

CAPTURING EFFICIENCIES THROUGH SMART TECHNOLOGIES

Smart data-driven solutions are allowing cities to do more with less.

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Mayors and city-agency leaders around the world aspire to help their local economies grow. But economic growth does not automatically deliver a better quality of life for citizens. In fact, growth can often have unintended effects on communities and the environment. Investments in new businesses, for instance, can provide more opportunities for more workers but can also result in congested roads and smog. To achieve smart growth—delivering environmental as well as economic value—many city officials are using data-driven solutions to reduce spending, create efficiencies, and improve service delivery.

Energy

Some cities are using smart meters to better match electricity supply with demand. One

large US city is using an automated system to dim or turn up street lamps based on sensors indicating the prevailing lighting conditions—saving the city as much as 30 percent on energy costs. Other cities (in California and Ohio, for instance) are relying on centralized control systems to manage their electricity substations—the facilities that contain power lines, transformers, circuit breakers, and the equipment used to measure energy output and distribution. The use of automation technologies can help cities dramatically reduce power outages and transmission-line losses; this is particularly significant when you consider that there have been five major blackouts in the United States in the last 40 years, three of which have occurred in the past decade.

Water

Several cities are using geospatial data, audio sensors, and smart meters to detect water shortages and system leaks, and to schedule repairs and maintenance. Shanghai has embedded sensors throughout its pipelines to provide real-time information about water pressure and quality. Engineers can use the data to identify rupture risks and respond proactively. Through the use of these innovative technologies, cities can reduce water-system leaks by up to 50 percent and continually monitor the quality of water designated for human use.

Transport

Smart technologies can relieve traffic congestion and reveal inefficiencies in how cities manage their public-vehicle fleets—the cars, trucks, and other equipment owned and managed by the government. San Francisco’s SFpark initiative collects real-time information about available parking spaces using sensors embedded in the spaces. The information is posted to a public website, and the system adjusts parking prices dynamically in response to shifts in demand, charging less in areas with many open parking spaces. Meanwhile, Washington, DC, and the states of California and Texas rely on open data and GPS transponders to monitor public fleets and streamline operations.

City services

The use of smart technologies can help facilitate and improve basic city services—for instance, garbage collection, facilities management, and public safety. The Indian city of Pune uses analytics to identify accident-prone locations and isolate common factors in accidents (such as the lack of crosswalks or traffic-light timings that are too quick) so it can improve the city’s traffic infrastructure. A number of cities in Pennsylvania are using geospatial data

and analytics to assess crime patterns and assign law-enforcement personnel to higher-risk areas. In New York City, the illegal disposal of restaurant waste has been a significant problem that has contaminated the city’s water systems. Previously, it had been difficult to determine which restaurants were violating the rules. Through the use of analytics, however, the city was able to assess reports of clogged catch basins, along with data indicating which nearby restaurants had not reported using licensed waste haulers. This information helped inspectors identify which restaurants might be illegally dumping waste. As a result, inspectors found instances of illegal dumping in 95 percent of the site visits they made.

In Boston, citizens can report issues with garbage collection, potholes, or a number of other common municipal problems through its Citizens Connect program. Residents can use the program’s website, call center, or a mobile application to file a report. The reports are geotagged, making them easy to map and locate, and directed to the appropriate agency, where problems are resolved as promptly as possible. When numerous Bostonians pointed out that bulk-item trash pickup was difficult to arrange, the city responded by sending pickup dates in real time and automating the scheduling process.



As these examples suggest, smart solutions are allowing cities to do more with less—creating additional capacity within the constraints of existing physical infrastructures.¹ These technologies enable the collection of direct feedback that mayors and other local leaders can use to win support for change. Their use attracts businesses that want to be part of a thriving, positive municipality. Most important, city officials can use innovative technologies to offer citizens improved services and better quality of life. ■

¹*How to make a city great*, McKinsey & Company, September 2013, mckinsey.com.