

# IBM Smarter Cities

*Creating opportunities through leadership and innovation*



## Contents

- 3** Innovate across core city services
- 4** Planning and management
  - 4 Government and agency administration
  - 5 Public safety
  - 6 Smarter buildings and urban planning
- 7** Human
  - 7 Social programs
  - 8 Healthcare
  - 9 Education
- 10** Infrastructure
  - 10 Energy and water
  - 11 Transportation
- 12** Intelligent operations
- 14** Team with industry leaders
  - 14 Deploy IBM Smarter Cities solutions regardless of size
  - 15 Identify priorities and maximize value
- 15** Build a Smarter Planet one city at a time
- 16** For more information

For the first time ever, most people live in urban areas.<sup>1</sup> In the years to come, the percentage of people living in cities will continue to rise along with the population. By 2050, two-thirds of the world's population will live in cities.<sup>2</sup>

As more people pour into urban environments, they are raising the bar for the services they demand from city leaders. Beyond roads, water, energy, police, emergency services and schools, citizens expect cities to contribute to a high quality of life, providing a full range of cultural, social and economic opportunities while helping them to maintain their health and sustain their lifestyle. Citizens also want cities to have the flexibility to adapt so they can continue to access the services and opportunities they need even in an environment of economic uncertainty.

Facing aging infrastructures, declining budgets, changing demographics and increasing threats, forward-thinking city leaders must innovate to address citizen demands. They must reach beyond city hall to collaborate and integrate with a range of organizations, facilitating new interconnections that improve outcomes.

Leaders need new ways to sustain high service levels for citizens and businesses while improving efficiencies. They need to drive economic growth and enhance quality of life while facilitating coordinated responses to crises, improving transportation and water management systems, ensuring reliable energy delivery, protecting residents from crime, and reducing the environmental impact of cities through resource conservation and energy-efficient urban planning. At the same time, leaders must promote citizen health, deliver optimal outcomes across social programs and educate citizens for tomorrow's challenges.

To accomplish these goals, leaders cannot simply work harder. They must work smarter. IBM® Smarter Cities® solutions can help leaders leverage a wealth of information to make better decisions, anticipate problems to resolve them proactively and coordinate resources and processes to operate effectively.

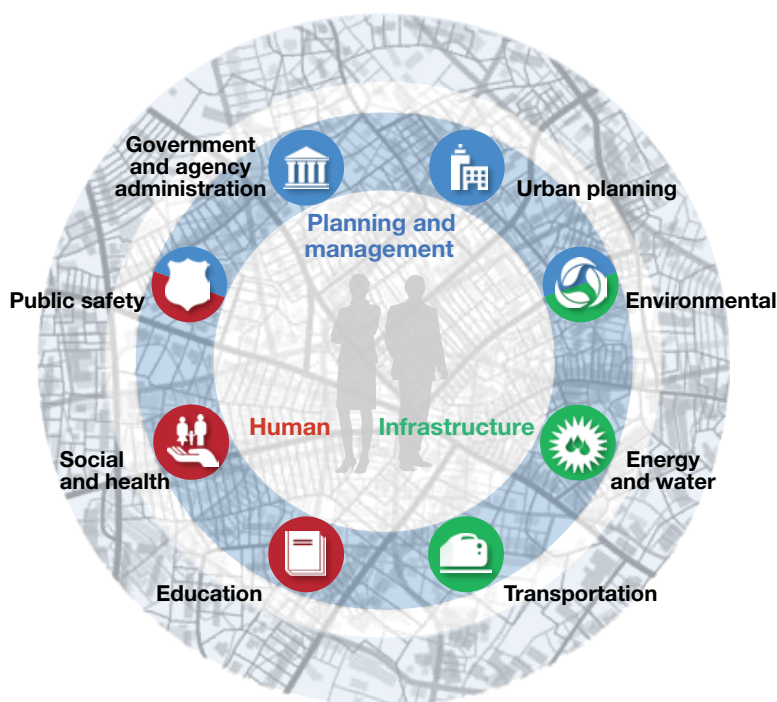
With IBM Smarter Cities solutions, leaders can begin with any aspect of the city they choose, implementing a solution of any size and at any level of customization. IBM offers:

- **Powerful solutions**—Powerful, entry-point solutions are based on repeatable software patterns and best practices.
- **Deep expertise**—Transformational solutions draw on the deep expertise of consultants.
- **Advanced research**—Game-changing, first-of-a-kind solutions can be designed by IBM Research.
- **Dynamic systems**—Flexible, scalable infrastructure solutions provide the technology engine and computing power to meet the needs of cities of all sizes.

## Innovate across core city services

Cities are complex systems of systems, with challenges that generally touch multiple agencies, departments and organizations. To meet and exceed citizen expectations, city leaders must innovate across key service areas (see Figure 1):

- **Planning and management**—Leaders must design and implement a city plan to realize full potential for citizens and businesses while efficiently running daily operations.
- **Human services**—They must provide services that support the social, health and educational needs of citizens.
- **Infrastructure**—They must provide the fundamental infrastructure to deliver services such as water, energy and transportation while making the city a desirable place to live.



### Planning and management

Design and implement a city plan to realize full potential for citizens and businesses while efficiently running daily operations

### Human

Provide effective services that support the economic, social and health needs of citizens

### Infrastructure

Deliver efficient fundamental city services that make a city desirable for citizens

Figure 1: To meet and exceed citizen expectations, city leaders must innovate across core service areas.

---

## Solutions

IBM Smarter Cities solutions capitalize on insights gained through thousands of client implementations worldwide. These solutions, which represent the richest collection of industry and technology expertise, can help cities of all sizes to identify priorities, apply best practices and deploy advanced technologies that help address pressing challenges. IBM Smarter Cities solutions are based on a common model designed to help leaders across departments and agencies collaborate and integrate seamlessly.

## Benefits

IBM Smarter Cities solutions can help drive the best possible outcomes for citizens and businesses. By adopting IBM solutions, leaders can:

- **Leverage information to make better decisions.**
  - **Anticipate problems to resolve them proactively.**
  - **Coordinate resources and processes to operate effectively.**
- 

Leaders must reach across the city ecosystem, collaborating with multiple agencies and departments as well as citizens and businesses to achieve that innovation. By enabling dynamic interconnections among those groups and constituents, leaders can improve outcomes across the system of systems. For example, they can:

- Improve emergency responses by easing traffic congestion.
- Increase school attendance rates by improving student health.
- Bolster public health by better protecting the city's water supply.

No matter what starting point leaders select, they can implement integrated solutions that address specific priorities and align with citywide goals.

## Planning and management

### Government and agency administration

Government leaders need creative approaches for improving planning and management, and meeting citizen needs for infrastructure and human services. Cost pressures require increased operational efficiency in all functional areas of government. Leaders must work to create a smoothly functioning system that integrates information from numerous, disparate agencies and streamlines processes while maintaining dynamic, real-time connections with citizens and businesses. At the same time, governments must respond to increasing demands for transparency and direct participation, developing citizen-centric policies and allowing easier access to information and services.

IBM solutions for government administration can help cities enhance efficiency across departments and build a more citizen-centric government. Case management solutions can help integrate information across government departments. Cloud computing solutions can help cities tap into a dynamic, cost-effective computing infrastructure for introducing new, citizen-centric services. Performance management solutions can help leaders understand how they are performing against strategic goals and objectives.

#### IBM solutions for government and agency administration streamline processes and help leaders:

- **Leverage information across agencies and departments to analyze performance metrics and monitor progress toward goals.**
- **Anticipate citizen needs, provide transparency and deliver new, citizen-centric services.**
- **Coordinate resources to improve both process efficiency and responsiveness to citizens.**

---

### Smarter Government client

The city of Helsinki, Finland, needed more effective ways to investigate incidents and build cases while reducing complexity and eliminating unnecessary costs. To do so, the city needed to enhance communication among its 35 departments, improve decision making and reduce the reliance on paper processes.

The city implemented an IBM case management solution that provided a consolidated, scalable and user-friendly case management platform to better integrate information across departments. The city reduced paper by 40 percent, saving EUR300,000 per year. It also reduced staff requirements and increased transparency by enabling all 35 city departments to use the same decision-making system.

---

### Public safety

A city's first obligation is to protect citizens and critical infrastructure. But maintaining public safety involves multiple complex tasks. Law enforcement agencies need ways to better anticipate problems, respond more quickly to threats and streamline the investigation and prosecution of cases. Emergency management teams must be ready for sudden and potentially large-scale crises, from hurricanes and earthquakes to fires and acts of terrorism.

IBM solutions for law enforcement and emergency management incorporate best-of-breed technologies that help cities collect, integrate, analyze, visualize and distribute critical information among multiple agencies, police officers and first responders. Data visualization, real-time collaboration and deep analytic capabilities can help cities prepare for emergencies, predict and prevent crimes, coordinate emergency response efforts and streamline case management. Cities can realize immediate benefits while supporting a longer-term public safety transformation from a reactive approach to a proactive, predictive approach that creates a safer, more desirable environment for citizens.

IBM solutions for law enforcement make cities safer and help leaders:

- **Leverage** real-time information to gain a holistic view of situations and use crime data to identify leads more quickly.
- **Anticipate** criminal activity and uncover trends to help optimize personnel deployments and establish preventive strategies.
- **Coordinate** police resources and processes to quickly and efficiently solve crimes.

IBM solutions for emergency management provide a central point to capture events and help leaders:

- **Leverage** accurate information to create near-real-time situational awareness at the command-center level.
  - **Anticipate** events and crises to improve planning, strategic collaboration and tactical decision making.
  - **Coordinate** resources to enable faster, more effective and efficient responses.
- 

### Smarter Law Enforcement client

The Tustin Police Department in Orange County, California, needed ways to improve the success of criminal investigations by finding suspects across jurisdictional boundaries. Using an IBM law enforcement data warehouse solution, the Tustin police department draws on information from neighboring towns and cities to find individuals wherever they are living and committing crimes.

In one case, investigators used the solution to catch a thief through records maintained in a neighboring jurisdiction. The suspect had been previously arrested in another town, under a false name, for another crime, but the solution determined his alias and true name partly through his distinctive facial tattoos. With help from the IBM solution, both jurisdictions successfully prosecuted their cases.

---



### Smarter Emergency Management client

Rio de Janeiro, Brazil's second-largest city, needed better ways to respond to landslides, floods and other disasters and to better ensure the safety of citizens during public events, from Carnival festivities to the upcoming 2016 Olympics. Working with IBM, Rio implemented a new centralized operations center that integrates data from 30 agencies plus numerous sensors, such as traffic surveillance and rain meters.

Personnel can now conduct real-time analysis of weather, energy, building, transportation and water data, and achieve near-real-time situational awareness in a single view. Enhanced communications capabilities enable city officials to share information across agencies and synchronize response efforts. Now the city can marshal its resources within hours, instead of days, to warn the public and provide a targeted emergency response to help save lives.

### Smarter buildings and urban planning

Around the world, buildings are among the biggest consumers of resources. A 2009 study showed that residential and commercial buildings in the United States consumed 72 percent of all electricity, often using electricity and water inefficiently.<sup>3</sup>

Inefficiencies impact businesses and the environment. The US Environmental Protection Agency (EPA) estimates that energy costs alone represent nearly 30 percent of an office building's total operations costs.<sup>4</sup> At the same time, buildings are the top contributors to global CO<sub>2</sub> emissions.<sup>5</sup>

IBM solutions for smarter buildings help building managers and city planners improve the efficiency of building operations to reduce resource consumption, cut costs and minimize emissions. Building managers can collect vital real-time energy and operational metrics, store them in a central warehouse for enterprise-wide analytics and view that data in a cohesive dashboard. Managers can then address service issues proactively, and improve the efficiency of high-energy use assets, ultimately reducing emissions and cutting costs. IBM solutions for smarter buildings also help predict equipment maintenance issues and locate assets across the facility.

**IBM solutions for smarter buildings lower maintenance and energy costs and help leaders:**

- **Leverage** information to manage operational, energy and space productivity within and across facilities.
- **Anticipate** asset performance to optimize efficiency and reduce operational risk.
- **Coordinate** and deploy resources to achieve the highest return on investment.





### Smarter Buildings client

For many years, IBM has been a leader in implementing building management practices designed to reduce energy and maintenance costs, and improve the environmental sustainability of its facilities. The company first implemented the IBM solution for smarter buildings at its campus in Rochester, Minnesota, which comprises 3.2 million square feet and more than 35 interconnected buildings.

The solution provides key building management insights by integrating and analyzing a tremendous amount of data from the building management system, electrical meters, asset management software, and outdoor temperature and humidity gauges. In addition to helping reduce energy consumption and carbon emissions, the solution is expected to provide 5 percent year-over-year energy savings and 8 percent annual savings in equipment operating costs while increasing asset lifespan and decreasing operating costs.

## Human

### Social programs

Cities must deliver various social programs to help maintain the well-being of citizens while enabling them to sustain productivity and pursue economic opportunity. Yet inefficient processes and disconnected systems make it difficult for many cities to deliver consistent services that produce successful outcomes in a timely manner.

Changing demographics and tough economic conditions add challenges: as city populations age, demand for services from aging individuals is increasing, putting a strain on a city's ability to provide services to all citizens. Shrinking budgets are forcing cities to adopt a more intelligent approach to social programs or eliminate services that citizens depend on.

With smarter social program solutions, agencies can provide needed services more cost-effectively while delivering optimal, timely outcomes for citizens. Leaders can foster collaboration among public and private organizations providing social programs and give individuals self-serve access to specific programs.

IBM solutions for social programs deliver optimal and timely outcomes for citizens and help leaders:

- **Leverage** citizen information to connect individuals to the right programs.
- **Anticipate** citizen life events and respond dynamically to changing needs.
- **Coordinate** social programs across multiple levels of government and the community to achieve desired outcomes.



---

### Smarter Social Programs client

California's Alameda County Social Services agency needed to improve social program performance while reducing costs and meeting stiff regulatory requirements. To accomplish those goals, the agency required a better understanding of individual case status and program performance while giving caseworkers direct access to individual case information and providing faster, better reporting capabilities.

IBM and an IBM Business Partner helped develop an integrated reporting system for the agency. Managers and caseworkers now have a deep, real-time understanding of case and program status, enabling them to find the best assistance programs for each situation. They can discover relationships between benefit recipients and programs, reducing waste, fraud and redundancy. Rapidly generated reports enable caseworkers to try "what-if" scenarios based on current data. The solution also helps documents daily performance to comply with regulations. By enhancing efficiency, the county has realized more than USD11 million of direct savings."

---

### Healthcare

People in cities expect access to quality healthcare as well as safe, healthy environments for their families. Yet as population demographics change and budgets shrink, many cities are finding it difficult to provide the services and environment that citizens require. Increasing demand for services from aging and chronically ill individuals, for example, is hindering the ability of cities to provide services to all citizens.

Solutions from IBM can help healthcare delivery systems and city agencies provide the right care, when and where it is needed. These solutions can enable and encourage individuals to play more active roles in managing their care.

---

### Smarter Healthcare client

Canada's British Columbia Health Ministry is responsible for delivering quality, appropriate and timely health services to citizens while monitoring the overall health of the province's population. The Ministry needed a public health management and surveillance system that incorporated bilingual components and could be integrated with other provincial and national healthcare information systems.

The Ministry worked with IBM and a strategic federal investment partner to launch a modular, enterprise-level health surveillance and management solution. The new system allows users to efficiently collect, share and analyze health information at the regional, provincial and national levels in order to manage health problems and communicable diseases. The solution can detect potential outbreaks quickly, cutting response times. It also can help prevent disease by keeping accurate immunization records and drive down costs by improving vaccine inventory management.

---



IBM solutions for healthcare enable an efficient care delivery system and help leaders:

- **Leverage** information to improve healthcare quality and outcomes.
- **Anticipate** the needs of the individual to increase value and deliver personalized care.
- **Coordinate** resources to build efficient and sustainable healthcare systems.



## Education

Budget cuts have strained schools and higher-education systems, yet the need for quality education remains strong within cities. The demand for knowledge workers with specialized skills is growing every year. Many jobs require lifelong training and a continuous updating of skills.

To meet demand with increasingly limited resources, cities must improve efficiency and address redundancies. For example, in the United States, there are more than 13,000 individual school districts<sup>6</sup> and more than 4,000 higher-education institutions,<sup>7</sup> most with their own goals and management processes. These redundancies have created tremendous inefficiencies, ballooning costs and silos of resources.

IBM solutions for education enable cities to foster student success and build the skills for employment throughout a citizen's lifetime. Analytics and advanced modeling tools can help identify students at risk of dropping out and enable agencies to intervene early and increase graduation rates. K–12 school systems and universities can adopt cloud technologies to share best practices and collaborate on new ideas. High-performance computing solutions from IBM can help university research teams tackle complex problems in science, engineering and other fields. Risk management solutions enable organizations to reduce financial risks, protect resources and help ensure financial stability.

### Smarter Education client

The State of North Carolina is using cloud computing and open-source software developed at North Carolina State University to ensure every student in the state's schools, colleges and universities can access the most advanced education content, software applications and IT resources.

Now a first-grader from a rural area can learn geography through the same interactive 3-D animation and storytelling resources as students in a high-profile school district. A researcher at one college can access high-performance computing resources at a university on the other side of the state. North Carolina hopes to lead the way in democratizing education within its own state and worldwide.

IBM solutions for education promote effective learning and help leaders:

- **Leverage** information to measure and predict student performance, develop holistic early intervention programs and improve teaching effectiveness.
- **Anticipate** educational needs to improve planning and resource management as well as student outcomes.
- **Coordinate** resources to eliminate redundancies and increase efficiencies.

## Infrastructure

### Energy and water

Energy and water are critical for sustaining life and supporting industry. Yet cities face significant challenges delivering those resources reliably and cost-effectively with an eye on conservation.

A growing global population is putting significant pressure on freshwater resources. Cities need ways to ensure the availability and quality of water for residents while also working to balance the needs of industry and agriculture. They need to address aging water infrastructures and manage complex water delivery and treatment.

At the same time, climate change, rising energy prices and technology advances are turning citizens into highly informed, environmentally conscious consumers who want a more active role in energy conservation. By supporting new technologies, such as smart grid solutions, cities and utilities can help give consumers the information and tools they need for reducing consumption, costs and greenhouse gas emissions.

---

### Smarter Water client

DC Water, in Washington, DC, needed to modernize management of its water and sewer infrastructure, which includes hundreds of thousands of assets from water distribution pipes and valves to public fire hydrants and water meters.

By implementing an IBM solution, the organization can now view the location and condition of assets on a detailed map, assessing asset history, total asset cost, number of problems in each area and water quality. Predictive analytics capabilities help to mitigate costly service interruptions and enable the organization to potentially build a new rate model based on service demand. DC Water has reduced customer support calls by 36 percent through preventive maintenance and the use of automated meter readings while accelerating dispatch of emergency investigations.

---



IBM solutions for water management make operations more reliable and efficient and help leaders:

- **Leverage** operational data holistically to create insights and improve water management.
- **Anticipate** potential delivery disruptions and better forecast long-term water demand to improve customer satisfaction.
- **Coordinate** resources to protect the water supply and drive conservation and sustainability.

IBM solutions for energy systems deliver reliable power and help leaders:

- **Leverage** data to create insights that improve network operations.
- **Anticipate** and prevent outages, improve communications and accelerate restoration of service.
- **Coordinate** resources to inform consumers and engage them in conservation and sustainability.

IBM solutions for water and energy can help cities and utility companies address the challenges of reliably, sustainably and cost-effectively delivering these critical resources. Asset management capabilities can help cities design, build, procure, operate, maintain, modify and dispose of water and energy utility assets over their life cycle. These capabilities also facilitate management of the inventory, supply chain and human resources associated with those assets, reducing costs, decreasing downtime and improving overall efficiency. Energy-specific solutions can help cities and utilities address the entire energy value chain with solutions for smart metering, grid operations, utility network security and communication networks. Water solutions help water management and wastewater treatment companies manage sewer overflow, improve leak detection and drive water conservation.

### Smarter Energy client

The public works department of a large Asian city needed to better monitor and service its network of 30,000 street lamps, which had been managed in a time-consuming visual inspection process by maintenance crews. The street lamps—many of which could be turned on and off only manually—wasted energy, and because manual inspection was necessary to identify burned-out lights, lamps often remained out of service for weeks at a time.

Working with IBM and an IBM Business Partner, the public works department implemented an energy management and automation solution that allows personnel to manage more than 10,000 lamps from a single console. The city has reduced electricity usage and maintenance costs by up to 20 percent annually. The city also has increased the efficiency of repair crews, eliminating inspections of many working lights and allowing them to focus on burned-out bulbs. By keeping the lights on when they are needed, the city is providing safer streets for its large population.



### Transportation

Transportation is the vital means of connecting people, goods and services, but many transportation systems and infrastructures are constrained. These stresses will intensify as urban populations grow and citizens demand higher levels of service. Traditionally, cities have attempted to solve transportation challenges by expanding the infrastructure—building more roads, tunnels and bridges—but uncertain financial conditions and land constraints make that approach impossible.

IBM solutions for transportation enhance the traveler's experience and help leaders:

- **Leverage** information to create visibility across transportation networks and improve operations.
- **Anticipate** demand to optimize capacity and minimize congestion.
- **Coordinate** resources to assure safety and improve the traveler's experience.

### Smarter Transportation client

The Singapore Land Transport Authority (LTA) strives to ensure a seamless and cost-effective travel experience for citizens. Officials wanted to revamp the existing fare structure of transportation systems in order to encourage the use of public transportation. The city's goal is to have 70 percent of all commuters using public transport by 2020.

With help from an IBM Business Partner, the LTA implemented a distance-fare pricing system as an additional feature on its existing electronic payment ticketing system. The new feature uses an intelligent algorithm to charge a single fare based on distance rather than the number of transfers. Weekly fare savings have been realized by 68 percent of commuters while accelerating commuter transfers. By offering cost-effective public transportation options, the new feature is spurring more commuters to use public transportation and helping the city move toward its goal.

IBM Smarter Cities transportation solutions offer cities visibility across transportation networks. Cities can visualize and analyze traffic conditions to better manage incidents, increase performance, reduce pollution and improve the commuter's experience. Traffic prediction capabilities can help cities address traffic congestion and enhance planning. Information management capabilities allow cities to integrate and analyze multimodal information in real time to improve operational efficiency and provide enhanced traveler information.

### Intelligent operations

In the past, individual city agencies often focused only on their own operations and were unable to share information with other agencies and departments. IBM Intelligent Operations Center for Smarter Cities is designed to help multiple agencies and departments share information—such as metrics, events and processes—and collaborate in real time, allowing cities to better anticipate and respond to situations while optimizing city resources (see Figure 2).

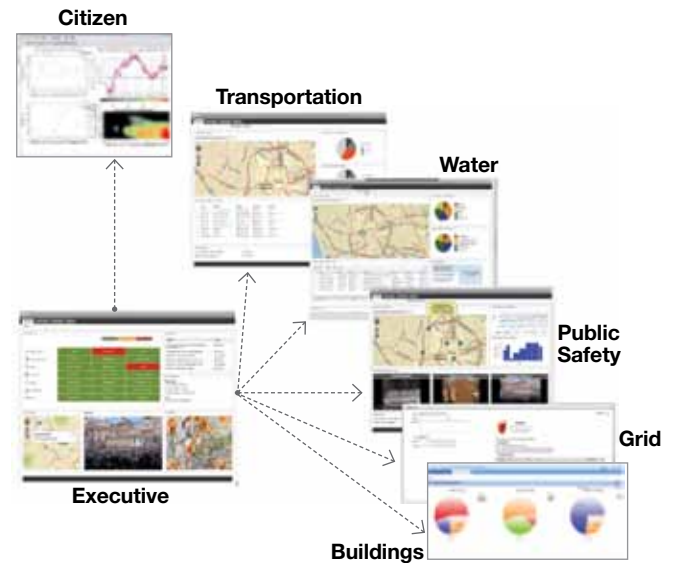


Figure 2: IBM Intelligent Operations Center for Smarter Cities can help personnel gain a centralized, comprehensive view of cross-agency operations.



IBM Intelligent Operations Center incorporates best-of-breed technologies from across the IBM software portfolio, offering data visualization, real-time collaboration and deep analytics capabilities. City agencies can prepare for situations, coordinate and manage response efforts, and enhance their ongoing operational efficiency. Executive dashboard capabilities give decision makers a real-time, unified view of operations so they can see what resources are available and who is needed. By providing visibility into key performance indicators (KPIs) and trends, the solution also can help fine-tune current resource usage and support planning activities.

IBM Intelligent Operations Center provides integrated insight and helps leaders:

- **Leverage** information with real-time visibility into key data to drive better decisions.
- **Anticipate** performance to identify, manage and mitigate incidents that affect operations.
- **Coordinate** resources and processes to respond to situations rapidly and effectively.

### Smarter Sustainability client

Dubuque, Iowa, a city of 60,000, launched a citywide Sustainable Dubuque initiative in 2006 as a grassroots effort to make the community more sustainable and to create a replicable model for small cities. Public and private organizations worked together to establish projects that would have the greatest impact on sustainability, including projects focused on water, energy and transportation.

#### Water

To improve water conservation, city managers teamed with IBM to launch the Smarter Sustainable Dubuque Water Pilot Study, which empowered more than 150 households with information and insights into their water consumption. By providing citizens and city officials with an integrated view of water consumption, the pilot helped reduce water utilization by 6.6 percent, encouraged long-term behavior changes and found eight times more leaks among users than the city's average rate of leak discovery.

#### Energy

To encourage energy conservation, the city worked with IBM, an IBM Business Partner, energy companies and a state agency to implement a pilot study that provided citizens with detailed information about their electricity usage through a web-based portal and offered social incentives to conserve. Participating households reduced electricity usage by 11 percent, delivering a potential annual savings of USD120 per household.

#### Transportation

To improve the efficiency of public transportation, the city worked with IBM to launch a transportation pilot program that analyzed data collected anonymously from mobile phone systems, smartphone applications, social media sites, weather systems, video cameras and other sources. The pilot program produced a dynamic picture of transit that helped managers optimize routes and plan for future changes. Information delivered to riders helped them plan their days and avoid delays.

To learn more about these projects, visit: [ibm.com/smarterplanet/us/en/leadership/dubuque/](https://ibm.com/smarterplanet/us/en/leadership/dubuque/)





Figure 3: IBM offers multiple deployment options to accommodate cities of all sizes and with all levels of IT resources.

### Team with industry leaders

IBM Smarter Cities solutions provide cross-agency capabilities using a variety of data streams and services already found in city environments. IBM is teaming with the providers of those data streams and services, developing an ecosystem of IBM Business Partners committed to jointly delivering Smarter Cities solutions. By combining deep technology and industry expertise with best-in-class systems, software and services, IBM and IBM Business Partners are helping leaders deploy Smarter Cities solutions worldwide.

### Deploy IBM Smarter Cities solutions regardless of size

IBM Smarter Cities solutions offer a variety of deployment models to enable cities of any size and with any level of IT resources to capitalize on advanced technologies (see Figure 3).

### Work toward a Smarter Planet

#### Instrumented

Sensor-based systems can extend visibility into the real world of operations, transportation, water, public safety, energy, buildings, education, healthcare and social programs, providing new real-time sources of data that were previously unavailable to be collected.

#### Interconnected

Event-processing software derives business-relevant events from the raw stream of sensor inputs, while integration middleware brings these events into the required business context, helping to generate new insights into the actual behavior of real-world, operational systems.

#### Intelligent

Using data collected and integrated from a range of systems, mathematical algorithms and statistical tools help provide deep insight into city events. City leaders can perform outcome prediction, scenario modeling and simulations to help risk management and facilitate informed decision making.

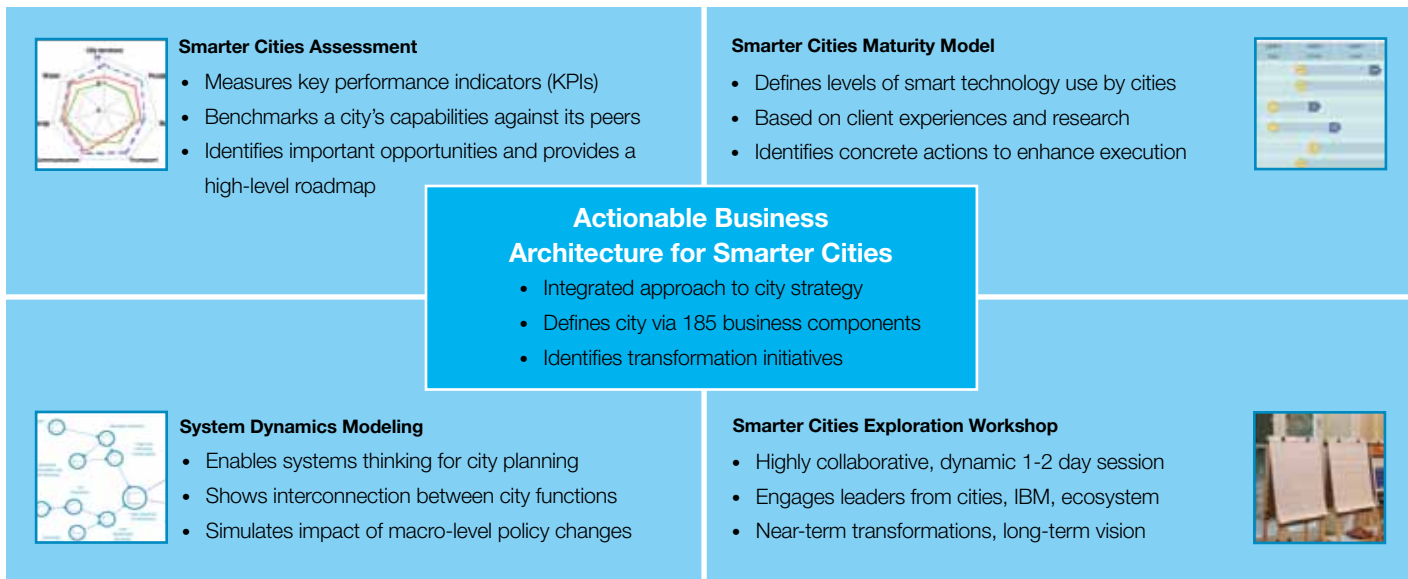


Figure 4: IBM offers a range of strategic analysis services.

### Identify priorities and maximize value

IBM provides strategic analysis capabilities (see Figure 4) to identify the most valuable actions a leader should take to help a community become a smarter city. IBM can help leaders build a strategy that addresses the specific needs of a city, with tools to:

- Determine top goals and objectives.
- Understand the relationships among systems.
- Compare the performance of cities to each other.
- Evaluate operational maturity.
- Develop actionable roadmaps.

### Build a Smarter Planet one city at a time

For more than 100 years, IBM has been working to make the world a better place by helping businesses and local governments in more than 170 countries deploy innovative solutions to tackle their greatest challenges. IBM Smarter Cities solutions continue that tradition, drawing inspiration from learning and insights across thousands of cities engagements around the world.

Looking ahead, IBM will continue to enhance and expand its Smarter Cities solution portfolio to fulfill the IBM Smarter Planet™ vision. By enabling cities to become more instrumented, interconnected and intelligent, Smarter Cities can help cities generate increased value for their citizens and deliver sustainable economic growth.

Leaders are asking for help. We are listening. Together let's build a Smarter Planet, city by city.



## For more information

To learn more about IBM Smarter Cities solutions, please contact your IBM representative or IBM Business Partner, or visit [ibm.com/smartercities](http://ibm.com/smartercities)

© Copyright IBM Corporation 2012

IBM Corporation  
Software Group  
Route 100  
Somers, NY 10589

Produced in the United States of America  
July 2012

IBM, the IBM logo, [ibm.com](http://ibm.com), Smarter Cities and Smarter Planet are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at “Copyright and trademark information” at [ibm.com/legal/copytrade.shtml](http://ibm.com/legal/copytrade.shtml)

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions. THE INFORMATION IN THIS DOCUMENT IS PROVIDED “AS IS” WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

The client is responsible for ensuring compliance with laws and regulations applicable to it. IBM does not provide legal advice or represent or warrant that its services or products will ensure that the client is in compliance with any law or regulation.

<sup>1</sup> The World Bank, “Urban Development,” <http://data.worldbank.org/topic/urban-development>

<sup>2</sup> United Nations, Department of Economic and Social Affairs, “World Urbanization Prospects, the 2011 Revision,” <http://esa.un.org/unpd/wup/index.htm>

<sup>3</sup> Environmental Protection Agency, “Buildings and their Impact on the Environment: A Statistical Summary,” April 22, 2009, <http://www.epa.gov/greenbuilding/pubs/gbstats.pdf>

<sup>4</sup> Environmental Protection Agency, “Energy Efficiency in Non-Governmental Buildings,” [www.epa.gov/statelocalclimate/local/topics/commercial-industrial.html](http://www.epa.gov/statelocalclimate/local/topics/commercial-industrial.html)

<sup>5</sup> Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2006*, November 2007, <ftp://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/ggrpt/057306.pdf>

<sup>6</sup> Institute of Education Sciences, “Number of public school districts and public and private elementary and secondary schools: Selected years, 1869–70 through 2008–09,” [http://nces.ed.gov/programs/digest/d10/tables/dt10\\_090.asp](http://nces.ed.gov/programs/digest/d10/tables/dt10_090.asp)

<sup>7</sup> Institute of Education Sciences, “Fast Facts,” <http://nces.ed.gov/fastfacts/display.asp?id=84>



Please Recycle