The Smart City as a Library

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abstract: Governments around the world propose to improve urban life by creating smart cities filled with sensors and other digital technologies that would collect large amounts of data about citizens and their activities. Ideally, smart cities would use the information they gather to enhance the urban environment and improve the quality of life of their people. But concerns about privacy, questions of ownership, and other issues have made smart city technology controversial. This article suggests that, when considering the future of smart cities, we should look to libraries for inspiration.

Introduction

Smart cities are a multibillion-dollar industry that promises to reinvent the way that we live, work, and sustain human populations on Earth. These municipalities would use advanced information, sensing, and communication technologies to operate more efficiently and thus improve urban services and enhance the lives of their citizens. Envisioning innovations in areas that range from transportation and energy to emergency services, health care, and public safety, the discourse about smart cities from technology companies like IBM, Cisco Systems, and ZTE Corporation presents utopian-tinged visions of urban life. In this future state, the flow of data through a new information infrastructure will drive new capabilities for human efficiency and well-being. A glance at Google's Sidewalk Labs website gives a helpful example of this vision of cities, the company's proposal to transform a waterfront area of Toronto, Canada, into a high-tech "smart" neighborhood.[1]

Who Will Benefit?

The profits and interests of smart city development too frequently break with both the suitable use of civic resources and the privacy and dignity of citizens.[2] For example, Sidewalk Labs proposes to use cameras and sensors to gather information about the daily lives of city residents, but privacy advocates fear it may not adequately safeguard people's personal information. Historically, cities in the United States and other liberal democracies have been founded on the ideas of shared infrastructure and collective

concern. And while public/private partnerships have often been instrumental in the development of cities, smart city technology manifests in pervasive ways that monitor and record vast amounts of data. If these technologies become more ubiquitous in cities, a crucial question remains: who will own and profit from the data generated by smart cities and their citizens?

One answer is to make data about cities as public-facing as possible. There is recent precedent for city governments taking leadership in integrating electronic and computational systems into government so citizens have easy access to public information and services on Web-based platforms.[3]

While city governments are not (yet) primarily concerned with data, computation, and hardware, the large and powerful organizations acting as smart city partners certainly are. As city services, infrastructures, and landscapes continue to provide increasing opportunities for data collection, there will be opportunities to learn and create new technologies from those data. Smart city discourse often waxes utopian about the benefits of adding instruments to track such things as traffic patterns and energy use, and it is safe to bet that new insights, algorithms, and inventions developed by technology companies will be valuable and powerful. Who will own and benefit from these developments? Pervasive sensors in transportation systems, water and environmental treatment plants, roads, and energy grids will gather intimate and profound details about peoples' lives.

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Let us assume that any data collected are shared mutually by both cities and private interests, leaving all parties as empowered as possible to pursue their respective goals. Even if cities and companies achieve what seem to be fair agreements, merely making data accessible to all parties does not solve the problems of inequity that are baked into current thinking about smart cities.

If we expect that citizen groups, nonprofits, or individuals will use these data in a way that competes with or transforms the agendas of large technology companies, we need to remind ourselves of the resources often required to handle and learn from large amounts of data. Allowing cities and citizens to have more upstream control over technologies is a positive step, but at this moment in the early twenty-first century, not everyone has the same capabilities to use and understand data. This is important because in a smart city, the use and mobilization of data are critical for both enfranchisement and civic participation.

Thus, collecting copious amounts of data about citizens and their activities has been and should continue to be controversial. Using those data to disproportionately benefit a small group of wealthy and empowered stakeholders is also a pathway to crisis. However, sharing the data equally among all parties introduces privacy concerns and does not address technology companies' head start when it comes to leveraging smart city data for profit and power.

Looking to Libraries for Inspiration

If we expect to have smart cities that are also fair cities, there must be mechanisms to engage and connect citizens to the resources that they help fund, produce, and sustain. Providing an environment in which people have a chance to navigate and understand the information systems that sit at the intersection of human culture and livelihood is essential. In short, we need to imagine the project of smart cities, and civic participation within them, much as we have long thought about libraries.

The idea of combining smart cities and libraries is not a new one. In her recent essay in *CityLab*, Linda Poon explores the possibilities of libraries taking care of and storing the data generated by smart city projects.[4] Hannah Kaner makes the important point that libraries are a key part of any smart city vision, expanding notions of "smart" beyond sensors and computing systems.[5] Recent work in "smart libraries" also imagines how libraries can transform themselves by incorporating new computing, visualization, and search technologies.[6]

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All these takes on the possible intersections of libraries and smart cities are surely worthy of consideration. The author would like to advocate that libraries as both institutions and institutional models matter, especially when considering the crisis in data collection and mobilization that smart city projects tend to stir up.

In his book *Palaces for the People*, Eric Klinenberg outlines what he calls "social infrastructure," which he describes as spaces and groups that are public and "shape the way people interact."[7] He cites libraries as a classic example of social infrastructure. Not only do libraries provide a place where people can interact for free, quietly and with dignity, but also they allow people to engage with librarians, who are career enablers of human contact with information systems.

As organizations, libraries do more than house books. Librarians and staff help patrons extract knowledge from libraries. They are partners in understanding collections, and they make the often-daunting task of navigating and understanding large stores of books, data, software, and partners more approachable. Anyone who has spoken to a librarian in their lifetime can attest to this.

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What smart cities need, then, is a library model for housing and distributing the data garnered by their sensors and networks, and a view of citizens as patrons rather than customers or observations. Smart cities should have catalogs designed around long-term access and preservation, archives that produce living records, and spaces and organizations that help make these resources useful, not merely accessible.

Widespread public enfranchisement in the smart city future is at stake as we consider the role of libraries in the cities of today and tomorrow. If we do not commit to making smart cities a way to empower—not merely optimize—citizens in the data-driven future, one wonders for whom these cities are built in the first place.

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Notes

1. Sidewalk Labs, "Sidewalk Labs Is Reimagining Cities to Improve Quality of Life," 2020, https://sidewalklabs.com.
2. Sidney Fussell, "The City of the Future Is a Data-Collection Machine," *Atlantic*, November 21, 2018, https://www.theatlantic.com/technology/archive/2018/11/google-sidewalk-labs/575551/.
3. United Nations Department of Economic and Social Affairs, "2018 E-Government Survey," July 19, 2018, https://www.un.org/development/desa/publications/2018-un-e-government-survey.html.
4. Linda Poon, "Should Libraries Be the Keepers of Their Cities' Public Data?" *CityLab*, February 11, 2019, https://www.citylab.com/life/2019/02/libraries-public-information-city-data-digital-archive/581905.
5. Hannah Kaner, "True 'Smart Cities' Should Invest in Libraries," *CityMetric*, April 24, 2018, https://www.citymetric.com/horizons/true-smart-cities-should-invest-libraries-3860.
6. Linda Freyberg, "Smart Libraries—Buzz Word or Tautology?" *Elephant in the Lab* (blog), July 2, 2018, https://zenodo.org/record/1302988#.XinENydMFaU.
7. Eric Klinenberg, *Palaces for the People: How Social Infrastructure Can Help Fight Inequality, Polarization, and the Decline of Civic Life* (New York: Crown, 2018).