealthy," and such perspectives would prove pervasive in U.S. urban studies and criminology over the subsequent century. The social scientific pathologizing of urban spaces and populations recalls Foucault's (1977) exemplar of the plague-stricken town as the model of disciplinary order. Park and Burgess' conceptions of the city as a biological organism extends this metaphor by treating the entire city as a social body. The prevailing use of pathological discourses to frame urban policy interventions seems to support Foucault's claim that within every disciplinary program "the image of the plague stands for all forms of confusion and disorder" (p. 199). For the Chicago School sociologists disorder could manifest in any number of social pathologies including contagious disease, criminal deviance, or visible poverty. The Chicago School also presented the view, which they shared with Haussmann's general plan for Paris, that spatial order and social order were inextricably linked,

and that industrial urbanization threatened rather than strengthened social cohesion. The modern metropolis thereby emerges in these discourses as a problem to be solved, a problem that subsequent regimes of theorists and planners would further seek to rectify.

3.2 Modernist Planning: Envisioning Aesthetic Order

In the mid-twentieth century planning anxieties about industrial urbanization and social cohesion had yielded large-scale infrastructure projects associated with ideals of technological progress and state regulation. The modernist principles of technological change and spatial regimentation found their greatest champion in a Swiss-born architect known by the self-styled moniker of Le Corbusier. In contrast to the Chicago School sociologists who offered nostalgic visions of village sociality as the corrective for industrial urbanization, Corbusier embraced modern technological forms as both a metaphor for ideal urban design and the means of its implementation. Corbusier conceived of the city as a machine and of the architect as an engineer whose task was to realize the most efficient and economic spatial order through urban design and construction. In Towards a New Architecture (1986) he heralded the coming of "a new world which is forming itself regularly, logically and clearly, which produces in a straightforward way things which are useful and usable" (p. 288). Corbusier called his model city La Ville Radieuse, or the Radiant City, a grand spatial manifestation of his guiding principles of precision, efficiency, and functionality. His planning philosophy evoked both ire and admiration with its effusive evocations of the city as a rational apparatus, a house as a machine for living in, and his call for "the death of the street." In 1933 Corbusier presented a document at the conference of the International Congresses of Modern Architecture that outlined the four essential functions of the

city: living, working, transport, and leisure. The document, which became known as the Athens Charter, offered a series of "observations" gleaned from studies of various cities that were intended to guide the work of architects and urban planners. Corbusier's ideas were widely embraced and implemented during an era of Fordist-Keynesianism during which nation states invested in large-scale development projects to foster social integration and economic facility. The characteristic high-rise housing towers favored in modernist design thus became strongly associated with the welfare state, and their architectural form has since been used metonymically as a visible symbol of welfarism's birth and death.

Le Corbusier's vision of urban order employed the language of technical precision to promote ideals of functionality, but his writings and schematics also evince a pervading preoccupation with visual aesthetic order. His model city designs were distinguished by the prevalence of monumental tower blocks spaced apart uniformly and symmetrically across broad swaths of open park land. Corbusier envisioned the city almost exclusively from the bird's eye view afforded by the planning gaze, as he disparaged the ground-level urban street as a disorderly jumble of confusion and disarray. Corbusier's planning schemes were perhaps defined above all else by a desire for distance: distance between people and buildings, between disparate land uses and functions, and, ultimately, a distance between the urban planner and the object of his designs. It was this distance, whether real or imagined, which allowed space for the desired light and air, sorted out intertwining complexity, and enabled a view of every urban unit and function settled in its proper place. James Scott (1998) refers to such practices as "miniaturization," a characteristic technique of high modernism to make space appear regimented and geographically ordered by creating "a more easily controlled micro-order in model cities, model villages, and model farms" (p. 4). Just as Haussmann had sought to renovate and regularize the tangled complexity of Paris'

oldest districts, Corbusier also sought to impose spatial order over the congestion and disarray of city centers. In The City of Tomorrow (1987) Corbusier recalls Haussmann in his proclamation that "a modern city lives by the straight line" principally because the "circulation of traffic demands the straight line" (p. 10). Corbusier described his project as a struggle against the thwarting powers of chance and disorder "to organize our cities, to police and discipline them, to keep them efficient for production, and lift them out of the chaos which stifles them" (p. 108).

Among the many critiques leveled against Le Corbusier's spatial prescriptions none proved as incisive or influential as that launched by Jane Jacobs (1961) in The Death and Life of Great American Cities. Jacobs began her book by qualifying it as an attack "on the principles and aims that have shaped modern, orthodox city planning and rebuilding" (p. 5). Her critique stems from what she perceives as a fundamental misunderstanding of modern urban life as incomprehensibly chaotic when in fact this seeming disorder is predicated on an intricate and complex order. Modernist planners and urban theorists, she argues, "have consistently mistaken cities as problems of simplicity and of disorganized complexity" (p. 567), and have consequently imposed a stifling and constraining semblance of order upon the vital dynamism that emerges from the city's unruliness. For Jacobs, "the seeming disorder of the old city" serves to obfuscate what is actually "a marvelous order for maintaining the safety of the streets and the freedom of the city" (p. 65). Whereas the Chicago School theorists valorized the neighborhood as the essential building block of the urban form, Jacobs instead saw the sidewalk as the fundamental scale of successful urban life. Heavily trafficked sidewalks facilitate a multiplicity of contacts and a benign order of casual surveillance, which allows neighborhood residents to self-monitor for illicit or dangerous activity. Jacobs also criticized the visual aesthetic view of city planning as exemplified by Le Corbusier because its perspective of geometric rationality saw only disorder and chaos in the intricate

improvisations of vibrant sidewalk life. She contrasted these aesthetic abstractions of visual order with what she called the "functioning order" of city life (p. 20). To treat a city as a problem of visual order in need of aesthetic simplification, she argued, is to "make the mistake of attempting to substitute art for life" (p. 486). Jacobs considered the modernist ideal of aesthetic rationality as a "dishonest mask of pretended order" (p. 21), which ignored or suppressed the actual functioning order undergirding urban existence.

It was this disparity between representations of order and lived experience that James Scott (1998) challenged in his critique of high modernist planning. Scott saw in Jacob's evocative championing of urban life as organized complexity the epitomization of his dichotomy between mêtis and state simplifications. In Scott's framework mêtis refers to the site-specific forms of practical knowledge which underlie the lived experience of facts-on-the-ground, as opposed to the abstract and generalizable facts-on-paper that constitute state simplifications. State simplifications are "the necessarily thin, schematic model of social organization" (p. 310) used by institutions to render the contingencies and uncertainties of reality into calculable abstractions. Scott adopts Jacob's terminology to argue that modernist planners mistakenly ascribed functional order to purely visual order and consequently overlooked or inhibited the vitality and diversity that made life in these places unique and fulfilling. Jacobs' conception of sidewalk culture as an improvised ballet thus provided an excellent model for the everyday operations of mêtis. The daily negotiation of the urban street's myriad encounters, transactions, and intersections constituted the true underlying order around which successful city life cohered. In the face of such innate dynamism, Scott argues, the "best a planner can hope for is to modestly enhance rather than impede the development of urban complexity" (p. 143). Although he dichotomizes mêtis and state simplifications, Scott also suggests that systems of formal order are always reliant and ultimately

parasitic upon informal processes "which the formal scheme does not recognize, without which it could not exist, and which it alone cannot create or maintain" (p. 310). He posits that many modernist urban and housing developments were "experienced as a social failure" by their inhabitants, and the total collapse of such settlements was often averted only "by practical improvisations and illegal acts that were entirely outside the plan" (p. 309). Modernist projects ultimately fail to meet citizens' needs by overdetermining functions and failing to sufficiently allow for contingencies of spontaneous interaction and unplanned use.

By the 1960s the impact of modernist architecture had fallen short of Le Corbusier's utopian aspirations, and any semblance of social cohesion in U.S. urban communities seemed irreparably damaged. Throughout the decade urban riots broke out across the country as inner cities contended with population loss and fiscal austerity compounded by conditions of residential segregation, concentrated poverty, and urban decay. In 1965 sociologist Patrick Moynihan submitted a confidential report to President Johnson in which he warned that structural failures in African American ghettos were disintegrating the fabric of community life. The report infamously characterized black families as existing within "a tangle of pathology" defined by chronic unemployment, deteriorating family structures, and intergenerational poverty. The Moynihan Report testifies to the legacy of pathological perspectives in social scientific discourses, as well as the relationship between racial stigmatization and social order in U.S. urban policy. Following the assassination of Martin Luther King Jr. in 1968 crowds of African Americans took to the streets in many U.S. cities resulting in several days of civil disturbance. That same year President Johnson created a National Advisory Commission on Civil Disorders to investigate the causes of and potential resolutions for the urban unrest. The commission's report identified the origins of the crises in a history of racial inequality sustained and exacerbated by a long legacy of social,

economic, and spatial segregation. Richard Sennett (1970) penned The Uses of Disorder in the immediate aftermath of this urban turmoil, choosing this volatile time to argue for the productive capacities of urban diversity and warn against the stultifying effects of social sequestration and affluent enclaves. Sennett advocated for a dense, cosmopolitan urbanity against the subdivision of functions and enforced social sorting represented by modernist planning. Charles Jencks (1977) famously declared the 1972 demolition of the Pruitt-Igoe housing projects as the day that modern architecture died. Constructed just outside downtown St. Louis, the Pruitt-Igoe development comprised 33 high rise housing blocks approximating the "towers in the park" paradigm favored by Le Corbusier. Jencks' proclamation suggests that Pruitt-Igoe is foremost a failure of architecture, a misapplication of modernism's impulse toward monumentalization resulting in alienation and abandonment. Other commentators have seen the buildings' demise as representing the failure of the welfare state, or as symbols of urban inequality and poverty. Yet the Pruitt-Igoe complex and similar bygone housing projects may also be seen to represent the failure of modernist planning to construct a sustainable social order from ideals of instrumental rationality.

3.3 Broken Windows: Police Enforcement as Order Maintenance

While the modernist aspirations of Pruitt-Igoe ended with shattered hopes and broken windows, U.S. urban sociologists were soon preoccupied with broken windows of another sort. Following the urban crises of the 1960s many cities were beset by further social and economic distress throughout the 1970s and 80s, resulting in inner city urban decay and ascendant crime rates. Within this context James Q. Wilson and George Kelling (1982) developed the "broken windows" theory of urban disorder. Wilson and Kelling offered empirical data gathered from

police foot patrols to suggest a link between visible signs of neighborhood disorder and more serious criminal activity. Their archetypal example is the theory's eponymous broken window. They argue that if a broken window is quickly repaired than further vandalism is unlikely; a broken window left unrepaired, however, will encourage further destruction. According to Wilson and Kelling, therefore, "disorder and crime are usually inextricably linked, in a kind of developmental sequence" (p. 2). Elements of visible disorder are not limited to smashed windows, litter, and graffiti, but may also come in the form of disorderly individuals. These disorderly people were not necessarily violent individuals or criminals but rather "disreputable [or] unpredictable people" such as panhandlers, drunks, and "the mentally disturbed" (p. 1). As with the broken window that goes unrepaired, they suggest that "'untended' behavior also leads to the breakdown of community controls" (p. 3). Visible neighborhood disorder, whether physical or social, arouses fear in residents who subsequently avoid one another. This avoidance diminishes both neighborhood civility and their communal ability to maintain neighborhood order. The key, Wilson and Kelling argue, is to identify neighborhoods at the tipping point "where the public order is deteriorating but not unreclaimable" (p. 9). They believe that it is the responsibility of the city police to intervene in neighborhood disorder, stating that although "citizens can do a great deal, the police are plainly the key to order-maintenance" (p. 9). Wilson and Kelling's broken windows theory was adopted by the NYPD under commissioner William Bratton, and the zero-tolerance policies it inspired continue to influence department procedures to this day.

The broken windows theory of order-maintenance posits a dichotomy wherein disorder increases criminal activity while order serves to decrease criminality. The question of how these terms are defined in the theory is therefore of crucial importance. Bernard Harcourt (2001) suggests that although broken windows theory "privileges order, regularity, and predictability" (p.

126), the meanings of its key terms are not as fixed or stable as they may seem. The control of crime, for example, is not the only possible meaning of disorder, which could also apply to "an alternative subculture, political opposition, or artistic ferment" (p. 17). For Harcourt, the desired order of broken windows "depends on a lot of disorder, irregularity, and brutality" (p. 126) because the the theory is predicated on responding to norm violations and deviance with punitive discipline. He argues the orderliness of broken windows policing may in fact be "an illusion of order" (p. 19). Alex Vitale (2008) has shown how the broken windows perspective enabled New York mayor Rudolph Giuliani to reframe homelessness as a "quality of life" issue, allowing him to "treat homelessness as a criminal justice issue and not a social services one" (p. 11). The removal of homeless persons from city parks and other public spaces carried out under the Giuliani administration has been tied to processes of neighborhood gentrification to appease and attract wealthier residents. Vitale connects these policies to resentment about the city's 1989 economic recession, which lead to upper- and middle-class white residents blaming minorities and the homeless for increased crime and disorder. Aggrieved middle-class residents "criminalized minorities and the poor by calling for increased policing," to which the Giuliani administration responded by "cutting back on social welfare programs and criminalizing the homeless and disorderly" (p. 23). As with preceding periods of urban governance the broken windows perspective thus conceptualized order and disorder according to aesthetic qualities, albeit an aesthetics that was racially marked and inflected by class interests. The pathological designations of disorderly people employed under order-maintenance policing thereby facilitated the removal not only of criminals but other individuals the city deemed undesirable.

Wilson and Kelling advanced sociological insights to influence urban criminology, but their theory was built on a foundation of economic rationality. Their suggested link between visible

disorder and criminal activity was based on an equation presented by Gary Becker (1968) to model an economic approach to criminal punishment. Becker analyzed the relation between public policy and illegal drug markets, translating criminal behavior into a rational economic choice that could be represented mathematically. Michel Foucault critiqued Becker's arguments in his lectures on biopolitics, finding his economic interpretation of criminality to be "paradigmatically biopolitical" and an exemplary case of neoliberalism's construction of individual actors as homo oeconomics (Newheiser, 2016, p. 16). Wilson and Kelling's use of the rational-choice paradigm was therefore well-suited for contemporary neoliberal capitalism, as well as the broader economic context of neoliberal urbanization in which their theory emerged. Under the post-Fordist model of economic development capital and corporations were increasingly mobile and flexible, and as a result many firms were less bound to specific places and free to move around the globe. Vitale (2008) suggests that "a new urban politics developed that pitted capital against local places" (p. 99) as urban economies were recast as "entrepreneurial cities" in competition with one another to attract capital and other resources. Urban centers were driven to restyle themselves as "world cities," reorienting the city toward a tourist economy and promoting their entrepreneurial amenity in order to attract transnational companies and investors. These processes of neoliberal urban restructuring led to the reshaping of city policies, economies, and public spaces. Critics of neoliberal urbanism have cited growing social and economic polarization resulting from policies that Vitale characterizes as "neoliberal entrepreneurial economic development strategies favoring concentrated capital at the expense of the poor and middle classes" (p. 24). Broken windows theory demonstrates how fears of disorder may be deployed for expanding state powers of disciplinary control and remaking urban areas for economic instrumentality.

Through its emphasis on control and predictability the broken windows approach appears in opposition to those aspects of everyday life that scholars have associated with the dynamic operations of embodied practical intelligence. It also evinces a restricted perspective, similar to the modernist planning gaze and Scott's notion of state simplifications, that selectively perceives only those elements of social reality that accord to its own myopic interests. By applying a rational legal-economic perspective to study urban neighborhoods any persons or behaviors that do not fit the preconceived norms are constituted as criminal or disorderly. A decade before Wilson and Kelling proposed their theory Joe R. Feagin (1972) criticized the pathological perspective in sociology for failing to consider that "the patterns of behavior commonly viewed as disorganized or pathological are not in fact adaptive-functional socio-cultural arrangements" (p. 137). The key question for Feagin, as for other critics of social pathology, is whether conceptions of disorder are rooted in a stable and objective reality or may vary according to subjective interpretation. Rather than assuming a universal identification of deviance, he argued, such activities and behaviors might be understood as acceptable or "orderly" by the local community. This argument corresponds with Jacobs' (1961) contention that modernist planners fail to recognize the "organized complexity" upon which successful urban life depends. It is surprising, then, that at least one broken windows author cites Jacobs as an influence. In correspondence with Prashan Ransinghe (2011) George Kelling explains how his initial move into urban criminology were inspired by The Death and Life of Great American Cities, and that he considers the broken windows perspective indebted to Jacob's urban studies. The authors' theory specifically draws upon Jacobs' claim that neighborhood social control is maintained through regular and civil interactions among residents. Yet as Ranasinghe makes clear, many of Jacobs' ideas seem incompatible with Wilson and Kelling's juridical prescriptions. For instance, their claim that order-

maintenance depends on police enforcement is at odds with Jacobs' (1961) assertion that "no amount of police can enforce civilization where the normal, causal enforcement of it has broken down" (p. 40). Jacobs explicitly advocated informal control enforced by residents rather than formal interventions by institutions, and similar perspectives appear in many of the predominant theoretical alternatives to the order-maintenance approach based on acknowledging local interaction order and promoting collective efficacy.

The broken windows approach has been criticized for its philosophical underpinnings, its pathologizing of urban communities, and its punitive strategies for enforcing civility and order. Detractors have also called into question the practical success of its application in law enforcement. Harcourt (2001) cites "inadequate empirical support" (p. 150) for the efficacy of order-maintenance policing, suggesting that its much lauded association with decreasing crime rates may in fact be correlated with numerous other factors. Rather than operating as an alternative method of law enforcement, he argues, order-maintenance has instead become "an addition to the severe penalties that dominate criminal justice," resulting in "a dramatic increase in detentions, arrests, and criminal records" (p. 6). For Harcourt, broken windows policing is "the quintessential penal mechanism at the core of the disciplinary process," the "juridical element in the panopoly of disciplinary techniques" based on surveillance, control, and exclusion of the disorderly (p. 148). Vitale (2008) situates the emergence of order-maintenance in an historical shift from a paradigm of "urban liberalism" based on principles of social tolerance and rehabilitation, to a new paradigm driven by "social intolerance, market- and volunteer-driven mechanisms of social change, and punitiveness" (p. 2). This new paradigm accords with the functions of neoliberal urbanism in reorienting municipal governments away from improving the welfare of citizens and toward imposing institutional order in the public spaces of the city. Reinhold Martin (2016) associates

broken windows theory with the rise of a neoliberal police force who enforce the aesthetics of neoliberal urbanism “with police violence that targets young black men” (p. 127). While the efficacy of order-maintenance policing continues to be debated, the legacy of the approach lives on in police tactics enacted under zero-tolerance policies such as crackdowns on public disorder, the controversial stop-and-frisk program, and the use of choke-hold maneuvers by NYPD officers.

3.4 The Creative City: Urban Order as Innovation

The conditions of neoliberal capitalism fostered inter-urban competition in which individual cities contend for global flows of capital, organizations, and resources. Shifting economic conditions challenged conventional ideas of the advantages afforded by site-specific emplacement. Economic globalization and pervasive technologies of instantaneous communication further eroded traditional notions of temporal and spatial boundaries. Against popular proclamations about the flattening of space economist Richard Florida (2012) argues that place still holds significance in contemporary society and is in fact "the central organizing unit of our time" (p. 8). Under industrial capitalism urban production centers were strategically located based on access to labor and natural resources such as coal or iron ore. In the contemporary economic structure, Florida argues, it is instead access to "talented and creative people" that determines where companies choose to locate and "changes the ways that cities must compete" (p. 8). He suggests that for the first time in history the economy "is powered by creativity" (p. 6). The type of work demanded by the modern informational economy has given rise to a new economic class that Florida calls "the creative class." Members of the creative class are distinguished from their non-creative counterparts by their ability to "create meaningful new forms" (p. 38). Florida

defines "the highest order of creative work as producing new forms or designs that are readily transferable and widely useful" (p. 38), such as a replicable consumer product, a useful new theory, or a piece of music that can be performed many times over. Florida studied the qualities of successful cities to develop an index of creativity based on what he calls the "3T's of economic development": technology, talent, and tolerance (p. 228). All three elements are required to create sufficient conditions for innovation and sustained economic growth. Florida can thus apply the 3T's index to assess an individual city's capacity for innovation and prosperity. As cities compete for economic resources under neoliberal entrepreneurialism the "creative city" designation has emerged as a privileged marker of investment-friendly innovation, and many municipalities seek Florida's certification in the hopes of gaining a competitive edge.

Just as earlier prescriptions for an ideal urbanity depended on distinguishing desirable elements from the undesirable, Florida's model also rests on a dichotomy of order and disorder. The first indication of unruliness is an economic disorder, as Florida (2012) situates the rise of the creative class within a capitalist interregnum in which "the old order has collapsed and the new order is not yet born" (p. xii). The emergent creative class has "altered the rules of the economic development game" (p. 304), he says, and the new rules have yet to be defined and understood. Florida thereby presents his creativity index as the first attempt to map this uncharted territory, and to render the unforeseen economic developments in comprehensible and calculable terms. The second disorder underlying the creative city is "the ongoing tension between creativity and organization" (p. 16). Florida contrasts the contemporary age of creativity with the "Organizational Age" of the twentieth century, during which large-scale and highly specialized bureaucracies predominated. This organizational model is obsolete and ill-equipped for the dynamic needs of modern society, he says, because "organizations can and frequently do stifle creativity" (p. 16).

Finding inspiration in an earlier era of urbanization, Florida champions Jane Jacobs as the ultimate defender of diversity in the face of stifling organization. He describes Jacobs' neighborhoods as "veritable fountainheads of individuality, difference, and social interaction" whose bountiful diversity produced "both civility and creativity" (p. 28). Although Florida argues that creativity depends on diversity in order to flourish, he also characterizes creativity as an eliminator of social difference. Creativity, he suggests, "is the great leveler, annihilating the social categories we have imposed on ourselves, from gender to race and sexual orientation" (p. xi). It is curious that Florida would celebrate the importance of nonconformity for creative life while at the same time characterizing creativity as a potent agent of homogenization. Nevertheless, the cited need for diversity explains why "open-minded" cities gain the greatest economic advantages, as well as why tolerance appears as a crucial measure for his creativity index.

Florida's urban theory employs language of diversity and creativity but his framework is ultimately a model for economic development. His praise for Jane Jacobs encompasses not only her celebration of neighborhood civility but also her grasp of urban economics. For Florida (2012), Jacobs' key economic insight was that the accumulation of skilled and creative people to be found in great cities made them the prime motors of innovation and economic expansion. While Jacobs' observations on city life primarily addressed the spatial and economic patterns of industrial urbanization, the creative cities schema is predicated on the deindustrialized post-Fordist era of hyper-competitive inter-urban competition. James Peck (2005) criticizes the relationship between the creative class and neoliberal capitalism noting that the "urban creativity script also enables a subtle reworking of the scalar politics of the post-Keynesian era" facilitating the attempts of urban actors "to lure the creatives to town" (p. 765). He also cites Florida's failure to consider issues of intra-urban economic disparities and poverty. Peck describes Florida's creative class

pronouncements as reveling "in the juvenile freedoms of the idealized no-collar workplaces in this flexibilizing economy" (p. 756) while ignoring the divisions of labor underlying such employment practices. For Peck, Florida essentially extols the accomplishments of the creative elite while relegating the uncreative classes to an afterthought. Furthermore, as Thomas Borén and Craig Young (2013) have indicated, Florida's creative cities framework not only aims to chart the contours of neoliberal urbanization but is itself an ideal product for neoliberal circulation. The creative city model offers an economic solution that is universally transferrable, easily implemented, and reassuringly founded on statistical analysis. The glossy packaging and heuristic simplicity of his creativity index thus allow Florida to sell lucrative consulting services to municipalities eager for a low-cost, one-size-fits-all remedy for their urban ills.

Florida (2012) understands Jane Jacobs' unique insight as the impulse to utilize the human capital and innovation generated by urban diversity, and he similarly aims "to harness the creativity of each and every person" (p. 320). He argues that every job "can and must be creatified," and that "every worker must be able to harness his or her own inner entrepreneur" (p. 388). The creative worker is therefore constituted as sufficiently industrious and innovative to meet the entrepreneurial demands of neoliberalism. Peck (2005) associates this ideal of creativity with the essence of flexible labor practices required of workers in order to manage the precarity and hypercompetition of neoliberal capitalism. He argues that "the notion of creative cities extends to the urban domain the principles and practices of creative, flexible autonomy that were so powerfully articulated in the libertarian business ideologies of the 1990s" (p. 764). Peck considers even the "quality of place" indicators which Florida posits make cities attractive to the creative class as precisely "the kind of amenities that allow them precariously to maintain a work-life balance" in the context of their demanding work schedules (p. 745). Hugo Letiche and Matt Statler

(2005) argue that neoliberal discourses have captured and incorporated the qualities of creative ingenuity that previous critical theories posited as resistant and elusive to capitalist domination. Rather than operating outside or against the machinations of technocratic bureaucracy, creative skills are now considered "key assets of the service and information economy" (p. 12) and normative ideals of model labor. They suggest that critical perspectives such as Michel de Certeau's notion of everyday tactical practice must be reconsidered for a contemporary "cultural milieu that is replete with facile invocations of creativity, change and innovation" (p. 13). For Russell Prince (2014), Florida's creative city model is but one recent and highly-visible manifestation of a long process in which culture and creativity have been instrumentalized in policy programs. Instrumental representations such as the creative city index "translate the messy social world into something that can be grasped, represented and compared" (p. 99). These methods of abstraction and simplification enable the capture and manipulation of social reality by various institutional forces. Prince thereby situates Florida's creativity thesis within an extensive history of "rendering aspects of culture in technical terms and towards an instrumental end" (p. 94).

As the preceding section indicates, the widespread popularity and adoption of the creative cities framework has been accompanied by persistent and withering critiques. Florida's ideas have been characterized as empty corporate buzzwords and meaningless classifications, but they have also been heralded as an indispensable panacea for disadvantaged localities. What is most pertinent to the present analysis, however, is the theory's implications for regimes of urban governmentality and social order. Much of the successful appeal of the creative class thesis can be attributed to its embeddedness in urban entrepreneurialism and its facility for inter-urban competition. The framework's sanguine perspective and benign terminology provide an ideal basis for strategies of

city promotion and marketing. The creativity approach also lends itself to investments by public-private coalitions, which are an increasingly common economic resort for fiscally anemic municipalities. These urban management practices have been associated with processes of gentrification in which state and actors actively remake the city to accommodate and attract middle and upper class interests. Florida's creative class proposal can therefore be correlated with earlier approaches to urban governance that conceptualized city space in terms of economic efficiency and instrumentality. Unlike previous systems of urban organization, however, the neoliberal logic underlying contemporary initiatives does not view the mercurial contingencies of city life as a vexing chaos but rather as the potential for productive innovation. The regulatory and economic apparatuses mobilized under creative city policies thus serve to harness the dynamic energy of urban disorder and channel its potentialities toward instrumental ends. Throughout the twentieth century critical theorists of the urban experience mapped liminal spaces of disorder that developed from the dialectical tensions inherent to capitalist development and existed in the lacunae of technocratic abstractions. They sought to exploit and actualize these unruly spaces for emancipatory acts of resistance and radical political praxis. Neoliberal urbanization calls the continuing relevance of such perspectives into question by shifting the foundations of urban governmentality from logics of rationality and continuity to the forces of creativity and flexibility.

3.5 The Smart City: Programmable Urban Order

In the early 21st century urban discourses based on principles of "creativity" were superseded by the rhetoric of technologically-enabled "smartness." The "smart city" paradigm seizes the instruments of information and mass communication which were once feared to pose

destabilizing effects on urban order and directs their functions toward the city itself as the means for its refinement. If the creative city concept represented the synthesis of neoliberal economics and urban planning, then the smart city constitutes a higher-level and computer-mediated progression of this relationship. It is a vision of the city as a fully calculable and controllable cybernetic system, and of the use of ubiquitous data tracking for resource management and the efficient delivery of urban services to citizen-consumers. It represents both the transformation and realization of earlier urban metaphors that treated cities as organisms, ecologies, and machines. The discourses underlying these programs are often produced directly by the corporate firms involved in designing and implementing the networked infrastructures without any evident Richard Florida-style urban guru to function as promotional pitchman. Multinational technology conglomerates such as Cisco, IBM, and Siemens market their smart city tools and services using key terms like "sustainability," "responsiveness," and "resiliency." These companies have partnered with local and national governments to implement smart city projects at a variety of levels and scales. Beyond the creative class perspective of cities as the engines of innovation, the smart city paradigm casts the urban form itself as innovatory, and as both the locus for and outcome of entrepreneurial activities. Smart city discourses also envision the centralization of urban functions and governance, positing the ability to reduce urban complexity into data visualizations to be analyzed and managed at computerized control centers. The smart city model of urbanization ultimately proposes to use informational and intelligent tools to render the city eminently knowable.

The promotional smart city websites hosted by the prime corporate players advertise their wares not as "products" or "services" but rather as "solutions." Such rhetoric necessarily casts cities as problematic sites in need of resolution. So what are the problems identified in smart city

discourses, and what solutions do they propose? Many of the perceived complications stem from timeworn difficulties of negotiating order and disorder in the urban environment. Perennial predicaments such as traffic congestion, waste management, and conservation of natural resources routinely feature in smart city projects. The technological exactitude undergirding smart initiatives also offers the promise of fulfilling the hoary dream of planners and social scientists to organize the unruliness of urban life according to rational order. For Hannah Knox (2010), the smart city paradigm "captures the very essence of a will to order the world according to rational systems of coding, connection and information flow" (p. 187). Smart urbanism's use of communications technologies as solutions to social problems thus retrieves modernist ideals of "the promise of order over disarray and knowledge over ignorance as a path to an emancipatory politics of modernity" (p. 187). Previous systems of urban ordering were often predicated upon pathological distinctions between orderly and disorderly elements, either explicitly or by inference. If smart city programs employ comparable logic then what emerges as the disorderly "other" constituted by orderly "smartness"? Alberto Vanolo (2014) describes the orthodox ideal of "smartness" as "adherence to the specific model of a technologically advanced, green and economically attractive city" while cities that follow alternative paths of development are "implicitly reframed as smart-deviant" (p. 889). Past eras of urban governmentality also had means of excluding ostensible sources of disorder, whether by spatial separation, political marginalization, or the punitive enforcement of proper use and behavior. The smart city might proffer a more immediate and complete form of exclusion by virtue of its pretensions toward total informational awareness. In other words, by presenting a totalizing vision of an all-encompassing account of urban processes, smart city discourses threaten to render irrelevant those elements of urban life that are not trackable or representable as data visualizations.

Just as earlier conceptions of urban order were imbricated in predominant political-economic arrangements, the smart city model represents a more recent manifestation of efforts to remake urban spaces and institutions for optimal economic instrumentality. Despite the claims to technological novelty featured in smart city discourses these projects stem from a lineage of developments associated with neoliberal urbanism, including entrepreneurial interurban competition and the rhetoric of economic innovation. Richard Florida applied his creativity index to consult city leaders on how to make their municipalities more attractive to big business, but the technology and infrastructure-driven aspect of smart city development has resulted in businesses and corporations being more directly involved in shaping urban policy. Robert G. Hollands (2008) identifies an inherent tendency toward social and economic polarization in such practices, as urban populations are divided by "the growing contrast between incoming knowledge and creative workers, and the unskilled and IT illiterate sections of the local poorer population" (p. 312). This polarization is also expressed spatially through uneven development and patterns of gentrification. Alan Wiig (2015) characterizes smart city discourses as "techno-utopian" policies that present technological solutions that distract from existing urban inequalities. Although smart city projects often invoke issues related to reducing marginalization such as social mobility and economic sustainability, these discourses ultimately divert attention "away from problems of economic inequality through grand policy gestures for globally oriented promotion" (p. 3). These policies and practices have been further criticized by urban theorists for casting cities as marketplaces and citizens as consumers. Paolo Cardulo and Rob Kitchin (2017) view the technocratic governance represented in smart city projects as reinforcing neoliberal logics of urban management, including increasing privatization in the control and delivery of urban services. As a result, they argue, "citizens are recast from citizens with rights and entitlements, who receive a service in return for

taxation, to consumers who select from a marketplace of options" (p. 10). In such a model, Lefebvre's expansive notion of the right to the city becomes a tightly-constrained right to consumer choice.

Discourses of smart city development evoke metaphors of intelligence through their nominal claim to "smartness," but what sort of intelligence do these policies represent? On one hand, "smart" is used to designate the presence of networked information and communication technologies as evident by the application of the "smart" label to an array of networked products from phones and televisions to houses and munitions. The proliferation of networked infrastructures as part of smart urban environments has led some scholars to refer to this model as the "sentient city" (Crang & Graham, 2007; Shepard, 2011; Boyle, 2016). The "sentient city" rhetoric ascribes intelligence to the infrastructure of the built environment itself rather than the city's inhabitants and users. This conceptualization of "smartness" thereby emphasizes technologies of real-time monitoring, responsiveness, and self-regulating flexibility. Scholars have also connected these elements of smart city technology with aspects of the "creative" intelligence invoked in creative city discourses. Creative city and smart city projects both employ rhetoric emphasizing the role of knowledge industries and social capital for urban growth, and promote a style of cultural and lifestyle-centered development intended to attract and retain an educated labor force of "smart" and "creative" workers. It is particularly significant, however, that discourses of creative workers and smart infrastructure both espouse ideals of flexibility and dynamism that are associated with the demands of precarious labor under neoliberal capitalism.

In contrast to dominant smart city discourses, Igor Calzada and Cristobal Cobo (2015) theorize the "smart citizen" as an "alternative initiative to the technocratic determinism of the Smart City approach" (p. 33). Smart citizens prioritize bottom-up and community-driven local

innovative strategies rather than large-scale top-down projects, and endeavor to use open access data to "increase transparency, accountability, participation, and collaboration" (p. 33). Their conception of the smart citizen recalls the street-level urban encounters celebrated by Michel de Certeau, the community-based civility championed by Jane Jacobs, and the local knowledge of mêtis advocated by James Scott. Yet in light of how urban development discourses have increasingly relied on appeals to innovation and flexibility, it is important to consider whether those models of tactical practice previously seen as sources of resistance or subversion in urban life may be nullified or subsumed under neoliberal urbanism.

3.6 Conclusion

As the preceding survey indicates, smart city developments may be presented as a novel application of cutting-edge technology, but the emergence of these initiatives can be situated within a long history of projects to rationalize and instrumentalize urban environments. Smart urbanism combines neoliberal ideologies and methods of technocratic governance in order to optimize efficiency through software and data capture. The model is also particularly amenable to the contemporary paradigm of entrepreneurial urbanism whereby municipalities compete to attract technology firms to utilize their cities as experimental labs and test beds. This entrepreneurial aspect was exemplified by the 2015 Smart City Challenge, a transportation-centric tournament in which 78 U.S. cities competed for $50 million in funding from the Department of Transportation and private investors. Yet the rhetoric around smart city development is also evocative of those entrepreneurial traits expected of individual laborers within neoliberalism, and reifies this innovative spirit as an infrastructural ideal and programmatic reality. Here the elements of

Foucauldian biopolitical governmentality noted within the “broken windows” and “creative class” paradigms collide with the technocratic planning impulse toward ultimate efficiency and instrumental rationality. Ideals of dynamism and flexibility celebrated by earlier critical urbanists are not only incorporated within dominant discourses of smart city initiatives, but are dissociated from the everyday practices of urban inhabitants and assigned instead to networked infrastructures and the corporate actors who manage them. Smart city users are then expected to utilize these proprietary technologies to effectively self-manage their individual experience of urban spaces and services.

Aihwa Ong suggests that (2007) “neoliberalism’s metaphor is knowledge” (p. 5). She points to discourses produced by institutions such as the World Bank which invoke metaphors of knowledge to promote themselves as intangible, eminently mobile, and “enlightening” (p. 5). Ong identifies these traits with conditions associated with neoliberalism, including “extreme dynamism, mobility of practice, [and] responsiveness to contingencies” (p. 3). If, as Ong suggests, knowledge is neoliberalism’s metaphor, this metaphor increasingly resembles the peculiar characteristics of creative intelligence. Whereas flux and fluidity were once seen as obstacles by the planners of modern industrial cities, flow is now incorporated and encouraged at multiple levels. Previous models of urban "intelligence" propagated within neoliberal urbanism relied on knowledge metaphors such as "rationality" and "creativity". Within current patterns of urbanization it is pertinent to consider appeals to "smartness" and their implications for cities and citizens. If the smart city model foregrounds efficiency as the metric by which to judge urban processes, what does this portend for understandings of the function and purpose of cities? Do earlier models of tactical operation and everyday resistance remain relevant in the contemporary

moment? What about the possibilities for radical democratic praxis and urban social movements? What is the space or means of realizing the right to the city under smart urbanism?

Smart urbanism combines neoliberal ideologies and methods of technocratic governance in order to optimize efficiency through software and data capture. The model is also particularly amenable to the contemporary paradigm of entrepreneurial urbanism whereby municipalities compete to attract technology firms to utilize their cities as experimental labs and test beds. Ideals of dynamism and flexibility celebrated by earlier critical urbanists are not only incorporated within dominant discourses of smart city initiatives, but are dissociated from the everyday practices of urban inhabitants and assigned instead to networked infrastructures and the corporate actors who manage them. Smart city users are then expected to utilize these proprietary technologies to effectively self-manage their individual experience of urban spaces and services. The smart city model may thus be seen as a technocratic triumph of urban ordering, and an archetypal example of the rational management of urban environments and their users. On the other hand, the myopic gaze of corporate-driven smart development is apt to overlook sources of potential disruption, and the emphases on centralized management and control open up new opportunities for failures, breakdowns, and disorder. Rather than algorithmically eliminating the potential for urban unruliness and unpredictability, smart cities may ultimately introduce new agonistic tensions, as well as the means of their negotiation.

4.0 The Smart Public Square: Traversing Digital Divides in Smart City Spaces

In March 2017 the city of Pittsburgh removed all tables and chairs from Market Square, a public plaza in the center of downtown. Lined on all sides by shops and restaurants, the square is among the city's most visited public spaces and regularly hosts outdoor festivals and other special events. The decision to remove all seating from the city-owned plaza came from the Pittsburgh Downtown Partnership, a nonprofit organization that stewards the square on behalf of the city and local stakeholders. The group reported receiving multiple requests from merchants in the square asking to remove the tables and chairs in an effort to curb unwanted activity in the space. Business owners reported incidents of public drunkenness, violence, and other behaviors that had "put a black eye" on the plaza (Belko, 2017). District Attorney Stephen Zappala told local media that he believed the seating removal would be effective in deterring unwanted use of the plaza. Zappala specifically cited ongoing problems with "people hanging out in Market Square who were neither engaging the merchants nor being good citizens of the city" (Delano, 2017).

The removal of public seating from Market Square occurred contemporaneously with multiple city initiatives intended to promote inclusivity in Pittsburgh. Just two months prior to the removal the city council introduced an agenda to make Pittsburgh a "city for all" (KDKA, 2017), and mayor Bill Peduto adopted a similar sentiment as a civic mantra and mission statement: "If it's not for all, it's not for us" (Burack & Matthews, 2017). The decision also followed the roll-out of the Pittsburgh Roadmap for Inclusive Innovation, the city's e-governance framework for bolstering civic participation and public engagement with digital technology. Some residents noted the apparent incongruity between the city's inclusivity agenda and the deliberate diminishment of public space. One commentator suggested that "removing the chairs is about making the space less

hospitable [for] poor people, people of color, and high school students while making the area more welcoming for wealthy restaurant patrons" (Young, 2017, p. 1). An opinion letter published in the Pittsburgh Post-Gazette newspaper criticized the removal as a strike against the city's homeless population and invoked Henri Lefebvre's "right to the city" (Cooper, 2017).

The contrasting perspectives on the Market Square chair removal illustrates the two conflicting visions of public space as identified by Don Mitchell (1995). In one vision, public space is conceived as a planned and orderly space in which users must feel comfortable and "should not be driven away by unsightly homeless people or unsolicited political activity" (p. 115). In the second vision, public space is an intrinsically politicized terrain to be taken and remade, as well as a space that "tolerates the risks of disorder" (p. 115). As Mitchell adroitly argues, these differing perspectives concern not only competing ideas about what constitutes public space but also who constitutes "the public," as well as "questions about the very spaces that make political activities possible" (p. 115). The proliferation of information and communication technologies has given rise to new questions about how virtual spaces may augment or supplant physical spaces for political participation and practices of citizenship. While some scholars have optimistically cited the potential progressive political applications of communication media for facilitating exchange and interaction beyond the limitations of physical space, others have argued for the continued primacy of physical spaces for political action, as Mitchell does when stating "there has never been a revolution conducted exclusively in electronic space" (p. 124). Yet the politics of everyday life are increasingly mediated by technology as part of smart city and e-governance initiatives - such as the Pittsburgh Inclusive Innovation program - necessitating critical inquiry into the impact of such practices on the public realm.

This chapter interrogates the relationship between physical and virtual space in smart city frameworks, as well as how these initiatives contribute to our understanding of urban public space and the politics of inclusion. It also continues the preceding chapter's consideration of "unruly" urban practices and the rhetorical tactic of metis as an embodied intelligence of local knowledge, agonistic negotiation, and everyday resistance. This continuation of the "unruly urbanism" concept into the realm of everyday politics draws on Mitchell's (1995) insight that an emancipatory and transformative politics requires "the creation of disorder in places formerly marked by order" (p. 124). The subsequent analysis will first review prominent theories of space, the public sphere, and radical democratic politics. This survey highlights the interaction between mediated and physical spaces, the role of difference in urban political practice, and impactful critiques of consensus-directed deliberative politics. The chapter then analyzes two e-governance programs currently underway in the city of Pittsburgh: the Pittsburgh Roadmap for Inclusive Innovation and the Western Pennsylvania Regional Data Center. These two programs are then placed alongside Hiroki Azuma's concept of "democracy 2.0" as a model for integrating data aggregation with information visualization for public governance. Finally, the chapter offers an agenda for agonistic mediated urban governance by incorporating the democracy 2.0 framework with the unruly attributes of metic intelligence.

4.1 Traversing Physical and Mediated Spaces in the Urban Public Realm

Changing forms and functions of public space have been integral for developing notions of "the public" and "publicness." Among the most influential of these formulations is Jurgen Habermas' (1991) outline of the bourgeois public sphere. The bourgeois public sphere developed

gradually along with capitalism in the 17th century, and particularly out of the new capitalist class of traders and producers that was distinct from the preceding classes of aristocrats and peasants. Habermas defined the public sphere as "the sphere of private individuals come together as a public" (p. 27). Similarly to Arendt, he also considers this "public" relation as rooted in and a consequence of discourse and communication. The emergence of a "debating public" and an ethos of local governance were tied to the development of "provincial urban" institutions. These included coffee houses, salons, and theaters. The forms of social relations that developed in the towns and cities established new forms of publicity away from the courts. These physical institutions of social interaction were complemented by the emergence of a "literary public sphere" composed of a reading and discerning public. Developments in printing methods and reduced production costs led to an increase in a variety of literary materials including journals, periodicals, and books. This advent of a literary public sphere is related to the development of the bourgeois family, who served as the audience for these books as well as the basis for the relationships depicted in this literature. The face-to-face interactions that occurred in the salons and cafes served as a political counterweight to the authority of the state, and the literary sphere further inculcated a critical and reflexive nature of public discourse. The source of legitimacy and authority also shifted from the sovereign ruler to the critical reasoning public. The historical trajectory Habermas traces also charts the public sphere's decline under the atomizing effects of modern mass media.

Habermas' model of the public sphere has been subjected to numerous criticisms. Some recurrent motifs in these critiques are that the Habermasian public sphere implicitly embraces bourgeois ideals, limits accessibility, and creates inequality (Teraoka, 2017). Feminist critiques of the Habermasian ideal argue that the distinction between public and private realms is intrinsically gendered, treating masculine interests as neutral and universal while feminine interests are

relegated to the private realm, and therefore deemed not suitable for discussion in the public sphere. Nancy Fraser (1990) questions Habermas' insistence that "private" or domestic matters should be excluded from discussion in the public sphere and proposes a concept of "subaltern counterpublics" where groups could invent and circulate counterdiscourses, as well as formulate oppositional identities, interests, and needs. The oppositional nature of counterpublics also features in agonistic pluralism as outlined by Chantal Mouffe. Mouffe (2013) challenges the Habermasian ideal of deliberative democracy as consensus reached by rational individuals. She argues that for freedom to exist the intrusion of conflict must be allowed for. The democratic process, she says, should provide an arena for the emergence of conflict and difference. Mouffe criticizes both Arendt and Habermas for emphasizing the importance of consensus-building in public discourse, as consensus always results from some form of exclusion. Rather than viewing public space as the terrain for consensus-formation, in the agonistic perspective "public space is where conflicting points of view are confronted without any possibility of a final reconciliation" (KL 1458). Agonistic politics is characterized by constant negotiation and is open to opposition and non-resolution (Askins & Mason, 2015). Mouffe also rejects Habermas' normative ideal of rational-critical debate in deliberative politics because it requires that affects or beliefs deemed "irrational" be excluded from the public sphere. The tensions between consensus-based deliberation and agonistic democratic practices pose implications for inclusion in public space and orderings of urban political formations.

Etymologically, the notion of agonism can be traced to the ancient Greek term "agon" meaning a contest or competition (Daqing, 2010). While the agon referred to a contest rather than a specific location, the agon is associated with place as the point of assembly for the competition and the site in which all-comers may enter to compete (Barker, 2009). Debra Hawhee (2004) has

argued that metis, the Greek term denoting cunning intelligence, played a pivotal role for participants in the agon. Victory in the agon often depended on successful deployment of metis as "the mode of negotiating agonistic forces, the ability to cunningly and effectively maneuver a cutting instrument, a ship, a chariot, a body, on the spot, in the heat of the moment" (p. 47). Whether the competition in question was a chariot race or a debate between interlocutors, the athlete or sophist with greater metis had the advantage. This cunning negotiation of agonistic forces is thus reflected in the continual negotiation of difference and opposition posited in agonistic models of democratic practice. Urbanists and political theorists have looked to public space in cities for contemporary exemplars of the agonistic negotiation of attitudes and identities in everyday life. In her writings on difference and social justice Iris Marion Young (1990) proposed a normative ideal of city life based on a diversity of social groups, overlapping spatial functions, and openness to unassimilated othernesss. Rejecting Habermas' "implicit commitment to a homogenous public" (p. 7), Young extols the diversity and proximity of co-present strangers characteristic of city life as a "being together of strangers" (p. 237) that may serve as the basis for a politics of difference. The technologies increasingly employed within "e-governance" initiatives and smart city frameworks call into question the continuing relevance of city life as an ideal for differential politics. The volitional and asynchronous nature of technologically-mediated communication seems to confound the principles of diversity and proximity that Young identified with urban co-presence, while the overarching trends of neoliberal urban development trend toward homogeneity in city spaces.

Theorists of both public space and the public sphere have sought to reconcile traditional notions of publicness based on physical co-presence with the advent of networked communication technologies. The Internet and associated technologies have been considered by some as powerful

means for overcoming constraints of accessibility that may hinder the realization of the public sphere, while others have connected these emerging modes of association with the diminishment of physical space and political participation. Concerns about the commodification and virtualization of public space predate the digital revolution, as even Habermas' initial formulation of the bourgeois public sphere also charted its decline due to the influence of commercialization and pervasive mass media. Habermas' conceptualization also presaged debates about mediated space, as the bourgeois public sphere was composed not only of physical spaces of sociality but also the literary public sphere mediated by the circulation of texts. For Richard Sennett (2000), therefore, the Habermasian public sphere is "any medium, occasion, or event" that facilitates free communication among strangers, and therefore "cyberspace" can function as a public realm as much as any physical place. Kurt Iveson (2007) similarly suggests that the "space of appearance" crucial to Arendt's notion of the public realm may today be supplemented or supplanted by the screens of electronic media and communication technologies. Furthermore, Young (1990) calls the ideal of immediate copresence "a metaphysical illusion" (p. 233) since even face-to-face interaction is mediated by language, voice, temporality, and myriad other factors. Communication is this always already mediated communication. Yet Don Mitchell (1995) argues that physical public space remains crucial for democratic politics because it makes it possible for disadvantaged groups to occupy the space in a way that is precluded in virtual space. As Mitchell states, "there is literally no room in Internet's 'public space' for a homeless person to live" (p. 123).

Interrelations between physical and virtual spaces, and the implications for contemporary political practice, are brought to the fore by the prevailing development paradigm of "smart urbanization." Smart city initiatives typically involve the implementation of networked urban infrastructure, real-time data monitoring, as well as new modes of civic participation based on "e-

governance" and digital media platforms. M. Christine Boyer (1999) deploys the concept of "cybercities" to refer to emergent urban forms characterized by hybrid relations between static spatial configurations and flows of information (p. 75). She suggests that these new nonlinear and interactive flows challenge traditional understandings of urban form based on Cartesian geometry, the map, and the grid. For Vincent Mosco (2004), this transformation represents the dissolution of the "hard city" of determinate relations and its replacement by a "soft city" of information, imagination, and myth (p. 111). He argues that techno-utopian visions of cyberspace as the new frontier of public space are both "anti-urban" and "anti-political" as they promote the abandonment of city space and the public sphere (p. 111). Martin Dodge and Rob Kitchin (2005) use the term "code/space" to describe changing ontologies of space based on the power of code and informational infrastructure to impact the experience of everyday urban life. With the proliferation of networked urban infrastructure software code is increasingly involved in mediating, augmenting, and regulating everyday urban tasks and processes. The era of "smart," "network," or "sentient" urbanism thus foregrounds questions of the impact of technological mediation on physical space in relation to shifting understandings of the public, and calls for critical inquiry into emergent models of civic participation within such a paradigm.

Rather than viewing physical and mediated spaces as mutually exclusive, Andy Merrifield (2013) proposes a model of the urban realm in which "public space" is constituted by the interconnection of physical and virtual spaces. While acknowledging Mitchell's (1995) contention that "there has never been a revolution conducted exclusively in electronic space" (p. 124), Merrifield points to the effective use of social media by urban social movements as evidence for the productive combination of urban space and cyberspace for political engagement. Deploying the well-worn example of ancient Greece along with Rousseauian political theory, Merrifield

refers to “the citizen’s agora” as a space of the urban “where a public might come together and express itself as a general will” (p. 33). Such spaces of the twenty-first century city will be “meeting places between virtual and physical worlds, between online and of offline conversations, between online and of offline encounters” (p. 33). Ever since the Habermasian formulation of the public sphere as a form of social interaction facilitated by physical sites and mediated discourses, the public sphere has been imagined as a relation of real and virtual spaces mediated by the built environment and communication media. Not only have many new forms of communication emerged in the time since Habermas’ original account, but today the very notions of the form and function of public space and its relation to interaction are being negotiated. More than merely a matter for political and theoretical speculation, the new modes of urban governance and design within smart city models of urban development make these questions an urgent concern for policy and practice. The following section examines two representative manifestations of smart city approaches to the spaces of urban citizenship and considers the potential impact of these programs on everyday experiences of publicness, the negotiation of difference, and possibilities for engaged political practice.

4.2 The Pittsburgh Roadmap for Inclusive Innovation

Pittsburgh’s Roadmap for Inclusive Innovation developed out of a concerted effort to update the city’s technological infrastructure initiated by William Peduto following his 2014 election as mayor. In his first months in office Peduto renamed the department of City Information Systems to the Department of Innovation and Performance, and transitioned the department’s purview from solely focusing on the maintenance of internal city operations to include overhauling

city processes and community outreach. This transition involved supplementing the existing departmental staff of Information Technology workers with specialists in innovation and planning, as well as appointing Debra Lam as the city's first Chief Innovation Officer. In addition to sorting out how to integrate the department's continuing role in supporting internal computer systems with its expanded mission statement, the newly assembled team was tasked with creating a visioning statement and strategic plan for the city's innovation agenda. The Roadmap for Inclusive Innovation was officially announced to the public at a September 8, 2015 press conference featuring Mayor Peduto along with fellow city officials, representatives from local technology firms, and members of the city's institutions of higher-education (Zullo, 2015). The document itself was also published online via a dedicated web site.

The Roadmap (2015) identifies six focus areas: (1) Address the digital divide; (2) Empower City-to-citizen engagement; (3) Provide Open Data to Pittsburgh; (4) Improve internal operations & capacity of the city; (5) Advance the Clean Tech sector; and (6) Promote the local business environment. Within each of these focus areas are specific goals and action items, more than 100 in total, accompanied by more than 80 examples of similar initiatives from national and international municipalities representing ideals of best practices. Authorship of the report is credited to the Department of Innovation and Performance and the Urban Redevelopment authority, although the opening section states that successful completion of the program's goals depends on collaboration between the city and nonprofit partners. An introductory message signed by Peduto and Lam connects the Roadmap's mission with continuing Pittsburgh's prominence as one of the "smartest" and "most livable" U.S. cities (p. 3). The published report describes the Roadmap as "a living document" and solicits feedback from community members, stating that such feedback will contribute to the implementation of the Roadmap "in the months and years to

come” (p. 6). Since its official establishment in 2014 the Department of Innovation and Performance has expanded its initiatives beyond those outlined in the original roadmap in the areas of community engagement, program development, strategic planning, and digital storytelling.

The rhetoric of the Roadmap establishes warrants for the document's claims by appealing to positive associations with the ideals of inclusiveness and innovativeness. Within the document inclusive innovation is defined as “equitable access to products and services by leveraging new technologies, ideas, personnel and inventions to meet new challenges and higher standards” (p. 4). There are also recurrent declarations that the benefits of inclusive innovation should be enjoyed by all Pittsburghers, and commitments to ensuring that "economic gains are reaped by all communities" (p. 5). In an interview about her role as a Civic Innovation Specialist for the city of Pittsburgh, Christine Marty described her work with the Roadmap as guided by the conviction that “innovation needs to be a word that everyone feels connected to.” Based on their central role and function in the Pittsburgh Roadmap the terms "inclusive" and "innovation" can be considered examples of what Michael Gunder (2005) calls "master signifiers" in urban planning policies and practices. Drawing on Ernesto Laclau's discourse theory as well as Lacanian psychoanalysis, Gunder defines master signifiers as metaphoric or metonymic symbolic substitutes that encapsulate discourses, understood as sets of knowledges and beliefs. As they are often associated with desirable or ideal outcomes, master signifiers have great power to frame and define what constitutes major urban policy issues, as well as affectively and rationally shaping urban policy debates (p. 103). Master signifiers are accepted as having a value or validity that is self-evident. Gunder (2010) offers several examples of master signifiers specific to urban planning and discourses of the ideal city, including "world city," "globally competitive," and "smart growth" (p.

44). Contemporary discourses of smart urbanization present master signifiers such as "efficiency," "connection," and even the ideal of "smartness" itself.

For Gunder (2005), master signifiers function by identifying what is lacking in a city or in wider society and then supplying a solution to fill this lack (p. 103). From this perspective, the Pittsburgh Roadmap identifies the traits of inclusion and innovativeness as lacking in the city, and it is this lack which the proposed initiatives are predicated upon. Innovation in particular circulates as a prominent signifier in discourses of Pittsburgh's transformation from an industrial center to a post-industrial economic model. The Roadmap text situates the proposed initiatives within a historical context of innovation in the city encompassing the region's industrial past and current service sector industries, citing not only education and healthcare but also emerging industries such as information technology and robotics. The master signifier of innovation has played an integral role in branding the city as modern, growing, and profitable in order to attract firms and capital to the city. Rachel Granger (2014) shows how planning policies codify innovation as an economic imperative, and that the term is especially active in "the re-designation of industrial areas into creative regions" (p. 2477). The introduction of novelty, whether as commodities or processes, is seen as central for achieving economic growth, improving quality of life, and confronting emergent challenges. Gunder and Hillier (2009) relate master signifiers in planning to Laclau's concept of "empty signifiers," which they refer to as "comfort terms" that mean everything and nothing, or mean "all things to all people" (p. 1). Richard Shearmur (2012) analyzes the use of innovation in development discourses from a similar perspective, suggesting that although innovation may be simply defined as the emergence of new products and processes, the term is laden with positive normative associations that obfuscate differential components and impacts of innovation initiatives. In addition to eliding fundamental questions about the nature and necessity

of innovation, the positive associations ascribed to innovation enable it to function as a master signifier in hegemonic discourses that obscure or legitimate social and individual hardships which innovation may produce as a result of job loss, displacement, or other effects.

The Pittsburgh Roadmap connects its programs to the master signifier of innovation by emphasizing technological initiatives and the utilization of networked communication infrastructure for municipal governance and service delivery. The Roadmap's second titular master signifier, that of inclusion or "inclusivity," is evident in the text's prominent accentuation of traversing the "digital divide" by increasing connection and access. The concept of the digital divide developed from public policy and academic research to designate inequalities of access to and use of information and communication technologies. Initial approaches to the digital divide conceptualized unequal access as a problem of technological diffusion, and promoted addressing these gaps by connecting users to devices and platforms. Subsequent scholarship expanded the scope beyond mere access to include inequalities in competence and training, and acknowledged that the digital divide may exacerbate inequalities constituted by race, class, and gender. Michelle Rodino-Colocino (2006) is among the critical communication scholars who have persuasively argued for broadening digital divide research beyond the areas of access and technical training to address the role of institutional policies in perpetuating digital divides in multiple sectors. The Roadmap foregrounds the digital divide as a primary obstacle to realizing inclusive innovation, presenting it as the first of the report's six focus areas. While also committing to expanding affordable internet access throughout the city, the Roadmap emphasizes the need to increase digital literacy and computer skills in underserved populations (p. 7). For Christine Marty, another key obstacle to inclusive innovation is bridging the gap between specialist and technical matters and the everyday concerns of citizens. She describes the Roadmap as building a bridge between

Pittsburgh's past and Pittsburgh's future in a way that "gets everyone to come along for the ride and be a part of that change." Part of this process, she states, is the creation of "a new type of engaged citizen" who can feel connected to these changes regardless of their personal background or level of expertise.

In addition to the digital divide, the Roadmap also outlines Pittsburgh's approach to e-governance and mediated citizen engagement. Broadly understood, electronic governance or e-governance refers to any application of information and communication technology for facilitating exchanges between citizens and the state or for delivering government services. Although there is great variety in how different e-governance initiatives are implemented, these programs are typically understood as tools for enhancing the efficiency of transactions between governments and individuals, where citizens are conceptualized as "consumers" of city services (Navarra & Conford, 2012). In an interview about the city's e-governance initiatives, Dan Gilman highlighted the importance of municipal efficiency, stating "being efficient and smart as a city government is more of a necessity today than it was in the past." Gilman, who served as a Pittsburgh city council member for five years before being appointed Mayor Peduto's Chief of Staff in 2018, described the pressing need for cities to identify new revenue sources in the face of substantial cuts in federal funding amidst unprecedented city pension obligations, as well as "decades of mismanagement" in areas such as infrastructure and public green space. Gilman sees the potential for smart city initiatives to mitigate these stressors through internal and external-facing applications. The inward or internal-facing component is driven by the question, "how do I take every city service that we provide and try to do it in a more efficient and smarter way using data and technology?" Gilman offers the example of overhauling the city's snow plow services by using traffic flow data and GPS technology to create an efficient routing system. The enhanced efficiency furnished by internal-

facing applications provide greater financial flexibility and enable the re-allocation of city resources. The external-facing applications of smart city programs address the question, “how can technology directly make life better for my residents?” Examples include the use of smartphone apps to pay for parking meters, track city buses in real-time, or receive reminders about street cleaning and garbage pickup schedules. Gilman notes that while such applications may not dramatically overhaul the efficiency of city services, they do offer important municipal benefits and ultimately result in “a happy consumer.”

In addition to outlining ways to more efficiently facilitate city services, the Roadmap also advances proposals to “deepen and expand digital public engagement” (p. 10). This process is understood as upgrading and centralizing digital communication methods in order to “build a web-based relationship between residents and the City” (p. 10). Part of this program involves utilizing existing social media platforms such as Twitter and NextDoor to receive citizen requests and comments. For Gilman, these virtual channels of public engagement do not replace traditional modes of civic outreach but rather augment and "enhance" physical spaces of participation and face-to-face interaction. One key advantage offered by online communication outlets is the possibility for “on demand” engagement: the ability for citizens to send or receive civic messages free from the constraints of time and location inherent to traditional place-based public meetings. Gilman refers to the standard public meeting model as “the traditional church basement meeting.” This interest in “on demand” participation is reflected in the text of the Roadmap, where a stated goal of this strategy is “to meet people where they are, allowing for a more open line of communication between the City and local residents” (p. 10). Although the report’s proposed action items contain numerous references to facilitating citizen feedback, the model of mediated communication outlined in the Roadmap envisions digital public engagement as a means of

information and service delivery rather than as a contribution to a vibrant virtual public sphere. These sentiments are suggested by the text's discursive framing of these initiatives as "City-to-citizen engagement," a formulation that envisages linear transmission from the city government to the public. This model of engagement also recapitulates early orthodox understandings of "publicness" based solely on principles of access and inclusion without regard for the significance of difference, counterhegemonic interests, and agonistic contestation.

I believe the use of e-governance models for civic engagement in the Pittsburgh Roadmap and similar initiatives can be productively critiqued using Jodi Dean's theoretical formulation of "communicative capitalism." Dean (2009) defines communicative capitalism as "the materialization of ideals of inclusion and participation in information, entertainment, and communication technologies in ways that capture resistance and intensify global capitalism" (p. 2). She argues that discourses and practices of networked communications media fetishize speech, opinion, and participation in such a way that the exchange value of a message overtakes the use value. Messages are thus unmoored from "contexts of action and application" (p. 26) and become part of a circulating data stream that relieves institutional actors from the obligation to respond. Thus, for Dean, communicative capitalism is "democracy that talks without responding" (p. 22). Unlike Habermas' model of communicative action, in which the use value of a message depends on it being received and understood, messages in communicative capitalism are valorized for their exchange value in contributing to a larger flow of circulating content. As a result, "people treat their contribution to circulating content as communicative action" and may ascribe political efficacy to token or trivial online activities such as "clicking on a button, adding their name to a petition, or commenting on a blog" (p. 31).

Dean's discussion of communicative capitalism does not directly address city governance, as the scope of her argument concerns national politics and the implications for democratic practice posed by the Internet at large under conditions of neoliberal capitalism. The basic tenets of her argument, however, can be readily applied to the function of e-governance initiatives in urban contexts. Speaking about the Pittsburgh Roadmap, Gilman was largely optimistic regarding the potential for these initiatives to enhance deliberative democracy. He cited the ease of access and use offered by digital media for increasing civic participation, and argued that the tangible everyday benefits promised by external-facing improvements spur citizen interest in engaging. Yet the preceding analysis indicates the limits of this model for contributing to a vital public sphere. Even if the Roadmap model of citizen engagement provided for more robust interaction and response amongst participants, the theory of communicative capitalism suggests that the ideals of inclusion and participation may function to subvert radical democratic potential by facilitating pure communicative circulation and political interpassivity. This perspective indicates how the master signifiers of inclusivity and engagement may promote access to technological systems and knowledge while preventing access to real political praxis.

4.3 The Western Pennsylvania Regional Data Center

Following the commitments to addressing the digital divide and empowering city-to-citizen engagement, the Pittsburgh Roadmap's (2015) third focus area is "Provide Open Data to Pittsburgh" (p. 13). The action items outlined in support of this initiative included a commitment to open data accessibility and a pledge to establish the Western Pennsylvania Regional Data Center (WPRDC). The data center was launched in 2015 as a joint initiative of the city government,

Allegheny County, and the University of Pittsburgh. While housed and managed at the university, the data center collates and circulates public data from the Pittsburgh region following guidelines for responsible dissemination approved by the city council. Information sources include datasets from seven city departments including City Planning, Public Works, and the Office of Management and Budget. In addition to aggregating open data for ease of access the data center has also highlighted specific problem areas and issues of concern for targeted application of datasets in collaboration with researchers and community groups. Examples of such initiatives include working with neighborhood organizations to create long-term development plans, visualizing property parcels to track the availability of affordable housing, and using public safety datasets to create spatial models of opioid-related arrests and emergency calls in the city (Burack & Matthews, 2017).

Bob Gradeck has served as Project Manager and director of the WPRDC since the initial 2015 launch of the platform. In an interview about the data center operations, Gradeck (2017) emphasized that the WPRDC deals with open data but does not operate on a scale that could be considered "big data." As it is used in relation to public governance, "open data" designates the free distribution of data without restrictions of copyright, institutional oversight, or other limitations of access and use (Moere & Hill, 2012, p. 27). The push for open access in scientific research focuses on making raw primary data easily accessible and free from intellectual property restrictions, as well as available for reuse. Big data, on the other hand, refers to data aggregation on a scale that exceeds the management capabilities of individuals and current spread sheet technologies. Gordo (2017) defines big data as "the accumulation of incalculable bits of structured and unstructured data points that are tracked, recorded, and stored by an interconnected and interactive network of digital computer devices in real time" (p. 16). These databases require

advanced computational systems and analytics in order to store, sort, and retrieve the collected data. Big data initiatives may also involve proprietary data and other types of information that are not publicly available.

Open data initiatives resonate with calls for transparency and accountability in the public sector (Sa & Greico, 2016), and official discourses promoting the data center prominently employ the rhetoric of accessibility and inclusivity. A progress report detailing the first two years of WPRDC operations was titled "Open Data for all of Pittsburgh" and included an introductory statement from Mayor Peduto with the sentiment "if it's not for all of us - it's not for us" (Burack & Matthews, 2017). For Gradeck, the "openness" of the data center offerings is constituted by being electronically available, free from restrictions on re-use, and without barriers to accessibility or access in terms of needing to pay or register to obtain datasets. Open data can come from any source or agency, but its openness is defined by these characteristics of access and use as opposed to data that is proprietary, personally identifiable, or otherwise sensitive in some way. Gradeck does not conflate notions of "openness" with "publicness," instead distinguishing between openness as accessible and associating "public" information with civic or municipal use. While much of the data lends itself to civic application, the datasets included in the WPRDC "could be open and civic, or it could be open and not related to anything civic." From this perspective "open" refers to "the mechanics of sharing" data rather than the type of information being shared. This understanding of openness based on accessibility, however, does correspond to traditional conceptions of publicness, as indicated by Iris Marion Young's (1990) formulation that the "primary meaning of public is what is open and accessible" (p. 119). The open and accessible aspect of the WPRDC indicates how data initiatives might inform an approach to smart city

governance that aligns with or supplements Young's ideal of an urban relation that fosters a politics of difference.

The increasing prevalence of data tracking for informing municipal processes also calls traditional notions of urban governance and civic participation into question. In some cases novel applications of networked technologies are integrated with traditional conceptions of citizenship practices based on ideals of accessibility and conscious political participation, a perspective evinced in the Pittsburgh Roadmap for Inclusive Innovation. Yet emergent means of data generation along with new modes of collecting and using this data pose possibilities for alternative conceptions of civic participation. In regards to the WPRDC Gradeck (2017) distinguished between the sort of open data available through the data center and everyday through daily technology use, what he refers to as "the exhaust of living your life." For example, regular riders of Pittsburgh public buses contribute to data captured by Port Authority Transit, though not in the sense that a individual's transit use is personally identifiable. By virtue of the center's open data purview the WPRDC does not involve the sort of tracking data by which an individual's movements across virtual or physical space may be traced, data that is often at the center of concerns over surveillance and privacy protections. However, practices of data collection, whether "open" or "big," do afford new means for envisioning urban politics and civic participation.

Casey Boyle (2016) has introduced the term "pervasive citizenship" to describe the myriad ways individuals generate information through everyday use of mobile devices and other networked technologies, particularly in relation to how practices of urban citizenship are conceptualized within smart city initiatives. Boyle's formulation is itself predicated on the concept of "ambient rhetoric" developed by Thomas Rickert (2013). Rickert suggests an "ambient" understanding of rhetoric that emphasizes the ways in which rhetorical practice is emplaced and

embodied, having to do with being rather than just knowing. Boyle's notion of pervasive citizenship theorizes various forms of information production as rhetorical tactics performed within the mediated spaces of so-called "sentient environments" produced by ubiquitous computing technology and promoted in smart city frameworks. Relating the function of pervasive citizenship to the accumulation of discrete bytes of data in big data initiatives, Boyle argues that the incremental and incidental information produced as "the exhaust of living your life" should be understood as "tiny tactics found throughout a multiplicity of spaces where the individual can help inform the collective" (p. 280). Boyle refers to this process as "in-forming" in order to indicate data generation by networked technologies as well as to suggest how these incremental pieces of data contribute to the formation of a commons via "sentient" environments. Pervasive citizenship thus offers an alternative model for both the spaces and forms of rhetorical appeals in contrast to "the common sense of rational citizens arriving at conclusions through deliberative debates" (p. 282). From the perspective of pervasive citizenship, the use of networked technology for data aggregation and analysis affords opportunities for civic application that challenge Gradeck's distinction between "open" and "public" data administration as well as offer new understandings of what constitutes rhetorical appeals.

Much of the existing literature on both open data and big data initiatives concerns the mechanics of collecting, sorting, and disseminating the pertinent information. Another significant area of inquiry in the field relates to how data is visualized or otherwise represented. As Andrew Moere and Dan Hill (2012) argue, in order to be useful data must not only be easily accessible but also presented in forms that are clear and understandable. In regards to smart city programs and other specifically urban contexts, issues of information visualization involve representations both of and within the built environment. Moere and Hill refer to the representation of urban-related

data via displays embedded within the physical environment as "urban visualization" (p. 25). These "urban displays" are publicly accessible interfaces and may be situated on building facades, along sidewalks, or on public transit. Urban visualizations displayed within the physical environment tend to feature functional data such as area maps, transit schedules, or tourism-related information (p. 29). Moere and Hill highlight the communicative benefits offered by such dedicated media displays within the built environment by virtue of their multimodality and presence in spaces of sociality, as opposed to "the relatively one-sided and passive interactions" typified by individual smart phone use or even augmented reality applications (p. 43). Yet much urban information is either too complex or context-specific to be represented on public displays and may instead be visualized via websites, mobile apps, and other contexts.

The data center team prioritized visualization from the inception of the WPRDC. In October 2016 the city officially launched a supplementary service dedicated to open data visualization called Burgh's Eye View. Burgh's Eye View is an open source application that visualizes public data generated by city agencies onto an interactive map of Pittsburgh. Geoffrey Arnold, a city analyst and primary application designer for Burgh's Eye view, described the motivating philosophy behind the app's development as encouraging "the thoughtful use of data" (Burack & Matthews, 2017, p. 6). In addition to the interactive map users are presented with an adaptive search interface that can be used to customize the type of data visualized on the map. Customization options include narrowing the type of data presented, highlighting data based on the associated city department, and adjusting the date range of information to be included in the search. There is also a "police blotter" overlay that can be toggled on or off by selecting a checkbox. The application visualizes a variety of publicly available open data such as building permits, public safety incidents, as well as requests to 311, the city's non-emergency response

center. After executing a search the city map is updated with marker icons or "pins," which use color-coding and category-specific icons to indicate the type of data that is represented. Much of the data visualizations are generalized to the block or neighborhood level to avoid identifying particular addresses, while some included datasets that are not associated with an individual address at all.

The primary mode of data visualization presented by Burgh's Eye View consists of associating information with a marker icon, categorizing and signifying the type of data through the pin's appearance, and the assignation of the marker to a geographic location represented on the city map. Examples of pin icon differentiation include markers for 311 requests, which are color-coded orange and feature icons to signify the type and/or source of the represented information: a single snowflake for requests related to ice and snow removal, a car atop an uneven surface to signify road repairs, and a cell phone icon to represent reports that originated from citizen phone calls to the 311 response center. Crime and public safety data points are color-coded blue and are assigned icons such as a car with broken windshield for vandalism, a clenched fist for reported assaults, and a fingerprint icon for miscellaneous or "other" reported crimes. A 2017 application update itemized the available data markers into one of three alliterative categories: places (bridges, libraries, etc.), parcels (property data), and points (311 requests, code violations, arrests) (Gordon, 2018). Burgh's Eye View thus combines representations of physical sites and location with what Moere and Hill (2012) refer to as "non-realistic visualization," or the representation of "invisible" data that has no direct counterpart in physical reality (p. 28). Unlike urban visualizations that are sited within the physical spaces of the city these non-realistic visualizations are presented on dedicated web sites or mobile applications, thereby separating the represented information from

the built environment both conceptually and physically and "turning the urban experience into a virtual one" (p. 29).

The advent of big data programs and e-governance initiatives has attracted critical appraisals from urbanists and communication researchers, including the aforementioned concerns about privacy protections and pervasive surveillance (Hoelzl & Marie, 2016). Scholars have also highlighted the social-institutional structures governing data initiatives and the importance of scrutinizing who owns, analyzes, and regulates big data (Gordo, 2017). The preceding discussion of data visualization indicates the potential political implications stemming from the methods and uses of information representation. This chapter has analyzed the Pittsburgh Roadmap for Inclusive Innovation and the Western Pennsylvania Regional Data Center in order to interrogate how e-governance initiatives associated with smart city programs may inform understandings of public engagement and civic participation. The succeeding section furthers this analysis by introducing Hiroki Azuma's (2014) concept of "Democracy 2.0." Azuma's theoretical contribution to the study of technologically-mediated governance and public deliberation provides a novel perspective from which to consider e-governance initiatives alongside potential applications of data visualization. The following analysis will demonstrate how the Democracy 2.0 perspective offers a compelling conceptual apparatus for rethinking traditional democratic ideals in light of proliferating networked communication technology, theorizing emerging practices of citizenship, and reformulating the public sphere as mediated by both physical and virtual spaces.

4.4 Azuma's Democracy 2.0

The Japanese cultural critic Hiroki Azuma has contributed some of the most inventive contemporary propositions for the use of information and communication technologies for democratic practice. In General Will 2.0 (2014), Azuma argues that democratic ideals should be "updated on the basis of the realities of information society" (p. iii). Simply stated, the proliferation of myriad media channels and messages disseminated by networked communication has made modern society too complex to accommodate traditional notions of the public sphere and practices of democratic political participation. Azuma proposes the "creation of a completely new public sphere" (p. x) supported by the use of ubiquitous computing technology. His prescription for a model of governance informed by ubiquitous computing and social media draws on Jean-Jacques Rousseau's notion of "the general will." The general will refers to the collective will of a people that aims toward common well-being and "creates the standards for good and for the public sphere" (p. 23). This will is distinct from the will of the government or the sum of individual wills, and arises from a community of people joined through a social contract, regardless of whether communication or political deliberation occurs between them. Azuma's interpretation of Rousseau leads him to the provocative proposition that "politics does not require communication" (p. 34). That is to say, spaces for communication and deliberation are not only unnecessary but are in fact "an impediment to the emergence of the general will" (p.33), as citizens need only be provided with adequate information in order for the general will to emerge. It is here that Azuma locates the potential for data aggregation and information visualization to inform political procedure.

Azuma introduces the term "democracy 2.0" to describe a model of democratic governance supplemented by data aggregation and information visualization. Such a system, he argues, would provide "a mechanism to visualize what we truly need without the mediation of roundabout

systems such as elections, hearings, and public comments" (p. 86). He points to internet-based communication behaviors and social media usage in particular as fertile resources for assessing the collective thoughts and attitudes of a populace. Azuma thus relates the general will to concepts such as "collective intelligence" and the "wisdom of crowds" (p. 12). Under the democracy 2.0 model, the public realm would be shaped by the aggregate of private actions in a way that challenges traditional distinctions between the public and private spheres. Azuma contrasts this notion of democracy 2.0 with Arendt's and Habermas' conceptualizations of the private and public realms. Crucially, Arendt and Habermas both stipulated that the public realm is created through speech or communication whereas Azuma is proposing democracy 2.0 as politics without communication. For Azuma, the inherent complexity and fragmentation of contemporary society precludes the realization of an Arendtian or Habermasian ideal public sphere such that modern citizens "are not able to believe in a shared space for discussion" (p. 69). Declaring these formulations of the public sphere as "impossible to establish" (p. 87), Azuma calls for taking "our current social situation and technological conditions" to bring about "something like a public sphere" (p. 87). This approach calls for abandoning both traditional notions of politics as "conscious communication mediated by language" (p. 75) as well as "abstract frameworks that differentiate between private and public" (p. 77).

In addition to the political philosophy of Rousseau, Azuma's formulation of "democracy 2.0" is further informed by the Freudian psychoanalytic concept of the unconscious. Social media again functions as a significant touchstone for Azuma, who describes tweets, check-ins, and other social media activities as constituting a vast trove of information enabling "the extraction of patterns of unconscious desires that go beyond the intentions of individuals" (p. 57). Azuma thus defines incidental yet observable online activity as "unconscious communication" and proposes

the use of data monitoring in democracy 2.0 for "collecting and systematizing the wills and desires of people without the need for conscious communication" (p. 56). The realization of democracy 2.0 involves not just data aggregation but also data visualization, as Azuma notes "the internet is not only an apparatus for documenting the unconscious but also for actively visualizing it" (p. 95). Revisiting the earlier formulation of the general will as "politics without communication," Azuma specifies that the "visualization of the unconscious of the masses" (p. 122) should not be understood as a replacement for deliberation but rather as a supplement to deliberation. He proposes that a democracy 2.0 framework should consist of "on the one hand extracting the unconscious of citizens and on the other invigorating conscious communication among citizens" (p. 102). Azuma proposes that the aggregate unconscious communication of the citizenry should shape the contours and define the limits of public policy-making in a fashion that is "neither direct democracy nor indirect democracy but something that might be called unconscious democracy" (p. 143). Such a model reflects the democracy 2.0 ideal that "all deliberation must be exposed to the unconscious of the populace" (p. 144), whereafter the database citizens' unconscious communication "and harnesses it as a power to restrain deliberation" (p. 153).

In order to illustrate what such a system would look like in practice Azuma turns to the field of urban planning and design. Azuma's argument is scaled to the level of the nation state, and he is concerned overall with practices of national citizenship rather than regional or municipal governance. There are, however, significant points of intersection between the theory of democracy 2.0 and urban studies. For instance, Azuma (2014) often employs spatial metaphors in theorizing how to "design an architecture" that would support the democracy 2.0 model (p. 80). His theory also bears correspondences with the urban visualization literature, as he describes the general will 2.0. as "the record of action and desire carved into the information environment" (p.

71). Yet the most substantial connection between urban studies and general will 2.0 is the invocation of Austrian-born urban designer Christopher Alexander. Azuma's prescription for unconscious communication is not that it be ignored or blindly followed but rather that states should "harness it through visualization via information technology" (p. 136). The unconscious desires of the masses, aggregated and visualized, would then be used to inform public deliberation and policy-making. Azuma cites Alexander's urban planning work as a prototype for such a model. In the classic planning text A Pattern Language (1977), Alexander and his colleagues outlined an index of urban settlement shapes or "patterns" inspired by the then-emerging fields of network theory and computer science. Alexander's systems approach to urban design is captured in his well-known aphorism "a city is not a tree" (1965). What Azuma highlights, however, is a method Alexander developed for determining the design of highway routes.

Alexander and his team identified twenty-six factors that influence planning decisions such as construction costs, economic impact, and environmental issues. The list of factors also included not typically taken into account by highway planners such as air pollution, eye sores, and noise (Lystra, 2016). The planners then examined the site under consideration to determine what the least and most desirable locations were for each influencing factor. They then visualized the distributions of these factors by superimposing shades of color onto a map, with least desirable locations colored lighter and most desirable areas colored darker. Using a combination of photographic and hand drawing techniques they composited multiple overlays to create a final path map. The resulting distribution did not necessarily plot the optimal route, and would not always determine the final planning decisions, but it did provide a method for visualizing a range of options based on aggregated data. Azuma thus cites Alexander's approach to planning the highway route as "the budding form of an urban design based upon collective intelligence" (p. 152). He

also sees in this technique "a method for providing limits to design rather than determining the design" (p. 124). This is a crucial takeaway for Azuma: Alexander's method is a model for imposing limitations on deliberation via a database. Alexander and his fellow planners did not automatically implement the routes that emerged from the composited path maps, but they rather used the maps to delimit the best areas for potential action. Democracy 2.0 may therefore be seen as "an application of a theory of urban planning" (p. 125) and "a mechanism that restrains the arbitrary wills of planners" (p. 153). As Azuma notes, planners today have access to a wealth of information and communication technologies from which to draw a "map of user desires" (p. 125). The democracy 2.0 framework is thereby applicable to not only national politics but is particularly relevant for e-governance initiatives in smart city programs.

4.5 Metis & Agonism in E-Governance Initiatives

The Pittsburgh Roadmap for Inclusive Innovation employs ideals of access and inclusivity to promote a model of mediated civic engagement based on efficient service provision. As the earlier analysis indicated, this perspective offers a rather limited view of democratic politics and may be seen to illustrate Dean's (2009) notion of communicative capitalism wherein messages circulate based on exchange rather than use value in such a way that ostensible inclusivity functions to bolster the power of hegemonic minorities. The Western Pennsylvania Regional Data Center similarly demonstrates a rhetoric of openness, transparency, and accessibility. As noted by Teraoka (2017), discourses of techno-populism or data-solutionism represent a mere expansion of traditional deliberative democratic ideals and introduce new barriers to equal access. Azuma's (2014) model of democracy 2.0 endeavors to combine networked communication technology and

data visualization to open new possibilities of public deliberation. Yet Azuma's bold proposal does not escape longstanding feminist and agonistic critiques of public sphere theory as democracy 2.0 is still presented as "a new method of consensus formation" (p. vii). Rather than viewing public space as the terrain for consensus formation, an agonistic approach envisions a space "where conflicting points of view are confronted without any possibility of a final reconciliation" (Mouffe, 2013, KL 1458). I share the perspective espoused by Mouffe, Mitchell (1995), and others that a properly public space is realized through agonistic encounters. In the following section I explore how e-governance initiatives associated with smart city frameworks might work to foster agonistic attributes in urban life.

Urbanists and planning theorists have considered how to cultivate agonistic politics in planning practice. Michael Gunder (2005) is one scholar who has called for "a mode of planning that does not seek one dominant 'consensus', but rather actively promotes a planning related politics beyond that of liberal civil society" (p. 177). In proposing a "planning ethos predicated on affable but agonistic dissensus" (p. 177), Gunder suggests a practice informed by Bent Flyvbjerg's (2001) methodology for phronetic social science. Based on the Aristotelian intellectual virtue of phronesis as prudent or practical wisdom, Flyvbjerg's phronetic social science employs detailed case studies and interpretation of the values embedded within each case. In the spirit of these proposals for practical social science and agonistic urban planning, I suggest an alternative approach informed not by phronesis but by the Greek intelligence of metis. The ancient Greeks understood metis as an artful and efficacious knowledge typically translated as "cunning intelligence" (Detienne & Vernant, 1991). Metis typically involves unplanned and unpredictable responses to the vicissitudes of lived experience. In The Practice of Everyday Life Michel de Certeau (1984) advocates the cunning intelligence of metis, particularly as a rhetorical tactic

associated with the Sophists' ability "to make the weaker position seem the stronger" (p. xx) and gain the advantage over the more powerful. For de Certeau metis thus serves as a model for the myriad "enunciative acts" of everyday life as well as his influential distinction between strategies and tactics. Debra Hawhee (2004) highlights this connection between metic intelligence and sophistic rhetoric in describing metis as "the mode of negotiating agonistic forces" (p. 47) whether in a physical contest or rhetorical debate. The anthropologist James Scott (1999) identifies metis with the kinds of local knowledge and grounded practices that sustain communities, and proposes an approach to planning and development guided by metic principles. In a similar spirit I endeavor in this section to explore how a metis-informed approach to urban planning and e-governance programs might contribute to the realization of an agonistic urban public. I specifically want to consider the implementation of e-governance and data initiatives in relation to three key areas highlighted by democratic and public sphere theorists: rationality, accessibility, and consensus formation.

4.5.1 RATIONALITY

The political implications of rational deliberation are a perennial feature in critiques of the Habermasian public sphere. Habermas' prescriptions for an ideal speech situation have been characterized as a "stoic pursuit of an almost impossible rationality" (Papacharissi, 2014, p. 11). Feminist critiques have highlighted how the vision of a public sphere defined by "rational" deliberation promotes gendered distinctions of what material is admissible for public discussion and serves to restrict affective appeals, domestic concerns, and other implicitly "irrational" contributions (Fraser, 1990). In relation to cities, planning theorists have indicated a persistent tension between modernist appeals based on technical or scientific rationality and the lived

experiences of urban denizens and communities (Ramsey, 2008). Iris Marion Young (1990) identifies bureaucratic planning rationalities as producing "an abstract space of efficiency and Cartesian rationality that often comes to dominate and displace the lived space of human movement and interaction" (p. 243). For Wendy Brown (2005), a key issue facing contemporary political theory is the need to develop a "counterrationality" in opposition to neoliberalism as "the extension of economic rationality to all aspects of thought and activity" (p. 44). Chantal Mouffe has advocated for an agonistic approach to politics in part because it permits the inclusion of passions and beliefs deemed "irrational" in the Habermasian model of public deliberation (Jones, 2014, p. 22). Azuma (2014) similarly cites the inclusion of affect and other forms of rationality as a motivating factor of his democracy 2.0 proposal. In our contemporary society of ubiquitous technology and information saturation, he argues, "humanity will have to design society using not only its human power of reason but also its animal power of compassion" (p. 206). The inclusion of alternative rationalities also underlies Azuma's notion of "unconscious communication" as he adopts Freud's classification of reason as conscious and the passions as unconscious (p. 133).

As public initiatives primarily defined as technological programs, both the Pittsburgh Roadmap for Inclusive Innovation and the Western Pennsylvania Regional Data Center are represented in official discourses as rational, technical, and value neutral. The policy discourses promoting these measures employ rhetorical appeals based on ideals of innovation and openness, but these signifiers of technical rationality may function to exclude or further disenfranchise vulnerable populations. As Gunder (2005) argues regarding urban planning, "rhetorical tropes claiming legitimacy of rationality, value neutrality, expertise and science" are often deployed to advance hegemonic desires that are at odds with those of less empowered social groups "who may actually constitute, in aggregate, the majority of urban populations" (p. 175). Against views of

urban planning as technical and objective, Gunder argues that planning is "inherently ideological" and often promotes "fantasies of the future city" that represent the interests of "privileged minorities" (p. 173). Gunder advocates a Lacanian-inspired planning perspective that seeks to transcend narrow visions of "the good city" based on technical rationality and determination in order to incorporate "the qualitative and conflicting" into planning practice (p. 194). Such an approach would include a "positive engagement with strife and agonism" while not privileging hegemonic articulations "even when these may appear to use as the best rational, or most efficient and competitive, argument" (p. 194). This formulation of planning philosophy recalls the role of metic intelligence as the mode of negotiating agonistic forces, as well as resistance to power as metis is associated with rhetorical tactics of making "the weaker position seem the stronger."

Urban media theorists have criticized data-driven e-governance programs for promoting a technocratic "ideology of data solutionism" (Mattern, 2016). The WPRDC could be critiqued along similar lines, however the Burgh's Eye View visualization efforts have prioritized targeted interpretations and applications of datasets rather than just letting the data "speak for itself." These applications evince an understanding that while data may be considered value neutral, it can and should be used to inform civic interventions and public outreach. There are further questions related to data and rationality raised by this analysis. For example, it is important to attend to the types of data that are included in these initiatives. Clearly the scope of information aggregated by the WPRDC is limited by its open data purview and the associated constraints on the data sources available, the kinds of data included, and the manner of its dissemination. What about big data projects or similar large-scale initiatives, such as what is suggested by Azuma? Azuma calls for a system of aggregating the desires of a citizenry and allowing this "unconscious communication" to delimit the boundaries of public deliberation. Such a proposal warrants reconsideration of what

counts as data, what is worthy of being counted, and what information is deemed valuable for visualization. At one level Azuma is suggesting that public policymaking should incorporate affective or qualitative data rather than merely quantitative data. As a guide for planning practice this approach would help realize what Gunder (2005) calls the "re-politicization of the planning problematic" (p. 190) away from the technical and ostensibly value neutral toward the affectively engaged; a jump from quantity to quality. Going beyond Azuma's focus on social media messages and "likes", planning theorists and practitioners should consider how open and anonymous data could contribute to an assessment of collective desires or affectivity. Perhaps data aggregation and visualization could inform e-governance measures in such a way that quantitative data provides a basis for qualitative deliberation. Public deliberation could then benefit from a metic cunning intelligence provided by rationality and affect, or conscious and unconscious communication, engaged in agonistic negotiation.

4.5.2 ACCESSIBILITY

The question of accessibility is another key concern of public sphere theories. Early critiques of the Habermasian framework argued that the ideal of a freely accessible public sphere was in reality always based on exclusion (Fraser, 1990). The Pittsburgh Roadmap and the WPRDC are both discursively couched in the language of openness, inclusion, and accessibility. As the earlier analysis of these initiatives indicated, these terms can be understood as master signifiers that function to conceptualize society's desired ideals and gain accedence through positive associations. When master signifiers relating to societal inclusivity appear in urban governance discourses they operate in relation to both visions of "the good city" as well more fundamental master signifiers such as "democracy." Gunder and Hillier (2004) describe master signifiers and

their associated discourses as “points of shared ideological worldview” that appeal to individuals by supplying a fantasy of wholeness to compensate for the inherent lack in personal and social identity (p. 227). These signifiers may shape and anchor the perceived social reality and guide aspirations for the future even when they are vague, undefined, or inherently unrealizable. This is the point that Gunder (2005A) makes in regard to appeals based on accessibility and inclusivity: that inclusivity appeals “premised on addressing the diverse desire of an entire population” are “societal fantasies” and “a utopian impossibility” (p. 176). Master signifiers shape public debate by supplying narratives of how the harmonious city should be and providing the ideological parameters of social realities.

Azuma (2014) presents his democracy 2.0 model as a new practice of radical accessibility that can overcome limitations to access associated with traditional deliberative democracy. Democracy 2.0 proposes constraints on public deliberation based on a database of “unconscious communication” constituted by an aggregation of incidental messages and impressions. Azuma thus posits democracy 2.0 as a novel application of networked communication technology to expand and enhance deliberative democratic practice. In contrast to Azuma’s optimism for a productive fusion of democracy and communication media, Jodi Dean (2009) argues that politically efficacious messages are subsumed by dominant interests in the contemporary ideological configuration of networked communication technology and neoliberalism she calls “communicative capitalism.” Dean argues that the apparent democratic possibilities offered by participatory media merely serve to provide a semblance of participation by substituting superficial contributions of message circulation for real political engagement, a phenomenon she refers to by Slavoj Zizek’s concept of “interpassivity.” The ability to express opinions by commenting on web pages, signing online petitions, and similar activities alleviate users’ feelings of guilt stemming

from political non-participation and as a result "people treat their contribution to circulating content as communicative action" (p. 31). For Dean, then, e-governance programs predicated on inclusivity and Azuma's democracy 2.0 both fail to overcome the depoliticizing effects of interpassivity. From the perspective of communicative capitalism, the exchange value of virtual space can neither substitute nor supplement the use value of physical space as political arena.

In an essay on interpassivity and cyberspace Slavoj Zizek (1998) refers to interpassivity as one of the keys "to the artistic potentials of the new digital media" (p. 484). Zizek describes interpassivity as "the exact obverse of 'interactivity'" and a "sense of being active through another subject who does the job for one" (p. 483). Examples of interpassivity include the ancient Greek theater where the chorus emotes for the audience, or the contemporary laugh track that emotes for viewers of TV comedies. While Dean suggests that interpassivity precludes the potential of online communication to function politically, Tomonori Teraoka (2017) argues that the concept may in fact short circuit the impasse posed by communicative capitalism. Rather than focusing on voluntary contributions to deliberation Teraoka suggests that Azuma's emphasis on "unconscious communication" in democracy 2.0 should be understood to include accidental and unintentional contributions that he calls "miscommunication." For Teraoka, traditional approaches to expanding accessibility in public deliberation ignore "the voices of people disinterested in politics or a certain political issue" (p. 58). The inclusion of accidental and involuntary contributions thus opens up "another communicative path in which people's unconscious desires are unintentionally exchanged or mis-communicated, randomly influencing others" (p. 68). But what would unintentional communications look like, and where would they be located? The concept of "ambient rhetoric" as developed by Rickert (2013) and employed by Boyle (2016) offers one potential whereby the vast amounts of data generated by personal media devices and measurable

by ubiquitous computing technology comprise a continual rhetorical act of informing. This is the sort of data that WPRDC director Bob Gradeck referred to as "the exhaust of living your life." In their contrasting treatments of the democratic possibilities of networked communication technology Azuma and Dean both rely too heavily on examples drawn from social media. Whereas Dean accurately depicts the interpassivity engendered by online participation, Azuma's frequent use of social media contributions undercuts his argument for productive potential of registering and visualizing unconscious desires. Here again metis provides a useful conceptual guide for a model of deliberation mediated by the agonistic interplay between conscious and unconscious communication.

4.5.3 CONSENSUS FORMATION

A third salient concept in public sphere theorizations concerns the place of consensus formation as the goal of deliberation. While official policy discourses supporting the Pittsburgh Roadmap and WPRDC do not explicitly invoke the ideal of consensus, both initiatives are contextualized within a model of democratic practice based on establishing consensus. The role of rational deliberation for achieving consensus was fundamental to Habermas' initial conception of the public sphere. The emphasis on consensus has also been a longstanding source of criticisms and theoretical interventions. Mouffe (1999) has argued that the goal of consensus is neither an ideal or necessity for democratic practice but rather a "temporary result of provisional hegemony" and a product of exclusion (p. 756). This criticism is central to Mouffe's proposal of agonistic pluralism as an alternative model for democratic process. Gunder (2005) is one planning theorist who has adopted the framework of agonistic pluralism to propose a "mode of planning that does not seek one dominant 'consensus'" but is instead predicated on "agonistic dissensus" (p. 177).

For Gunder, “consensus” should be understood as a master signifier that operates similar to “inclusion” and “accessibility” in promoting an impossible ideological fantasy and social vision. Gunder suggests than an agonistic planning ethos may provide new potentials for social reality and an alternative vision for “the ‘good’ utopian city of vibrancy and diverse inclusion” (p. 193).

As mentioned in the preceding analysis, master signifiers such as “consensus” and “inclusion” represent compelling yet ultimately unachievable desires that offer ideological compensation for fundamental social lacks such as unity or harmony. Often these signifiers are tied to utopian desires for a better world or visions of the good and just city. As Mouffe has argued, however, while consensus may be realizable it is not necessarily a desirable ideal as it always results from some form of exclusion. In place of “inclusion” or “consensus” Gunder (2005) suggests that planners adopt signifiers such as “difference” and “diversity.” These signifiers promote agonistic qualities of disagreement and dissensus rather than a desired end state of rational consensus. Gunder also differentiates these ideals from other master signifiers in urban planning such as “sustainability” or “smart growth” in that “difference and diversity already exist” (p. 90). A transition to urban planning predicated on ideals of difference and diversity represents a shift in planning ideology that Gunder argues is necessary in order “to transverse the fantasy of our desire for wholeness and a harmonious future towards an ongoing state of agonism” (p. 101). Hillier (2003) similarly proposes that planning practitioners “substitute a theory of agonic praxis for a counterfactual idealization of rational consensus-formation” (p. 38). This would be a communicative planning theory that retains some Habermasian foundations “supplemented by a Lacanian-informed understanding of the impossibility of completeness” (p. 38). These calls to traverse the fantasies of wholeness and embrace contingent difference depict an agonistic model of urban planning informed by the dynamic intelligence of metis.

Numerous recent conceptual developments in urban studies evoke the cunning intelligence of metis in relation to areas such as city politics, infrastructural improvisations, and ground-up local practices. These applications include cases of residential displacement, urban informality, and infrapolitics of resistance (Kalyan, 2014; Porter, 2001; Johansson & Vinthagen, 2016). Burak Pak (2017) argues for "bottom-up practices" in urban design and architecture based on "user organization, feedback and intervention" (p. 9). By adhering to "incompleteness and refusal of a single static state" such practices would create new forms of openness as well as "shared practices which reconstitute the social through collective intelligence" (p. 9). Gunder and Hillier's planning prescriptions similarly evince many of the qualities associated with metic intelligence such as contingency and the negotiation of agonistic forces. Furthermore, Hillier (2003) suggests that there cannot be any standardized "model" of agonistic democracy "as ways of working need to be contingent on circumstances, time, place and stakeholders" (p. 54). This recalls de Certeau's (1984) connection of metis with untraceable urban tactics, and his view that metis "disappears into its own action, as though lost in what it does" (p. 82). Scott (1999) also argues that metic skills and knowledge cannot be communicatively transmitted or systematized because they defy standardization. His metis-inspired planning program further evokes agonism in suggesting that "democracy itself is based on the assumption that the metis of its citizenry should, in mediated form, continually modify the laws and policies of the land" (p. 356). Gunder (2010) further elucidates that agonistic planning practices are not universal but are rather "grounded in the uniqueness of each particular place and community" (p. 38). Scott similarly affirms that metis is not rigid or monolithic but is rather "plastic, local, and divergent" (p. 332). The preceding discussion has applied the conceptual framework of metis and insights from Lacanian-inspired planning theory to consider the implications for rationality, accessibility, and consensus formation

in urban e-governance initiatives. The concluding section will synthesize these observations in relation to the potential for agonistic urban publics and social justice within smart city frameworks.

4.6 Conclusion: Traversing Urban Fantasies

Smart city models and e-governance initiatives present new contexts in which to interrogate the modes of communication and means of access implicated in the endeavor for a robust and inclusive public sphere. This chapter has analyzed two significant e-governance initiatives recently implemented in the U.S. city of Pittsburgh, Pennsylvania: the Pittsburgh Roadmap for Inclusive Innovation, and the Western Pennsylvania Regional Data Center. Drawing on e-governance policy documents, interviews with practitioners, and critical theories of democratic practice, this analysis has considered how these programs contribute to the realization of an engaged and inclusive urban public. I argue that e-governance discourses employing the master signifiers of inclusivity and engagement may promote access to technological systems and knowledge while preventing access to real political praxis. Furthermore, the increasing role of data aggregation for municipal governance warrants a critical reappraisal of both the forms and means of communication that are counted as civic participation. Finally, the increasing importance of data aggregation for municipal governance warrants further critical scrutiny. Scholars of media and communication should attend to the arguments of Rickert, Boyle, and others that these modes of information production constitute emergent forms of rhetorical invention and civic participation. If we are to consider incidental data generation as a significant contributor to civic policy-making and planning discourses then conceptualizations of the digital divide need to be updated. These new means of communication and representation raise salient questions about not

only what data is counted but whose data is counted. It also highlights areas of technology access in relation to e-governance and data aggregation visibility that remain to be addressed. From this perspective the advent of big and open data initiatives represent a vast new frontier for digital divide scholarship.

In 2017 Pittsburgh joined a host of U.S. cities vying to draw Amazon's selection for the company's second headquarters. The city submitted a package of proposals to the company in hopes of earning the bid, the details of which have remained confidential despite efforts of community groups to have the pitch made public. The secrecy surrounding the Amazon proposition prompted the Pittsburgh City Paper to interrogate the city's touting of e-governance initiatives for transparency and accessibility. In an article charting the history of the Inclusive Innovation roadmap and data center the author asked of the initiatives: "Is it true accessibility, or just the appearance of it?" (Gordon, 2018, p. 1). The article focuses in particular on the Burgh's Eye View application, questioning whether many citizens are aware of or use the service. This skeptical analysis of Pittsburgh's civic transparency initiatives indicates the inherent shortcomings underlying programs predicated on the master signifiers of accessibility and inclusivity. Gunder's (2005) call for urban planners to traverse the fantasies of wholeness and cultivate agonistic negotiations is instructive here. Once again, the conceptual framework of metis provides a theoretical touchstone. De Certeau (1984) correlated metis with the traceless traversals of walking in the city, and with tactics that "traverse" and "infiltrate" strategic systems (p. 34). I argue that an approach to urban planning and politics guided by the attributes of metis can traverse urban fantasies of cohesion that preclude an agonistic urban public in the name of accessibility. I believe that such efforts can make use of networked communication technologies and other infrastructures implemented within smart city frameworks.

A key point to consider in these initiatives is whether user contributions in both physical and virtual spaces are seen as symptomatic of either urban disorders or users' desires. Azuma (2014) connects his model of "unconscious communication" to Freud's theory that "unconscious desires appear precisely in the forgetting, mispronouncing," and other symptomatic disruptions (p. 94). He argues that networked communication technologies provide an ideal means for compiling a database of these sorts of "mistakes" or symptoms, and that such unconscious communication should be used to produce "a map of user desires." In the case of Pittsburgh's Market Square, unsanctioned uses of public space were considered visible symptoms of disorder that were to be eradicated in the name of undisrupted commerce and exchange. The removal of public seating from the plaza evinces a perspective that treats visible disorder as malign in itself rather than understood as symptomatic of other urban ills. Vitale (2008) demonstrates how "quality-of-life" and "zero-tolerance" urban policies view "homelessness and disorder as social problems" rather than as symptoms of "misguided economic development strategies" (p. 27). These perspectives can be traced back to the social pathology perspectives developed in early urban sociology. A similar logic animates the Burgh's Eye View application, where the visualized data points are treated as visible symptoms open to interpretation and diagnosis. Johannes Binotto (2013) characterizes modernist planning attitudes as efforts to "cut away the symptomatic excess of the city like a surgeon," whereas from a psychoanalytic perspective "the symptom is not to be erased but rather to be preserved" (p. 37). Urban disorders and symptoms can also be linked to the unruliness of metis and everyday tactics. Metis is an embodied intelligence that is only realized by being put into action; in that sense it is defined by use value. Our public spaces should similarly be places of use value rather than pure instrumental exchange.

Don Mitchell (1995) advocates the view of public space as inherently politicized and open to disorder. Critical urbanists have highlighted unruliness and openness to political dissent as crucial to the realization of the Lefebvrian right to the city (Gibson, 2014). David Harvey (2014) describes the right to the city as "a right to change and reinvent the city more after our hearts' desire" (p. 4). Azuma's proposal for a technologically-mediated democratic praxis that incorporates unconscious communication and psychoanalytic planning perspectives predicated on traversing urban fantasies of completeness both point to the role of symptomatic intrusions for revealing unconscious desires. I have argued in this chapter for new approaches to e-governance programs and urban planning that attend to these unconscious desires in order to promote more vibrant urban publics. Harvey also notes, however, that "the right to the city is an empty signifier," and that how it is realized "depends on who gets to fill it with meaning" (p. xv). I realize that in advocating the traversal of urban fantasies supporting obfuscatory ideals of inclusivity, and proposing instead an ideal drawn from socialist urban utopics, I risk appearing to substitute one unrealizable fantasy for another. I deploy the right to the city, however, recognizing its function as a master signifier ideologically compensating for the lack of social justice in cities and irreducible incompleteness in identity. I have endeavored in this chapter to demonstrate new ways of thinking about urban policy and smart city technologies in such a way that might inculcate an agonistic politics and more vibrant public space. This effort is influenced by Andy Merrifield's (2012) vision of contemporary public spaces as "meeting places between virtual and physical worlds, between online and of offline conversations, between online and of offline encounters" (p. 33). The public spaces of smart cities should utilize their infrastructure in accord with the cunning intelligence of metis so as to cultivate agonistic interplay in both physical and virtual spaces of encounter.

5.0 The Smart Street: Politics of Mobility and Infrastructure in the Smart City

Pittsburgh-born playwright August Wilson set many of his celebrated dramas in his hometown. Wilson's Jitney (1979/2017) takes place entirely within a taxi dispatch station located in the city's Hill District neighborhood. More specifically the setting is an informal or unlicensed taxi cab operation, a form of urban transportation services known in some cities as "gypsy cabs" and in Pittsburgh as "jitneys." The setting and story of the play reflect the real-life history of Pittsburgh jitneys as a network of vehicles-for-hire that developed within the city's predominantly African American communities. Jitney cab services developed to provide transportation in neighborhoods that were underserved by both public transit routes and regular taxi services. Scenes in Jitney are repeatedly punctuated by the ringing of a telephone as potential customers call to request transportation. Drivers in the station answer the ringing telephone with the standard salutation: "Car service." Over the course of the narrative various domestic and collegial conflicts play out within the jitney cab headquarters until the play ends just as it began, with the station telephone ringing and a driver answering the call.

Wilson's play captures a slice of Pittsburgh history and the institutions that developed to serve members of the city's most disenfranchised communities. It is not merely a historical story but one of contemporary relevance, as Jitney cabs continue to fulfill a crucial transportation role for many Pittsburghers (Mendelson, 2015). The drama of Jitney also illustrates the close connection between technologies of communication and infrastructures of transportation. For the characters in the play, as for many Pittsburgh denizens, the telephone provides a crucial link to mobility services. Pittsburghers today are more likely to call for a jitney cab on their cell phone, but even with the advent of ride-sharing applications there is still a demand for jitney drivers. Yet

jitney services, as with traditional taxi companies and transit providers, have had to adapt to a changing landscape of new communication technologies and transportation infrastructure.

Infrastructures of mobility and circulation have long been central to urban environments and city life. Roads, canals, and ports developed to ensure the smooth movement of people and goods. These concerns remain relevant in the smart city era but with the additional complications posed by information flows and streaming data. The centrality of transportation to the urban experience is evident in how problems of traffic congestion and transit efficiency are foregrounded in smart city initiatives. As mobile phones have become ubiquitous technologies of communication they, too, have been privileged as the key nexus at which users interface with smart city systems and services. The present chapter explores new approaches to infrastructures of mobility and communication in smart city projects in Pittsburgh. First, this chapter reviews the city of Pittsburgh's finalist proposal in the U.S. Smart City Challenge administered by the Department of Transportation. The chapter then examines the impact of transportation company Uber Technologies in Pittsburgh. The extent of this impact includes Uber's autonomous vehicle research in the city, the effect of ride-share driving in the local labor force, and the often equivocal relationship between Uber and city officials. Finally, the chapter concludes by considering how these initiatives are implicated in urban governmentality and the possibilities they may pose for a transformative urban politics.

5.1 Placing Infrastructure and Mobility in the Neoliberal City

In a passage from The Practice of Everyday Life (1984) Michel de Certeau remarks upon a mass transit system in modern Athens whose vehicles are called metaphorai. Athenians

commuting to work or home thereby travel by way of "metaphor". This etymological link between metaphor and movement, he says, indicates how in everyday life language and narrative "serve us as means of mass transportation" (p. 115). De Certeau draws similar comparisons between communication and transportation throughout his book, such as describing pedestrian locomotion as an "enunciative" activity and considering the automobile as a "machinery of representation" (p. 147). Communication and transportation have been interconnected throughout the history of urbanization, as the development of roads, canals, and other infrastructures for transit served to facilitate the movement of not only bodies but also information and ideas. Subsequent developments in communication media have continually been related to modes of transportation as evidenced by popular metaphors of digital technology such as "information superhighway," "surfing the net," or describing excessive usage of online resources as "heavy traffic." David Harvey (2003) has influentially analyzed the "space-time compression" engendered by communication technologies and cited the "organization of space through transport and communications" as a material fact "with which all historical and geographical analysis must come to grips" (p. 116). Within contemporary models of "smart" urban development these connections between transportation and communication are magnified, as transit infrastructures and networks are increasingly managed or otherwise mediated by Information Communication Technologies (ICTs).

The following literature review surveys salient theories of urban infrastructure and transportation that inform the subsequent analysis of transit-centered initiatives within contemporary smart city programs. The survey first considers diverse perspectives from the field of infrastructure studies. These theorists examine the political and economic factors impacting infrastructure development, as well as the myriad ways that infrastructures shape the daily lives

and experiences of urban denizens. Second, the review synthesizes critical theories of mobility in order to interrogate how infrastructures of transportation intersect with notions of mobility. Critical mobility studies also consider the role of movement and transportation infrastructures in producing new identities or subjectivities. The review concludes by addressing prominent critiques of neoliberal urbanism, with particular attention paid to the role of neoliberal capitalism in influencing the management of infrastructural resources. The theorists included in this section draw attention to historical changes in the provision of urban infrastructure and highlight the uneven socio-economic impacts that result from these interventions. Each of these theoretical areas offer perspectives that are both critically incisive and highly relevant for examining the contemporary implementation of transportation and communication infrastructure in smart city developments.

5.2 Infrastructure Studies

Recent work in infrastructure studies has sought to expand critical attention on the social, cultural, and political impacts of infrastructural forms. This work includes efforts from an interdisciplinary array of scholars seeking to enlarge the scope of infrastructural analyses beyond purely technical or economic concerns. Anthropologist Brian Larkin (2008) defines infrastructures as "the material forms that allow for exchange over space, creating the channels that connect urban places in wider regional, national, and transnational networks" (p. 5). Fundamental examples of infrastructure include technical systems of transportation, communication, energy provision, and water circulation. For Larkin, infrastructures are "institutionalized networks that facilitate the flow of goods" (p. 5) and are involved in "connecting and binding people into collectivities" (p. 6).

Legal scholar Brett Frischmann (2012) refers to standard definitions of infrastructure as the "underlying foundation" or "underlying framework of a system" (p. 3) and proceeds to identify three qualities associated with "traditional infrastructures." First, the government plays a significant role in ensuring the provision of traditional infrastructures; second, traditional infrastructures are managed in an openly accessible manner "whereby all members of a community who wish to use the resources may do so" (p. 4); and third, traditional infrastructures generate "spillovers" that "result in large social gains" (p. 5). Frischmann points to road systems management as an example of "spillover" effects, wherein maintaining open and publicly accessible roads facilitates activity in commerce which produces spillovers or "positive externalities" (p. 7) resulting in broader social gains.

Urban theorists have highlighted the integral role of infrastructure in shaping the physical forms, routinized processes, and social experiences of cities. As Barney Warf (2003) suggests, "[f]ew issues shape urban form and city life more than infrastructure, which underpins the spaces and places of everyday life" (p. 246). Due to their inherent identification with the built environment and necessary accumulation in urban agglomerations, infrastructures are far more often associated with urban rather than rural areas. The fundamental examples of infrastructure provide the circulatory systems for city life, although in many cases such infrastructure may be implicated in broader infrastructural networks connected with rural areas. In addition to providing the "skeleton of urban life," Larkin (2008) also highlights the importance of infrastructure in creating the "physical ambience" of the city: "the sounds, smells, visual backdrop, and built space that make up its sensual life" (p. 250). For Larkin, this "sensual life" also involves negotiating "the disrepair of everyday life" resulting from infrastructural failures, and the "imaginative force that overruns that breakdown" (p. 250). Julie Chu (2014) suggests that infrastructures typically receive attention

at one of two moments of eventfulness: either at the moment of introduction or upgrade, or at the moment of breakdown or disaster, "when it can become a spectacle of state failure and national tragedy" (p. 352). Stephen Graham (2010) focuses specifically on instances of infrastructural breakdown as moments that disrupt the background of everyday urban life that is otherwise "hidden, assumed, even naturalized" (p. 1). Graham argues that as the global population is increasingly concentrated in urban centers, "humankind will become ever more reliant on functioning systems of urban infrastructure" (p. 2) and therefore increasingly more vulnerable to breakdowns or failures.

As facilitators of movement and circulation infrastructures mediate everyday flows of materials, objects, and information. The physical structures of the built environment also mediate between individuals and social groups on a daily basis. Larkin (2008) emphasizes the "mediating capacities" (p. 6) of infrastructures in directing flows of cultural ideas and social relations. In this way infrastructures "are not simply neutral conduits," he argues, but rather actively "mediate and shape the nature of economic and cultural flows and the fabric of urban life" (p. 6). More than merely supplying means of transmission infrastructures also provide instruments of governmentality, mediating systems of power and forms of social ordering. As Eric Swyngedouw (1993) argues, "changes in mobility and communication infrastructure [...] are not neutral processes" but are rather "necessary elements in the struggle for maintaining, changing or consolidating social power" (p. 305). Amina Nolte (2016) refers to infrastructure as "materialized governance" and a "powerful means of controlling and 'disciplining' corporeal subjects" (p. 446). By materializing planning processes of inclusion and exclusion infrastructure produces "difference in the ways it connects and disconnects people, different in the way it serves its inhabitants and difference in the way they are represented and treated" (p. 452). Hillary Angelo and Christine

Hentschel (2015) further posit infrastructure as a means by which "planners and officials bring new subject types into being" (p. 307). As they function to either bring people together or drive them apart, the mediating capacities of infrastructure "move people into particular social roles" (p. 307). Emerging or augmented urban infrastructures associated with smart city developments thereby pose new modes of organizing urban life, exercising social power, and producing subject positions.

5.3 Mobilities Perspectives

The field of mobilities research has informed much contemporary inquiry into transportation networks and infrastructure. Mobilities studies concerns the movement of people, materials, and ideas, as well as the broader networks and social structures that facilitate or are otherwise implicated in these movements. Tim Cresswell (2010) describes the "mobility turn" in geography studies as responding to "the context of a world on the move" (p. 550) by deploying a holistic perspective so as to form connections between diverse instances and phenomena of mobility. This perspective foregrounds mobility "as a geographical fact that lies at the centre of constellations of power, the creation of identities and the micro-geographies of everyday life" (p. 551). Research in this vein can thereby range in scope from studies of large-scale movements of materials and populations across time, as well as more localized practices and experiences of mobility in everyday life. These approaches further consider multiple forms of mobility infrastructure, including myriad vehicles for transporting passengers and cargo but also technologies such as mobile phones and computer networks. For example, Soochul Kim (2009) examines the intermingling connections between mobile phones, GPS navigation applications, and

urban transport networks in transforming notions of urban mobility in Seoul. Mobilities research also considers the circulation of media messages and artifacts, as not only people but "images and communications are also intermittently on the move and both actual and potential movements organize and structure social life" (Hanam, Sheller & Urry, 2006, p. 11).

By foregrounding varieties of movement the mobilities research perspective exhibits an intrinsic geographical focus, and studies have frequently focused specifically on cities and urban infrastructure as sites of mobility. As Mimi Sheller and John Urry (2006) suggest, cities "are mobile places and places of mobility" (p. 1). The built environments of cities incorporate a mixture of fixed and fluid mobility supports such as transit systems, commercial ports, and parking garages. Stephen Graham (2010) emphasizes the intricate assemblages of mobility infrastructures that "fundamentally underpin the ceaseless and mobile process of city life in a myriad of ways" (p. 2). Mobilities researchers have also highlighted how transportation infrastructure shapes or produces subject positions and identities. Stefan Höhne (2015) employs the phrase "infrastructural subjectivity" in describing the opening of the New York City subway as giving birth to the subject of the "urban passenger" (p. 313). Samuel Merrill (2015) similarly considers infrastructure as "a medium of collective identity formation" (p. 77) and introduces the notion of "identities in transit" to characterize how changes in public transport networks can impact identity construction. Melissa Butcher (2011) identifies the role of large-scale infrastructure projects in not only shaping individual subjectivities but also producing urban and national identity. She examines how the Delhi metro rail network functions to identify Delhi as a "global city" and India as a "modern" nation-state (p. 240). In addition to public transit systems scholars have also focused on private automobiles as salient sites of subject formation. For Peter Merriman (2007), motor vehicles "shape our being, reconfiguring our sense of self and personal mobility" (p. 8). Merriman focuses

on “driving spaces” such as motorways in which “people” become “vehicle drivers”: “hybrid, collective or cyborg figures whose subjectivity and objectivity are (re)configured through the contingent, partial and momentary practice of dwelling in a vehicle and driving along the road” (p. 8). These driving spaces thus reconfigure experiences of self, others, and places.

Another thread of mobilities research that is pertinent to the present study concerns the movement not of bodies or materials but of development policies and discourses. The study of “urban policy mobilities” focuses on the “processes, practices and resources brought together to construct, mobilize and territorialize policy knowledge” (Baker & Temenos, 2015, p. 825). The “mobility” of planning or development policies refers to instances of a particular policy approach being implemented in multiple locations and contexts. These are often examples of policies that have been determined as “best practices” regarding a certain issue and therefore considered exportable to other contexts according to a “one-size-fits-all” logic of policy implementation. Eugene McCann (2011) emphasizes the suitability of a policy mobilities perspective for scrutinizing urban policies under contemporary conditions of neoliberal capitalism. Neoliberal economics have been characterized by an inherent tension between maintaining global flows of capital and the fixed resources necessary to facilitate this circulation. McCann suggests that a policy mobilities approach uniquely accounts for this tension by attending to “the dialectics of fixity and flow” implicated in policy transfer (p. 107). As mobilities theorists have noted in regards to mediated transportation infrastructures, policy mobilities are similarly facilitated by “informational infrastructures” that serve to “interpret, frame, package, and represent information about best policy practices, successful cities, and cutting-edge ideas” (p. 114). These frames play an integral role in responding to and accommodating the interurban policy comparisons that typify neoliberal development, what McCann refers to as the “local globalness” of urban policy transfer

(p. 107). The following section considers these aspects of neoliberal urban development and their consequences for urban mobilities infrastructure in further detail.

5.4 Neoliberalism and Splintering Urbanism

The predominating economic regime that developed following the decline of mass-production industries and welfare policies in the latter 20th century has been prominently theorized through the perspective of neoliberalism. As defined by Neil Brenner and Nik Theodore (2002), neoliberal ideology is distinguished by "the belief that open, competitive, and unregulated markets, liberated from all forms of state interference, represent the optimal mechanism for economic development" (p. 350). The neoliberal economic ideal is premised on unimpeded flows of global capital, but is also dependent on geographically fixed resources. This is the basis on which some theorists have highlighted the tension between fixity and mobility in neoliberalism, as evident in David Harvey's (1989) framework of postindustrial "space-time compression" and Zygmunt Bauman's (2000) notion of "liquid modernity." Aihwa Ong (2007) refers to neoliberalism as a "mobile technology" predicated on "extreme dynamism, mobility of practice, responsiveness to contingencies and strategic entanglements with politics" (p. 3). Critical urban theorists have drawn attention to changes in urban governance and development that have resulted from neoliberal policies, as well as the shifting role of urban economic activity within global capitalism. Jamie Peck and Adam Tickell (2002) have influentially outlined the phenomena of "urban entrepreneurialism" in which municipal governments rely on the production of cultural spectacles and private investment in a widely pervasive process that "reflects the power disciplinary effects of interurban competition" (p. 393). Brenner and Theodore (2002) characterize cities as

"strategically crucial geographical arenas" (p. 351) and "institutional laboratories for a variety of neoliberal policy experiments" (p. 368). Under neoliberal urbanism cities often serve as the proving grounds for testing and mobilizing "best-practice" planning models.

Another notable component of neoliberal urbanization is the notion of the "spatial fix." Harvey (2001) defines the spatial fix as "capitalism's insatiable drive to resolve its inner crisis tendencies by geographical expansion and geographical restructuring" (p. 24). For Harvey, the spatial fix represents one of the central contradictions of capital: that it must produce a fixed space (in the form of transport, communication, and other physical infrastructures) in order to overcome space (by achieving freedom of movement through low transportation and communication costs). Spatial fixes are commonly achieved by initiating large-scale infrastructure projects or by relocating industry to areas with cheaper labor and production costs, although Harvey has also theorized "accumulation by dispossession" as another significant spatial fix strategy. These processes are often cyclical in nature, as infrastructure that was built as a spatial fix may eventually be destroyed in order to make way for a new spatial fix at a later time. In addition to their strategic role in mobilizing capital spatial fixes are often centered around sites and infrastructure of mobility. As Sheller and Urry (2006) note, "new urban transportation projects have been promoted as good for business, good for tourism, and good for increasing circulation through congested city centres" (p. 8). Just as a new transportation center or network can serve as a large-scale infrastructural spatial fix, obsolete transit sites such as disused railways and docklands are frequently targeted for commercial and residential redevelopment as part of urban regeneration schemes.

Contemporary patterns of neoliberal development and smart city initiatives also feature a partitioning and decentralization of urban infrastructure provision that Stephen Graham and Simon

Marvin (2001) call “splintering urbanism”. The notion of splintering urbanism describes a process of infrastructural “unbundling” resulting from post-Keynesian and neoliberal urban development characterized by proliferating privatization of urban spaces and services amongst a multiplicity of actors. Under these conditions of privatization and fragmentation the ideal of infrastructure as “a universal public good owned by the state” is replaced by a fractured collection of what they refer to as “enclave infrastructures” (p. 245). The segmentation of infrastructure access and service packages produce premium spaces and services that are accessible to privileged users, while less valued users face impediments to access or are bypassed altogether. As Graham and Marvin argue, effects of splintering urbanism can disengage denizens “not just from particular urban spaces, but also from whole systems of public service provision, public space and national consciousness” (p. 247). The “splintering” capacity of urban infrastructure thus problematizes Larkin’s (2013) definition of infrastructure as “built networks that facilitate the flow of goods, people, or ideas and allow for their exchange over space” (p. 328). The very “mediating capacities” of infrastructure highlighted by Larkin may equally serve to disrupt flows and disallow exchange. In other words, a bridge can function as an infrastructure for facilitating connection just as a wall functions as an infrastructure of disconnection.

5.5 The Smart City Challenge: Transportation Innovation and Entrepreneurial Urbanism

In September 2015 the Obama administration launched a “Smart Cities Initiative” to invest more than $160 million in research to address challenges facing urban governments and communities (White House, 2015). In a White House press release announcing the program smart cities are defined as "communities that are building an infrastructure to continuously improve the

collection, aggregation, and use of data to improve the life of their residents" (p. 1). The initial programs announced for the initiative included health care research, investments in cybersecurity, and improving critical infrastructure such as energy and transportation systems. One of the most prominent of these early federal smart city programs was a transportation-based intracity competition called the "Smart City Challenge." Facilitated by the U.S. Department of Transportation (DOT), the Smart City Challenge invited municipal governments to submit proposals outlining innovative transportation projects to be undertaken in their cities. One winning city would be selected to receive $40 million in DOT funding for the proposed projects. The DOT described the goal of the challenge as finding "one city to help it define what it means to be a 'Smart City' and become the country's first city to fully integrate innovative technologies – self-driving cars, connected vehicles, and smart sensors – into their transportation network" (U.S. DOT, 2017B, p. 1).

Following the launch of the Smart City Challenge in December 2015 the DOT received applications from 78 U.S. cities (DOT, 2017B). In March 2016 the DOT named seven cities selected as finalists in the challenge: Austin, TX; Columbus, OH; Denver, CO; Kansas City, MO; Portland, OR; San Francisco, CA; and Pittsburgh, PA. The seven finalist cities each received DOT funding for public outreach in support of their applications and asked to develop further detailed plans for their proposals in order to "refine[] their vision for what a smart city could be" (DOT, 2017C, p. 1). The Pittsburgh proposal involved collaboration among a host of organizations and stakeholders including utility companies, area universities, and the Western Pennsylvania Regional Data Center (Blazina, 2016). Pittsburgh mayor Bill Peduto celebrated the city's selection as a finalist and touted the potential of the proposed initiatives "to improve the lives of everyday Pittsburghers by building smarter transit corridors and connections, bridging the digital divide and

building greater equity in city neighborhoods, realizing the value of new energy opportunities, and reaching those impacted by displacement or isolation" (Office of Mayor William Peduto, 2016, p. 1).

The Pittsburgh Smart City Challenge proposal emphasizes unique features of the city's geography, history, and economy in positioning itself as the most deserving "smart city" contender. The proposal thus surveys an assortment of fixed and mobile assets as suitable for transportation research and development. The city's topography of steep hills and river valleys is presented to establish Pittsburgh as "the ideal city for simulating a variety of locales, climates, and levels of density" (City of Pittsburgh, PA, 2016, p. 7). Potential opportunities to build upon existing investments in mobility infrastructure are also foregrounded, such as networked traffic signals and atmospheric pollution sensors. The proposal also highlights the city's amenability to budding technology firms and other entrepreneurial endeavors. The report describes the arrival of ride-share services Uber and Lyft in Pittsburgh as "broadly welcomed by Mayor Peduto, despite some early regulatory issues" (p. 8). Uber and Lyft are referred to as "shared-mobility services" which reduce "the need to own a vehicle and complement[] existing services such as taxis and other forms of transit" (p. 22). Several other local institutions, such as the city's universities, are also included in the assemblage of assets and stakeholders poised to capitalize on investments in transportation infrastructure.

Although the proposal is predominantly future-oriented - discussing "forward-looking" initiatives and prospective goals - several sections of the Pittsburgh proposal cite lessons learned from past development in the city. The postwar period is spotlighted as an era of intensive development that resulted in a modern highway system and revitalized downtown but "unfortunately" also produced "a legacy of isolation in its wake for many low-income

neighborhoods" (City, 2016, p. 1). This period of redevelopment, also known as the first Pittsburgh "renaissance" (p. 11), involved large-scale construction projects as well as the brazen demolition of wide swaths of inner city neighborhoods. In contrast to development strategies of the past the proposal states that the city of Pittsburgh "has neither the resources nor the willingness to employ the tactics of demolition and displacement" (p. 2). The proposal connects smart city initiatives to promoting equitable growth across city neighborhoods, suggesting that transportation infrastructure should not only enable geographic mobility but also "provide a corridor to new opportunities" (p. 1). By framing smart city goals in relation to past phases of development the Pittsburgh proposal seeks to approach this new era of ambitious redevelopment and economic revitalization in a sense that acknowledges the legacy of unequal outcomes wrought by previous schemes. This messaging strategy of promoting for all citizens links thematically with the city's overall approach to technology initiatives under the banner of "inclusive innovation."

Saying that Pittsburgh has "internalized the lessons of the past," the proposal outlines "a new paradigm" for addressing urban problems (City, 2016, p. 1). The new paradigm refers to the P4 framework, a set of development guidelines adopted by the city of Pittsburgh and numerous local stakeholders. The P4 moniker designates an alliterative list of four guiding principles: people, place, planet, and performance (p. 2). The themes are ostensibly listed within the proposal in order of most to least importance, with "people" being assigned the greatest prominence. The Pittsburgh proposal evinces a "people-first" approach throughout the outlined initiatives. Such a view comes across clearly when the text defines the primary role of local government as providing "for the health, safety and welfare of citizens and visitors" (p. 2). It is also evident in the various ways in which the proposal highlights the prospective social benefits and altruistic applications of these new technologies. One example is the "socially responsible microgrid" (p. 23) concept intended to

link critical infrastructure such as hospitals and telecommunications centers. The SmartPGH projects also include a Bureau of Neighborhood Empowerment intended to focus "specifically on issues within marginalized communities" (p. 18).

The Pittsburgh proposal offers a "people-first" orientation toward new technology initiatives while also offering novel conceptions of the role and practices of citizenship within the smart city paradigm. Individual citizens are even implicated as infrastructural assets within this framework, as the SmartPGH agenda proposes to collect data "generated by sensors on fixed and mobile assets and citizens themselves" (City, 2016, p. 14). Data gleaned from citizens is to be drawn from individuals' use of smartphone apps and contributions to social media. The proposal does not specify which apps or social media services are to be targeted, saying only that the initiative involves "extracting relevant data from social media" (p. 18). This component of the SmartPGH program is referred to as "Citizens as Sensors" (p. 18). Of particular interest are changes in how citizens engage with or use specific parts of the city. Sites and apps will be "scrubbed" for information in order to "infer behavior and data that can detect changes in behavior due to physical modifications made by SmartPGH and the City of Pittsburgh" (p. 18). According to the proposal citizens will be "encouraged to become actively engaged and involved with SmartPGH through their extraction of information" (p. 17).

The "Citizens as Sensors" framework bears similarities with Hiroki Azuma's (2014) theory of "democracy 2.0" and Casey Boyle's (2016) notion of "ambient rhetoric." "Democracy 2.0" refers to a reconceptualization of deliberative democracy that takes into account the social ramifications of ubiquitous communications technology. Azuma proposes that the discursive contours of public policy debates should be shaped in accordance with data gathered from incidental social media messages and impressions. Boyle suggests that the various forms of data

produced by myriad practices of quotidian technology use constitute an "ambient rhetoric" of providing information rather than offering arguments, and should be considered as a sort of "pervasive" act of citizen participation. The Pittsburgh proposal describes the use of citizen-generated open data to inform public policy decisions as "the truly transformative aspect of these applications as it relates to citizen 'involvement'" (p. 17). Within this section of the proposal the word "involvement" is presented within quotation marks as if to ironize the term or otherwise indicate that the model of civic participation being presented should be understood as distinct from traditional models or understandings. It can also be seen as signifying that the data to be treated as "involvement" or "engagement" is offered indirectly and unconsciously.

The key technical infrastructures mentioned in the Pittsburgh proposal include many technologies that have become staples of smart city initiatives. Foremost among these infrastructures are various kinds of sensors and sensing apparatuses: the document outlines using both fixed and mobile sensors to collect and analyze information ranging from traffic congestion to air pollution. Particular emphasis is also given to data aggregation and analysis. Data collection is a hallmark of smart city models and such programs are often associated with so-called "big data" stores comprising enormous amounts of information. In Pittsburgh, open data is collated and distributed via the Western Pennsylvania Regional Data Center (WPRDC), a clearinghouse for publicly available information. Methods of data visualization are a key factor for connecting the collection of information to its useful application. Open data available through the WPRDC is visualized on the Burgh's Eye View web site, an interactive map of the city overlaid with customizable layers of visual information. Visualized traffic data is accessible through the MovePGH app, a multi-modal travel and accident reporting service. The proposal also focuses on emerging smart city technologies that Pittsburgh is uniquely associated with, specifically the

autonomous vehicle research projects undertaken by both universities and transportation companies.

As stated in the Department of Transportation announcement of the competition, one of the goals of the Smart City Challenge was to help define what it means to be a smart city. The Pittsburgh proposal offers multiple understandings of "smartness" through the various deployments of the term within the document. One such definition is aligned with common uses of "smart" to designate networked and responsive technologies, as when describing a "Smart Spine" corridor of interlinked sensors (City, 2016, p. 3). Another passage defines a "model smart city" as one in which "quality-of-life is measurably improved with engaged and informed citizenry, improved safety, better mobility options, and cleaner air" (p. 11). Elsewhere the proposal defines "smartness" as the capacity to "easily detect if the modifications it is making are producing the desired changes or if they are leading to unanticipated outcomes or unhappy residents" (p. 18). This concept of a smart city suggests that "smart" citizens are also satisfied, happy citizens. Such a formulation raises the questions of how many (as well as which) dissatisfied or "unhappy" citizens are required for an intervention to be adjusted or abandoned. Finally, the Pittsburgh model of a smart city is both non-proprietary and vendor agonistic, allowing for free transplantation of generated outcomes as well as openness to working with any corporate firms.

Pittsburgh public officials and assorted civic boosters capitalized on the positive publicity generated by its finalist position in the Smart City Challenge. Ultimately it was not Pittsburgh but Columbus, Ohio that was selected as the winning smart city. Situated roughly 200 miles west of Pittsburgh, the state capital of Columbus is another deindustrialized city considered part of the American "rust belt." Initial plans for the $40 million grant included the installation of smart transportation technology such as electric car infrastructure, motion activated street lighting, and

kiosks displaying updated wait times for public buses (Muoio & Gould, 2016). Some public transit advocates expressed disappointment that the funds were not being allocated for mass transit infrastructure, with one advocacy group proclaiming that being "a smart city means more than embracing driverless cars" (Herzog, 2016, p. 1). Pittsburgh officials expressed disappointment with the outcome of the challenge while also assuring citizens that most of the proposed transportation initiatives would still be implemented (Belko, 2016).

5.6 Uber Urbanism: Pittsburgh as Test Bed for Transport and Policy Mobilities

Uber Technologies has featured as one of the most notable and controversial actors in urban transportation over the last several years. Uber is also among the most prominent examples of the so-called "sharing economy" characterized by "activities facilitated through digital platforms that enable peer- to-peer access to goods and services" (Richardson 2015, p. 121). Variously described as a "ride sharing," "ride hailing," or "driver-on-demand" service (Biggs, 2015), Uber enables users to request car service through a smart phone application. While essentially providing the same service traditionally offered by taxi companies, Uber is distinguished by enabling remote ride-hailing from any location and offering lower barriers to entry for both riders and drivers. Unlike cab drivers, rideshare drivers do not have to purchase taxi medallions from cab companies or city governments in order to hire their vehicle. The prospective negative impacts on taxi services has led taxi drivers to mount large-scale protests against Uber in major cities throughout the U.S. and Europe (Hollyfield, 2014; Burns, 2015; Peterson, 2014; Fleisher, 2014). Touted as "the ultimate disruptor of outdated urban transit systems" (Lyons, 2016, p. 1), Uber has been praised

for revolutionizing urban mobility and economics, as well as derided for denigrating traditional transportation services and employees.

Having already courted controversy in cities around the world, Uber began operating in Pittsburgh in February 2014 (Lyons, 2016). The company immediately incurred the ire of state regulators as it had not obtained licenses from the Pennsylvania Public Utility Commission (PUC) prior to launching services in the state. The licensing dispute centered in part around the problem of categorizing the new type of service provided by Uber: Uber insisted it was a technology company rather than a transportation company (Lyons, 2016). Uber continued operating in the state in spite of the PUC protests, embracing a philosophy of acting first and seeking permission that later became a definitive element of Uber's modus operandi. Technology journalist Karen Weise (2015) detailed Uber's similarly aggressive tactics in Portland, OR in an article on "how Uber takes over a city." While the mayor of Portland attempted to rein in Uber's advancement to no avail, Pittsburgh mayor William Peduto initially sided with Uber in calling the PUC dispute "dysfunctional" (WESA, 2014, p. 1). Citing the important role of ride sharing services for innovating the city's transportation infrastructure, Peduto said he had "no doubt that we will win the war, that Uber and Lyft will be operational this year, legally, within the state of Pennsylvania." (p. 1).

One year after initially rolling out its service to Pittsburgh residents Uber announced ambitious plans to establish a robotics research center in the city in order to "kickstart autonomous taxi fleet development" (Biggs, 2015, p. 1). Coincident with this announcement Uber hired more than fifty senior scientists from Carnegie Mellon University to work at the research center, with one source describing the CMU pool of robotics scientists as being "cleaned out" (p. 1). The hiring away of so many researchers from a vital educational institution sparked concerns that Uber would

drain Pittsburgh's public intellectual and knowledge resources. The CMU robotics department was described as "gutted" (Lowensohn, 2015) and Uber's tactics cited as evidence of a larger "poaching problem" facing academia (Loizos, 2016). CMU administrators responded by downplaying the poaching concerns and describing Uber as "friendly neighbors in the same city" (Loizos, 2016, p. 1), though stories in the local and national press continued to paint Uber as ruthless appropriators of highly-skilled workers. In the months immediately following the CMU administration's public comments on the staff departures Uber embarked on several local initiatives with Pittsburgh organizations in what appeared as a concerted effort to solidify their reputation as "friendly neighbors." These included a $5.5 million endowment to the CMU robotics program, an English-language certification program with Pittsburgh-based language learning start-up Duolingo, and partnering with the University of Pittsburgh Medical Center for a distracted driving awareness campaign. (Gough, 2015; Todd, 2015; PRNewswire, 2015).

Despite mayor Peduto's earlier confidence that the PUC would show clemency to the ride sharing company, the state regulatory body eventually decided to fine Uber for beginning operations without obtaining a license. The $11.3 million fine was the largest ever levied by the agency (Laughlin, 2016). In response to the ruling Peduto penned a letter to the PUC commissioners co-signed by the governor of Pennsylvania. In asking the commission to reconsider the fine, the letter noted that Uber could have chosen to invest "in any city in the world" to establish their research lab, and that the punitive fine will make it difficult for Pittsburgh to attract other entrepreneurial technology companies. Uber also appealed the decision claiming the fine "strikes at one's conscience as being unreasonable" (Moore, 2016, p. 1). After reconsidering the penalty the commission ultimately affirmed the original fine amount, prompting a statement from Uber

that the PUC was sending “the troubling message that Pennsylvania is unwelcoming to technology and innovation” (Moore, 2016, p. 1).

As the PUC dispute unfolded Uber continued work at its Pittsburgh robotics lab to develop autonomous vehicle technology. City officials remained optimistic about the research initiative, proclaiming that the “driverless car revolution may happen in Pittsburgh” (O’Neill, 2016). However, this new stage of transportation innovation soon introduced new regulatory concerns, as state legislators rushed to implement policies to keep up with the vehicles of the future. The same day that Uber announced it would begin testing its autonomous vehicles on Pittsburgh’s streets a group of Pennsylvania senators introduced legislation that would require stricter insurance policies for self-driving cars (Aupperlee, 2016). The autonomous vehicle rollout hit another speed bump when a Tesla car in self-driving mode was involved in a fatal crash in Florida (Selyukh, 2016). Although the vehicle involved was not a full-fledged self-driving car, the incident incited obvious concerns over introducing autonomous vehicles onto public roads. Amidst national coverage of the fatal Tesla crash and the Uber self-driving research president Barack Obama penned an editorial for the Pittsburgh Post-Gazette newspaper (Obama, 2016). Obama announced new federal guidelines for autonomous vehicle manufacturers, highlighting the need to cultivate technological innovation alongside regulatory provisions to ensure public safety.

On September 14, 2016 Uber began offering rides in their self-driving vehicles to select members of the public. These initial rides in Pittsburgh were available to journalists and certain elite customers, as the company explained they were "inviting our most loyal Pittsburgh customers to experience the future first" (Levandowski & Kalanick, 2016, p. 1). Despite the limited pool of participants, the autonomous vehicle rollout generated a significant amount of press coverage and seemed to be a successful culmination of the Uber-Pittsburgh relationship. Coverage of the rollout

may have heralded the arrival of the driverless future, but Uber's foray into self-driving technology proved to be anything but "driverless." Each car in the Uber autonomous fleet was required to have a specially trained driver at the controls and ready to intervene in the driving process if necessary. A report released in 2017 revealed that since the beginning of Uber's autonomous testing in Pittsburgh these backup drivers had to take over control of the vehicles at every mile driven (Bhuiyan, 2017). There were also continuing concerns about updating safety policies and the need for additional testing. In order to facilitate ongoing vehicle testing Uber expanded its footprint in Pittsburgh beyond the robotics research lab. The company built a test track on a brownfield site within the city. The test-track was described as a "fake city" (Muoio, 2017) complete with stationary cars, mannequins to simulate pedestrians, and containers to simulate buildings.

One of the first Pittsburghers to ride in an Uber autonomous vehicle was mayor Bill Peduto. While Peduto had initially characterized the city's relationship with Uber as a productive and mutually-beneficial arrangement and even defended the company to regulators, this public-private collaboration grew increasingly strained following the self-driving rollout. The details of Peduto's souring outlook on the relationship were revealed after journalists obtained a cache of emails between Uber and the mayor (Deppen, 2016). The content of the emails testify to the congenial attitude the mayor cultivated with Uber early on, although the messages also demonstrate a shift in tone as Peduto began setting firmer limits with the company and asking for more investment in public infrastructure. In one exchange Peduto pushed back against Uber's request for prioritized access to city roads, saying that "people would rebel that priority is being given to a private company for use of public assets" (Griswold, 2016, p. 1). Peduto suggested that showing such deferential treatment to Uber would result in his being "voted out of office" and charged that the company was not "offering anything back to the public" (p. 1).

The tense relationship between Uber and mayor Peduto further deteriorated following the first fatal crash involving an Uber self-driving car in March 2018. After an autonomous Uber vehicle struck and killed a pedestrian in Arizona Uber halted all of its autonomous testing in that state as well as in Toronto, San Francisco, and Pittsburgh (Hawkins, 2018). In response to the incident the Pennsylvania Department of Transportation announced a voluntary action plan designed to reduce driverless vehicle accidents while allowing continued autonomous transport research in the state (Delano, 2018). Two months after the fatal crash Uber announced that was permanently shutting down self-driving car research in Arizona, but planned to resume testing in Pittsburgh (Lee, 2018). This announcement came as a surprise to mayor Peduto who said he learned of Uber's plans through social media reports rather than from a company representative. Peduto released a statement criticizing Uber's lack of communication as "not the way to rebuild a constructive working relationship with local government, especially when facing a public safety matter" (City, 2018, p.1). Later that summer Uber resumed autonomous vehicle testing on Pittsburgh's streets with new policies and additional safeguards (Slaby & Deppen, 2018).

The ambivalent relationship between Uber Technologies and the city of Pittsburgh indicates some of the principal tensions in contemporary urban governance. The rapid proliferation of Uber and similar emerging technology firms within urban development programs reveals shifting strategies in how spatial fixes are implemented in the smart city era. In contrast to the large-scale public infrastructure projects that have typically featured in spatial fixes, the positioning of Uber as an elixir for urban economic woes demonstrates the increased importance of private firms and entrepreneurial investment for municipalities. The Pittsburgh case also highlights how traditional public infrastructure such as roads serve to undergird these corporate initiatives. It is now a common tactic for city governments to justify investments in public

infrastructure for the express purpose of attracting private capital. Entrepreneurial initiatives and interurban competition for resources are distinguishing features of city governance under neoliberal capitalism. Within the contemporary paradigm of "smart" development initiatives branded "smart," "innovative," or otherwise associated with smart city development frequently function as both markers and mobilizers of spatial fix schemes. Marko Ampuja (2016) connects this trend to an "innovation fetishism" evinced in neoliberal development discourses and closely associated with information and communication technologies. For Ampuja, this innovation fetishism manifests in pro-market policy discourses, transformed institutional frameworks, and increased alienation stemming from broadening "digital divides" in access and proficiency with new technologies.

The willingness shown by city administrators in facilitating Uber's autonomous vehicle testing on public streets further demonstrates how urban economies rely on courting corporate actors in order to maintain a competitive edge. Before his tone toward Uber soured mayor Peduto characterized the dilemma facing municipalities in collaborating with emerging companies as a choice between putting up red tape or rolling out a red carpet. "If you want to be a 21st-century laboratory for technology," Peduto said, "you put out the red carpet" (Kang, 2016, p. 1). Projects undertaken in the name of "innovation" necessarily involve moving forward into uncertain territory. It is a sort of "driving blind" in which the terrain is mapped retroactively by looking into the rear view mirror. Pittsburgh's foray into the transportation innovation arena invoked such prospective goals as "the cars of tomorrow" and "the jobs of the future," and as the city moved to keep stride with technological change it outpaced the speed of regulatory mechanisms intended to keep such developments in check. In this way the streets and city hall corridors of Pittsburgh became a test bed not only for mobility technologies but also policy mobilities: a laboratory for

experimenting with autonomous vehicle technology as well as how government agencies might navigate relationships with entrepreneurial disruptors.

The ultimate outcome of the Pittsburgh-Uber experiment remains unclear. In July 2018, shortly after announcing plans to resume testing self-driving cars, Uber laid off 100 Pittsburgh-based autonomous vehicle operators (Griswold, 2018). Uber was in effect eliminating the position of "autonomous vehicle operator," referring to individuals who ride in and monitor self-driving cars on the road. A New York Times report published the following month outlined how the company's vision for autonomous vehicle technology had begun to "blur" (Isaac, Wakabayashi & Conger, 2018). The cooling rapport with mayor Peduto and the apparent cutback in autonomous vehicle testing thus leaves the company's place in Pittsburgh and role in self-driving transportation research uncertain. Peduto committed to "putting out the red carpet" for Uber in order to establish Pittsburgh as a laboratory for 21st century technology. There is inherent risk, however, in adopting an autotelic approach to "innovation" that values novelty for novelty's sake, independent of specific goals or outcomes. Scientific research and innovation require the trial and error process of experimentation. Yet impulsive and precarious "quick fix" strategies that idealize innovation for its own sake can produce a myopic perspective that overlooks possible detrimental effects in both the long and short-term.

5.7 Splintering Mobilities: Autonomy, Automobility, and Urban Infrastructure

Much of the controversy surrounding Uber's business practices has focused on the employment status of the company's drivers. Uber designates these workers as "driver partners," treating them as independent contractors rather than full employees. The contractor designation

has been challenged by several lawsuits launched by Uber drivers over labor rights and employee protections. Similar disputes have developed around other prominent examples of "sharing" economy companies who position themselves as economic "disruptors." Richardson (2015) describes the sharing economy as "forms of exchange facilitated through online platforms, encompassing a diversity of for-profit and non-profit activities that all broadly aim to open access to underutilised resources" (p. 121). Sharing economy discourses also tend to depict networked technology platforms as transformative and emancipatory. As Richardson notes, characterizing these practices with the label of "sharing" and attendant positive associations may serve to obscure new forms of inequality and polarizations of ownership that the services introduce. While couching these business models in the rhetoric of "sharing" suggests mutually beneficial transactions mediated by technology, such practices have been labeled with other euphemistic expressions such as the "gig economy." This phrase captures the increasing prevalence of contracting, temping, and freelancing in the American workforce (Scheiber, 2015). For many Uber drivers, ride-share work is a part-time "gig" taken up to supplement their primary income.

Pittsburgh-based Uber drivers expressed ambivalence toward this form of work from the early days of the company's arrival in the city. In the first year of ride-share operations some drivers voiced frustration that they had been unable to achieve the income levels promised by Uber promotional materials (Lyons & Sanina, 2014). Researchers from Carnegie Mellon University studied the impact of Uber and other ride-share services on the local workforce finding that as the number of people signing up to drive increased, their individual income declined (Moore, 2017). The study showed that the Pittsburgh region saw the greatest increase in self-employed drivers than in any other area of the state following the 2014 arrival of Uber and Lyft. The average income for each driver, however, fell by $8,000 over the period surveyed. In addition to the surge of self-

employed drivers and the relatively low incomes, one researcher remarked on "the sheer audacity of the [ride-sharing] rollout and the regulatory fireworks that ensued" (p. 1). The results of this study lend empirical support to drivers' claims of being unable to profit despite the amount of time invested in driving. The identified dynamics also point to a critical tension within "sharing economy" practices in general and Uber's business model in particular between promoting new sources of revenue and employment offered by these services and the differential impacts for those able to take part.

Another study conducted in the midst of Pittsburgh's surging ride-share employment focused on the individual experiences of drivers as they performed this emergent form of labor. Communication researchers Brenton Malin and Curry Chandler (2017) interviewed drivers for Uber and Lyft working in the Pittsburgh area. In keeping with the notion of the "gig economy" most of the interviewed drivers held other full time employment and chose to drive for ride-share services during what would otherwise be "down time" in order to earn supplemental income. Drivers highlighted the "flexibility" of this arrangement, being able to work for extra earnings whenever they chose to, as the standout benefit of engaging in ride-share labor. Uber similarly touts "flexible earning opportunities" as a unique aspect of what their service offers to driver partners (Uber Newsroom, Feb. 2, 2016). The company has promoted the ability for drivers to "schedule their own hours" as a means to achieving work-life balance. Yet the drivers interviewed by Malin and Chandler indicated that this "flexible" labor is beset by anxieties and constraints. The ability of each driver to participate in rider-share employment depends on their access to their own vehicle, a smartphone with wireless data service, and the attendant financial and legal obligations associated with each. Drivers often engage in ride-share service during evening hours on the weekends when there is greater customer demand. While driving during these hours offers

the potential for greater financial reward, it also increases the likelihood that drivers will be exposed to an inebriated and possibly unruly clientele.

For Malin and Chandler (2017), these ride-share drivers' accounts evince a "splintering precarity" amongst urban services and infrastructures. The "on-demand" nature of this labor suggests a freedom and flexibility in participating, yet their status as employees and conditions for viable employment are highly contingent and precarious. In their political history of labor advocacy among Uber and taxi drivers in San Francisco, V.B. Dubal (2017) situates the rise of precarious labor against a decades-long process of shifting U.S. business models. What has been called the "Uberization" of the economy can be seen as the result of longstanding efforts by corporate actors to limit liability and evade employment protections. In the "gig" economy, Dubal argues, precarious work has become the rule rather than the exception and laborers are increasingly treated as "individual small business responsible to and for themselves" (p. 76). The example of Uber indicates the uneven outcomes for participants as significant risks and responsibilities are transferred to workers. Within the context of urban services and infrastructures these precarious practices can also be understood as "splintering" in Graham and Marvin's (2001) sense of the "unbundling" and privatization of public utilities or services. In the case of Uber and similar privately-owned transportation systems this splintering effect raises questions about the corporate influence over ostensibly public infrastructure and unequal opportunities for access. In spite of the populist promises of "sharing economy" rhetoric, the framework of ride-share transportation inevitably introduce barriers to entry in terms of both the technology and cost required to participate as a passenger and the risk-prone opportunities available to drivers.

The inherent tension between Uber as entrepreneurial innovator and economic "disruptor" is further highlighted by the company's conspicuous pursuit of autonomous vehicle technology.

Soon after arriving in Pittsburgh Uber initiated a hiring push promising to hire 1000 new drivers in the city (Bailey, 2015). Discourses promoting Uber as burgeoning employment provider seem opposed to the self-driving car research designed to obsolesce human driver employees. While autonomous vehicles would be a great boon for Uber's profile and profitability, it stands to be a bane for ride-share drivers. The Pittsburgh press noted this tension with one article stating "the days appear to be numbered for ride-sharing drivers autonomous vehicles gain wider use" (Fleisher, 2016, p. 1). An Uber manager addressed these concerns in a letter sent to Pittsburgh-based driver partners, saying in part that the "past has shown that technology creates new work opportunities, while disrupting existing ones" (Moore, 2016, p. 1). In an interview discussing the city's prospects for economic innovation Pittsburgh city councilman Dan Gilman downplayed concerns over mass unemployment stemming from increased automation. Gilman suggested that worries over the impact of new technology on existing industries recurred persistently throughout history, and that historical concerns about elevator operators and bank tellers being obsolesced by automation seem absurd with the benefit of hindsight.

The rhetoric of autonomy is salient not only for transportation technology but also for precarious labor under neoliberal capitalism. Peter Fleming (2017) traces the deployment of human capital theory across shifts in employment practices leading to the "era of Uberization" and what he calls the "human capital hoax" (p. 691). The advent of freelance, on-demand, and gig-economy labor has been accompanied by discourses defining such practices as "flexible" and presented as providing greater autonomy for workers. Fleming characterizes these trends as "radical responsibilization" (p. 693), as they increasingly displace labor costs and liabilities onto employees, and actually result in diminished autonomy in the workforce. This diminished autonomy is distinguished by rising economic insecurity, low productivity, and alarming amounts

of personal debt. The prevalence of gig-labor employment and economic Uberization pose particular dilemmas for urban centers and smart city initiatives. As built environments are progressively integrated with networked technologies it is important to consider what impact increasing automation will have not only on urban services and infrastructures but also on workers and the daily lives of city dwellers. Urban planners and stakeholders will have to leverage the desire to optimize services or overhaul economic practices with the differential and detrimental effects upon citizens.

5.8 Conclusion: Unruly Urbanism and Infrastructures of (Dis)Order

The preceding chapter has spotlighted urban infrastructures of transportation and mobility in relation to how such infrastructures are amended or updated within smart city frameworks. This survey examined relevant case studies drawn from Pittsburgh, PA including the city's application for the Department of Transportation Smart City Challenge, the impact of Uber's autonomous vehicle research in the city, and the prevalence of precarious transit labor in the local workforce. This conclusion will reconsider these examples in light of the overarching concern of this dissertation with the implications posed by smart city technologies for urban governmentality and ideology. Each of the case studies will also be assessed according to what I have previously referred to as "unruly urbanism": the dialectical tension between structures of order and dynamic contingencies inherent to urban environments. I will also apply the rhetorical tactic of metis as a conceptual hermeneutic to interrogate these practices. Finally, the discussion will review these smart city approaches to mobility infrastructure in connection to the Lefebvrian notion of "the right to the city" as an ideal of radical emancipatory urban praxis.

Material infrastructures are typically viewed as means for maintaining structure and consistency. As Brian Larkin (2004) illustrates, this perspective views infrastructures as "attempts to order, regulate, and rationalize society" (p. 291). Yet Larkin also challenges the typical conception of infrastructures as persistent and stable, arguing instead that "infrastructures are conceptually unruly" (2013, p. 329). Rather than privileging the everyday rhythms of efficient infrastructural functioning Larkin emphasizes the unstable consequences they introduce into human affairs. In a similar vein, Stephen Graham and Nigel Thrift (2007) highlight how infrastructures that may be taken for granted or seem "invisible" during normal functioning become visible in moments of breakdown and failure. For Graham and Thrift these infrastructural breakdowns provide the impulse for societies to learn through improvisation, adaptation, and repair. The U.S. Smart City Challenge and the city of Pittsburgh's transit initiatives respond to deficiencies of traditional transportation infrastructure with additional layers of increasingly complex refits and refurbishments. In this way infrastructural obsolescence provides the opportunities and engine for infrastructural innovation. Furthermore, entrepreneurial initiatives like the Smart City competition indicate the role infrastructural investment plays in retooling or reviving declining models of economics and governance.

Infrastructures of mobility and circulation have long been central to urban environments and city life. Roads, canals, and ports developed to ensure the smooth movement of people and goods. These concerns remain relevant in the smart city era but with the additional complications posed by information flows and streaming data. Indeed, one of the first transit initiatives implemented in Columbus, Ohio after that city's Smart City Challenge victory was a congestion analysis program named "Flow" (Harris, 2016). Mimi Sheller and John Urry (2006B) describe mobilities as an "orderly disorder" (p. 216) comprised of dynamic and adaptive systems. Michel

de Certeau (1984) valorizes the unruliness of mobility in his famous treatment of urban perambulation as exemplary of “tactical” appropriation of “strategic” structures. Nigel Thrift (2008) modifies de Certeau’s idealized pedestrian by promoting automobility and driving in the city as a significant mode for how space is ordered, experienced, and traversed. In the era of autonomous vehicles, however, even the dynamic operations of automobility are delegated to the onboard navigation system. Urban walking is similarly impacted by self-driving vehicle technology; an early regulatory concern surrounding these technologies centered on whether autonomous systems should privilege the lives of vehicle occupants or nearby pedestrians in potential collision situations. Both de Certeau’s and Thrift’s models of urban traversal warrant reconsideration in the era of smart cities and self-driving vehicles.

Gilles Deleuze (1992) suggests that modern governmentatlity has transitioned from the Foucauldian framework of disciplinary society to what he calls "the societies of control" (p. 4). Whereas disciplinary societies were distinguished by sites of enclosure, such as factories and prisons, societies of control are predicated on the promise of free movement. Deleuze's example of the control society in action, presented as a vision from Felix Guattari, is "a city where one would be able to leave one’s apartment, one’s street, one’s neighborhood, thanks to one’s (dividual) electronic card that raises a given barrier; but the card could just as easily be rejected" (p. 7). What is most significant in this account, Deleuze argues, is not the barrier but the computer that tracks each person's location and modulates the environment accordingly. Today such a system of individualized access is a common feature of smart city services. As such technologies become more commonplace it is important to scrutinize who is in charge of programming these services to permit or deny access. The fraught relationship between Uber and the city of Pittsburgh highlights the tensions between public and private interests, but also provides a view of how public

transportation infrastructure may be further splintered in future development. Using a ride-share service like Uber requires certain technology access and payment methods not required to take public transit. The autonomous Uber rollout in Pittsburgh was limited to a select few privileged riders, promoting a vision of transit comprised of infrastructural enclaves delimited by premium access.

Emerging forms of isolation and new barriers to access pose clear hindrances to "the right to the city" as it has traditionally been conceived. Critical urbanists have long defended open and accessible public space as a critical bulwark against the encroachment of privatized and commodified space. Accordingly, public space advocacy has been closely linked to urban social justice movements organized around the right to the city. Public transportation and sites of transit have also been recognized as important locations for the enactment of public city life. As Kafui Attoh (2017) argues, public transportation is integral for constituting "the public" and "for securing a right to the city" (p. 198). In the era of "smart" urbanism classical notions of public space call for updating in light of contemporary forms of infrastructure, new channels of communication, and emerging spaces of interaction.

Alberto Jimenez (2014) offers a potential metric for bridging infrastructure and radical urban politics with the notion of "the right to infrastructure" (p. 342). Inspired by the Lefebvrian lineage of critical urbanism Jimenez views the city not just as a technical prototype, but as a political prototype, with democratic praxis understood as a significant infrastructure in itself. His framework of a right to infrastructure conceives of "the agential work of infrastructures as a source (an open source) of possibilities in their own right" (p. 343). In a related vein Pablo Sendra (2016) proposes the creation of "infrastructures for disorder" (p. 335) inspired by Richard Sennett's (1970) promotion of "unfinished" urban spaces designed to encourage unplanned engagement between

citizens and their environment. These perspectives present opportunities for using metis as a rubric for assessing the impacts of urban development, as I have suggested earlier in this dissertation. In conjunction with a focus on infrastructures of mobility it reflects such metic properties as cunning intelligence, wiley movement, and bottom-up practices of local knowledge and design.

6.0 Maps and Territories: The Virtuality of Space and the Spatiality of the Virtual

Thomas Sweterlitsch's Tomorrow and Tomorrow (2014) is a sci-fi and noir inflected detective novel set in the not-too-distant future. The story projects a possible evolutionary trajectory for contemporary technology: ubiquitous mobile devices and internet connectivity are biologically internalized through the surgical implantation of "Adware," a neurological insert that augments the user's visual field with data related to the immediate environment and enables true "hands-free" phone and video calling. Intrusive advertising and garish media content are also heightened in this vision of the future, suffusing the spaces of daily life with incessant claims on attention and perception. The protagonist, John Blaxton, is a private investigator hired to probe the circumstances surrounding a young woman's murder. The scene of the crime is in Pittsburgh, and Blaxton traverses several of the city's neighborhoods while retracing the woman's final moments. Blaxton's Adware augmentations are essential to his exploration of Pittsburgh as the actual city no longer exists. At the time of the novel's setting it has been ten years since Pittsburgh was destroyed by a nuclear explosion. The version of the city that Blaxton explores in his investigations is a virtual recreation called the Archive, an interactive simulacrum compiled from security camera footage, social media posts, and any other available documentation of Pittsburgh from before the city's obliteration. Blaxton's Adware implant allows him to experience the Archive as an immersive virtual reality simulation that can be adjusted to display different points in time and varying degrees of informational overlay. Late in the novel Blaxton travels to the ruins of Pittsburgh where his implanted hardware augments the material wreckage with virtual projections of its pre-ravaged state.

Tomorrow and Tomorrow presents an imaginative work of fiction that is nonetheless highly resonant with the contemporary urban condition. The novel deals with several perennial themes of urban literature and theory including the trauma of displacement, ephemerality in the built landscape, and the profound role of memory in shaping how place is experienced and assigned personal significance. The fictional Adware technology provides an effective narrative device for exploring the urban form as palimpsest and materializing the processes by which individuals cognitively map and affectively interface with their environments. The Adware implant also offers a near-future analogue to existing technologies of visual display and augmentation. Ubiquitous personal and mobile screen-based devices have become common apparatuses for engaging with urban spaces and infrastructures. The recent popularization of commercial augmented reality applications has prompted interest in how these technologies might promote the intermingling of physical and virtual space. The story of Tomorrow and Tomorrow also depicts the key insight evinced by critical urbanists and spatial theorists that the built form of the city provides a material base for the superstructure of social life. The urban cannot be reduced to the built environment; rather, the material landscape provides a skeletal framework that is fleshed out and brought to life by the perceptions and enactments of its inhabitants. Urban space is always necessarily a hybrid space composed of material, perceptual, and affective elements. The hybridity of urban space is not dependent on virtual reality technology: the city is always already augmented by ideology and imagination.

The present chapter explores dimensions of virtuality and mediation as they relate to urban space and city life. This analysis includes affective and conceptual aspects of virtuality, as well as the increasing role of digital technologies in shaping how city space is imagined. First, the chapter presents a brief survey of the visual representation of cities and the incorporation of visual media

technologies into the urban environment. From mapping projects to virtual reality simulations these technologies have enabled the governance of urban space and shaped how cities are experienced and imagined. The chapter then examines the augmented reality (AR) mobile game Pokémon Go. Pokémon Go is credited with bringing AR into mainstream consciousness and for encouraging users to engage with public space in creative and playful ways. The analysis will demonstrate the ways in which the game reflects the emancipatory potential of critical urban theory, as well as how the game highlights persistent urban inequalities and the limits to cultural placemaking posed by prevailing patterns of urbanization. The subsequent section continues to explore aspects of virtual space by examining relevant cases from the city of Pittsburgh. These examples include the application of AR technology for exploring urban history, the import of community representation amidst neighborhood change, and the production of generic privatized spaces in urban redevelopment. The chapter concludes by considering these facets of space and virtuality in relation to the project's overarching interest in "unruly urbanism" and the conceptual framework of metis. I will argue that these spatial interfaces elucidate emergent modes of unruly operation, and that the hybrid spaces of material and virtual interplay provide new opportunities for metistic intervention.

6.1 Spatial Representations, Visual Media, and Urban Imaginaries

Any map is a rhetorical construction, an argumentative artifact proposing a particular understanding of space. Every cartographic representation is the result of myriad decisions - whether considered practical or ideological - about what is to be included or omitted, and how elements of size, shape, and scale may be adjusted so as to ensure that the territory fits the map, or

vice versa. These decisions function not only to proffer a specific vision of space but also to delimit priorities and promote certain modes of thinking and doing over others. Colonialist projects of territorial expansion identified mapping with exploration, positing cartography as the discovery of terrain and the subsequent translation of geography into malleable forms of knowledge. Treating cartography as an objective science and maps as neutral artifacts can obscure the subjective and inherently power-laden dimensions of mapping, such as the integral role of maps in facilitating the conquest and management of territories and populations. Considering such instrumental applications of cartography within an urban context can render the everyday role of maps in shaping space and influencing movement through that space more evident. Foucault's (1977) example of the spatialized disciplining procedures in a plague-stricken town is illustrative of the implications of mapping for the control of urban populations. As a means of representing and organizing space maps support technologies and methods of partitioning, surveilling, and constraining. Foucault's historical analysis further highlights that maps are socially constructed within specific political and economic contexts, and that representations of space are often tied to institutional aims.

Cartographic theorists have incorporated Foucaldian insights regarding the power implications of maps, reflecting a shift from a representational to a processual understanding of mapping (Kitchin, Gleeson & Dodge, 2013, p. 480). This processual view of cartographic abstraction recognizes that maps are not external to power relations but embedded within them, and acknowledges how artifacts of geographic representation function within distributed networks of disciplinary mechanisms. Critical geographers further posit maps as active and dynamic rather than neutral or static. As Manuel Aalbers (2014a) argues, maps not only fulfill descriptive functions but also effect prescriptive and performative qualities. Maps present visions of the world

that may shape how users think about and act upon the places depicted, such that "mapping contributes to the making of geography" (p. 525). In How to Lie with Maps, Mark Monmonier (1996) argues that mapping always involves distortion if not deliberate deception. Cartography requires simplification as to "portray meaningful relationships for a complex, three-dimensional world on a flat sheet of paper or a video screen, a map must distort reality" (p.1). For Monmonier, therefore, a "wise map user is thus a skeptic" (p. 184) who may inhibit unhealthy naivete with the comprehension that "a single map is but one of an indefinitely large number of maps that might be produced for the same situation or from the same data" (p. 2). In underscoring the contingencies inherent to cartographic representation Monmonier echoes the warnings sounded by the likes of Korzybski and Baudrillard that the map must never be mistaken for the territory, nor an abstraction confused for ontological essence.

Urban theorists have long drawn attention to the salience of mapping projects for facilitating urban planning and shaping urban imaginaries. De Certeau's (1984) ruminations on "walking in the city" juxtaposes the "bird's eye" views of city planners with the street-level perspectives of denizens in order to delineate top-down strategies from bottom-up tactics. His analysis serves to highlight the totalizing ambitions of technocratic planners as well as the cultural implications of visibility and legibility for everyday urban practices. Kevin Lynch's (1960) influential exegesis of the built forms of cities explores how individuals develop "mental maps" that incorporate landmarks and other significant spaces in order to orient themselves within and affectively identify with urban environments. Scholars have expanded upon these insights to examine how diverse sources of imagery such as built structures, visual media, and collective memories contribute to the representation and realization of urbanity. Ben Highmore (2014) argues that any meaningful understanding of "the city" must include representations of urbanism,

suggesting that is unproductive "to separate the physical presence of the city from all those metaphors, tropes, and complexes of representation through which the city is lived" (p. 26). As Highmore indicates, the city is simultaneously real and imaginary, comprising material features as well as more elusive mental attributes. Visual instruments such as planning documents and architectural designs inform the shaping of urban development, yet these and other implements are themselves shaped by ideas and imaginaries of what the city could or should become. Eduardo Mendieta (2010) aptly captures this latter aspect in characterizing critical urban theory as "the tracing of a utopian map aiming at the city to come" (p. 442).

Visual representations of city spaces, along with attendant urban imaginaries, exert significant influence over how the built environment is envisioned and molded. Yet the urban environment itself is also bestrewn with images and visual technologies that inform how individuals understand and navigate those spaces. Modern urban environments have been host to a variety of visual and textual media including posters, billboards, and printed notices posted in outdoor spaces to garner public attention. With the advent of electronic technology these media were joined in the spaces of the city by televisual screens. While the TV set has historically been situated within the home and domestic life, Anna McCarthy (2001) authored a pioneering analysis of the pervasive presence of "out-of-home" televisual screens, a phenomenon she refers to as "ambient television." Focusing on the presence of screens in public and semi-public locations such as restaurants, waiting rooms, and shopping centers, McCarthy explores how everyday operations of moving and looking have adapted to the "quotidian geography of TV in public" (p. 1). As electronic screens have grown in size and sophistication these technologies have been purposed to new uses and locations within shared spaces. It has even been suggested that the category of "video" be added to the traditional architectural pantheon of wood, steel, glass, and concrete

(Krajina, 2014, p. 21). Primasari and Lubis (2013) provide a brief inventory of these emergent forms of display: “daylight compatible LED billboards, plasma screens exposed in shop windows, beam boards, information displays in public transport systems, electronic city information terminals, holographic screen projections, or dynamic and intelligent surfaces, integrated into architectural facade structures” (p. 135).

The ubiquity of screens within spaces of everyday life can inculcate a taken-for-granted-ness of their pervasive presence and potential social role. Against such passive acceptance critical urbanists and media theorists have drawn attention to the unruly effects that screens may introduce to both architectural design and the urban experience. One approach in this vein focuses on screens as sites of liminality and mediation, considering how urban screens trouble clear distinctions between public and private, movement and fixity, as well as between physical and virtual space (Fortin, 2013; Krajina, 2014). The placement of oversized or “mega screens” in public places has received especial attention. In contrast to the predominantly individual or personalized uses of traditional TV screens, large public screens may engender collective forms of public participation. Scott McQuire (2010) has notably explored how urban screens might intervene in public life and foster new forms of civic engagement. He suggests that, rather than employing urban screens for strictly informative or commercial uses, such installations may be used to promote non-instrumental modes of interaction. McQuire evinces the position, shared by other urban media scholars, that public screens are not merely situated within urban space but contribute to the construction of urban spaces and situations. Screens function as a powerful medium for shaping urban space through their ability to attract attention, direct movement, and prompt activity (Lubis & Primasari, 2012). Whether as architectural fixtures or dynamic interfaces, screen technologies are imbricated in the material and perceptual landscapes of everyday urban life.

While public screens have grown larger and even "mega"-sized, technological innovation has allowed the production of increasingly smaller personal screens, to the extent that most individuals now carry one in their pocket. Media scholars have recognized that prominence of smartphones and other mobile devices as representing a "third screen" of daily media use, following the TV and computer screen (MacColl & Richardson, 2008). These devices highlight a nexus between screen technologies and mobility, both in the sense that these are screens people carry with them as they move about and also because they employ GPS and position-based applications that enable location-specific features and functionality. The cell phone represents a relatively recent development in a long lineage of mobile media including books, newspapers, and personal music players from the Walkman to the iPod. As with urban screens, each of these technologies can be considered as interfaces that mediate users' interactions with their surrounding environment. One thread of urban media research applies perspectives from classical urban sociology to consider the function of personal media technologies in mediating a potentially overwhelming urban experience, as they provide means to ignore or withdraw from certain aspects of public spaces (de Souza e Silva & Frith, 2010). Prior to the advent of mobile phones it was perhaps personal music players that received the most scholarly attention as an electronic technology that could affect urban sociality in public space. Mobile music devices provide an audial interface through which users may control and manage their personal urban experience whether by creating personalized soundscapes of retreat from surrounding urban environments or providing an individualized soundtrack for the otherwise monotonous daily routines of urban transit and instrumental interaction (Bull, 2013; Aman & Liikkanen, 2013).

Modern cell phones or "smartphones" dramatically reconstitute mobile spatial interfaces, both by incorporating or remediating features of antecedent personal media (such as displaying

textual media content and the ability to play music or radio), and by introducing unprecedented means of individualized geographic interaction. Mobile interfaces employing spatial technologies including global positioning systems (GPS), geographic information systems (GIS), and location-based services (LBS) are collectively referred to as "locative media" (Struppek, 2006). Locative media enable the representation of localized data and context-aware information by attaching digital content to a point in space and relaying it to users' devices in real time. One common application of these technologies is geotagging, which involves linking words or images to a particular physical location (Humphreys & Liao, 2011). Internet access and online connectivity proffer additional modes of selectively interacting with the immediate environment such as accessing historical information about a particular site, reading reviews of nearby businesses, and earmarking user-created photos or other social media content with the location of geographic origin.

The emergence of locative media has produced ambivalent responses, as concerns about privacy and surveillance are voiced alongside enthusiasm for the participatory and empowering potentials of these technologies. Proponents of the latter perspective emphasize the ability of users to generate personalized mappings of their environment, rather than merely interfacing with preexisting frameworks. Salient examples include "locative art" projects aimed at exploring transformative spatial relations and activist uses of digital mapping platforms to generate critical visualizations of cities and re-politicize urban space (Jethani & Leorke, 2013). More critical appraisals consider how locative media exert power and control at the levels of content management, technological understanding and competence, and through persistent surveillance capabilities (Rodriguez-Amat & Brantner, 2016). The tensions and ambiguity engendered by locative media have been further recognized as producing "hybrid spaces." Hybrid spaces emerge

from the intermingling of physical and digital space, and from the social practices that occur in both kinds of space simultaneously (de Souza e Silva, 2006). Locative media render and realize the nexus of digital and physical spaces, providing an interface for shaping social relationships along with the spaces within which interaction occurs.

The notion of hybrid spaces sustained by the intermingling of virtual and real materials has drawn scholars to consider how material environments are augmented by technological interfaces. Urban media theorists have employed the term "augmented reality" to describe the "material/virtual nexus mediated through technology, information and code, and enacted in specific and individualised space/time configurations" (Graham, Zook & Boulton, 2013, p. 465). This phrase has been used to capture the concerns of spatial media theorists, but "augmented reality" is also used as a descriptor for particular technological applications. In this context, Augmented Reality (AR) refers to a variety of processes by which images, text, and other media content are overlaid on a screen representation of a real-world location so as to appear present within the physical space depicted. A Boeing researcher is credited with coining the phrase "augmented reality" in 1990 (Tinnell, 2014). The concept of AR and its potential applications have garnered popular recognition in recent years with the ubiquity of smartphone devices. The combination of built-in cameras, GPS technologies, and screen displays embedded in smartphones presents an ideal interface for location-specific AR services. When implementing an AR program the smartphone screen becomes a window or lens through which users peer into a mediated amalgamation of their immediate environment and virtual content.

AR has been described as a novel technological and artistic medium whose practical uses and aesthetic tendencies have yet to be shaped (Papagiannis, 2014). The availability of AR smartphone apps has brought the technology to popular attention, but corporations have struggled

to utilize the novel medium for either commercial or internal business practices. In a specifically urban context, the combination of AR and locative media pose many potential applications for city planning and design. Beyond merely presenting visualizations that depict how a completed building or redeveloped urban space will appear, AR allows spatial representations to be anchored to and viewed within a particular geographic position. Extant smartphone apps demonstrate how such technology can render virtual artifacts in a manner that is responsive to the movements of the mobile device on which they are displayed. As a result, AR visualizations can layer the existing urban environment with virtual structures so as to be faithful to the possible perspectives within the particular space. In conjunction with Virtual Reality (VR) technologies, these planning applications open up possibilities for uniquely immersive and interactive spatial visualizations. Furthermore, location-specific screen-based interfaces can simulate virtual environments from a perspective that is accurate to street-level point-of-view, rather than the disembodied and objectified perspectives of traditional renderings.

Urban theorists have highlighted the participatory and deliberative functions that AR applications can bring to urban planning. From this perspective, enhanced modes of visualizing space may overcome barriers of understanding abstract or technical spatial concepts, thereby engendering an "augmented deliberation" and enabling citizen engagement (Gordon & Manosevitch, 2010). These tools also give rise to significant implications for the perpetuation of unequal power relations. The increasing technological sophistication of these devices calls into question the role of knowledge disparities, not only regarding access to and informed use of these technologies but also concerns about their coding and design. These tools also yield salient connections to our ongoing consideration of "unruly urbanism," and the interplay between order and disorder in urban environments and communities. Techniques of mapping and representation

have long played a central role in regimes of urban governmentality and the management of space. Mapping can be read as an archetypal example of efforts for imposing order on the disorderly; for rendering a chaotic reality legible and pliant through the transubstantiation of delineation. Critical geographers have cited the imposition of order and control over otherwise unruly or "open" places as a transformation from public to private space (de Souza e Silva & Frith, 2010).

The map has also served as a signal metaphor for theorists of metis, and of the unruly tactical practices that may be realized in the liminal spaces between the map and the territory. Michel de Certeau's (1984) juxtaposition of technocratic urban planners' representations of city spaces with the embodied practices of urban mobility exemplifies this tradition, as does James C. Scott's (1998) distinction between the "abridged maps" of institutional discourses and the practical knowledge of metis realized in daily life. More than merely being incongruous, hegemonic spatial abstractions and embodied metistic practices may be inimical to one another. For instance, Manuel Aalbers (2014b) argues that mapping not only offers a way of objectifying the world but also a means "to exclude the local knowledge of social space makers and to colonize that social space or life-world" (p. 558). As discussed in the beginning of this section, mapping projects have been used to support programs of colonialism and governmentality by treating cartographic representations as objectively neutral, and as purely technical artifacts. Such a perspective may seem evidently naive today, yet the quotidian ubiquity of satellite imaging and GPS technologies present a modern milieu for naive assumptions about spatial visualizations. Despite their technical precision and seemingly apolitical plainness, these technologies are imbricated with inherently political decisions regarding representation and pose their own implications for power-knowledge relations.

Henri Lefebvre's notion of the social production of space challenges reductivist views of space itself as naturally occurring ontological presupposition. Representations of space, visual or otherwise, play a key role in how both space and place are socially produced. Mappings of space are involved in the materialization of spatial conceptualizations, and every map or representation imbues those spaces with meaning. Representations of space are thus key instruments and sites of ideological contestation over the meaning and use of space. The political import of spatial representations is also tied to the efforts of urban communities to realize the right to the city. While the formulation of "the right to the city" is effectively an empty signifier, it signals the struggles of urban denizens to exert influence over the shaping of their built environment, to exercise autonomy in their communities, and to realize the use value of public space as a common good in the face of homogenizing capitalist development that aims to render and remake space only on the basis of exchange. David Harvey (2012) characterizes the right to the city as "a right to change and reinvent the city more after our hearts' desire" (p. 4). In Harvey's assessment, the notion of the right to the city is intimately linked to issues of self-realization, collective action, and delimiting the fundamental values that should undergird our social relations.

A common rejoinder to urban rhetoric invoking the "right to the city" is to ask for examples of cities or communities that have successfully realized the right. While the phrase has been adopted as a call to arms by various activist groups, and has appeared in certain government policies, there are no obvious examples of how the right has been actualized. Yet the virtuality of the right to the city is essential to its continued functioning as a rallying cry of radical urban politics, as well as an integral aspect of Lefebvre's original formulation. Eduardo Mendieta (2010) identifies the right as a right to the future itself, suggesting that the "right to the city is the right to the city to come, the city in which we may begin to dwell in a dignified upright carriage worthy of

the human being" (p. 446). In this sense modes of mapping and other representations are tools not only for shaping space but for shaping to the urban imaginaries, as means of imagining the unrealized possibilities of urban existence and envisioning the city that could be. Contemporary technologies of visualization represented by locative media, AR applications, and other emerging spatial interfaces call for rethinking the role of "the virtual" in urban politics, where virtuality is understood not as absent or imaginary but as the potentiality for change, as the as-yet-unrealized.

Mappings of urban space are a powerful means of shaping the physical forms of cities, as well as how these spaces are used and perceived. Spatial representations and abstractions are themselves shaped by political decisions regarding modes of depiction, and may be mobilized to support programs of policing, dispossession, and other forms of governmentality. Cartographic media have transformed over a long history of technological change, and are today disseminated throughout various tools of representation. These technologies remain a part of the everyday lives of city dwellers whether as media architectures embedded within the urban environment or through mobile technologies of urban navigation and interaction. At issue for the present analysis are the ways in which spatial media and technologies of visualization shape urban imaginaries and contribute to an emancipatory urban politics. What kind of imaginaries do they produce, and might they serve to actualize the virtual possibilities inherent to an urban existence? Questions of how city spaces, populations, and processes are visualized are imbricated in debates over who gets to shape the city to come.

6.2 The Virtual Spatiality of Pokémon Go

The smartphone application Pokémon Go was an unprecedented success in the mobile gaming industry, as well as a milestone in the popularization of augmented reality (AR) technologies. The game has also sparked consideration of how similar applications of AR and mobile media might contribute to new modes of geographic interfaces and urban sociality. Pokémon Go was produced by Google subsidiary Niantic Labs, an outfit established by Silicon Valley innovator John Hanke. Galvanized by the potential for commercial applications of spatial visualizations afforded by emerging graphics technologies and internet infrastructure, Hanke co-founded the software firm Keyhole in 2000 to create interactive 3D maps (Markowitz, 2012). A few years later Keyhole was acquired by Google and renamed Google Earth ("About", 2019). Hanke formed Niantic as an incubator within Google in 2010, with the mission to connect mobile mapping technologies to new forms of gameplay centered around real world exploration and interaction. Niantic released the first fruits of this endeavor in 2012: a location-based exploration app called Field Trip, and an AR mobile game called Ingress.

The same year that Niantic launched its initial AR gaming offering Google made its own foray into commercialized augmented reality. The so-called "Project Glass" was announced in April 2012 with a video dramatizing the AR applications of wearable devices from a first-person perspective depicting the superimposition of information over the field of vision (Encheva & Pedersen, 2014). The video aimed to convey the experience of wearing "Google Glass," a headset designed to resemble eyeglasses and featuring embedded camera and display technologies for conveying information relevant to the users' immediate environment right before their eyes. The headset design received criticism for the security concerns posed by the built-in camera, as well as for being aesthetically unappealing (Doyle, 2016). Two years after the initial announcement

Google canceled plans for a consumer Glass model, though the headsets have found industrial applications in fields such as health care, energy, and entertainment (Shamma, 2017). The sputtering launch of Google Glass represented a high-profile failure to bring AR technology to mainstream acceptance and mass adoption, and brought the very possibility of commercial AR applications into question.

Unbeknownst to the world, Niantic had already laid the groundwork for the popular appeal and mass adoption of AR with its mobile game Ingress. Ingress employs an augmented game space in which the player's location is represented on the screen of their mobile device on a game-themed map that layers additional information onto the visualization. In the narrative of the game world users play as "agents" who can support one of two competing factions. The respective standings of each faction is primarily decided through the capture and control of "portals": sites that represent points of incursion in the game world and which are tied to real-world locations in the user's immediate environment. Portals are situated at points of interest such as civic buildings, churches, and public works of art. The game launched with only a small number of portals assigned by Niantic, so the majority of portal locations are submitted by players for approval by Niantic (Chess, 2014). Ingress has been noted for fostering community-building among its players, both as an effect of its localization requiring interaction among geographically proximate players, and through the virtual spaces of its online communities.

With Pokémon Go, Niantic sought to build on the successes and lessons learned from Ingress along with the mass-appeal afforded by the global popularity of the Pokémon license. Pokémon Go was launched in July 2016 as a free to download and free to play mobile application. The game was massively successful upon release, instantly topping the most-downloaded apps lists and earning $200 million in its first month of availability (Jin, 2017). The gameplay of

Pokémon Go is an obvious evolution of ingress. The player's location is visualized on a map that corresponds to their actual spatial orientation via GPS positioning. As the player moves through their environment they reference the game map for icons representing the appearance of Pokémon creatures and the location of PokeStops. PokeStops are the game's equivalent of Ingress' portals, and are similarly located at sites of interest like public places, parks, and landmarks. Where Pokémon Go most notably exceeds its predecessor Ingress is in the battles with Pokémon monsters. To progress within the game players must "capture" and collect Pokémon creatures after defeating them in battle. During these battles the game employs the mobile device's built-in camera and gyroscope to visualize the virtual creatures against the backdrop of the physical environment. The resultant AR effect creates the illusion that the Pokémon monsters are occupying the same physical space as the player, and is responsive to the movement and positioning of the user's device.

Pokémon Go represents a milestone in the popularization of AR not only for its significant financial success but also for the considerable amount of discourse the game spurred around potential applications of AR technology. The game's runaway success was characterized in a New York Times article as "one of those moments when a new technology […] breaks through from a niche toy for early adopters to something much bigger" (Wingfield & Isaac, 2016, p. 1). If Google Glass represented a failure of vision, an inability to communicate why consumers would ever want to don a pair of AR eyeglasses, Pokémon Go succeeded in making people hungry for something they didn't previously know they wanted. At the very least, it demonstrated that the already ubiquitous smartphone device provided a more accessible point of entry than an awkward and off-putting headset. Nevertheless, the game was cited as signaling a wind change in public attitudes toward AR, prompting bullish forecasts for exponentially expanding AR markets (Druga, 2018).

As a watershed moment in popular culture and technology, the success of Pokémon Go was met by both public praise and criticism. Some positive assessments of the game tilted toward technological utopianism, hailing the app for promoting physical activity and the health benefits associated with walking, stimulating stranger interactions in public spaces, and reconnecting users with their environment and the wider world (Baker, 2016). Player experiences soon provided anecdotal evidence of the unforeseen dangers and unsavory possibilities posed by the gameplay particulars. In Wyoming, a teenager discovered a human corpse while wandering in search of Pokémon (Wiltshire, 2016). Thieves staked out Pokéstops in Missouri, lying in wait to rob players lured by the virtual monsters (Lindh, 2016). The Holocaust Museum in Washington DC asked visitors to refrain from playing Pokémon Go while on the grounds citing the inherent inappropriateness of playing a game while at a memorial to victims of Nazism (Wiltshire, 2016). Museums and memorials were not the only places used to highlight questions of "appropriate" spaces in Pokémon Go. Some individuals discovered that their homes had been listed as Pokéstops within the game, and a lawsuit was filed in California seeking to enable owners of property within 100 meters of a PokeStop to remove the offending spots from the game (Meyer, 2016; Fogel, 2019).

Pokémon Go also courted controversy based on the unequal geographic distribution of game assets within the real world environment. In online discussion forums players bemoaned the dearth of PokeStops in suburban and rural areas (Baker, 2016). Since PokeStops are typically assigned to local monuments or other points of interest, suburban and rural locations offered fewer potential anchor points compared to dense urban environments. The greater population density of city centers also results in a larger number of user-submitted sites. Yet even within urban areas players noted an uneven diffusion of PokeStops that reflected longstanding racial disparities in the

geography of U.S. cities. Analyses of virtual Pokémon Go locations in several U.S. cities showed that PokeStops were typically concentrated in higher-income and majority-white neighborhoods (Huffaker, 2016). Critics attributed the disparity to developer Niantic's practice of assigning game locations based on user submissions, as well as an inevitable outcome of decades of segregationist housing policies and uneven development in U.S. urbanization. Commentators coined neologisms for the uneven distribution of virtual assets such as "Pokémon privilege" and "Pokémon redlining" (Capps, 2016), the latter referring to mortgage redlining maps used to support the systematic disinvestment of majority-ethnic neighborhoods (Aalbers, 2014a). Others called attention to the inherent danger facing people of color entering affluent neighborhoods in search of Pokémon when the threat of racial profiling and police violence against black bodies in white spaces is often more reality than virtual (Akil, 2016).

The ostensibly crowd-sourced origins of PokeStop locations raised concerns beyond the geographic dissemination of virtual assets, including scrutiny over exactly how Niantic collects and uses player-generated data. The game creators acknowledged Pokémon Go's debt to Ingress players, whose portal location submissions laid the groundwork for a "database of global locations, with historical markers, and a database of public artwork, and statues" (Hilliard, 2016). The developers established criteria for approval of portal locations, including safety and public accessibility, and users could receive in-game rewards for their submissions. Pokémon Go does not reveal how PokeStop locations are established within the game application. Shortly after the game's release Ingress players expressed frustration over the fruits of their locational labor being imported into Pokémon Go without attribution or other compensation ("Pokéstops…", 2016). In a similar vein, the game has been critiqued for its commodification of free labor, whereby the incremental repetitive tasks performed by players adds financial value for the developers (Jin,

2017). Pokémon Go is distinct from antecedent online services and social media platforms that derive value from user participation in that it also requires players to physically travel to specific sites. The game may also be seen to exemplify the phenomenon of "playbor," a blending of work and play associated with trends in digital capitalism and precarious labor (Bulut, 2015).

Much early reaction to the game proclaimed that it would spur a drastic reappraisal of the connection between players and their environment, and even lead to a rejuvenation of public space. These positive assessments included the particularly hyperbolic claim that, because of Pokémon Go, "public space is being treated with a reverence perhaps not seen since 16th century Rome" (Lynch, 2016, p. 1). Pokémon Go was heralded as tool for helping users learn to "love cities," with Niantic founder Hanke stating that his intention was to encourage "people to look around with fresh perspective on the places they passed by every day, looking for the unusual, the little hidden flourish or nugget of history" (Wilson, 2016, p. 1). Some identified the Pokémon Go player as a new type of flaneur, wandering and musing through the spaces of the city, while others found the Pokémon hunter's screen-bound gaze antithetical to classical flanerie (Bliss, 2016; Kroody, 2016). There was similar disagreement over how the game might be understood against the Situationist legacy of urban subversion and appropriation. On the one hand, Pokémon Go could be seen to propel players on prolonged psychogeographic dérives, discovering new areas of the city and experiencing familiar places in unfamiliar ways (Sparrow, 2016). On the other, the game furthers techno-capitalist colonization of the lifeworld, not encouraging imaginative exploration but stifling it with shallow and infantilizing programmatic stimuli (Kriss, 2016). Ian Bogost (2016) suggested that the contrasting views were not mutually exclusive, that "Pokémon Go can be both a delightful new mechanism for urban and social discovery, and also a ghastly reminder that when it comes to culture, sequels rule" (p. 1).

Critics arguing for the emancipatory potential of Pokémon Go connected its gamification of urban environments with the Situationist acclamation of "playful" uses of space over routinized instrumentality. The notion of "play spaces" as subversive of capitalist domination has frequently been ascribed to Marxist urban theory and in particular the ideas of Henri Lefebvre. Lefebvre (1991) challenges this view, arguing that the perspective that "spaces of play" had "escaped the control of the established order" was "a complete illusion" (p. 383). Rather than providing a "counter-space" to capitalist productivity, modes of leisure and play are co-opted and assimilated into the dominant mode of production. Lefebvre's sense of this assimilation resonates with the double-bind presented by Pokémon Go as both transformative of urban relations and inherently rooted in capitalist ideology. Slavoj Zizek (2017) uses Pokémon Go to illustrate a related point about the impossibility of getting "outside" ideology. For Zizek, the AR functionality of Pokémon Go externalizes the basic mechanism of ideology, as "ideology is the primordial version of 'augmented reality'" (p. 114). In other words, our social world is always already augmented by ideological presuppositions that color and frame our perceptions. This position should not necessarily preclude AR applications like Pokémon Go from conversations about emancipatory urban politics and a right to the city. Lefebvre's urban critique explored existing social forces through the lens of the possible (Pinder, 2015), and even the virtual scenography of Pokémon Go has been called a "momentary glimpse of a world that might be" (Sparrow, 2016, p.1). Spatial applications of AR deserve attention for what they can tell us about existing urban imaginaries and ideology, as well as how they may help to envision the possible.

6.3 Augmented Space and Urban Ephemerality in Pittsburgh

The global phenomenon of Pokémon Go was not overlooked in Pittsburgh. Upon its release residents discovered that local sites including memorials, transit centers, and neighborhood post offices had been incorporated into the game as PokeStops (Aupperlee, 2016). College students arranged collaborative play sessions around their urban campuses, and the city's most prominent bicycling advocacy group incorporated Pokémon hunting into their regularly scheduled organized bike rides (Brook, 2016; Deto, 2016). Cultural institutions hosted Pokémon Go-themed events, and an environmental political action committee staged a large-scale dropping of Pokémon "lures" - virtual bait for the digital monsters - in hopes of attracting and registering voters (Harris, 2016). Local business such as cafes and bars teamed with corporate sponsors for Pokémon promotions and advertised discounted prices to customers playing the game (Parker 2016; Delano, 2016). A group of local entrepreneurs started an Uber-esque ride service called PoGo PGH offering to shuttle customers between PokeStops, enabling players to capture Pokémon from the safety and comfort of the passenger seat (Thorbecke, 2016). Just as Pittsburgh was not exempt from the popular fervor surrounding Pokémon Go's release, it was not immune to the safety concerns and moral panics that arose in the early days of Poke-mania. A 15 year old girl was reportedly struck and injured by a car while playing the game on foot, and the Allegheny Health Network asked the game developer to remove all seven of their Pittsburgh area hospitals from inclusion as PokeStops (WPXI, 2016; Schmitt, 2016).

The success of Pokémon Go also inspired some Pittsburgh institutions to develop their own AR applications. The Pittsburgh Steelers football organization released an AR-capable mobile app allowing fans to interface with a memorial wall within Heinz Field stadium (Mericle, 2018). Two of the Carnegie Museums of Pittsburgh incorporated AR functionality into their respective

exhibits: the natural history museum with an app for depicting flora and fauna native to western Pennsylvania, and the art museum with an app to superimpose virtual extensions of the plaster building facades featured in the Hall of Architecture (Davis, 2018; Waltz, 2017). Pittsburgh architecture was also featured in the mobile application Jaunt. Described as an "architectural guidebook," Jaunt does not utilize AR but rather provides an interactive map featuring icons of selected structures with corresponding information such as design details, date of construction, and biographical notes on the architects (Pitz, 2016). Although Jaunt was developed by a Boston-based design firm Pittsburgh was the first city to be included in the app (Henry, 2016). In addition to highlighting historic and architecturally significant buildings that are still standing, the Pittsburgh version of the app also includes information on notable structures that have been demolished, as well as certain proposed sites that never came to fruition (Fair, 2016). This latter aspect of Jaunt corresponds to a key function of AR in allowing users to interface with space at the nexus of presence and absence, and the intermingling of the material and the imaginary.

While Jaunt allows users to learn about destroyed and never-built structures, other applications employ AR for the express purpose of exploring the past and present of Pittsburgh's built environment. A number of these projects focus on the East Liberty neighborhood, a district that is among the most historic and oft-redeveloped in the city. In the first half of the twentieth century East Liberty harbored a vibrant commercial center and was considered Pittsburgh's "second downtown" (Lindeman, 2000). Post-war urban renewal schemes drastically altered the neighborhood as city planners and business owners sought to acclimatize the area to the advent of personal automobiles and suburbanization. The ensuing decline of the business district was blamed on the city's overhaul of neighborhood thoroughfares and traffic patterns, and subsequent phases of redevelopment aimed to ameliorate or undo the deleterious effects introduced under urban

renewal (Lubove, [1969] 1996). The redevelopment also produced a demographic shift in the neighborhood as many white residents elected to leave East Liberty and lower-income black families displaced by urban renewal in other parts of the city moved into new housing projects, resulting in a majority African American residential population (Trotter & Day, 2010). Over the following decades East Liberty saw continuing disinvestment and decline, until a recent wave of development beginning in the early 2000s was cited as heralding the neighborhood's resurgence (O'Toole, 2010). This latest phase of investment in East Liberty has resulted in additional demolition of buildings and displacement of residents, raising concerns over the availability of affordable housing and the impact of gentrification on neighborhood identity (Young, 2014; Deto, 2017).

In 2017 a team of students from Carnegie Mellon University produced a group of AR applications that engaged with East Liberty's history of physical and cultural transformation. According to the project leader, the team focused on East Liberty not only for the area's history of redevelopment but also because the neighborhood had been the site of several milestones in urbanization including early innovations in electrification for nighttime shopping, pioneering work in radio broadcasting, and the world's first drive-in gas station (Aupperlee, 2017). Each of the apps uses AR to superimpose historical images of East Liberty landmarks and facades onto the corresponding present-day location. Users running the application on their smartphones can align their mobile device's camera view with a designated site to access the AR images and related multimedia content such as audio or video clips. One of the projects highlights historic examples of advertisements and other signage in the neighborhood, the traces of some still visible in tattered remnants or sun-faded visages along building walls. When viewing one of the featured buildings with the app users can see archival photographs of the old signs. Another project focuses on the

former location of the Bijou Dream Theater, East Liberty's first nickelodeon movie house (Thompson, 2019). The app displays a photograph of the Bijou Dream facade and a nickel coin icon in front of the vacant storefront presently occupying the footprint of the demolished theater. Dragging the coin icon across the theater facade photograph will trigger movie clips to play.

The cultural legacy of East Liberty is further explored in an AR app centering on the neighborhood's links to jazz music. Rather than being linked to a building facade or architectural landmark the AR features of the jazz music app are anchored to a public mural. Located along an entire building side on a heavily trafficked street near the center of the East Liberty commercial core, the artwork depicts a contemporary urban street scene from a side-on view. The streetscape is populated by a diverse assortment of pedestrians and a pair of dogs set against a yellow brick wall. An urban skyline featuring iconic Pittsburgh buildings from all across the city is set over the wall, and above all are the words "EAST LIBERTY" in large lettering. Viewing certain sections of the mural through the AR app brings up a clickable gramophone icon, allowing users to play audio clips of music by local performers including neighborhood native Gene Kelly and the East Liberty Presbyterian Choir (Medenbach, 2017). The jazz music app presents a novel mode of exploring public space and urban history, featuring localization of multimedia assets and encouraging sustained engagement with the mural as users aim to discover which sections are linked to the app. In 2018, however, the building on which the mural was painted was demolished ahead of the lot's redevelopment into office and retail space. Without the mural to interface with the AR app no longer functions as intended. The disruption of the app posed by the mural's removal highlights some of the inherent limits of using AR to mediate presence and absence in urban space. It also illustrates a critical correspondence between urban ephemerality and technological obsolescence. Just as our material environments are subject to erasure and

elimination in the face of perpetual change, so are the media infrastructures used to interface with and archive those spaces.

The painting featured in the jazz music app is one of several public murals in East Liberty that have been lost to redevelopment and demolition. Among the neighborhood's most prominent murals was massive and colorful work entitled "Lend Me Your Ears" (LMYE) by the artist. The LMYE mural was commissioned as part of a community murals program launched by the Sprout Fund, a Pittsburgh non-profit organization focused on public art and civic engagement ("Murals," 2019). Painted in 2004 by 19-year-old local artist Jordan Monahan, the mural covered two adjoining sides along the upper two stories of a three floor building in the center of East Liberty ("Lend Me Your Ears," 2018). Save for two small windows on one side of the building the walls provided an unobstructed 8,500 square foot canvas, making it the largest of the Sprout Fund's community murals ("Lend Me Your Ears," 2019). The mural incorporated the likenesses of four African American children modeled after actual East Liberty residents. The face of a young girl blowing soap bubbles from a wand dominated one side of the building, while the other featured three boys standing astride their respective bicycles. The wall space around the figures was decorated with flower blossoms, profile views of pigeons in flight, and bright bands of multiple colors based on a television test pattern. The mural's bright hues and prominent placement of people of color were widely seen to evoke the diversity and dynamism of East Liberty, with the artwork considered "a vibrant representation of the neighborhood" (Brennan, 2015, p. 1). Positioned along a major thoroughfare and key entry point to the neighborhood, Lend Me Your Ears welcomed visitors into East Liberty for more than a decade. Yet even this distinct and celebrated mural was not safe from the vagaries of urban development.

In 2015 the owner of the property on which LMYE was painted sought to redevelop the building after the previous tenant relocated to another part of the city (Schooley, 2015). The space was eventually selected as the new headquarters of Duolingo, a Pittsburgh-based tech company and creator of an eponymous free language-learning service (Farber, 2013). Duolingo was started by company CEO Luis von Ahn while he was a PhD student at Carnegie Mellon University and the start-up has become one of Pittsburgh's highest-profile homegrown success stories (Siegler, 2011). The popularity of the Duolingo language-learning platform led the company to hire additional employees and seek out new office space to accommodate the expanded staff. The renovation plans for the new office included the installation of large exterior windows on the second floor, thereby necessitating the removal of the mural. Images of the colorful artwork being painted over with a solid coat of grey circulated on social media and in the local press. Anthony Dolan, president of the building owner Alphabet City Co, voiced reluctance over the decision saying he "[doesn't] like destroying art" (Fontaine, 2015, p. 1). Dolan also expressed sympathy with the community outcry over the mural's removal: "Whether people believe it or not, it was a hard thing for me to do. It is not lost on me that we painted over four African-American faces" (Nelson Jones, 2015, p. 1). Indeed, the erasure of the LMYE mural was seen by many as a literal whitewashing and stark reflection of the impact of gentrification in the neighborhood. Chris Ivey, a local filmmaker who chronicled the gentrification of East Liberty in a series of documentaries, said the loss of the mural "felt very symbolic of the changes that we warned about for the last several years" (Brennan, 2015, p. 1). Jen Saffron, spokeswoman for the Greater Pittsburgh Arts Council, highlighted the mural as a significant work of placemaking as it "was representative of people who live there, and there's symbolism in having it painted over" (Nelson Jones, 2015, p. 1). New Pittsburgh Courier writer Jourdan Hicks (2015) suggested that real estate developers

would have encountered greater resistance from the city if they attempted "erasing a symbol of pride and identity" from the walls of one of Pittsburgh's whiter and more affluent neighborhoods (p. 1).

Lend Me Your Ears gave Pittsburghers of a warmer complexion the opportunity to see our young as children, and not as the hardened criminals and teen mother images that we're so bombarded with. Instead, little brown girls could see themselves as beautiful and worthy of the praise and admiration. By abruptly neutralizing the mural, instead we are telling a community that the images that celebrate you and the pride that empowers you has a price tag; that the owner has the right to decide if you fit into the renovation plans of your own neighborhood, and most of the time, you don't. (Hicks, 2015, p. 1)

Early discussions about the removal of Lend Me Your Ears also included consideration of how the mural might be preserved or reproduced. Prior to painting over the artwork Dolan told the Pittsburgh planning board he intended to digitally scan and replicate at least some portion of the mural using technology from Carnegie Mellon University (Schooley, 2015). Dolan also considered reproducing parts of the mural on other areas of the building and enlisted the aid of the Sprout Fund in exploring other options (Fontaine, 2015). Ultimately Dolan and the Sprout Fund commissioned Pittsburgh-based photographer Rob Larson to photograph the mural using high-resolution GigaPan technology (Nelson Jones, 2015). The photographs were made available online on the Sprout Fund website. Along with background information about LMYE the web page featured several photos of the mural from different angles and at different times of day, and the high-resolution enabled viewers to zoom in and examine the images in extreme detail. The LMYE photos website presented a novel approach to urban preservation and the creation of a dedicated site to host the photos represented a unique concession to the cultural significance of the mural.

The developer's efforts to reproduce the mural clearly communicated that the artwork was worthy of preservation, and since the original mural would not be salvaged a virtual "space" of preservation was created as a sort of compromise. The compromise was relatively short-lived, however, as in June 2018 the Sprout Fund ceased operations and closed its doors (Schneider, 2018). The Sprout Fund website was updated with a message detailing the group's history of projects and forecasted legacy, but the page hosting the LMYE photos was apparently a casualty of the reduced operations. As of 2019 the LMYE photos website was no longer functional, thereby removing the mural from even the virtual space that had been made for it. As with the jazz mural AR app, the brief existence of the LMYE photos site is a testament to the shared ephemerality of both material and virtual space, as well as the limits to urban preservation and archival interfaces posed by technological obsolescence.

The Lend Me Your Ears mural was commissioned and painted in the early days of the latest wave of gentrification in East Liberty. In 2003 many of the buildings surrounding the mural were vacant and in disrepair. When the mural was painted over in 2015 businesses in the immediate vicinity included corporate chain stores, upscale restaurants, and boutique hotels. As the neighborhood changed it was perhaps inevitable that the mural would become endangered. This sense of inevitability was expressed by Sprout Fund business manager Paul Street who said "public art is never permanent" and that as cities change "things rise and fall, things like this happen" (Fontaine, 2015, p. 1). For some community members the mural's removal represented a newfound prosperity that came at the expense of the longtime residents who had sustained the neighborhood and laid the foundation for its resurgence. Noting that the Sprout Fund community murals program was launched with the intent to spark investment in struggling areas through beautification and arts projects, one Pittsburgh commentator suggested that LMYE had become a victim of its own

success (Nelson Jones, 2015). From this perspective the life span of the LMYE mural can be viewed as a synecdoche of gentrification patterns in East Liberty, and as a microcosm of "creative city" placemaking projects. As Daniel Makagon (2010) has shown, accounts of "artist-led gentrification" have emerged as a distinct and prevalent narrative in popular discourse around urban change. Press accounts of these urbanization patterns cast artists "as pioneers who settle the frontier," infusing cultural capital into divested sections of a city and often "implicitly praised for whitening a neighborhood" (p. 41). In this paradigm artists may be portrayed as urban exploiters undermining vulnerable neighborhoods or as purveyors of vibrant bohemian spaces that stand in opposition to sterile corporate revitalization projects. The influential "creative city" framework promoted by Richard Florida has also been adopted by developers as a roadmap for fostering cultural and arts initiatives in order to attract "creative class" firms such as tech companies. In this sense the displacement of the LMYE mural by the arrival of tech startup Duolingo represents a case study of creative city policies in action.

In addition to reflecting trends in debates over gentrification the digital reproduction of the LMYE mural also implicates conversations around cultural heritage and preservation in urban space. The prominent placement and visibility of the large-scale mural made it a recognizable neighborhood landmark, and the representation of African American residents established an affective connection with the community. As both a geographic landmark and symbol of local identity, LMYE fulfilled several functions of what urban planner Kevin Lynch (1960) referred to as "imageability" in the city landscape. Imageability involves not only visibility but also meaning, and urban environments of imageability may also serve to maintain a local collective memory. Places that convey local meaning are linked to cultural heritage and debates over urban preservation always involve political questions of social legitimacy, just as some community

members equated the removal of LMYE with the erosion of local identity. Traditional approaches to urban architectural preservation tend to focus on prevention, such as efforts to save a historic building from demolition or a public mural from erasure. Urban environments have always been palimpsests, but new technologies such as the previously discussed AR applications offer new ways of visualizing and interfacing with the material traces of history, memory, and transformation. The efforts to preserve LMYE focused on methods of replication, reproduction, and ultimately representation in virtual space. The mural photos site did establish an archival resource, but in so doing the images of the mural were divorced from the particularities of place and decontextualized from the surrounding neighborhood. The photographs also capture the mural at singular static moments in time, eliminating the overall effect provided not only by the mural's specific geographic position but also the temporal dimension of viewing the artwork in relation to how the neighborhood changed over time. Reproducing images of LMYE in the name of preservation casts the mural as an aesthetically significant painting rather than a salient work of placemaking, the latter aspect only being achievable when observing the mural in situ.

The erasure of LMYE was a painful event for many community members who are still reconciling with the ramifications. Shortly after the removal East Liberty documentarian Chris Ivey organized a community forum where residents could discuss the loss of the mural and other changes in the rapidly transforming neighborhood. Community activist Tresa Murphy-Green related her perception of the mural as an affirmation of black women and symbol of belonging and ownership in the neighborhood, describing LMYE as a "beacon of hope" (Ivey, 2016). At the same meeting architect Derrick Heck stressed the importance of neighborhood residents feeling that their identities are reflected in their built environment, citing LMYE as exemplary of such reflection. For Heck the need for identity-affirming reflections extends beyond the built

architecture of a place to the development visualizations and promotional advertisements, arguing that "you have to see yourself in what is to come, or you won't feel as though you're a part of it" (Ivey, 2016). Echoing this point Pittsburghers have criticized developers not only for displacing existing local culture but also for failing to reflect the neighborhood's African American residents in visions of the East Liberty to come. Renderings of the planned post-mural renovation published on the development company's website featured the redesigned building and new streetscaping, but the imaginary pedestrians populating the scene were exclusively white (Brennan, 2015). The walls that formerly comprised the canvas for LMYE have since been perforated by large windows from which Duolingo workers can look down upon East Liberty. Public art may soon return to these walls, however, as in 2019 Duolingo called for proposals for new artwork to decorate the exterior of their East Liberty headquarters. The submission guidelines state that a variety of materials and approaches will be considered, and that the winning proposal will be selected based on the ability "to inspire residents and visitors to Duolingo HQ in East Liberty for years to come" (Lynn, 2019, p. 1). The company also pledged to include community members on the artist selection committee and to foreground community involvement in the design process. It remains to be seen what kind of vision of the neighborhood will replace LMYE, as well as whether longtime residents will recognize it as unique to East Liberty.

While the building on which LMYE was painted has been remodeled, the building that hosted the "EAST LIBERTY" mural featured in the jazz music AR app was demolished entirely to make way for a new development. As of May 2019 the cleared lot remained cordoned off by chain link fencing. Full-color banners are affixed along the entirety of the fencing with text and images promoting the future development dubbed "East Liberty Centre." The photographic images depict smiling and smartly-dressed young professionals engaged in admixtures of work and play,

while the text deploys buzzwords and double entendre phrasing to link "creative class" attributes to a certain vision of idealized urban existence. One banner displays the words "tech hub" alongside a photo of grinning men and women in business casual attire sitting behind laptop computers. Another portrays a group of laughing thirtysomethings seated around a table drinking glasses of beer and eating artisanal pizza with the corresponding tagline "social media." Each side of the fencing barrier is anchored by a banner with a rendering of the yet-to-be-realized building and contact information for the development company beneath the capitalized phrase "NOW TRENDING." The ad slogan plays on associations with viral social media content and the cultural capital promised by a "trendy" urban lifestyle. The entire advertising campaign as conveyed by these promotional banners relies on a correlation between tech culture and upscale urban development. This connection is further buttressed by the site's location just a few blocks down the street from the Duolingo headquarters.

The site of the East Liberty Centre development presents a nexus linking multiple dimensions of "virtual space." On one hand, the current transitional state of the site constitutes "virtual" space through its abstract representations of an imagined future space not yet actualized. Furthermore, the aforementioned advertising rhetorics communicate that urban space is afforded value through its association with digital media as both tools for and emblems of symbolic exchange. This relationship of symbolic value is just one way in which the built environments of cities are imbricated with the virtual spaces of the internet as well as the infrastructures and industries that undergird those spaces. The urban lifestyle images displayed on the banners provide yet another way of approaching virtual space. David Holmes (2001) uses the phrase "virtual urbanism" to describe how urban realities and lifestyles are reinvented as commodities in corporate development discourses. This approach is evident in the East Liberty Centre advertising images

that are more reliant on selling urban experiences than promoting concrete aspects of place. Henri Lefebvre (1991) argued that urban development under a capitalist mode of production seeks to remake space as homogenous, divisible, and interchangeable in order to facilitate urban relations based on exchange value. Spatial scholars have adopted the term "non-place" to characterize a genre of architectural environments - represented by private corporate developments in particular - that are defined by transience and anonymity. Similar critiques of postmodern architecture cast such sites as simulacra of urban spaces divorced from local history and particular geographic contexts. Once again, these aspects of the commodification and homogenization of space are evident in the East Liberty Centre banners, as the advertising images feature all the local color and distinctiveness one might expect from a corporate stock photo. The proceeding analysis will consider these aspects of virtual space by drawing on examples from in and around East Liberty.

One of the most significant redevelopment projects in the East Liberty area is a commercial and residential complex known as Bakery Square. Bakery Square is officially situated in neighborhood of Larimer but it adjoins the East Liberty central business district and much of the recent development in East Liberty has been attributed to spillover effects from investment in Bakery Square (Carpenter & Todd, 2014). The development name pays tribute to the location's industrial legacy as site of a Nabisco bakery. After the bakery closed in 1998 the building was taken over by the Regional Industrial Development Corporation (Green, 2007). Over the subsequent years the former factory site was redeveloped into an oasis of chic urban consumption featuring private gyms, restaurants, and high-end retail shops. The Bakery Square development has been credited with reviving investment in the surrounding neighborhoods and establishing the East End as a major consumer destination. In 2011 a Target store opened in nearby Penn Circle, and several new apartment complexes and hotels have been built in the immediate vicinity

(Carpenter & Todd, 2014). Since initially taking over the Nabisco factory building Bakery Square has grown through several phases of expansion. A 2015 enlargement dubbed "Bakery Square 2.0" incorporated a disused school building into the development and added an enclosed walkway connecting the Nabisco building to the newly-built "Bakery Living" apartments (Waltz, 2016). The Bakery Living apartments feature a range of luxury residences from micro-units to two-bedroom apartments and offer amenities including swimming pools, a two-story fitness center, and a dog-washing station (Mishkin, 2014). A further expansion called "Bakery Village" will add 52 luxury townhouses to the property ranging in price from $530,000 to more than $800,000 for one of the three-story units (Waltz, 2016). The proliferation of luxury apartments in and around Bakery Square has coincided with an affordable housing crisis in the surrounding East End neighborhoods (Deppen, 2017).

The Bakery Square transformation of a formerly industrial brownfield site into a commercially viable mixed-use multiplex represents a particular vision of urban development. The manner in which the vacant factory building was progressively converted into an outpost of urban affluence corresponds to what Giorgia Aiello (2011) characterizes as transforming a "wound" in the built environment into an "enclave." Aiello details an urban renewal project in Bologna, Italy to explore how practices of urban regeneration remake spaces in accord with predominating imaginations of capitalist city-making. The Manifattura delle Arti district (MdA) was a dilapidated former industrial area in Bologna, described by Aiello has "a metaphorical and literal wound in the heart of the city" (p. 342). The MdA was redeveloped into a modernized cultural district, and the neighborhood's working-class cafes and inexpensive movie houses were replaced by art museums and newly-constructed apartments. The safety and cleanliness of the redeveloped district communicated that the MdA was no longer a "wound" within the city. Yet, for Aiello, the visual-

material presentation of the new environment also communicates an enclavic identity based on exclusivity, distinction, and cosmopolitanism. Notions of "urban enclaves" are closely associated with the partitioning of space by walls and gates, but the concept has also been applied to processes of social differentiation based on lifestyle affinities (p. 349). Aiello considers the built environment as a crucial material medium for communicating city identity and a key interface between global capital and urban stakeholders. From this perspective the MdA renovation was not solely motivated by internal urban rejuvenation but also aimed at the "communication of Bologna as a world-class city" (p. 342). Through the communicative aspects of its aesthetic qualities and visual features, Aiello argues, "the MdA is now mobilized as symbolic currency for the global communication of Bologna as a leading site of cultural production and an appealing destination for high-end tourism" (p. 360). Aiello draws attention to the performative dimensions of urban space and indicates how the built environment is imbricated with discourses of advanced capitalism and globalization.

As with the Bologna MdA, the refurbishment of Bakery Square can also be read as a redevelopment-led transformation from "spatial wound" to "urban enclave." For years following the closure of the Nabisco bakery the factory building sat vacant in the center of an empty lot surrounded by chain-link fencing. The building husk was one among many similar "wounds" in the urban fabric of Pittsburgh signifying jobs lost to deindustrialization and the ensuing economic decline. The building's position adjoining Larimer and East Liberty affords special resonance to its status as a spatial "wound" and testament to the history of disinvestment and exclusion in these neighborhoods. The reimagined commercial complex clearly conveys an urban enclave premised on affluent lifestyle markers and conspicuous consumption. This enclavic identity is communicated not only by the brand associations of the corporate tenants but also through the

material dimensions of the space. The chain-link perimeter fence may be gone, but the redeveloped Bakery Square still feels sequestered from the surrounding neighborhood. None of the shops and restaurants are accessible from the public sidewalk; all of the street-facing architecture addresses pedestrians with bare walls and placard-covered windows rather than doors or other points of entry. Bakery Square presents an inusular space whose building facades, business entrances, and outdoor seating areas are all turned inward and oriented around the complex's own central parking lot. The Bakery Living residential compound located on the opposite side of Penn Avenue feels similarly incongruous with the neighborhood. The entire development is set far back from the public street and sidewalk. Within the complex the apartment buildings are linked by private walkways, bike paths, and brick roads created specifically for the site. The aforementioned skybridge between Bakery Living and Bakery Square enables residents to traverse Penn Avenue without ever setting foot on the street.

In addition to architectural implements of exclusion the Bakery Square development also poses financial barriers to entry. The commercial tenants consist of restaurants and retail chains catering to an affluent consumer demographic. The space is heavily branded with iconography signifying a remarkably cohesive ideal of upwardly mobile urban identity. The Bakery Living apartments also promote an ideal of exclusive urban lifestyle available at a particular price level. The smallest and cheapest rental units are leased for more than $1000 a month (Waltz, 2016). The whole Bakery Square complex represents a confluence of lifestyle signifiers and architectural representation. The form of Bakery Square, along with its economic success, demonstrates how images of and associations with particular urban identities are mobilized to shape urban space. Gregg Perelman, CEO of real estate developer Walnut Capital, acknowledged this transformation from urban imaginary to urban reality by saying the company "created Bakery Square as a brand,

but it’s a neighborhood now" (Waltz, 2016, p. 1). Perelman's sentiment also conveys how the built environment functions as a communication medium for portraying urban identity and branding city spaces. As a highly touted example of successful urban regeneration Bakery Square is a flagship development in Pittsburgh's efforts to communicate an identity as a modernized, attractive, and economically robust city. Yet such high-profile locations can also serve as salient sites for showcasing contested meanings of urban space. In 2015 the Federal Reserve Bank of Cleveland held a two-day policy summit in Pittsburgh on the topic of housing, human capital, and inequality. Pittsburgh was selected as host city based on its history of postindustrial economic transformation, and the East Liberty neighborhood in particular was highlighted as an example of equitable development (Zimmerman, 2015). Summit participants boarded a tour bus and were taken to a number of select locales in East Liberty including Bakery Square. At every stop along the bus tour the summit attendees were met by residents and community activists holding signs and shouting chants drawing attention to the unequal impacts of recent development with slogans such as “Black Homes Matter” (Fleisher, 2015). With the chic commercial spaces of Bakery Square as their backdrop, these community members prompted the visitors to consider who truly benefits from these new spaces as well as the social costs of gentrification. By highlighting ongoing crises around displacement and lack of affordable housing the demonstrators called the very notion of "equitable development" into question.

One of the most reliable ways for a municipality to convey "creative class" or "world city" status is to attract the corporate firms most closely identified with the global digital economy. Bakery Square accomplished such a feat when ubiquitous tech giant Google became a tenant at the site. While the company had maintained an outpost at CMU since at least 2006, in 2010 Google established a 350-person office in the newly renovated Nabisco bakery building (Carpenter &

Todd, 2014). As a corporate entity and online service Google is associated with somewhat paradoxical relations to space. As Jana Carp (2008) argues, the ostensibly "placeless" nature of Google as communication technology and virtual space is in fact dependent upon significant real-world real estate in the form of immense server farms and sprawling infrastructures of electrification and telecommunication (p. 135). Yet the company is also well known for its unique work culture and eccentric office environments. Google's California headquarters - the so-called "Googleplex" - has been advertised as "home of the most extreme office perks in the country" and "one giant funhouse" (Johnston, 2014, p. 3). The carnivalesque office-place atmospheres promoted by the company indicate the blurred distinctions between work and play that characterize "creative industry" work as well as associated neoliberal developments such as the casualization of labor.

The Google office in Bakery Square features the sort of amenities that have come to be expected from the company including bean bag chairs, billiard tables, and multiple cafes. The offices also incorporate several elements that reflect the local culture of Pittsburgh and western Pennsylvania. Conference rooms are named after iconic Pittsburgh residents and landmarks, enlarged photos of city bridges dominate interior walls, and one entire floor is themed around the nearby Kennywood amusement park (Montanez, 2014). Beyond the broad strokes and "greatest-hits" collections of Pittsburgh history featured in the office, astute observers can also discover hyperlocal artifacts of the city's vernacular urban culture. For nearly a decade a window pane in a vacant East Liberty building bore the spray-painted message "Happy B-day Julia!" (Watkins, 2012). The well-wishing window became a sort of public art display for passersby who mused about the message's origins and whether it had reached its intended recipient. When the building was slated for redevelopment a Pittsburgh-based Google employee reached out to the facilities manager to see about salvaging the "Julia" window (Montanez, 2014). Today the window and its

attendant birthday greeting hang on a wall in Google's Bakery Square offices. The Pittsburgh Google employees describe the window acquisition as preserving local culture, however the story may be indicative of broader trends of corporate appropriation and privatization of urban space. While the "Julia" window is now cloistered away within Google's private offices, the surrounding streets and alleyways bear more recent spray-painted missives such as "War on Google" (Deppen, 2017).

As real estate development has increased around East Liberty community members have been confronted with the demolition of older buildings, displacement of longtime residents, and a dwindling stock of affordable housing. Whether or not residential displacement is a definitive aspect of gentrification has been a matter of debate (Slater, 2006; Stabrowski, 2014), but it is certainly one of the most commonly cited negative consequences of gentrification. The forms of displacement typically associated with neighborhood gentrification are the physical displacements heralded by rising rents and wrecking balls, however other factors can also make residents feel alienated from formerly familiar environs. For example, Melissa Butcher and Luke Dickens (2016) describe a process they call “affective displacement” whereby the transformation of aesthetic features in a changing neighborhood may weaken residents’ sense of belonging or “feeling at home” (p. 802). Redevelopment and the production of new corporate spaces can introduce dissimilar aesthetic features that unmoor existing inhabitants from recognizable coordinates of community. Butcher and Dickens note that while these processes and aesthetic markers of urban regeneration are often associated with digital and “creative” companies, the sources of affective displacement are not limited to architectural features. The figure of “the young, white creative professional” (p. 802) has come to represent processes of gentrification and shifting neighborhood demographics in particular. The changing composition toward visible whiteness and affluence in

a gentrifying neighborhood can precipitate a profound sense of alienness and displacement in residents who do not conform to these characteristics. From this perspective developments like Bakery Square can engender the displacement of existing residents not only through material construction but also by an influx of "Googlers" and other "creative" workers into the neighborhood.

Many of the spatial and aesthetic markers associated with contemporary urban renewal and gentrification correspond to the architectural phenomenon of "non-places." Marc Augé (1995) coined the term "non-place" to describe spaces designed for specialized use - such as transit, commerce, or leisure - that inculcate a sociality based on anonymity and instrumentality. Non-places are often self-contained "bubbles" decontextualized from local geography, such as airports or tourist resorts, or so nondescript as to be functionally identical as with most hotels or shopping malls. These are spaces premised on pure exchange rather than use value. David Holmes (2001) refers to such places as "virtual spaces." For Holmes, these locations reflect a generalized "virtualization of space" ushered in by conditions of postmodern globalization and founded upon transport networks and communication technologies (p. 5). The modern forces of ubiquitous mobility and incessant media circulation find their geographical analogue in these spaces of ephemerality, instability, and non-relation. Aiello (2001) similarly characterizes the reshaping of urban space in the hegemonic interest of capital as "banal enactments of globalization" (p. 360). Many of the recent developments around East Liberty reflect attributes of non-places and virtual spaces. The Bakery Living apartments demonstrate no architectural contiguity with the surrounding neighborhood and look much like the corporate-owned residential complexes being built anywhere in the world. Bakery Square is designed as a comprehensive commercial complex,

an encompassing shopping site intended to foster conspicuous consumption, instrumental exchange, and contractual relations.

The production of urban non-places has prompted concerns over the proliferation of generic privatized spaces and the erosion of architectural heritage. A recent example in Pittsburgh centered around a new development from Walnut Capital, the developer behind many East Liberty projects including Bakery Square and the Wallace building where the "Happy B-Day Julia" window was originally located (Watkins, 2012). The company planned to demolish four existing structures to prepare for the constructions of a $14 million, six-story apartment building in central East Liberty (Belko, 2015). As a result, several historic storefronts would be erased from the Penn Avenue commercial corridor. The proposed demolition sparked criticisms from local preservationists, the city planning commission, and Pittsburgh mayor Bill Peduto who all argued against destroying the building facades. Peduto's chief of staff described his protest as part of "the mayor's vision to preserve the history and character of the Penn Avenue business corridor in East Liberty" (p. 1). Ellen Kitzerow, chairman of the Young Preservationists Association of Pittsburgh, decried the ongoing destruction of historical structures in East Liberty saying "it would be disrespectful to lose more of it in the name of development" (Fontaine, 2014, p. 1). A compromise was reached between the city and the developer whereby Walnut Capital would be required to extensively photograph and archive the historic storefronts as well as incorporate elements of the facades in the new construction (Schooley, 2015b). The completed building includes recognizable features of the preexisting facades at ground level, with several floors of new apartment units rising above them. The businesses that now occupy those storefronts, however, are glossy corporate retailers that reflect a commercial environment and target clientele markedly different from the local businesses that have been lost or displaced. The architectural reproductions may not have

maintained locally-owned shops in the area, but the case does represent an area where city planners and developers have found compromise over maintaining the character and local culture of the urban environment. Having already lost so many landmarks, businesses, and residents from East Liberty the push to preserve the facades was an attempt to maintain some aspect of the neighborhood's unique history and heritage. The end result is a sort of "virtual" preservation wherein architectural reproductions and simulations are proffered as token gestures to urban history while accommodating a new tenantry that further displaces antecedent communities.

Bakery Square and the other aforementioned real estate developments in East Liberty reflect various dimensions of the virtualization of space. On one hand, their generic environments geared toward consumption and circulation exhibit defining features of deterritorialized "non-places" and "virtual spaces." The enclavic nature of these sites as bastions of exclusive amenities further evokes critiques of urban "virtualization" engendered by the expanding privatization of city space and the transformation of authentic public places into artificial themed environments. In yet another sense the promotional discourses around these projects convey "virtuality" by drawing connections between digital technologies and lifestyle trends, as evident in the East Liberty Centre advertisements. As discussed previously, the "placeless" virtual spaces associated with social media services and start-up culture are predicated upon global networks of telecommunication infrastructure as well as the real property of offices and workplaces. Partly due to the influence of "creative city" development policies, city governments vie to attract tech firms in order to spur investment, and the presence of "creative" industry workplaces are associated with affluent urban districts and neighborhood gentrification. The economic impacts that tech industries precipitate can influence spatial dynamics not only within but also between cities. In 2018 Pittsburgh-based tech start-up Duolingo - the company whose headquarters renovation displaced

the LMYE mural in East Liberty - posted a billboard advertisement along Highway 101 in the San Francisco bay area (Kendall, 2018). The billboard message consisted of three short sentences displayed above the Duolingo logo and set against a solid background of the company's emblematic neon green color scheme. The text states: "Own a home. Work in tech. Move to Pittsburgh." The minimalist advertisement reads like a syllogistic formulation of "creative city" ideology, positing a logical through line between real estate, tech labor, and differential desirability among U.S. cities. The enthymematic premise underlying these propositions is of course the Bay Area's notoriously expensive real estate and ongoing housing shortage. The city of San Francisco has become a metonymic reference point for urban inundation by tech workers and class-inflected cultural clashes fomented by hyper-gentrification. As one Bay Area CEO explained, "the California dream" has turned into a "Silicon Valley nightmare" where "not even Google employees" can afford to live (Kendall, 2018, p. 1). The Duolingo billboard was therefore precisely placed to entice an audience of captive commuters with the promise of attainable urban real estate, and an entrenched tech company offering a foothold from which to forge the frontier. The billboard message - along with the cultural and economic context that anchors its meaning - attests to the central role that tech labor and creative industries are playing in reshaping cities. It also indicates the starkly uneven effects that "creative city" planning approaches can produce, and that many urban success stories always entail losses for some citizens. Just as the LMYE mural in East Liberty can be seen as having become a victim of its own success in revivifying the neighborhood, the extreme inequality and perceived cultural homogenization affecting San Francisco shows how even successful application of "creative city" tenets can result in new urban ills.

6.4 Conclusion: Metis and Unruly Urbanism in Virtual Space

The preceding chapter has considered multiple dimensions of how urban space may be virtualized. This survey included various tools and techniques for representing space, technologies for interfacing and interacting with space, and forms of visualizing and imagining spaces. Visual representations of urban space - whether in mapping projects or media representations - are applied by institutions to organize and manage spaces, and used by urban denizens to navigate and make sense of their everyday environments. As the foregoing examples demonstrate, methods of representation may be implemented to render both extant and imaginary spaces. The advent of augmented reality (AR) technologies introduces novel means of interfacing with urban space by visualizing conceptual binaries of presence/absence, past/present, and actual/virtual. This chapter also considered how the built environment itself functions as a medium of communication for the construction of urban identities and contribution to circulating discourses around contemporary city life. Each of these issues are salient for the present project's overarching interest in "unruly urbanism" as a critical project for exploring emergent subversive and emancipatory potentials of urban life induced - or impeded - within "smart city" frameworks. Locative media applications offer new modes of sociality and environmental interactivity, and the technological infrastructures themselves introduce additional complexity and opportunities for malfunction and unpredictable use. These technologies may therefore support the mapping and reifying of territory, as well as efforts to unsettle the imposition of order on urban space.

The unruly aspects of these tools may be further elucidated through the rhetorical intelligence and conceptual lens of metis. Metis designates a sort of cunning intelligence and is associated with local knowledge, embodied practice, and inventive reappropriation of existing structures. Metis is often realized in the interplay between fixed constructs and contingent

circumstance. Maps and other spatial abstractions have been highlighted in accounts of metistic operations to illustrate the unruly tactical practices that may be realized in the liminal spaces between the map and the territory. Location-based media and AR technologies provide novel ways of interfacing with liminal and hybrid spaces constituted by the intermingling of material and virtual elements. Locative media devices may also enable users to creatively customize their experience of the urban environment, as has been previously argued in regards to personal music players, mobile phones, and distributed internet connectivity. Social media services also allow users to disseminate and learn about local history and benefit from other individuals' intimate knowledge about an area. In this way networked mobile devices may prove to be powerful tools for fostering metistic intelligence and operations. The potential for metistic urban interventions, however, is necessarily enmeshed with ethical and political concerns. Michel de Certeau's (1984) germinal application of metis to an urban context posited that disenfranchised individuals can subvert the efforts of powerful forces and institutions through seemingly banal enactments and occupations of space. This conception of metis reflects the potential for urban inhabitants to re-imagine the city in ways counter to the intentions of urban planners and other authorities.

The emancipatory potential of urban imaginaries is deeply implicated in the Lefebvrian notions of social space and the right to the city. Henri Lefebvre's call for a "right to the city" extended beyond access to housing and public space to advocate for spontaneity, sociability, and the utilization of urban environments based on use rather than exchange value. The right to the city represents a virtual horizon of urban life and a radical vision for the city to come. Lefebvre's call has been taken up by urbanists and activists as a rallying cry for expanding urban imaginaries beyond the actual to the possibilities offered by invention and processes of becoming. The right to the city therefore renders the realms of imagination and virtuality as key battlefields for urban

struggles. As Rob Shields (2014) argues, "the intangibility of the virtual makes it a domain open to intervention, métissage, and experimentation by those with less power and resources, despite being resistant to immediate change through merely material interventions" (p. 53). Among the many crises facing cities today - ecological catastrophes, yawning social inequality, infrastructural breakdown, etc. - we might accordingly refer also to a crisis of imagination. Components of urban imaginaries may be found in public artifacts of collective imagination such as texts, images, and various media discourses and representations. Urban imaginaries are also increasingly shaped by the technologies and infrastructures involved in visualizing, mapping, and augmenting the material environment. For example, Seth Giddings (2017) analyzes the gameplay of Pokémon Go as a form of "distributed imagination" facilitated by technical and aesthetic assemblages. Along with similar AR applications, Pokémon Go has been touted for its potential to promote placemaking initiatives, enabling players to find new meaning in familiar spaces and encouraging spontaneous forms of sociality. As evinced by the multiple defunct initiatives in East Liberty, however, applications of AR for placemaking are easily stymied by existing disparities in the distribution of cultural assets, as well as the tenuous tenability afforded by progressively ephemeral media technologies.

The Pittsburgh-based cases recounted in this chapter further illustrate another aspect of "virtual space": the production of generic and enclavic spaces within urban environments. These spaces are typically designed for specialized use such as work or consumption and marketed toward an upwardly-mobile urban demographic, as with the Bakery Square and East Liberty Centre developments. The proliferation of these real estate projects is often associated with cultural and economic globalization predicated upon the confluence of transportation and communication networks. The "time-space compression" theory of postmodernity posits that emergent forms of spatial relations engendered by ubiquitous instantaneous communication have eroded the

distinctiveness of local cultural contexts and radically altered how space is conceived, experienced, and produced. David Holmes (2001) has called attention to "the manner in which information, communication and transportational forms converge to take on the qualities of global or abstract virtual environments rather than local and concrete 'Cartesian' ones" (p. 9). The production of virtual spaces also reflects how capital financialization has impacted cities, wherein networked communication technologies facilitate real-time transactions and global circulations of value that are unmoored and disconnected from local spaces and inhabitants. This indicates another way in which digital media are implicated in contemporary processes of gentrification and housing precarity, a connection reflected by the aforementioned Duolingo billboard and its injunction to own a home, work in tech, and move to Pittsburgh. The billboard conveys how the focus on tech firms in urban branding and innovation initiatives is implicated with global trends in the virtualization of space. The message portrays Pittsburgh itself as a virtual possibility, "selling" the city to a particular audience. It is an instance of a private company shaping the urban imaginary with significant implications for the existing community. The trend of tech companies crafting visions of the urban future has become more common and wide-reaching within the prevailing paradigm of Smart City urbanization. Smart city technologies are often designed by multinational conglomerations and promoted as universally transposable. These pre-packaged solutions address a generalized urban problematic without consideration of local contexts or metistic knowledge. The role of these institutions in shaping urban discourses pose vital questions regarding who imagines the city of the future and who will set the terms of how the right to the city may be understood and actualized in the smart cities to come.

7.0 Conclusion: Dumb Urbanism and the Right to the Smart City

What happens to the city when it is pushed to its limits? What becomes of urbanism when extended to extremes? Considered as a communication medium, how might we analyze the smart city through McLuhan's tetrad of media effects? The smart city enhances the communicative capacities of urban spaces, infrastructures, and interactions. It obsolesces modes of urban governance premised on Fordist production models, information scarcity, and regimented repression. Smart city frameworks do retrieve elements of modernist planning, however, in applying a universalizing technocratic rationality to urban governance and envisioning cities as coherently bounded units. Lastly, what does the smart city reverse into when pushed to the limit of its potential? How does the smart city transform when taken to extremes and subsequently "overheating"?

This project has examined several technological and data-driven approaches to "smart city" development. Many of the technical infrastructures and processes employed in these initiatives demonstrate ways in which "smart city" perspectives imagine cities as media and intensify mediation in urban life. For example, the initiatives discussed in Chapter 3 indicate how e-governance and data aggregation practices multiply the spaces of civic participation and urban visibility. The Pittsburgh Roadmap for Inclusive Innovation foregrounds the application of digital platforms and online messaging tools for citizen engagement, and expands the purview of "civic" space to include communication on social media outlets. The approach to public information gathering represented by the Western Pennsylvania Regional Data Center opens up multiple levels of "space" through which one moves and is made visible. Long before the advent of "smart" technologies, presence in urban space has involved public visibility and various degrees of

surveillance. The ability to collect location-specific data through spatial media such as GPS and mobile devices intensifies personal visibility beyond movement through physical space to include the data exhaust generated in and about urban spaces. Modes of data visualization such as the Burgh's Eye View application further intensifies spatial mediation by providing a customizable interface that overlays a map of the city with information relating to police reports, city service requests, and permit applications. The transit-oriented cases explored in Chapter 4 indicate how the movements of bodies and vehicles through urban space are imbricated with circulating information and data flows. Practices of urban mobility are increasingly mediated by "smart" infrastructures such as networked traffic signals and autonomous vehicles. Chapter 5 explores how experiences of space and placemaking efforts are altered or intensified by locative media and augmented reality applications. Experiences of place have always been mediated by personal perception and ideology, but practices like social media geotagging expand the effects by enabling individuals to assign location-specific metadata that is available to other users. The chapter's consideration of the removal and prospective digital preservation of the Lend Me Your Ears mural illustrates how acts of artistic placemaking may lose cultural resonance when unmoored from site-specific context and replicated in virtual space.

These trends of urbanization pose new contexts in which to consider contemporary understandings of public life, civic engagement, and urban communication. In order to assess these themes within emergent contexts I have endeavored to situate the Lefebvrian "right to the city" and its associated critical urbanist legacy within the prevailing paradigm of smart urbanization as represented by "smart" infrastructures and the discourses surrounding their implementation. Henri Lefebvre argued for the importance of preserving urban diversity and non-instrumental appropriations of space in the face of the cultural homogenization and market rationality that

characterize capitalist urban development. Lefebvre posited the right to the city as the claim of urban denizens to actively shape the shared spaces of their social worlds. The right to the city has been taken up as a clarion call by urban theorists and activists to advocate for inclusion in city life and an engaged democratic praxis for determining how urban spaces are to be designed and utilized. As an urban ideal and political watchword the right to the city encapsulates a "people-first" orientation to urban life that privileges lived experience over administrative abstractions, and approaches the built environment as a collective work of meaning-making rather than a commodified product.

The emancipatory alignment represented by the right to the city is closely linked to the conceptual frame that has been referred to in this project as "unruly urbanism." The notion of unruly urbanism refers to the lineage of influential theoretical interventions into the ordering and management of the spaces of everyday life. The works of Michel Foucault, Michel de Certeau, and Lefebvre interrogate the invasive and alienating effects of governing rationalities associated with modernist projects of identifying, classifying, and organizing populations. Each of these theorists draws attention to the ways in which urban environments serve as salient sites for struggles between repressive operations of ordering and subversive acts of resistance. The collective philosophies are "unruly" in that they posit a dialectical tension between order and disorder, and outline methods by which spaces and bodies are classified as "disorderly" as a means to institute regimes of organization and control. Foucault's study of governmentality moves from the partitioning of space designed to limit the spread of contagious infection in a plague-stricken town to consider other forms of surveillance and policing predicated on notions of deviance and disorder. De Certeau theorized everyday enactments and spatial practices as tactical operations by which individuals may elude or subvert the technocratic designs of urban planners and other

institutional authorities. Lefebvre's notion of the right to the city is dependent on difference and engaged sociality and is thus associated with disorderly Dionysian impulses rather than Apollonian appeals to order. These scholars highlight the influence of ordering regimes in daily life and consider how these logics might circumscribe possibilities for individual autonomy and emancipatory political praxis.

Drawing on these paradigmatic critiques in order to theorize recent developments in urbanization necessarily calls into question their continuing relevance and efficacy as conceptual tools. Even these longstanding and generative theoretical perspectives warrant reappraisal in light of changes in technology, political formulations, and patterns of urban development. A central shift in this lineage is the upending of traditional dichotomies between order and disorder that has occurred under neoliberalism. Post-Fordist production models accompanied by revolutions in communication technologies introduced an increasingly fickle economic climate and the advent of the "entrepreneurial" laborer. The economic instability of neoliberalism has been discursively reworked as a hotbed of opportunity and adaptation. Urban development strategies adopted the rhetoric of "creativity" in response to a financial landscape characterized by competition among cities vying for scant resources. Many of the most stalwart catchwords of critical urban theory - such as dynamism, flexibility, and interactivity - now feature prominently in both neoliberal governance strategies and visions of technological-solutionism promoted in smart city discourses. The prominence of these "dynamic" terms in smart city rhetoric may seem to mark a transition from modernist urban planning foregrounding order to more open approaches, although their use in this current context connotes precarious economic circumstances and digital processes rather than radical democratic participation. Scholars have associated this trend with the capture and commodification of creativity under neoliberal capitalism. This raises the question of how smart

city imaginaries relate to histories of urban ordering, as well as how the (dis)order dialectic might be theorized under contemporary conditions.

The advent of smart city projects and their associated promotional discourses give rise to two interrelated questions guiding the present project. First, what is the continuing relevance of previous influential urban critiques in light of contemporary processes of urbanization, and vice versa? In other words, how have changes in urban development and governance affected previous formulations of urban resistance and vibrant city life, and how might we productively conceptualize these tactics and values within a smart city framework? Second, how has the proliferation of ICTs and digital media into the built environment and spaces of daily life impacted communicative perspectives of cities as sites of civic life, sociality, and everyday interaction? Urban communication perspectives have considered the city - as a material environment and social arrangement predicated on diversity and proximity - as a medium of communication. In this way "the urban" is seen as both a particular context for interaction as well as a unique form of sociality. How are the communicative aspects of the urban altered when the medium of the city is extended and augmented by ubiquitous media and communication technologies? To link these threads and consider these issues alongside one another, I introduced the concept of mêtis as a theoretical frame.

The concept of mêtis originated as an ancient Greek term for a form of cunning intelligence and a dynamic rhetorical skill. Mêtis is an apt concept for linking the questions outlined above because of its long-running associations with unruliness - as an unwieldy mode of guile and elusiveness - and communication - as a rhetorical tactic associated with sophistry and trickery. It is also linked with emancipatory political projects because of its association with tactical operations by which the disadvantaged can overpower, outwit, or evade a superior force. A skillful

sophist with sufficient mastery of mêtis may overcome the "stronger" argument of a rhetorical opponent. Accounts of metistic operation from classical Greek myth and drama also illustrate this auspicious aspect of mêtis, as in Odysseus' wily escape from the cyclops' cave and ingenious invention of the Trojan horse to enable the sacking of Troy.

In this dissertation I have applied the conceptual frame of mêtis to indicate how discourses and technologies employed within smart city development rhetorically recuperate ideals of dynamic intelligence previously associated with evasive unruliness, and to suggest that the attributes of metistic intervention may fruitfully inform critical urban theory in the smart city era. Official discourses promoting smart urban imaginaries are typically premised on notions of technical and data-based solutionism. These programs are presented as technically objective or value neutral, therefore obfuscating the inherent political privileging in these programs. In this way contemporary development discourses reproduce dominant rationalities that featured in earlier eras of urban planning and governmentality. In addition, my historical survey of dominant development discourses demonstrates how powerful planning actors have incorporated rhetoric from influential earlier critiques, reflecting a shift from that language of order and efficiency to the promotion of "flexibility," "dynamism," and "creativity." I have advanced the lens of mêtis in order to conceptualize potentials for subverting these governing rationalities and opening up new lines of resistance. However, I have also demonstrated that metistic values are also susceptible to capture within neoliberal urban discourses. The language of neoliberal development can further blur increasingly ambiguous distinctions between top-down domination and ground-up resistance. Indeed, the very notion of mêtis itself may function to replicate ideas of neoliberal individualism premised on the responsibility of individuals to "creatively" manage their personal survival. Despite this potential for recuperation, I believe a distinction between the characteristics of

metistic intelligence and neoliberal "smartness" in development discourses can enable critical urban theory to adapt to the discursive and infrastructural mediations of smart urbanism.

In the proceeding discussion I consider the principles of metistic intelligence in relation the theoretical perspectives of interpassivity communicative capitalism introduced earlier in the dissertation. These theories are each concerned with how the communicative capabilities of emerging media and "smart" ICTs are imbricated with discourses and practices of political engagement. I am particularly interested in how these perspectives might mutually inform a reappraisal of critical urbanism in the smart city era. I then briefly return to the various cases presented in the analysis chapters to illustrate how these perspectives might be applied to examples of smart city initiatives. Finally, I offer some preliminary suggestions for a mêtis -informed critical urban theory and approach to planning.

7.1 Mêtis and Interpassivity in Smart City Initiatives

Throughout the preceding chapters I have applied the characteristics of metistic intelligence to analyze the selected texts and artifacts. In each case mêtis was used to explore the role of these projects in mediating public life as well as the potential for these infrastructures to support practices of creative spatial appropriation and unruly engagement. Chapter 3 focused on the issues of civic engagement and public participation in light of contemporary trends in e-governance as exemplified by the Pittsburgh Roadmap for Inclusive Innovation. Ideals of robust civic participation are closely linked to historical understandings of mêtis as a communicative skill employed by rhetorical interlocutors. As previously discussed, metistic operations also bear significant correspondence to radical democratic theory. Debra Hawhee (2004) describes mêtis as

"the mode of negotiating agonistic forces" (p. 47), whether said forces are encountered in physical combat, a chariot race, or contentious debate. Chantal Mouffe (2013) has proffered the notion of agonistic exchange without final reconciliation as an alternative to formulations of democratic practice that emphasize consensus formation. Spatial theorists have also probed the potential for the urban environment to function as an agon, as well as argued that a properly public space is realized through agonistic encounters amongst strangers. This notion of negotiated encounters can also apply more broadly to the condition of urbanity characterized by unplanned interactions and spontaneous contacts with numerous others.

In the context of smart city initiatives the analysis considered the impact of these practices and platforms in relation to these perspectives on political participation and public space. For instance, what kind of political "space" is presupposed by e-governance programs? As the interview with Pittsburgh city council member Dan Gilman indicated, municipal officials have approached these tools as new avenues for communicating with constituents and as virtual extensions of spaces for public engagement. Unlike physical locations, such as meeting rooms or council chambers, the online spaces of networked communication are not constrained by limits to attendance or proximity. Many more people may access a virtual hub than could physically fit into a meeting space, and the digital dissemination of information affords an "on-demand" availability that may obviate time constraints as well. As was discussed previously, however, these virtual spaces pose their own barriers to access. Obstacles to technological accessibility and capability remain an important consideration in questions of civic participation, even as their apparent ubiquity may lead us to take them for granted.

E-governance initiatives also raise questions about what "counts" or is counted as participation, and whether and how to distinguish engagement online from politics on the street.

Scholars including Don Mitchell (1995) and Jodi Dean (2009) have argued against any notion that virtual space may be an adequate substitute for physical space. Mitchell privileges the political import of public space as a place for activism, partisan demonstrations, and for marginalized individuals to make themselves present and visible in ways that are precluded in virtual space. The advent of data collection initiatives, such as Pittsburgh's WPRDC, further blur traditional distinctions between political and other kinds of activity. The ability to aggregate and visualize such a broad spectrum of information raises the issue of whether incidentally-produced "data exhaust" should inform processes of civic governance. On one hand these technologies seem to afford new means for recognizing "bottom-up" practices and messages generated by individual citizens. From the perspective of critiques of communicative capitalism under neoliberalism, however, e-governance programs can be seen as enabling pure circulation without the opportunity for agonistic encounter or expectation of a response.

Chapter 4 highlighted the central role of infrastructures and practices of mobility in mediating urban life. Once again, these themes feature many points of intersection with attributes of unruly urbanism and metistic operation. Questions of circulation have perennially predominated in programs of urban planning and governance. Congestion and stoppage are among the most persistent urban problems calling for continual efforts at abatement. Spaces and infrastructures of mobility have thus served as key sites for urban governance and the imposition of order. Urban mobility featured as a central exemplar in de Certeau's (1984) delineation of strategies and tactics. He highlights the urban walker's street-level traversals as a tactical appropriation of the modernist planned city. The unpredictable maneuvers of everyday mobility are offered as a model of a cunning intelligence that can subvert institutional aims and elude disciplinary forces. Hawhee (2004) similarly highlights dynamic and fluid movement as defining attributes of mêtis as an

embodied intelligence. The characteristics of metistic application are evident in quick and responsive impulses of bodily maneuvering.

Concerns over mobility and circulation remain prominent urban priorities in the contemporary "smart city" era, but emerging technologies have introduced additional complicating factors. Models of urban circulation now also account for flows of information and streams of data. Additionally, longstanding and decidedly "dumb" transit infrastructures are increasingly augmented with "smart" technology. Pittsburgh's application for the U.S. Smart City Challenge is indicative of modern techno-solutionist approaches to urban traffic and mobility. The Pittsburgh proposal emphasizes efforts to retrofit existing traffic lights sensor technology that enable communication between signals and real-time data collection. The introduction of "smart" infrastructures to monitor traffic patterns is promoted as beneficial for increasing efficiency and minimizing congestion, though the Pittsburgh application also links the networked traffic signals to the reduction of vehicle emissions and improved air quality. This element of the proposal thus illustrates the correspondence between "smart" data-solutionism approaches and "sustainable development" rhetoric within technoscientific urbanism.

The Smart City Challenge itself reflects overarching trends in neoliberal capitalism that are shaping and constraining contemporary urban development. Not only is the competition predicated upon a paradigm of interurban rivalry for resources, but it further exemplifies the reshuffling of responsibilities for building and maintaining public infrastructure. In the earlier chapter I related the Smart City Challenge to Graham and Marvin's (2001) notion of "splintering urbanism" as a phenomenon in which public services and infrastructures are increasingly fractured amongst various private and proprietary providers. This institutional "unbundling" of infrastructural networks often results in the disparate segmentation of service recipients based on varying degrees

of demographic estimation and preferential access. In the case of Pittsburgh's transit infrastructure this "splintering" effect was brought to the fore by the capricious relationship between the city and transportation company Uber. The association between Pittsburgh and Uber spurred controversies over the ability of a private company to address the diverse mobility needs of the urban citizenry, as well as whether the city was ceding too much jurisdiction in allowing Uber to use city streets as a testing ground for autonomous vehicle technology. Uber's Pittsburgh-based autonomous vehicle research provided a high-profile exemplar in the city's efforts at re-branding as a hub for technological innovation to attract outside interest and investment, but it also raised concerns that the influx of corporate interests might foster infrastructural enclaves delimited by differential access. The Uber-Pittsburgh experiment thus highlighted issues of "autonomy" in several areas, whether in the realm of public-private partnerships, the labor experiences of ride-share drivers, and even the everyday practices of urban mobility. Self-driving vehicle technology presents an acute example of smart city infrastructures impinging on urban mêtis, wherein the metistic attributes of local knowledge and dynamic traversal are delegated to technological processes.

Chapter 5 examined various dimensions of what was termed "the virtualization of space." Featured examples of spatial virtualization included visual representations of geographic territory, the augmentation of physical spaces through digital media, and the impact of digital economic practices and technology firms on urban development. Cartographic abstractions and other visual representations of space provide powerful implements for shaping the built environment and organizing urban populations. Mapping practices are thus highly resonant with efforts to order and manage "unruly" spaces, as well as the means by which denizens cognitively structure and affectively engage with their environments through individual "mental maps." Maps have also functioned as salient metaphors for applications of mêtis to theorize spatial practices and urban

governmentality. Michel de Certeau (1984) referred to bird's-eye-view city visualizations to exemplify top-down technocratic approaches to urban planning, and employed the rhetorical concept of mêtis to theorize how such planning schemes may be subverted through cunning and unpredictable everyday enactments. James C. Scott (1998) similarly distinguishes between the bottom-up localized enactments of mêtis knowledge and the state simplifications that he calls "abridged maps." These reductionist "abridged maps" render only those aspects of reality that are of interest or use to the creator, omitting or overlooking myriad operations and intelligences involved in the daily realization of the social world.

The preceding analysis of virtual space also considered changes in the design, use, and architectural forms of urban space. When considered as a communication medium the built environment may be seen to signify community identity and embody collective cultural values of a city. The specific Pittsburgh sites examined, such as Bakery Square and East Liberty Centre, are indicative of contemporary trends in the redevelopment and "regeneration" of urban districts. These projects in and around East Liberty typify approaches by corporate developers to remake divested neighborhoods historically populated by lower income and ethnic minority residents into commercial spaces marketed toward a demographic of upwardly-mobile urban consumers. Peter Jackson (1998) characterizes the production of such urban shopping and lifestyle spaces as efforts to "domesticate" public space by "managing diversity, reducing the risks of social difference and promoting the virtues of familiarity" (p. 176). This spatial domestication accords with the dynamics of "unruly urbanism" as it often often involves the removal of groups or individuals that are considered socially and aesthetically disorderly. Such spaces have correspondingly attracted criticism for producing generic and enclavic spaces, along with other outcomes associated with the broader phenomenon of urban gentrification. As has historically been the case with policing

and implementations of urban governmentality, redevelopment schemes often rely on pathologized depictions of urban spaces and populations as disorderly as a means to justify intervention. These symptoms of the privatization and commodification of public space also pose implications for mêtis knowledge and metistic urban practice. As the Pittsburgh case studies illustrate, privatized urban redevelopment can result in the erasure of local histories, the privileging of exchange over use value, and the obscuration of metistic knowledge and operations through which residents maintained the material and social infrastructures that enabled daily community life to cohere.

In Pittsburgh and many other cities around the world urban districts that have recently undergone "regeneration" often feature workplaces and residences targeted toward tech employees or other members of the "creative" class. The prominence of Google offices and tech company headquarters as anchor tenants in many of these projects testifies to the significant influence of creative industries and digital labor in shaping urban imaginaries. The technologies and services produced by such firms are also closely imbricated with virtual space. Various digital media and smart city infrastructures have broadened the forms and uses of spatial representations. The analysis in chapter five devoted particular attention to location-based and Augmented Reality (AR) technologies. Locative media offer innovative means for visualizing and interfacing with a user's immediate environment. AR services provide opportunities for reimagining spaces via visual overlays of information, artistic elements, or supplementary media content. The Pittsburgh-based AR applications highlighted in the chapter drew on these faculties to explore history and change in the city's East Liberty neighborhood. These utilizations of AR demonstrate the potential to support "unruly" and metistic interventions based on the principles of local knowledge, creative reimagining, and spatial appropriation. By facilitating the juxtaposition of presence and absence

in built landscapes AR technologies render visible the inherent hybridity between material and virtual elements in urban spaces. This dimension of liminality is also central to critical theorizations of mêtis. James Scott's conceptualization of mêtis and abridged maps posits that metistic intelligence is realized in the liminal space between the map and the territory, where facts on paper intersect with facts on the ground. Michel de Certeau's reading of urban traversals as tactical operations suggests that mêtis is realized in the interplay between fixed constructs and extemporaneous enactments.

7.2 Dumb Urbanism: Metistic Planning and the Right to the Smart City

How might an approach to urban planning that incorporates attributes of metistic intelligence be identified? What would an urban development and governance framework informed by mêtis look like? What would it mean to conceptualize the city with mêtis in mind? James Scott (1999) has offered guidelines for a developmental approach in accordance with mêtis: "Take small steps; favor reversibility; plan on surprises; plan on human inventiveness" (p. 345). Scott argues for institutions that are "multifunctional, plastic, diverse, and adaptable" (p. 353). He proposes that the metistic capacities of a development scheme can be assessed by asking "to what degree does it promise to enhance the skills, knowledge, and responsibility of those who are part of it?" (p. 355). Urban scholars have adopted many of these tenets in foregrounding the quotidian and informal practices of city dwellers. Burak Pak (2017) provides an outline of such approaches with designations such as Occupy Urbanism, Tactical Urbanism, and Hybrid Urbanism. These methodologies aim to empower citizens by encouraging "bottom-up, agile and decentralized means for ordinary people to challenge the status quo" (p. 86). Scott also argues that metistic

planning should attend to local knowledge and be grounded in the uniqueness of the particular place in which it is enacted. Smart city initiatives carry the potential to be disconnected from local communities as these policies and technologies are typically designed by multinational corporations and promoted as universally transposable solutions for a generalized urban problematic. For instance, in the midst of India's "smart cities mission" local representatives found the pre-packaged "solutions" offered by IT vendors woefully ill-equipped for addressing the daily needs of community members (Bhatia, 2016).

Prevailing trends of neoliberal governance pose another impediment to the realization of a mêtis -informed urbanism. Just as the mythological Metis was consumed by Zeus and her cunning intelligence subsumed for the maintenance of cosmological order, critics of neoliberalism suggest that contemporary capitalism similarly captures communication and creativity to support its continued operation. These theories raise the question of how an emancipatory urban politics might be realized when the traditional means of resistance are seemingly always already incorporated into the ruling hegemony. It is in response to this conundrum that Joe Shaw and Mark Graham (2017) propose an "informational right to the city." Shaw and Graham argue that contemporary governance strategies necessitate a reappraisal of Lefevbre's right to the city as the elements of power reproduction to which his original formulation referred no longer emanate from a centralized and locatable top-down source. Instead the forces involved in the production of abstract space are distributed across various institutions and agents. Echoing Dean's formulation of "communicative capitalism" they note that openness, inclusivity, and participation "are all part of the mode of governance for informational capitalism," and therefore "it is precisely the invitation to behave as an individual that reproduces the power in the hands of an elite" (p. 917). They locate the potential for resistance in the ability to "reject the call to perform as an informational

commodity prosumer" and "to offer an abstract negation that doesn't already fit into a binary computation" (p. 917). Shaw and Graham thus conclude that "an informational right to the city depends upon a refusal to act" (p. 917, emphasis in original).

Shaw and Graham's formulation of non-participation as resistive is directly influenced by Slavoj Zizek's (2006) promotion of a "Bartelby politics" which elevates the fictional scrivener's refrain of "I prefer not to" into a political mantra. In response to the calls for interaction and engagement that proliferate in contemporary discourse Zizek states that the "threat today is not passivity but pseudo-activity, the urge to 'be active,' to 'participate'" (p. 334). In such circumstances, he argues, it is better "to do nothing than to engage in localized acts whose ultimate function is to make the system run more smoothly" (ibid.). Zizek and the other aforementioned theorists of neoliberal discourse correctly identify the carceral character of "inclusion" within "communicative capitalism." However, these theories of dissent-through-non-participation threaten to valorize disconnection and excommunication in the name of liberation. A similar tension can be identified in Michel de Certeau's delineation of resistance in everyday life. Certeau's celebration of the potential for everyday acts to transgress the social order also approaches the idealization or romanticization of marginality and subjugation. The response to a rationality that fetishizes speech and participation should not be the fetishization of silence and exclusion. Nevertheless, models of non- or anti-communication may offer some productive potential for fostering critical urban practice. The perfidious influence of "smart power" might therefore compel a sort of "dumb urbanism."

The designation of "smartness" in smart city projects generally refers to their reliance on digital and networked ICT devices, in contrast to "dumb" urban infrastructures composed of non-communicative steel or concrete. An interpassive ideological function can thus be identified in

smart city discourses by which the intelligence implied by "smartness" and corresponding processes of communication are ascribed to infrastructures and systemic processes rather than urban citizens. The first sense of "dumbness" that I seek to identify therefore refers to a muteness or silence, a condition of non-communication. Urban theorists have conceptualized states of silence in relation to city life in from various perspectives. For instance, Sara Westin (2014) conceives the antithesis of Lefebvre's ideal urbanity as "an urban environment where silence reigns, where political mobilisation has been hampered by an urban planning that has dispersed people" (p. 172). Abraham Akkerman (2012) distinguishes between Apollonian and Dionysian impulses in urban design as "the contrast between the Citadel and the Garden, between noise and silence" (p. 2012). Applying a psychoanalytic framework Mark Jull (2012) suggests that "the city does not speak" (p. 131) but rather "just stares at us dumbly" (p. 132). The city "does not want or need anything from its inhabitants" (p. 135), leaving denizens to project desires and truths to fill the voids of its silent spaces.

A second connotation of "dumbness" implies stupidity. In the context of smart city initiatives we might conceptualize "stupidness" in contrast to the "intelligent" technologies foregrounded in such approaches. Yet notions of stupidity also take on a particular significance for urbanity and public life through the figure of the "idiot." Kafui Attoh (2017) develops a notion of "urban idiocy" by drawing on the classical sense of the Greek word idiotai meaning a private person withdrawn from public concerns; "apolitical in the original sense of 'isolation from the larger community'" (p. 198). Attoh identifies urban idiocy as a condition of isolation, apartness, and political apathy that is inculcated by the progressive privatization of city spaces and services. For Attoh, the encroachment of idiocy in urban life poses an obstacle to resistance and to the realization of the right to the city. For Byung-Chul Han (2017), however, idiocy provides a model

for emancipation. In an era of "compulsive and coercive communication and conformism" the ideal of "idiotism represents a practice of freedom" (p. 83). In opposition to the participatory imperatives of communicative capitalism "the idiot is unallied, un-networked, and uninformed," operating as an outsider who "escapes communication and networking altogether" (ibid.). The idiot "represents a figure of resistance opposing the violence of consensus," a "modern-day heretic" with "the courage to deviate from orthodoxy" (ibid.). Idiotism "stands opposed to the neoliberal power of domination" represented by "total communication and total surveillance" (ibid.). The idiot "communicates with the In-communicable," and the practice of idiotism "erects spaces for guarding silence, quiet, and solitude, where it is still possible to say what really deserves to be said" (p. 84).

I propose a model of mêtis -informed "dumb urbanism" that might balance the struggle to escape the imperatives of communicative capitalism with the drive to realize an emancipatory urban politics. Preceding applications of mêtis to planning and governance present metistic operation as that which cannot be predicted, controlled, or schematized. By contrasting the attributes of metistic knowledge with the simplifications of "abridged maps," metis has also been theorized as that which eludes or escapes the formulations of planning machinations. The twin principles of "dumb urbanism" outlined above presage the potential to reorient communicative urbanism so that "weaker" position may overcome the "stronger." Rather than valorizing exclusion for the sake of non-communication, the principles and values of metistic operation may provide a conceptual resource upon which a right to the smart city can be founded.

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