Open Data
Smart City Solutions in Economic and Civic Engagement

IN COLLABORATION WITH
Spectrum

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DEFINITION
Open data initiatives made available in a smart city setting primarily concentrate on creating a shared open data portal through which residents and private organizations can access data collected by the government and city service providers. In some cases, residents and private organization can also contribute data to the portal.

Data included in a city’s open data portal may span government, business, education, environment or health categories. In many cases, the data accessible in open data portals is extensive, with dozens of city agencies contributing data sets. Data sets may include city budgets, city demographic information, water consumption, criminal activity, and certification or license issuances, just to name a very few.

Some open data portals may only provide the opportunity for individuals to view and download data, while others allow for resident and business contribution of data to the portal. Other forms may include open voting systems for city initiatives or project submissions.

The utilization of open data varies by municipality, with some incorporating it as a policy, others responding to it as an executive order, and for some cities it has come into law.

The core tenets of city open data portals are that they must be free, open to the public, and discoverable, while the data must be in a digital format and machine readable. Ideally the data is provided in a timely and up-to-date basis.

CHALLENGES FOR CITIES WITHOUT THE SOLUTION
Cities not engaging in open data initiatives primarily suffer from missed opportunities to be gained when open data is provided. These include decreased opportunity for innovation, decreased potential that government silos will be broken down, decreased potential for cross-governmental collaboration, as well as a missed opportunity to spark resident engagement.

TECHNOLOGY ASPECTS OF THE SOLUTION
Cloud computing and storage are key components of open data, as they allow multiple individuals to contribute to and access data, as well as manipulate it in some cases. Cloud technologies help to reduce the cost of information and communication technologies (ICTs) for public authorities by leveraging economies of scale, while also allowing for the rapid deployment of new and innovative public services.

Portal tools and interfaces such as dashboards allow users to better visualize the data in an easily digestible way. Other engaging interfaces may include gamification tactics and social components.

Cybersecurity is a vital component to open data systems in that it protects the integrity of the data. Bad actors may work to falsely manipulate data, rendering insights and initiatives based on that data ineffective or even dangerous.

Smart devices and an internet connection are required on the data consumer’s side in order to access the data.
Artificial intelligence will play an increasingly influential role in open data portals as it is able to provide more sophisticated insights and make intuitive connections between disparate data sets.

Secure data collection and transmission are playing an important role in the future as cities are utilizing sensors and hardware solutions that collect information from government buildings, transportation systems, etc. The networking infrastructure to support this data collection and transmission is an essential component for any open data initiative.

**ANTICIPATED BENEFITS OF DEPLOYING THE SOLUTION**

The benefits that cities enjoy by supporting open data are many, including greater civic innovation, more efficient and effective government, and improved resident investment.

Open data can be used to spur innovation in a city by allowing residents, researchers, and government employees to harness local and third-party talent to increase opportunities for effective insights and foster a community of innovators. By sharing data with as many people as possible, rather than constraining it to limited individuals or organizations, innovative solutions are more likely to emerge through crowdsourcing collective intelligence and collaboration. When cities and private partners work together to either exchange data or pool data for public use, residents benefit and innovation is jumpstarted.

Open data initiatives work to improve government effectiveness and efficiency by breaking down departmental silos, providing synergistic value from information and data exchange, and allowing cross-functional government officials and employees to better collaborate. Open data portals may also serve as a catalyst for governmental entities to transition processes and records to digital platforms that have not previously been converted, providing outsized benefits such as improved accessibility, efficiency, accuracy, and reduced cost of records administration.

Open data initiatives also serve to increase resident and engagement by increasing government transparency. The ability to have greater visibility into city operations and outcomes, as well as participate in co-creation of city services, drives stronger resident ownership and emotional investment in a city.

**HOW THE SOLUTION FITS WITHIN AN INTEGRATED SMART CITY PLATFORM**

Open data and the platforms supporting it fall under digital government within a smart city ecosystem. Digital government enables residents, businesses, and communities to engage in policies and digital services from the government that support the adoption of green and intelligent solutions. Open data portals allow every resident, researcher, business, and public actor to be better informed, to contribute solutions, solve problems, or raise concerns that pertain to a city.

Open data portals usually represent a city’s first foray into adopting smart city solutions. The most obvious reason for this is that many such government led initiatives, typically require approval only from government agencies (as opposed to, for example, implementing smart grid solutions which would require utilities to work with cities, businesses, and residents).
THE LAST WORD
Networking infrastructure is an essential component to ensure that municipal governments can enable open data for its constituents. Connecting devices, data, cloud infrastructure, and residents using fixed line or wireless connectivity ensures that residents remain engaged in their city and contribute to the robust data economy enabled in the city. In addition, open data enables cities to collaborate with its residents in collection of data and allows residents to use the available data to spark innovation and resident engagement.
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