

## **Toward a political economy of nudge: Smart city variations**

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## Toward a political economy of nudge: Smart city variations

### Abstract

Transformations in strategies of governmentality have been implemented around the globe through behavioral interventions characterized as ‘nudges.’ This article will focus on the implementation of these practices within geopolitical areas referred to as ‘smart cities.’ Specifically, the article will examine the impacts of technological developments on neuroeconomics and behavioral economics as foundational contributions to smart city governance. Given the resonance between several areas of governmentality explored by Foucault in the 1970s, and by an increasing number of theorists of late, this article sets out a program of research and policy analysis organized by a political economy of communications framework. As such, smart city governance will be identified and assessed in terms of the processes of *Commodification, Spatialization, and Structuration*.

Important concerns emerging from our assessment of the nudge as a governmental policy tool are the implications that this and related approaches to management of populations have for direct and indirect surveillance of people, places, and things. Information and communication technology (ICT) is expected to play a central role here via its extension of surveillance through multidimensional analysis of massive transaction-generated-information, environmental and personal sensing, and what we have come to refer to as the big data that enable management by code from afar. The implications of these processes for groups within society, especially those already disadvantaged by poverty, segregation, and disregard, will be described and illustrated

with examples from around the globe. The article will conclude with an articulation of public policy concerns, including those related to privacy and surveillance.

**Keywords:** political economy, nudge, smart city, IoT, privacy, surveillance, discrimination

## Introduction

In 2017, The Nobel Prize in Economic Sciences was awarded to Richard Thaler of the University of Chicago, not only for ‘integrating economics with psychology,’ but for contributing to the development of behavioral economics, primarily on the basis of his theoretical and empirical assessments of the impacts of limitations in the rationality of decision-makers in matters of finance, and lifestyle choices more generally. Thaler is also credited with demonstrating ‘how *nudging* – a term he coined – may help people exercise better self-control when saving for a pension, as well in other contexts’ (The Royal Swedish Academy of Sciences, 2017). Writing with Cass Sunstein, Thaler (2008) promoted the use of a variety of behavioral nudges around the globe, beginning in the UK and the US by helping to establish government agencies (Selinger & Whyte, 2011) that were empowered to use strategic interventions designed to facilitate the attainment of policy objectives while still claiming to preserve autonomy and self-determination under the banner of ‘libertarian paternalism’ (Sunstein, 2015a).

The policy challenges being faced around the globe, in part as a response to the most recent economic crisis referred to somewhat ironically as the Great Recession, have become especially salient in the context of the emergence of a range of public/private partnerships (P3s) established as a strategic adjustment in neoliberal governance and promoted as ‘smart city’ initiatives. In ways quite similar to some applications of the nudge as a corrective for ‘behavioral market failures,’ smart city collaboratives are viewed as an alternative path to the good life, of the sort frequently associated with smart growth (Batty et al., 2012). However, a distinct mode of governmentality emerges when one considers the hegemonic assumptions underpinning smart city implementation. Here, the urban landscape and its citizenry are understood as problematic;

thereby becoming the behavioral targets for intervention. The city as both a structural and social body, then, becomes the object of data-driven analysis and management (Vanolo, 2014) that uses information to analyse and improve city services on the one hand, but also presents significant obstacles to the realization of privacy and human rights on the other, including increased policing, surveillance, issues of exclusion, and reinforcement of social injustices (Privacy International, 2017).

Our approach toward a political economy of nudge, as it develops in the context of smart city initiatives around the globe, will be focused primarily on the nature of the public policy processes through which competing rationales and justifications for initiatives will be assessed. A number of critical evaluative dimensions, many of which tend to be ignored in more promotional texts, will be defined and illustrated by examples. Among those dimensions, the difficulties involved in designing and performing benefit/cost analyses, and the sorts of impact assessments that are increasingly being introduced as regulatory requirements will be given special attention.

Ethical considerations will emphasize the distributional aspects of what is meant by fairness and legitimacy in the context of big data analytics and the expanded role of algorithmic assessments used by autonomous agents to impose life-altering constraints on individuals and members of disadvantaged and vulnerable population groups. They will also include assessments of the extent to which members of marginalized groups actually participate in the design, implementation and evaluation of these behavioral interventions (Monahan, 2017).

Finally, this article will explore the opportunities and challenges that must be addressed in order to ensure that the ‘behavioral market failures’ (Bubb & Pildes, 2013–2014), and the ‘choice architectures’ (Berggren, 2012) identified as policy targets, actually include those who

bear the greatest responsibility for the most serious problems we will face in the smart cities of the future.

## Behavioral Economics

While Thaler's Nobel Prize is the most recent to be awarded to what we might call scholars of behavioral economics, a good many important conceptual frameworks that have emphasized the limited capabilities of most people to actually perform all relevant assessments of choice have been offered in the past. Among the constraints on human decision-making that have been theorized and exemplified through experimental research, those related to the limited ability of adults to allocate their attention to more than a comparatively small number of relevant features in their environments (Kahneman, 2003), recall facts and experiences (Drobnic & Goodenough, 2015), organize comparisons and evaluations in a consistent manner (Bar-Gill & Warren, 2008), and assign probabilities and appropriate weights to a variety of threats and opportunities (Sunstein, 2012–2013) add up to substantial barriers (Simon, 1955) that have to be overcome.

Behavioral economists provided numerous examples of the kinds of cognitive biases that led to a variety of irrational decisions, commonly experienced throughout the population. One such bias was related to 'time discounting,' and what has been identified as a 'present bias' (Camerer, 2007, p. C32). Other biases include a tendency to perceive events or circumstances that are easily remembered as being more likely to occur than those that don't readily come to mind (Institute of Medicine, 2013, pp. 204-206). This 'availability' bias influences estimation of risk.

Indeed, because of the cognitive limitations that most of us share to some extent, we are

thought to develop decision-making strategies, or heuristics that support more rapid, less cognitively burdensome procedures. Unfortunately, these heuristics frequently lead to shortsightedness, or ill-considered choices, such as those that are likely to be made in the context of uncertainty, as is common during crises or emergencies (Brudermann, Rauter & Yamagata, 2013), or where circumstances, including the strategic framing of choices that leads one to believe that an immediate decision is required.

Neoclassical economics has tended to reject the notion that the tastes and preferences governing choices within markets are influenced by powerful actors within the marketplace, claiming that whatever influences there may be, they are exogenous, and therefore not worthy of attention from economists (Bowles, 1998). In direct opposition, Bowles offers substantial argument and evidence in support of his contention that economic institutions are a powerful and theoretically significant endogenous influence on economically relevant preferences. These institutions play an important role in framing the kinds of decisions we make within markets, and they also influence the development and reproduction of behavioral norms, or valued cultural traits such as ‘reputations for trustworthiness, generosity, and vengefulness’ (Bowles, 1998, p. 92), each of which serves beneficial purposes within markets.

What Bowles (1998, p. 103 ) observes, however, is the fact that we have only limited understanding about how other, non-institutionalized sources of influence such as ‘parents, other family members, friends, teachers, and others’ affect the learning of norms, values and cultural traits. As a result, we were, and still are, largely ignorant about the role of social learning on the development of those behavioral market failures that behavioral nudges are being organized to address (Bubb & Pildes, 2013–2014, p. 1603; Sunstein, 2013–2014).

## The Political Economy of Nudge

The challenge of defining a political economy of nudge is influenced, but not fully determined, by the role that notions of irrationality have played in mobilizing widespread support for the social interventions designed by behavioral economists. Political economy differs from neoclassical economics in large part due its efforts to understand the nature and extent to which power plays a role in the structure and performance of markets (Black, 2013), and in those systems, institutions, and technologies that facilitate the exercise of that power.

The bureaucratic state, and its administrative agencies that share responsibility for improving the status and performance of the economy, in all of its sectors, as well as those with shared responsibilities for the maintenance, and where possible, the improvement of the health, welfare, and safety of its residents, has taken a leading role in the utilization of nudges in smart cities and beyond. Arguably, this has resulted in the transformation of the nudge from a governing mechanism to a governing virtue (Kosters & Van der Heijden, 2015). We will place our attempt to extend the nature of the engagement by political economists and other critical analysts with the emergence of nudge within a critical framework informed by Foucauldian studies of governmentality, especially as they relate to aspects of the political economy of communication (Mosco, 2009).

### Neoliberalism and Governmentality

Although Foucault (1991) took due note of a variety of forms of governing, he devoted special attention to those modes of governance that were specific to the state, including its role in management of the economy: ‘To govern a state will therefore mean to apply economy, to set up



an economy at the level of the entire state, which means exercising towards its inhabitants, and the wealth and behaviour of each and all, a form of surveillance and control as attentive as that of the head of a family over his household and his goods' (Foucault, 1991, p. 92).

While Foucault did not refer specifically to nudges in this context, his usage of governance in terms of 'disposing things,' implied that the state would be 'employing tactics, rather than laws, and even using laws themselves as tactics—to arrange things in such a way that, through a certain number of means, such and such ends may be achieved' (1991, p. 95). In his discussion of the focus of state action, the meaning of the family, and its relationship to the economy, as represented through population statistics, becomes the goal of governance. He suggests 'it is the population itself on which the government will act either directly through large-scale campaigns, or indirectly through techniques that will make possible, without the full awareness of the people' the realization of the 'interest of the population,' which marks the 'birth of a new art, or at any rate of a range of absolutely new tactics and techniques' (p. 100).

As Sellar and Thompson (2016) argue, what is important about the statistical construction of populations as the 'ultimate end of government' is the ontological status of individuals as objects or 'things' that can be reduced to calculations. Governmentality, in this sense, makes use of technologies of statistics and calculation. Of primacy, then, are the ways in which calculations can create categorizations, subjectivities, and a belief in objectivity. For some, these new tactics and techniques have much in common with the commercial marketing of goods and services, except that when envisioned in the context of government initiatives, increasingly organized through a variety of public/private partnerships or lucrative contracts, they tend to be referred to as 'social marketing' where the 'product is usually some kind of behavioural change' (Pykett et al., 2014, p. 97).

An important aspect of the technologies being applied in support of ‘management at a distance’ through code is the extent to which they reinforce distinctions that have been drawn between the disciplinary and security oriented approaches to management. A central part of this distinction is the fact that a disciplinary process begins with an already existing, or ‘predefined optimal model,’ while an orientation toward security, merely establishes ‘the limits of the acceptable,’ while the ‘parameters of reality’ continue to change, along with ‘the shifting context and conditions of regulation’ (Klauser, Paasche & Söderström, 2014, p. 874). That a precise goal is not established in advance, but seems likely to be discovered, or derived from the most recent analysis of data, means that the challenge becomes one of determining how targets for efficiency, effectiveness, and recognizable public benefit can be chosen.

### Structuration and Surveillance

The widespread implementation of behavioral nudges in a broad range of governmental programs should be seen as part of the structuration process developed within a neoliberal response to a series of economic challenges, with the Great Recession being the latest. One of the concerns emerging as vitally important in our assessment of the nudge as a governmental policy tool within smart cities are the implications that this and related approaches to the management of populations have for the uses of direct and indirect surveillance of people, places, and things.

Information and communication technology (ICT), in all its forms, is expected to play a central role here through its extension of surveillance through multidimensional analysis of massive transaction-generated-information, environmental and personal sensing, and what we have come to refer to as the big data that enable the management by code from afar. However, operationally, these ‘codes constitute often invisible processes of classification and prioritization,

which may affect the life-chances of individuals or social groups in ways that are often unseen by the public and that easily evade conventional democratic scrutiny' (Klauser & Albrechtslund, 2014, p. 274).

In one example, the Behavioral Insights Team in the UK is said to have introduced a policy that would require applicants for unemployment benefits to complete an online 'assessment of personality or character' to help address the problem of 'worklessness' that had become a serious constraint within the nation's 'austerity' program (Cromby & Willis, 2014, p. 242). Making a determination of eligibility on the basis of a psychometric test raises a number of concerns, beginning with those related to accuracy, precision, and reliability across populations. Using the results of the test to make recommendations to applicants to change their behavior raises issues more directly linked to the use of behavioral nudges to influence the choices being made by those seeking or relying on public benefit programs, especially those related to one's personal responsibility for working on the self in light of test results (Cromby & Willis, 2014, p. 251).

Despite Giddens' association of personal agency with 'knowledgeability' (Giddens, 1986), it is becoming quite clear that residents of these cities will know less and less about the kinds of data that are being gathered, or about the kinds of profiles, predictions, prescriptions, and proscriptions being generated in support of their guidance through nudges, budes, or architectural constraints. We are reminded that smart city projects or programs such as IBM's Smarter Cities variant 'are presented by IBM as the object of a wide range of technologically mediated practices of control and management-at-a-distance based on carefully orchestrated assemblages of computerized systems that act as conduits for multiple cross-cutting forms of data gathering, data transfer and data analysis' (Klauser & Albrechtslund, 2014, p. 277).

The choices that individuals are effectively compelled to make are seen as ‘a choice between making oneself increasingly transparent to corporate and governmental entities, or being denied access to something of importance.’ Each time we make what we come to accept as an autonomous choice, ‘we further naturalize these regimes, the endpoint of which lies in a mode of governmentality whose objective is not that we desire a particular thing or not, but that we only have the sorts of desires that can be monetized’ (Hull, 2015, p. 96). This is the essence of what Zuboff (2015) refers to as ‘surveillance capitalism.’

## Commodification, Collaboration, and the Spatial Dimension

A major source of concern regarding the development of smart cities is that the driving force behind this global movement is the pursuit of new markets by transnational corporations. It is quite clear that many of ‘the world’s largest digital technology and consulting companies operate smart city initiatives, including IBM, Cisco, Intel, Microsoft, Huawei, SAP, and Arup, and have become active players in city management,’ either by helping to build these cities from scratch, or through partnerships aimed at transforming existing cities (Kitchin, Lauriault, & McArdle, 2015, p. 19).

At the same time, there are initiatives, such as those supported by the European Commission, that have exhibited an openness, if not a preference for the development of ‘user driven open innovation smart city ecosystems which include: citizens, governments, enterprises and researchers’ (Clohessy, Acton, & Morgan, 2014, p. 839). However, as Vanolo (2014) reasons, even though most European smart city funding schemes explicitly address the idea of ‘communities’ and participatory practices such as e-governance and e-citizenship, ‘smart city

aesthetics seem to support a political unconsciousness that relegates social importance to the invisible periphery of a technological discourse' (p. 892). This is a discourse that reduces the complexities of urban spaces into statistical markers that must be constantly watched and controlled by government and corporations. Furthermore, the ubiquity of sensors as dynamic data collection points encourages the commodification of physical bodies.

As Sadowski and Pasquale (2015) note, corporate players are at the ready to mine personal data, including biometric data. Data brokers, for example, develop consumer profiles comprising biometric information, and identities can be fixed to location and tracked as citizens travel through the smart city. Profiles such as these 'also provide the means to intensify commodification — via strip-mining the newly available sources of data — and control — via biopolitical management — of people, all while the "smart city" constructs a conducive platform for these activities' (para. 53).

ICT firms like IBM have played a key role in the trajectories along which smart cities have developed. The scope of their intervention programs has been extensive, ranging from public administration, through education and workforce development, to transportation and urban planning (Wiig, 2015). These initiatives have helped to mark a point of strategic correction for IBM and other ICT firms seeking markets for new technology and services while hoping to realize the benefits of neoliberal strategies of government that encouraged deregulation, privatization, and collaborative arrangements that would support more rapid and efficient capital accumulation (Kitchin, 2014, p. 3; Rossi, 2016).

Government agencies have also introduced smart city initiatives to particular service sectors, such as health care, public safety, and transportation. The U.S. Department of Transportation (USDOT) launched its own 'Smart City Challenge' in 2015, asking mid-sized

cities to develop proposals for the development of a ‘smart transportation system that would use data, applications, and technology to help people and goods move faster, cheaper, and more efficiently’ (U.S. Department of Transportation, 2017, p. 2).

Concerns about structuration (Mosco, 2009) become salient in the context of debates about the processes through which decisions are made about how authority, accountability, and transparency are to be allocated and evaluated within smart city environments. Quite worrisome is the fact that these smart city systems can, at times, act on us in ways that are structurally invisible. Few citizens are aware of the existence of data brokers, intrusive surveillance, and the ways in which individuals and groups become implicated in the the data flows of surveillance capitalism. Even the practice of ‘consent’ occurs by default given the choice to opt out of engaging with things that bind us to the logics of these data systems (e.g. not using applications, smartphones, and so forth) is unlikely to be a useful choice for the majority of those who live in these smart city spaces (Sadowski & Pasquale, 2015).

Concerns about spatialization arise with regard to temporal dimensions of activity in that ‘past, present and future are connected in a way where the continuous documentation and reconstruction of everyday life is the basis for relevant predictions and recommendations for the future’ (Klauser & Albrechtslund, 2014, p. 279). Spatialization is also invoked as a point of contention with regard to the utilization of locational information derived from the geocoding of signals emanating from devices and sensors within and external to the city. Spatio-temporal information becomes relevant to structuration when being in a particular place and at a particular point in time seems likely to put a particular kind of person in a position of conflict with their actual or inferred preferences for security (Thatcher, 2013). However, there is an assumption being made here that the socio-spatial dimensions of a smart city can be measured and

understood as ‘technical problems,’ potentially reducible to technical questions responded to by objective and depoliticized technical solutions.

### The Evaluative Dimension

Important distinctions have been drawn between the ideal, or ‘paradigmatic,’ smart cities such as those being ‘built from scratch’ in out of the way greenfield sites, like Songdo in South Korea, or Masdar in the United Arab Emirates, and those experiencing the challenges of transformation, such as those under development in cities like Philadelphia, Pennsylvania, and Louisville, Kentucky (Shelton, Zook, & Wiig, 2015). By examining cities in transition toward an idealized future, we have the opportunity to develop insights into the ways through which the spatialization process, increasingly shaped by behavioral management efforts (Mosco, 2009), generates benefits for some and hardships for other population segments.

In the case of Philadelphia, we have an opportunity to reflect on the role played by one of the major players in this global process, IBM and its Smarter Cities Challenge grants, which in the hopes and dreams of the city’s policymakers would allow them to demonstrate how a ‘mobile, Internet-based application for workforce education’ could help prepare low-literacy and underemployed residents for entry-level jobs (Shelton et al., 2015, p. 19). The Louisville project, had a much more limited goal, one that was focused on the evaluation of the use of data about the nature and extent of vacant and abandoned properties in poor and African American neighborhoods in the city’s West End. The Louisville project revealed a variety of problems in the differences in the data and representations derived from government databases, and those produced from data gathered by a grassroots community organization using a neighborhood survey, while the Philadelphia project, which failed to get beyond the planning stage (Shelton et

al., 2015, pp. 21-22), served primarily as a promotional resource for the city's mayor (Wiig, 2015).

### Choosing Targets of Influence

The use of behavioral nudges by a seemingly unconstrained variety of collaborators and contractors providing services to smart city strategic initiatives is likely to involve the design, production, and delivery of precisely targeted and framed messages along with spatially calibrated architectural arrangements (Allcott & Kessler, 2015; Grier & Kumanyika, 2010; Oliver, 2013; Pierce et al., 2014). To the extent that the reduction of inequality, at its sources, and at its various points of impact on the quality of life that residents of urban communities can hope to enjoy, has become a significant focus of government policy (Obama, 2017), we would expect that nudges would be focused on members of the most disadvantaged and vulnerable communities.

Schneider and Ingram (1993) have led a continually expanding cohort of social policy planners to consider these policy targets in terms of the power they have, as well as how they are discursively constructed. Policy targets are not defined entirely by the characteristics of individuals or groups, but also on categories of behavior or domains in which choices made by individuals might have consequences for themselves as well as for the well-being of the general public. The policy targets within these broad classes of concerns that have become associated with behavioral market failures, are readily distinguished as a function of whether they are focused on segments of populations defined as being *at risk*, or as population segments defined as being risks to others.



However, as we have already noted, in order to be truly successful in counteracting the forces increasing cumulative disadvantage, more nudging and budging efforts (Oliver, 2013) will have to be directed toward the more powerful actors within public, private, and collaborative networks whose orientations toward members of these population segments tend to be exploitative (Bubb & Pildes, 2013–2014; Christl & Spikermann, 2016, pp. 118-130).

An important question, one not often explored in assessments of the use of the nudge as a form of social marketing by the state, is the extent to which members of the public have an opportunity to engage in meaningful public deliberation about whether, and in what form, these behavioral interventions ought to be initiated in the first place (Pykett et al., 2014, p. 98). Of particular interest is the extent to which members of the public are involved in the identification of policy targets (Pierce et al., 2014; Schneider & Ingram, 1993). Somewhat ironically, the fact that these initiatives are initiated within a framework that claims privilege in public engagement and responsibility, ‘by reframing behavioural insights in terms of individual choices as opposed to political, ethical and structural concerns, social marketing has the unintended consequence of radically diminishing the scope of political action and potentially enfeebling public policy’ (Pykett et al., 2014, p. 109).

One of the more salient justifications for the rapid adoption of the nudge and other behavioral economic strategies is the suggestion that they are cost effective, at a time when governments are facing serious budgetary constraints. Benefit/Cost Analysis (BCA) has long come under criticism for the difficulties involved in assigning dollar values to the costs and benefits thought to be associated with government programs, including regulations (Cochrane, 2014; Institute of Medicine, 2013, pp. 79–102). These analyses are routinely identified as a requirement in the evaluation of social programs in the U.S., including those making use of some

form of behavioral nudge. In certain cases, the BCA will help determine whether a proposed project is allowed to proceed based on the estimated ratio of benefits to costs.

Policy analysts emphasize the extent to which uncertainty, including that related to expectations about the future, affects the reliability of these assessments. Cochrane (2014, p. 65) suggests that an ‘explicitly political and public choice philosophy’ is precisely what is needed, especially when it comes to economic regulatory decisions. But, it is also noted that consumers are likely to be irrational, or at least ill-informed and subject to strategic manipulation, with regard to the choices they make as part of the political process (Smith & Zywicki, 2015, p. 230).

## Ethical Concerns

In addition to questions around efficiency, effectiveness, and transparency, there is a host of concerns about the ethics of nudging. An important one, which is not often addressed, is the fact that nudge strategies primarily take advantage of, or exploit, cognitive biases and/or inappropriate heuristics, which reinforces them rather than replacing or displacing them through the development of cognitive skills that generalize. This difference is at the heart of the distinction between nudging and boosting, as promoted by Gerd Gigerenzer and his colleagues (Gigerenzer, Gaissmaier, Kurz-Mileke, Schwartz, & Woloshin, 2007).

Big data analytics of the sort that we see expanding within the context of smart city environments are increasingly identified as threats to privacy and decisional autonomy. Because of the nature of the computationally intense process that is becoming automated, or performed autonomously by intelligent machines, the social utility of dominant policy frameworks that identify self-defense, or privacy self-management as the preferred response to whatever risks that

transactions within a digital environment, has all but evaporated (Baruh & Popescu, 2017; Hull, 2015; Richards & King, 2014).

### Paternalism vs Coercion

Among the many points of contention raised in response to the determination by Thaler and Sunstein (2008) to refer to their program of nudges is that their form of libertarian paternalism is different from the efforts of marketers and other persuaders to change people's minds through argumentation and debate. Instead, nudges are supposed to work because they 'trigger an unconscious action' of the sort we associate with automatic, reflexive responses that occur quickly and consistently with others made habitually (Oliver, 2013, p. 688). It is also argued that the paternalist nudges need to be seen as merely a 'first stage of sequenced regulation where, inevitably, more coercive measures are required in later stages' (Amir & Lobel, 2008, p. 2100).

Sunstein (2012–2013, p. 1882) responds in considerable detail to the charges that paternalism, whether hard or soft, still bears the weight of concerns about threats to individual autonomy. Although his response to this critical challenge is based on an association between autonomy and welfare, in which welfare associated with enjoyment, happiness or pleasure, can be read in terms of the extent to which people enjoy making their own choices. What he refers to as the 'thick version' of autonomy is that which values it as an end in itself, or at least a very 'weighty matter, to be overridden only for the most compelling reasons' (p. 1883). This is a serious challenge. Sunstein (2012–2013) suggests that if 'people have to be treated as ends rather than as mere means, and if this principle requires government not to influence private choices, there is not a lot of room for further discussion' (p. 1885).

What really matters is whether people are made better off in ways they would recognize as such (Sunstein, 2015a; Sunstein, 2015b). For some, what matters is whether the benefits are substantial, and if the damage to one's dignity and self-respect is minimal; if that is the case, then we might agree that 'the nudge is arguably justified' (Yeung, 2012, p. 21). What becomes important then are the consideration of these welfare outcomes in terms of their distribution across the population being managed.

### Distributional Impacts

Critical geographers invite us to consider spatiality as a policy concern, for example in cases where discrimination by neighborhood takes place, such as automobile insurance. Spatial considerations also arise with regard to the determinations made by choice architects about which population segments are more likely than the average chooser to make an inappropriate choice about matters of health, education, or welfare. The process by which decisions are made about who the targets of nudge interventions should be seems likely to face moral, ethical, and technical challenges in deciding whether the problems are related to undesirable goals, or irrational tendencies in deciding how to realize them (Grüne-Yanoff, T. & Hertwig, R., 2016, pp. 170–172).

This problem becomes more troubling when we consider that decisions about the allocation of resources for behavioral interventions require advance knowledge about the distributions of problematic goals or decision strategies, in the context of the need to also consider whether the policy goal is individual or collective benefit, or welfare maximization. The impact of nudge programs, especially those implemented in the context of neoliberal interests in the improvement of those seen as less socially and behaviorally responsible, is quite likely to be

more intense, extensive, coercive and least likely to be respectful of the dignity due to individuals on the basis of their humanity.

The conditions of abjection that are common to members of the poor and marginalized populations of the world ‘are increasingly viewed as problems to be managed with surveillance’ (Monahan, 2017, p. 191) of the sort that seem likely to be normalized within the context of nudges within smart cities. As Monahan (2017) sees it, a form of ‘marginalizing surveillance’ is an appropriate label for ‘the production of conditions and subjectivities of marginality through the application of surveillance systems.’ For those whom nudging is not sufficient as a tool of ‘invisibilization,’ we can expect that the ‘state then turns to criminalization and incarceration, as techniques of securing the neoliberal social order,’ for those who ‘persist in asserting their visibility’ (pp. 193–195).

Within the neoliberal project in which nudges are embedded, Monahan (2017) suggests that the ‘cultural narratives surrounding everyday abjection tend to mark marginalized subjects as responsible for their own plights, or sometimes even as manipulative or dangerous threats to society as a whole’ (p. 196). What we might see as the most damaging consequence of the marginalizing surveillance finding its place within surveillance capitalism as it evolves, is the fact that it ‘possesses a cultural dimension that thrusts marginalized and dehumanized subjectivities upon the abject, marking them as complicit victims, societal outcasts, invasive species, or swarms’ (Monahan, 2017, p. 202).

## The Need for a Policy Response

We have explored considerable terrain in our movement toward defining a political economy of the nudge as it relates to the development of smart cities around the globe. We emphasized the central role played by assessments of the cognitive capacity of individuals as citizens, consumers, and residents of smart cities. While the primary focus of behavioral economists has been on the limitations in the ability of individuals to make rational choices in their own best interest, we have called attention to the concerns expressed by political economists about the need to also consider the strategic attempts by marketers, governmental bureaucrats, and other ‘choice architects,’ to exploit cognitive biases and heuristic strategies in order to nudge those choosers in particular directions.

We have attempted to place these concerns about manipulative communication strategies in the context of rapidly developing socio-technical systems that have the capacity to capture transaction-generated information across time and space, and transform it into strategic intelligence about when, where, and how to apply it with maximal efficiency and effectiveness. We have also noted some of the distributional effects of these efforts that raise questions around the reproduction and expansion of already unacceptable levels of social, economic, and political inequality.

Because we believe that some of the most advanced applications of these socio-technical systems are being introduced within smart cities, where new forms of governance involving collaborations, or public/private partnerships (P3s) involving globally dominant firms, threaten individual and collective agency and self-determination, we would like to conclude this paper by exploring some of the possibilities that remain for democratic public participation in the formation of governance strategies and tactics that affect the quality of life.

At the heart of our concerns about transformations in governmentality is the extent to which the science and technology of nudging is being applied in the context of P3s making decisions about the kinds of people smart cities need to cultivate in order to realize the benefits of higher scores, or cumulative ratings of ‘smartness’ believed to attract a broad variety of capital investments.

The fact that a great majority of nudges exploit cognitive biases, rather than actually attempting to expand the capability and the commitment of individuals and their social contacts to invest in learning (Gigerenzer et al., 2007; Grüne-Yanoff & Hertwig, 2016), leads us to suggest that we need to shift the focus of attention of the nudge brigade away from reinforcing consumer susceptibility to external influence, and toward the enhancement of individual and collective decisional competence. This would mean that the so called ‘defaults’ established by public and private choice architects should be those which are demonstrably the most rational, while still allowing the choosers to opt-out (Pridgen, 2013, p. 431). While regulatory policies often do require increased disclosure about the values and risks of the commodities being offered by commercial providers of goods and services, it would also make sense to nudge, or even shove, those vendors toward making such disclosures both engaging and intelligible to the average reader. As such, decision-making processes should be inclusive and transparent, seeking input from a range of stakeholders, including citizens (individuals and groups, with a focus on community organizations representing marginalized populations), civil society, technology and security experts, the private sector, and academia (Privacy International, 2017).

As we have noted with regard to the evaluative strategies commonly applied to regulatory policies, such as environmental impact assessments or benefit-cost analyses, these assessments are rarely focused on the distributional aspects of economically oriented policy outcomes.

Although greater awareness of the impact of inequality at a societal level has been achieved around much of the globe, there is little evidence that the development and evaluation of behavioral nudges within the context of smart city initiatives has identified the reduction of inequality as one of the key index measures of smartness. Indeed, as Shelton, Zook and Wiig (2014, p. 21) see it, ‘rather than solving problems of inequality, the smart city is likely only to reproduce them in new ways.’

We have also noted important changes taking place related to the characteristics of the contexts within which smart city policies are established, including those involving behavioral modification. These changes represent a critical challenge to the nature and extent of public participation in the determination of those policies. While requirements for some degree of public participation in government policy deliberations have become commonplace within the United States, the reach of those requirements seems unlikely to have much influence over the decisions made by corporate actors and implemented through P3s. These economically dominant transnational entities are likely to be the dominant players in the strategic games that will determine who bears the risks and who gathers the benefits from a whole host of informational transactions. Government actors might be able to negotiate some degree of influence over the continually varying terms of trade being altered by algorithmic systems; however, most members of urban publics will have little chance of even staying up to date and understanding those changes, and the consequences that flow from them (Danaher, 2016).

Policy agendas are now being formed at the local, regional, national, and global level in response to rising concerns about socio-technical innovations, including those related to developments in the allocation of decision-making authority to autonomous intelligent systems. That these systems will play an increasingly influential role in managing public and private



debates about the consequences of their use (Woolley & Howard, 2016) raises the stakes for ensuring meaningful public engagement in shaping emergent forms of governmentality.

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