

Introduction

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Smart is in. The latest buzzword in the technology industry and policy circles is smart. We've built massive networked surveillance systems with the rise of the Internet that seem poised to inject intelligence into every aspect of our lives. Proponents of the Internet of Things, big data, sensors, algorithms, artificial intelligence and various related technologies make seductive promises, including that increased intelligence – “smart” phones, grids, cars, homes, classrooms, clothing, and so on – will minimize transaction costs, maximize productivity, and make us perfectly happy.

Yet society isn't really structured to optimize social institutions and systems to maximize efficiency, productivity, or happiness. It may sound counterintuitive, but we usually take the opposite approach. We don't optimize. The social value of leaving a wide range of opportunities open for the future generally exceeds the value that society could realize by trying to optimize its systems in the present. At least in the United States, Europe, and most liberal democracies, the default operating principle of social governance of people and shared resources is to leave things open and underdetermined; this principle allows individuals and groups to engage in self-determination with different outcomes, depending on the context and changing conditions. As law professor Julie Cohen (2012) succinctly put it, we need ample room for play. We should expect locally appropriate and responsive governance, and are better when cities can experiment.

Can playfulness or experimentation in governance coexist with smart systems? Regardless of the empirical answer, the seductive promises of intelligent optimization are difficult to resist, with adoption often preceding the necessary policy evaluation. Smart cities are exemplary. Around the world, cities have jumped aboard the smart tech bandwagon; others race to catch up, as public officials worry about falling behind. But whenever one sees “smart” in tech discussions, insert “supposedly” in front of “smart” and then ask a series of questions: Who gets

smarter? How? With respect to what and whom? Who gains what power? These and many other important questions need to be asked prior to investment or deployment.

Smart cities require trusted governance and engaged citizens, especially governance of intelligence and intelligence-enabled control. In some very important respects, smart cities should remain dumb, and that will take governance. One way to quickly see the point is by way of analogy to the Internet and the decades-long and still ongoing debate about network neutrality. When an ISP knows who is doing what online, the ISP gains power that can be exercised in various ways, such as price discrimination or prioritization. Network neutrality regulation aims to constrain intelligence-enabled control by infrastructure owners so that users retain their freedom. Cities face very similar challenges for many different infrastructures and services as they pursue smart solutions and innovation. In both cases, new smart systems transform control and influence, enhancing the power of decision-makers, while individuals and grassroots-level communities lose capabilities.

Integrating surveillance, AI, automation, and smart tech within basic infrastructure as well as public and private services and spaces raises a complex set of ethical, economic, political, social, and technological questions that requires systematic study and careful deliberation. The Governing Knowledge Commons (GKC) framework provides a descriptive lens through which to structure case studies examining smart tech deployment and commons governance in different cities. This book presents a series of interdisciplinary social science case studies, deepening understanding of community governance institutions, the social dilemmas communities face, and the dynamic relationships between data, technology, and human lives. It also serves as guidance for communities deploying smart tech. The GKC provides a series of questions that any community should be able to answer prior to or at least during deployment of supposedly smart tech. Using the GKC framework to study smart cities also allows researchers to focus on different resource-user-technology systems within a smart city – e.g., transportation, health, education, and so on.

Chapter 1 of this volume applies the conceptual framework to the context of and governance challenges faced by smart cities. Drawing on the amended GKC framework, as augmented in the conclusion of *Governing Privacy in Knowledge Commons* (2021), this chapter articulates research questions that can guide inquiries to support both improved understanding of the datafied city as a knowledge commons and empirically grounded public policy-making. Drawing on insights from Chapter 1, chapters in Part I explore the nature of social dilemmas around urban data, highlighting two distinct structural frames: polycentricity (addressed in depth in Part II) and the dominance of private actors over public data (explored in Part III). The book concludes in Part IV with lessons for smart cities.

Part I, the Social Dilemmas around Urban Data, explores some of the collective action problems, action arenas, and complexity of urban data resources in the

context of smart cities. In Chapter 2, “The Challenge for Cities of Governing Spatial Data Privacy,” Feiyang Sun and Jan Whittington explore the collective action problems associated with urban data governance in the city of Seattle, highlighting specific transaction costs and externalities associated with different departments and data resources. They argue that longitudinal governance and coordination efforts to prevent weak links from undermining citizens’ privacy are necessary investments and priorities for municipal governance.

In Chapter 3, “Open Governments, Open Data,” Anjanette Raymond and Inna Kouper analyze the Bloomington Open Data Portal as a case study on co-production of participatory digital commons resources and governance in Bloomington, Indiana. They address the conceptual mapping of open data onto the GKC framework, as well as the coordination challenges posed as local governments attempt to work with other types of stakeholders. While these chapters address very different contexts and challenges, they importantly suggest the impact of decision-making structures on outcomes, highlighting the split between polycentric public arrangements and public decision-making arenas dominated by private actors.

Part II, Polycentricity and Urban Data, highlights the impacts of coordination and centralization among the polycentric decision-making authorities among metropolitan agencies and services. In Chapter 4, “Community Land Trusts as a Knowledge Commons: Challenges and Opportunities,” using cases of community land trusts (CLTs) in DC, Boston, and San Francisco, Natalie Chyi and Dan Wu address the challenges associated with CLTs as the community of owners must coordinate to manage physical and informational resources and practice mutually appropriate stewardship. They find that interorganizational information flows increase governance efficiency and make a case for functional polycentricity.

In Chapter 5, “Smart Tech Deployment and Governance in Philadelphia,” Brett Frischmann and Marsha Tonkovitch examine two action arenas: the macro-level action arena, which concerns city-wide governance of smart tech deployment as reflected in a set of smart city initiatives, and which concerns city-wide governance of vacant land management and the various roles smart tech plays. They highlight a series of governance challenges, including around crime, safety, and trash, that intersect multiple decision-making authorities and necessitate involvement of community groups. They also identify some fundamental limitations on what smart tech can do to resolve the vacant land crisis.

In Chapter 6, “The Kind of Solution a Smart City Is,” Michael Madison addresses smart modernization in postindustrial Pittsburgh, exploring present efforts to benefit from data collection and analytics, relative to the complex history of urban technology in the region. In addition to highlighting remarkably salient properties around boundaries and expertise in smart cities, this chapter

explores the material and immaterial layers of data and governance. It notably maps the challenges from historic polycentricity cases concerning physical resources and services onto the modern, digital concerns present in smart cities today.

Part III, *Private Influence on Decision-Making*, moves beyond the coordination and collective action challenges in the public sector to address the impact of industry on public data collection and decision-making. In Chapter 7, “Technofuturism in Play,” Madelyn Sanfilippo and Yan Shvartzshander address the case of Disney World as a quasi-public recreational space in which highly concentrated, ubiquitous, and invisible data collection drives numerous services and innovation. They find that while many data practices are contentious and would not be appropriate for other contexts, the trust consumers have in Disney and their history of responsive governance meets local expectations.

Chapters 8 and 9 both address the case of the Sidewalk Toronto/Quayside smart city project, highlighting the impact of Alphabet on governance approaches. In “Can a Smart City Exist as Commons?” Anna Artyushina explores the action arenas of data-driven planning and data trusts, arguing that the private sector can only manage public infrastructure when public administrators take on intermediary roles between companies and state regulators. This has significant implications for efforts to privatize or outsource public administration in smart cities. In “From Thuri to Quayside,” Richard Whitt explores a historical comparison to Thuri with respect to democratic ownership and city planning, highlighting the ways in which private decision-makers fail to meet the public’s inclusion, balance, and transparency expectations. He builds on this analysis to offer innovative suggestions for designing more inclusive interfaces.

Part IV, *Lessons for Smart Cities*, synthesizes these cases and the broader literature on smart cities to think through what good governance for public data resources might look like and what we can learn from GKC structured case studies. In Chapter 10, “A Proposal for Principled Decision-Making,” Madelyn Sanfilippo and Brett Frischmann suggest a list of conceptually motivated but practically relevant questions that can guide principled decision-making in smart cities, rejecting a single set of design principles as a one-size fits-all approach. This book ends in the GKC framework tradition, with a concluding chapter reflecting on patterns and insights across cases to both understand how commons arrangements best support smart cities and what new questions future GKC studies ought to address. While the GKC framework does not serve as a normative benchmark or a functional panacea for smart cities, it provides a descriptive framework to support comparison, helping cities to learn from one another, and to structure analysis and decision-making. Smart cities are knowledge commons in which data resources generated with new and existing services must be co-produced with appropriate governance.

REFERENCES

- Cohen, Julie E. 2012. *Configuring the Networked Self: Law, Code, and the Play of Everyday Practice*. Oxford: Oxford University Press.
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