Smarter, More Competitive Cities

Cultivating charisma, resiliency and vitality

City leaders worldwide have embraced innovative technology to help meet – and even exceed – citizen and business expectations while realizing the tangible benefits of being “smarter.” However, becoming a smarter city is a journey and cities continue to face complicated challenges. Many regions lack the resources to keep pace with rapid population growth while delivering services that citizens and businesses demand. Cities and other urban organizations also must house and manage ever-increasing amounts and types of data, as well as contend with aging infrastructures, resource scarcity and increased threats. At the same time, they face an evolving constituency, as advances in social and mobile technology further empower citizens.

Overview:

Cities everywhere are reinventing themselves. They are reimagining essential systems, infrastructure and service delivery to promote growth, sustainability and enhanced quality of life. To build the strong, differentiating identities that attract new citizens and businesses, visionary cities are looking for ways to better integrate across functions, capitalize on new insights, create system-wide efficiencies and collaborate in new ways. To succeed, forward-looking leaders are relying on integrated solutions to help them turn challenges into opportunities and reach their full potential.

Becoming smarter means taking fundamental actions.

Three key imperatives:

- Lead with vision and deep insight.
- Build resilient, sustainable infrastructure.
- Enable individuals’ health and productivity.

While the challenges are daunting, a rising generation of leaders, instinctively comfortable with technology, is confident that innovative solutions can solve what might otherwise seem intractable problems. They understand that cities compete to attract new residents, businesses and visitors by offering a high quality of life and vibrant economic climate. And they understand that sustainable economic development is shaped by the value created by both people and businesses, leveraging technology as an accelerator for growth. These leaders know that economic development requires the balanced growth of business, talent and technology that enables value creation and innovation.
To promote their distinct personalities, the most successful cities are cultivating three core attributes – charisma, resiliency and vitality – by implementing integrated solutions in the areas of planning and management, infrastructure and people (see Figure 1). Charisma represents bold leadership toward a differentiated brand identity, while resiliency refers to improved infrastructure to anticipate and respond to resource challenges of all kinds. And vitality involves smarter systems and service delivery to help individuals reach their full potential. To successfully develop these attributes, cities should focus on three essential capabilities:

- **Capitalizing on new insights** to approach long-standing challenges in new ways.
- **Creating system-wide efficiencies** to do more with less.
- **Collaborating in new ways** to transform traditional work structures and promote innovation.

Forward-thinking leaders are reinventing their cities, reimagining essential systems and focusing on staying competitive. They are paving the way for transformation by harnessing the powers of big data and analytics, cloud, social and mobile technologies. These leaders know that big data and analytics solutions can help cities integrate enormous volumes of data and identify retrospective, real-time and predictive insights, dramatically improving situational awareness and decision making.

They see how cloud is helping cities reimagine operations and service delivery. And they recognize that social technologies enable a continuous conversation that provides crucial data and insights about the city, while mobile allows for real-time insights – from critical information for first responders to simple alerts to help drivers avoid traffic. In working with cities of all sizes around the globe, we see smarter cities focusing on three imperatives:

### Lead with vision and deep insight

To protect citizens and plan for the future, city leaders must leverage the right technologies to lead with vision and insight. Whether calculating future energy needs, responding to a natural disaster or improving services, leaders need the right data delivered in the right context at the right time. Only then can they derive the insights necessary to make informed decisions about the things that matter most. Integrated planning and management technology solutions in the areas of government and agency administration, city planning and operations, buildings and public safety can help cities increase efficiency, enhance collaboration and improve responses.

For example, through analytics and cloud technologies, agencies can improve efficiency across departments and integrate disparate data in real time. Analytics and cloud solutions also can provide a unified, real-time view of city operations, which can improve decision making and help ensure the right resources and information reach the right places at the right times. In addition, technology can help cities reimagine building operations. While buildings consume a significant amount of energy, they also produce a wealth of data, which can be analyzed and used to drive operational efficiency, improve safety and decrease costs.

Perhaps most important, technology can help speed emergency response and reduce crime. Since the security of its citizens is fundamental, a city's most pressing public safety priority is to shift from a reactive approach to crime and emergencies to a predictive, proactive one. Analytics and collaborative solutions that deliver data-driven insights, predictive capabilities and real-time information can help agencies prevent and solve crimes, as well as improve emergency response times, resulting in a safer, more desirable city.
Data-driven insights improve public safety

The Durham Police Department used an integrated analytics solution to help it more effectively allocate resources to enhance public safety. Although the department had data on incidents and individuals, it needed a solution that could turn that data into insights for officers on the streets.

As part of its focus on violent crime, the department launched “Operation Bull’s Eye.” Using an intelligent database that identified and visualized relationships among “shots fired” calls, violent gun crimes and the addresses of known gang members, the department was able to identify a two-square-mile area where a disproportionate number of these events were occurring – which it dubbed the “Bull’s Eye.”

By using this information to help determine where and how police resources should be deployed, the Durham Police Department was able to reduce violent crime committed with firearms by more than 50 percent in the target area by the fourth year of the initiative. In addition, as safety increased, so too did community engagement. The Durham Rescue Mission, a homeless shelter located in the center of the Bull’s Eye, was able to attract more volunteers by making them feel safe. As a result, donations increased sufficiently to support construction of an expansion facility, significantly improving service delivery to citizens in need.

Technology solution enhances water, transportation systems

The City of Da Nang relied on technology to enhance its water and transportation systems, making them more efficient and manageable. Da Nang, Vietnam’s fourth largest city, has one of the highest population growth rates in the country. Because of the subsequent strain on resources, government leaders knew they must increase the manageability and efficiency of the city’s systems to effectively manage growth and provide quality citizen services. They turned to technology to address two of the most significant issues: transportation and water.

Da Nang implemented a solution that provides a summary of events and incidents through maps, dashboards and alerts, allowing city personnel to track trends, forecast demand and better manage the city’s infrastructure and assets. The solution allowed the city to expand and modernize its water-treatment capabilities, deploying advanced analytics and sensors to help visualize operations and monitor water quality in real time. The city also created a new traffic control center that integrates data from multiple sources, allowing officials to improve forecasting, analysis and response for roadways and transit systems. As a result, the city has been able to improve water quality and operational efficiency, reduce road congestion, better coordinate incident response and improve travel experiences for citizens.

Build resilient, sustainable infrastructure

To optimize resources and provide essential services, today’s cities must rely on innovation to extract more value from limited resources. Savvy city leaders are working to create resilient, sustainable infrastructure to better anticipate and respond to resource challenges of all kinds. As populations grow and infrastructure ages, it is more challenging – and more important – than ever for power grids, water systems, roadways and transit lines to provide what citizens and businesses need. Infrastructure technology solutions can help them meet this challenge.

To become more reliable and sustainable – without significant new investments in infrastructure – energy utilities need to transform their operations and become proactive where they once were reactive. Solutions that provide proactive monitoring systems, analytics and optimization capabilities, data management and cloud delivery can help cities mine more value from existing energy infrastructure.

Enable individuals’ health and productivity

When it comes to water management, identifying the right patterns can prevent problems and increase efficiency and sustainability. By combining system-wide visibility with advanced analytics, water utilities can optimize operations, save water and deliver more reliable service. Technology can also aid in making transportation networks more responsive and transparent. Solutions that integrate traffic and transit data that can be shared with citizens can help reduce congestion, as well as optimize travel experiences, influence driver and rider behavior, and increase safety.
Despite budget pressures and siloed operations, schools must meet students’ needs while using new technology to align training and skills with the sustained demand for knowledge workers. Advanced analytics and performance management tools can help reduce education costs, improve student achievement and enhance cooperation among educators and institutions. Such solutions empower educators to deliver more positive outcomes for individuals and society as a whole.

Amid tight budgets and demographic change, cities need to consistently administer social programs that support those who need them most. By embracing a citizen-centric approach powered by a combination of analytics and business intelligence solutions, program leaders can deepen their understanding of individuals’ needs, as well as facilitate cross-agency collaboration, case management, and program access and delivery. In addition, by leveraging new and existing data sources and analytic innovations, care providers can uncover valuable insights into lifestyle choices, social determinants and clinical factors. This smarter approach to care enables holistic and individualized care, as well as provides more coordinated and efficient care delivery and advanced care management.

Smarter care enables more individualized, integrated treatment plans

A European public health services provider embraced an integrated technology solution to facilitate collaboration and improve patient care. The provider, which has a large chronic disease burden, launched a new care coordination program that delivers an integrated view of patient data to support primary, hospital and social care. As a result, information is more easily shared across services and providers, facilitating collaboration, communication and integrated patient care.

Physicians, nurses and social workers can now gain a 360-degree view of each patient and create care plans tailored to each individual’s needs. Smarter care has reaped benefits for the provider and its patients, including reductions in emergency room visits, hospital readmissions and program costs; the ability to assemble assessments and care plans in hours rather than months; and improved collaboration across the community of care.

Conclusion

Again, becoming a smarter city is a journey that requires a shift in thinking. Every step drives increased efficiency, and every initiative that delivers return on investment can translate into another project. The resulting smarter city is one that attracts citizens and businesses by delivering on its potential as never before.

About IBM Smarter Cities

The IBM approach to smarter cities is based on insights drawn from thousands of client engagements worldwide. With proven strength across the breadth of city operations, IBM is the essential partner for visionary leaders working to transform their cities. Combining world-class business, industry and technology expertise, IBM provides integrated solutions to drive the transformative change cities need, from strategy all the way to implementation. We bring unmatched insight from across industries to help visionary city leaders identify and activate fresh thinking, new approaches and critical partnerships.

For more information

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