SMART CITIES
READINESS GUIDE®

The planning manual for building tomorrow's cities today
Welcome to the Readiness Guide. This document was assembled with input from many of the world’s leading smart city practitioners – the members and advisors of the Smart Cities Council. It will help you create a vision for the future of your own city. Equally important, it will help you build an action plan to get to that better future.
The first goal of the Readiness Guide is to give you a “vision” of a smart city, to help you understand how technology will transform the cities of tomorrow.

The second goal is to help you construct your own roadmap to that future. It suggests the goals to which you should aspire, the features and functions you should specify, the best practices that will gain you the maximum benefits for the minimum cost, at reduced risk.

The Readiness Guide is intended for mayors, city managers, city planners and their staffs. It helps cities help themselves by providing objective, vendor-neutral information to make confident, educated choices about the technologies that can transform a city.

Cities around the world are already making tremendous progress in achieving economic, environmental and social sustainability, in export-based initiatives and in the creation of 21st century jobs. All of these are excellent ways to improve city living standards and economies. The concept of smart cities doesn’t compete with these efforts. Instead, smart city technologies can support and enhance work already underway.

In this chapter, we will define the smart city, explore its benefits and introduce the framework that underlies this Readiness Guide.

Taking a holistic view of ‘city’

This introductory section defines smart cities and explores the trends that are driving this global phenomenon. It also discusses some of the barriers cities may face and strategies to overcome them.

Before we define the “smart” piece, however, we should first deal with the word “city.” Real-world smart city examples are rarely a city in the strictest term. Many are more than a single city, such as a metropolitan region, a cluster of cities, counties and groups of counties, a collection of nearby towns or a regional coalition. Other examples are less than a full-scale city, such as districts, neighborhoods, townships, villages, campuses and military bases. Indeed, many municipalities are taking a neighborhood-by-neighborhood approach to modernization. This Guide is designed to address all of these human ecosystems.

Because it is in common use, we will continue to use “city” throughout this Guide. But we use it to mean all relevant examples big and small. Regardless of size, we are taking a comprehensive, holistic view that includes the entirety of human activity in an area, including city governments, schools, hospitals, infrastructure, resources, businesses and people. As you’ll read, smart technologies have matured to the point that cities of all sizes can afford and benefit from their implementation. For example, new cloud computing offerings allow even the smallest city to affordably tap into enormous computing power. So the lessons of this Guide apply regardless of size – and you’ll see real-world examples in the case studies featured throughout.

The definition of a smart city

A smart city uses information and communications technology (ICT) to enhance its livability, workability and sustainability. In simplest terms, there are three parts to that job: collecting, communicating and “crunching.” First, a smart city collects information about itself through sensors, other devices and existing systems. Indeed, many municipalities are taking a neighborhood-by-neighborhood approach to modernization. This Guide is designed to address all of these human ecosystems.

Collecting data. Smart devices are logically located throughout the city to measure and monitor conditions. For instance, smart meters can measure electricity, gas and water usage...
with great accuracy. Smart traffic sensors can report on road conditions and congestion. Smart GPS gear can pinpoint the exact locations of the city’s buses or the whereabouts of emergency crews. Automated weather stations can report conditions. And the mobile devices carried by many city dwellers are also sensors that can – when specifically authorized by their users to do so – collect their position, speed, where they cluster at different times of the day and the environmental conditions around them. Smart phones also gauge an always-local, perpetually renewable but inherently limited natural resource – radiofrequency spectrum – that smart cities depend on and will ultimately need to manage.

A smart city, then, is one that knows about itself and makes itself more known to its populace. No longer do we have to wonder if a street is congested – the street reports its condition. No longer do we have to wonder if we’re losing water to leaks – the smart water network detects and reports leaks as soon as they occur. No longer do we have to guess the progress of the city’s garbage trucks – the trucks report where they’ve been already and where they are headed next.

**Communicating data.** Once you’ve collected the data, you need to send it along. Smart cities typically mix and match a variety of wired and wireless communications pathways, from fiber-optic to cellular to cable. The ultimate goal is to have connectivity everywhere, to every person and every device. Interoperability is a key requirement.

**Crunching data.** After collecting and communicating the data, you analyze it for one of three purposes: 1) presenting, 2) perfecting or 3) predicting. If you’ve read about “analytics” or “Big Data,” then you may already know about the astonishing things that become possible by analyzing large amounts of data. Importantly, analyzing data turns information into intelligence that helps people and machines to act and make better decisions. This begins a virtual cycle wherein data is made useful, people make use of that data to improve decisions and behavior, which in turn means more and better data is collected, thereby further improving decisions and behavior.

**Presenting information** tells us what’s going on right now. In the aerospace and defense industries, they call this “situational awareness.” Software monitors the huge flow of incoming data, then summarizes and visualizes it in a way that makes it easy for human operators to understand. For instance, a smart operations center can monitor all aspects of an emergency situation, including the actions and locations of police, fire, ambulances, traffic, downed power lines, closed streets and much more.

**Perfecting** operations uses the power of computers to optimize complex systems. For instance, balancing the supply and demand on an electricity network; or synchronizing traffic signals to minimize congestion; or selecting the ideal routes for a delivery fleet to minimize time...
and fuel costs; or optimizing the energy usage of an entire high-rise to achieve maximum comfort at minimum cost; or to balance the grid with the optimal mix of renewable and traditional power sources at any given time.

**Predicting** what’s next is perhaps the most exciting part of analytics. Singapore uses data to predict traffic jams while there is still time to minimize their effects. Rio de Janeiro predicts just where flooding will occur from a particular storm, so emergency crews and evacuation teams know just where to go.

Cities can derive benefit by collecting, communicating and analyzing information from a single department. But the greatest benefits come when data is connected with multiple departments and third parties. Many cities combine historic traffic data with information about population growth and business expansion to know when and where to add or subtract bus and train routes. Other cities correlate multiple data sources to predict crime the way we predict weather.

As we’ll see in more detail, a smart city is a system of systems – water, power, transportation, emergency response, built environment, etc. – with each one affecting all the others. In the last few years, we’ve refined our ability to merge multiple data streams and mine them for amazing insights. It is those insights – presenting, perfecting and predicting – that enhance the livability, workability and sustainability of a smart city.
The Council defines a smart city as one that “uses information and communications technology (ICT) to enhance its livability, workability and sustainability.” Other organizations have their own definitions.

For instance, Forrester Research emphasizes the use of computing to monitor infrastructure and improve services: “The use of smart computing technologies to make the critical infrastructure components and services of a city – which include city administration, education, healthcare, public safety, real estate, transportation and utilities – more intelligent, interconnected and efficient.”

The U.S. Office of Scientific and Technical Information also stresses infrastructure, explaining that “a city that monitors and integrates conditions of all of its critical infrastructures – including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings – can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens.”

Meanwhile, in 2010 IBM’s Journal of Research and Development paid particular attention to the wide range of smart devices that collect information, calling it “an instrumented, interconnected and intelligent city.”

These and other definitions are valid and helpful understandings of what smart cities are. The Council stands behind its comprehensive definition. But we mention these others so that cities that have planned and invested under these and other models will understand that we share complementary, not competitive, views of the smart city.
The drivers of smart cities

Powerful forces are converging to make smart cities a growing trend all around the world. It is valuable for city leaders to understand what’s behind this momentum and how it will play out in their region. Chances are some of the pain points described below will hit close to home.

Growing urbanization. Cities deliver many benefits – greater employment opportunities, greater access to healthcare and education, and greater access to entertainment, culture and the arts. As a result, people are moving to cities at an unprecedented rate. Over 700 million people will be added to urban populations over the next 10 years. The United Nations projects that the world’s cities will need to accommodate an additional 3 billion residents by the middle of the century. A recent UN report suggests that 40,000 new cities will be needed worldwide.

Growing stress. Today’s cities face significant challenges – increasing populations, environmental and regulatory requirements, declining tax bases and budgets and increased costs – at the same time many are experiencing difficult growing pains ranging from pollution, crowding and sprawl to inadequate housing, high unemployment and rising crime rates.

Inadequate infrastructure. Urbanization is putting significant strain on city infrastructures that were, in most cases, built for populations a fraction of their current size. Much of the developed world has infrastructure that is near or past its design life, requiring massive upgrades. For instance, in 2013 the American Society of Civil Engineers gave the United States an overall grade of D+ for its infrastructure. Meanwhile, much of the developing world has missing or inadequate infrastructure, requiring massive build-outs. The 2012 blackout in India that left more than 600 million people without electricity is a prime example; the country has inadequate power generation to meet ever-increasing demand. The bottom line? McKinsey & Company estimates that cities will need to double their capital investment by 2025, to $20 trillion from today’s $10 trillion per year.

Growing economic competition. The world has seen a rapid rise in competition between cities to secure the investments, jobs, businesses and talent for economic success. Increasingly, both businesses and individuals evaluate a city’s “technology quotient” in deciding where to locate. A real challenge for cities with economies based on heavy industry is...
creating job opportunities that appeal to recent university graduates so they will stay and help build the kind of high-quality workforce that new industries, for instance those in technology, demand.

**Growing expectations.** Citizens are increasingly getting instant, anywhere, anytime, personalized access to information and services via mobile devices and computers. And they increasingly expect that same kind of access to city services. In fact, a May 2013 United Nations survey of over 560,000 citizens from 194 countries revealed their top priorities are a good education, better health-care and an honest and responsive government. We also know that people want to live in cities that can provide efficient transportation, high-bandwidth communications and healthy job markets.

**Growing environmental challenges.** Cities house half of the world’s population but use two-thirds of the world’s energy and generate three-fourths of the world’s CO₂ emissions. If we are going to mitigate climate change, it will have to happen in cities. Many regions and cities have aggressive climate and environmental goals – goals that cannot be reached without the help of smart technologies. Smart cities are better able to address resiliency and adaptation to climate change.

**Rapidly improving technology capabilities.** Many of the smart city drivers listed above are negatives – problems that demand solutions. There are...
positive drivers as well, especially the rapid progress in technology. The costs of collecting, communicating and crunching data have plunged. What’s more, much of the needed technology is already in place:

- Over the last decade, many regions have begun to modernize their electric power grids and, to a lesser extent, their water and gas networks. Hundreds of millions of smart meters and smart sensors are now in place, producing data of value to a smart city.

- With the arrival of smart thermostats and building management systems, there are now millions of buildings with some of the pieces needed to be smart, on the cusp of being able to ‘talk’ and ‘listen.’

- The reduced costs of solar energy and renewables systems (distributed generation) is increasing adoption rapidly in homes and businesses. By balancing these new resources with the grid, cities can increase their energy sustainability.

- On the health and human services front, we’re seeing better access to healthcare with in-home consultations via computer. Meanwhile most agencies are switching to electronic records and many are using analytics to improve results.

- Our highways and byways are becoming smarter thanks to intelligent transportation management software, roadway sensors and smart parking apps. Navigation apps and equipment display real-time traffic so users can find – and even be automatically pointed to – less congested alternatives. And we are seeing more electric vehicles on our roads which help reduce pollution and our dependence on oil.

- Over the last two decades, we have deployed high-bandwidth networks worldwide that connect one billion computers and four billion cell phones. These networks are already in place in almost all major cities and can be leveraged for smart city applications.

- An increasing number of cities are starting to benefit from a large network of Near-field Communication (NFC) equipped point of sales with the roll-out of contactless cards.

Let’s consider that final example in more detail. It’s important to realize that today’s ubiquitous smartphones are becoming both a “delivery platform” and a “sensor network” for smart city applications. The delivery platform is obvious – a smartphone is a great place for a resident to receive alerts and access city services. But today’s smartphones can also be leveraged to collect information when the user agrees to share data. For instance, one smartphone launched in 2013 has the following sensors: a GPS locator, a microphone, a gyroscope, a light sensor, a camera, an accelerometer, a barometer, a thermometer, a magnetometer and a hygrometer.

“By the end of the decade, many infrastructure technologies – smart meters, intelligent traffic systems, building energy management – will be deployed across North America and Europe and, increasingly, in the rest of the world,” says Navigant Research analyst Eric Woods. Once
Rapidly improving technology capabilities:

TFL SUCCESS WITH CONTACTLESS PAYMENTS POINTS THE WAY

Transport for London (TfL) first introduced contactless payments on London buses in 2012. They were extended in September 2014 to cover all modes of travel on the world’s largest contactless pay-as-you-go network – covering bus, rail, Tube and tram.

The legacy Oyster smart card developed by Council member Cubic Transportation Systems helped set the stage for London to become the first major city in the world to accept contactless bank cards for payment. Since contactless was introduced, the uptake has steadily increased. As of February, 2015, around 500,000 contactless journeys are made every weekday, representing 10% of all pay-as-you-go trips.

Central to the seamless transition was the Cubic Tri-Reader 3, developed in conjunction with TfL and the first contactless smart card device compatible with all industry standard transportation schemes and contactless payment cards.

More than 20,000 of the readers were retrofitted ahead of the contactless launch with upgrades made to buses, gates, card readers and validators. Cubic also developed sophisticated front and middle office systems to link with TfL’s own back office system for processing payments.

“This was a fantastic partnership endeavor and throughout the payments industry, it is clear the knock-on ‘halo effect’ produced by London’s success has led to a boost in the wider acceptance of contactless across the board,” noted John Hill, managing director, Cubic Transportation Systems Europe.

Rapidly improving technology capabilities. Bringing contactless bank card payment to London’s entire transit network required innovation at a global scale and a readiness to engage with the mobile payments ecosystem.

Figure 1.7
in place, that technology provides the basis for a wide range of innovative smart city applications and services.

Rapidly declining technology costs. Even as capabilities are climbing, technology costs are declining at a steady pace. But it is software costs that have plunged the most, thanks to four trends.

The first trend is the advent of inexpensive mobile apps and information services viewable by mobile phones. Those phones are so popular that millions of developers have turned their attention to building applications, many of which cost only a few dollars. Mobile technology has allowed citizens of developing countries to essentially leapfrog into 21st century expectations – and cities have to find ways to address them.

The second trend is the arrival of social media. Applications such as Facebook and Twitter act as free “platforms” to deliver alerts, updates of even small-scale apps. They also act as listening posts that help cities monitor citizen needs and preferences. In fact, companies such as IBM and Microsoft now have the capability to use machine intelligence to monitor social media and derive trends.

The third trend is the maturation of cloud computing. Cloud computing delivers powerful computing resources on demand to users over the Internet. Cloud computing helps cities take advantage of economies of scale.

And there’s much more to come. The smart city is part of an even larger trend – the “Internet of Things” or “Internet of Everything.” Technology provider Cisco estimates there were 200 million devices connected to the Internet in the year 2000. By 2012, that number had increased to 10 billion. A 2015 report from Cisco and DHL predicts there will be 50 billion devices connected to the Internet by 2020.

Clearly, we are entering a remarkable new phase. Research firm IDC predicted in 2012 that the smart city market would grow by 27% year over year. Meanwhile, Navigant Research said it would hit $200 billion in worldwide sales by 2020. And a 2014 Cisco study predicted the Internet of Everything will be a $19 trillion global opportunity over the next decade. Private-sector firms can create as much as $14 trillion of value while cities, governments and other public sector organizations can create $4 trillion.

Fierce competition is raising capabilities, increasing choice and lowering costs at a rapid pace, making smart cities more viable every day.
The barriers to smart cities

Despite the powerful drivers in favor, the path to smart cities has obstacles along the way. Members of the Smart Cities Council have worked on thousands of smart city projects all over the world. As they’ve collaborated with local governments certain consistent barriers have emerged.

Siloed, piecemeal implementations. Cities often tackle challenges in a piecemeal fashion, due to short-term financial constraints and long-term traditions that divide city functions into separate, “siloed” departments with little interaction. As a result, many projects are built to solve a single problem in a single department, creating “islands of automation” that duplicate expenses while making it difficult to share systems or data.

Building a smart city requires a system-wide view and an integrated, cross-departmental approach. The bad news: holistic thinking and collaborative work are hard. The good news: done right, they can save time and enable new services that were not possible in an isolated, siloed model. For instance, a city department can drastically cut the development time for a new application by re-using data and software modules already created by other departments. A municipal water utility can drastically cut the cost of a communications network by using one already built out for an electric utility. And a city can sometimes reduce overall information and communications technology (ICT) costs by as much as 25% just by implementing a master ICT architecture and technology roadmap.

This is not to suggest that cities must finance and implement dozens of investments at one time. In fact, it is entirely fine to begin with just one or two projects. What is critical is that these projects all fall into a larger, integrated
plan so that city investments are not redundant. Silo avoidance depends on the use of widely adopted open international standards.

Most experts agree that technology will not be the gating factor for the smart city transformation. Instead, we will be limited by our human ability to coordinate and collaborate between departmental and technology silos.

**Lack of financing.** Tax revenues are shrinking in many cities, making infrastructure projects increasingly difficult to finance. In fact, some cities have been forced to implement austerity measures — such as furloughing employees one day a month or cutting back on travel and discretionary expenses. Yet if those cities remain old-fashioned while others modernize, they will suffer even more, since cities must now compete globally. Fortunately, new financial models are emerging. And payment innovations like e-Procurement or electronic benefits can help cities reduce costs and free up money to invest in infrastructure and other improvements. Some of them require little or no upfront capital from the city. Instead, the city “rents” its solution as it goes. And performance contracts and shared revenue models between the city and solution vendors provide cities with attractive financing solutions. What’s more, many smart city solutions have a rapid payback so that they save money over the long run. In many cases, the technology can actually improve the city’s economic return.

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**A new view of city apps.**

Early city applications were inward-facing and intended just for city employees. Today, more and more cities are producing outward-facing apps. For example, to get citizens involved in cleaning up London before the 2012 Summer Olympics, the city worked with Council member Microsoft on the Love Clean London portal (above) and companion mobile app that gave citizens an easy way to alert authorities to litter and graffiti by texting or uploading images. It’s still being used today.

*Figure 1.10*
Lack of ICT know-how. Although industry has developed highly sophisticated ICT skills, few city governments have had the budget or the vision to push the state of the art. Since smart cities are essentially the injection of ICT into every phase of operations, this lack of ICT skills puts cities at a disadvantage. Fortunately, more and more applications are offered as a service. That is, they are hosted in the cloud (out on the Internet) where they have access to tremendous computing power, virtually unlimited storage and innovative software. Another plus is that the smart city sector has developed a large cadre of experienced global, regional and local consultants and service providers who are partnering with cities to deploy ICT solutions.

Lack of integrated services. To the extent cities applied ICT in the past, they applied it to their internal, siloed operations. The result has been a grab-bag of aging applications that only city employees can use. Although this was an acceptable practice in the last century, today we can and must allow citizen access and self-service. There is no reason that citizens who want, for instance, to open a restaurant should have to make multiple applications to multiple city departments. In a smart city, a single portal can gather all the data and parcel it out to the appropriate departments. Likewise, residents should have instant access to up-to-the-minute information about their energy and water usage, their taxes and fees, their social services programs and more. And ideas like Open Data not only improve transparency, they enforce a people-first perspective that is critical in smart cities.

Lack of citizen engagement. The smart cities movement is often held back by a lack of clarity about what a smart city is and what it can do for citizens. As a result, many stakeholders are unaware of the smart city options that have found success already. Often, there is a communications issue. Cities should be wary of being too abstract with their smart city initiatives, recognize that citizens care about services that make their lives better, and adjust their engagement accordingly. Cities need to recognize when they need citizen and business awareness versus complete ‘buy in.’

Remedying the citizen engagement challenge will require visionary leadership that paints a picture of the benefits technology can bring. In the U.S. in the late 2000s, several electric power utilities learned this lesson the hard way. They rolled out smart meters without explaining how customers would benefit. They suffered consumer backlash and resistance as a result.

Lack of a smart city visionary. Every parade needs a leader. Sometimes that leadership comes from an elected official – a mayor or council person who acts as the smart city champion. Smart city leadership can also come from elsewhere in the administration –
Engaging citizens:

HOW CAPE TOWN IS BECOMING A ‘CITY OF OPPORTUNITY’

The City of Cape Town is achieving its vision of becoming a “City of Opportunity”—a united, efficient and inclusive city in which everyone has the opportunity to further their dreams.

The city is using Council member Microsoft’s software to transform its infrastructure with a private cloud to standardize service delivery to all constituents. Cape Town engages its citizens through an eGovernment portal and accelerates opportunities, for example, by working with Microsoft BizSpark to support local startups to optimize public transport.

Taking advantage of the Microsoft CityNext initiative, Cape Town is using a Windows 8 app developed by local startup WhereIsMyTransport. To increase ridership the company developed the app for smartphones and also offers a text-based option for people using less-expensive “feature” phones so that citizens from all neighborhoods, and tourists, can access transit schedule information to optimize their movements around the city. The information gathered from the public’s use of the apps is stored in Microsoft Azure for planners to design future transit services and infrastructure improvements.

Cape Town is also partnering with Microsoft-sponsored social programs such as the 4Afrika Initiative and YouthSpark to empower young people with opportunities for education, employment, and entrepreneurship.
a city manager or a planning director, for instance. Or it can come from outside city hall altogether with involvement from business leaders, civic organizations or public-private partnerships.

The benefits of smart cities

Now let’s look at why it is so worthwhile to overcome those barriers and take advantage of the technology advances described earlier that allow you to re-imagine your city. With the right planning and investment, government leaders can make our cities more livable, more workable and more sustainable — both economically and environmentally. Let’s examine those overall goals, which are the very purpose of becoming smart.

**Enhanced livability** means a better quality of life for city residents. In the smart city, people have access to a comfortable, clean, engaged, healthy and safe lifestyle. Some of the most highly valued aspects include inexpensive energy, convenient mass transit, good schools, faster emergency responses, clean water and air, low crime and access to diverse entertainment and cultural options.

**Enhanced workability** means accelerated economic development. Put another way, it means more jobs and better jobs and increased local GDP. In the smart city, people have access to the foundations of prosperity — the fundamental infrastructure services that let them compete in the world economy. Those services include broadband connectivity; clean, reliable, inexpensive energy; educational opportunities; affordable housing and commercial space; and efficient transportation.

**Enhanced sustainability** means giving people access to the resources they need without compromising the ability of future generations to meet their own needs. Merriam-Webster defines sustainability as a method of using a resource so that it is not depleted or permanently damaged. When the Council uses the term, it refers not only to the environment, but also to economic realities. Smart cities enable the efficient use of natural, human and economic resources and promote cost saving in times of austerity, and they are careful stewards of taxpayer dollars. It isn’t about investing huge sums of money into new infrastructure, it’s about making infrastructure do more and last longer for less.

Life is better in a smart city — better for people and better for businesses. In the chapters to come, we will discuss dozens of specific benefits that accrue to cities that embrace the smart city vision. But let’s take a moment to summarize them by imagining a day in the life of a citizen in our smart city.
Enhancing livability, workability and sustainability:

REVITALIZING D.C.’S RIVER WATERFRONT AND URBAN NEIGHBORHOODS

In a partnership among 19 federal and District of Columbia government agencies, the Anacostia Waterfront Initiative (AWI) is bringing communities together and residents to the doors of new businesses.

AWI is a trailblazing endeavor that is removing physical barriers and opening a gateway to the future by transforming a once disconnected and deficient urban environment.

Council member CH2M is working alongside the District Department of Transportation on this visionary urban revitalization, helping to transform neighborhoods in the nation’s capital and create lasting legacies by amplifying their unique strengths.

The 30-year, $10 billion project is restoring the long-neglected Anacostia Waterfront, reconnecting neighborhoods and showcasing their historic and cultural identity.

Aimed to leverage private investment in the economy and provide a cleaner river environment, AWI offers residents and businesses blocks of revitalized urban areas through multimodal transportation, waterfront parks and recreation areas. Serving as the spine of the economic revitalization, the transportation infrastructure is connecting new mixed-use development areas along key corridors. The conversion of highways to urban boulevards, improved connectivity between neighborhoods and the elimination of regional travelers from local streets is improving development opportunities, commuter traffic flow and quality of life for local residents.
### AT A GLANCE: TRADITIONAL CITIES VS SMART CITIES

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*Figure 1.15*
ADDITIONAL RESOURCES

**Norfolk County utilizes a cloud-based information hub to transform the delivery of integrated public services**
Utilizing the economic and social value of big data held by the Norfolk County Council and partner agencies, this Microsoft video explains how the hub will help create a local knowledge economy, improve education and attract investment.

**Moving to a Smarter City**
The Internet of Things (IoT) can help address many of the most pressing problems facing towns and cities today, from congestion and energy use to public safety. For a quick summary of ways IoT can do that, download this infographic from Council member Verizon.

**Smart City Readiness Graphic**
This infographic highlights drivers, challenges and steps for moving forward toward smarter cities. It is based on a survey of North American municipal leaders conducted by Cisco and the Smart Cities Council in September 2014.

**The Smart Revolution**
This white paper from Council member Black & Veatch presents the framework for Smart Integrated Infrastructure. From advancements through the smart evolution cycle to the role of smart analytics in planning for a smarter future, it addresses why the world as we know it is getting smarter and more integrated, the value and implications that brings society and how utilities and municipalities can prepare for it.

**The Path to a Smarter City**
A convergence is happening between smart grid platforms and smart city platforms. Learn in this video from Council member Silver Spring Networks about the opportunities that provides cities to take advantage of a common infrastructure to drive a whole host of compelling services.