INFRASTRUCTURE

MINING & METALS

NUCLEAR, SECURITY & ENVIRONMENTAL

OIL, GAS & CHEMICALS

CSIS Smart Cities Panel

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efficiency

Cost-effective

Source: Smart Cities Readiness Guide

resiliency

…To make people's lives better

Smart Buildings

Integrated smart buildings

Performance based financing

Smart office buildings and factories

Distributed generation

Sustainable buildings
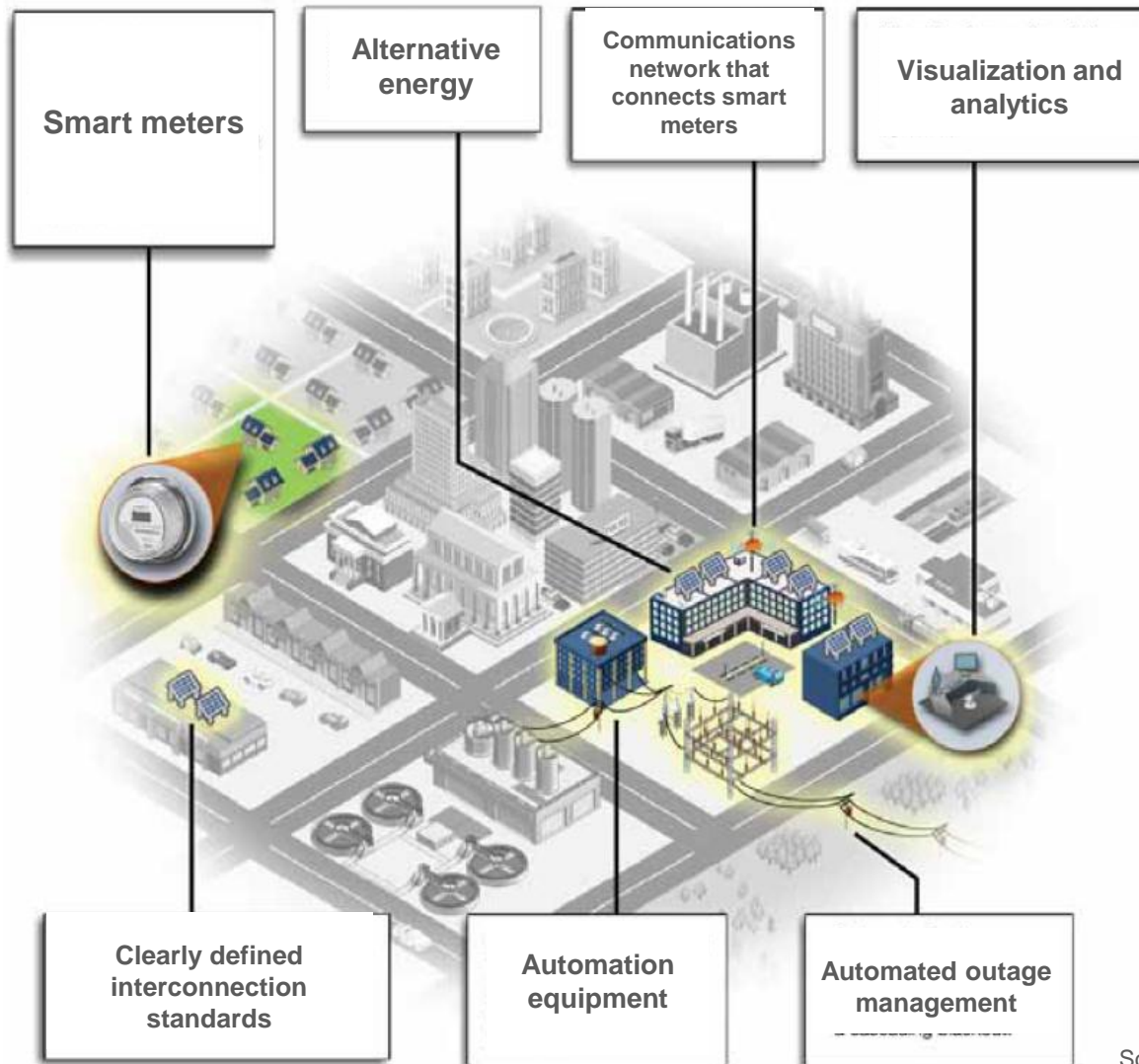
Sensors, systems, and meters
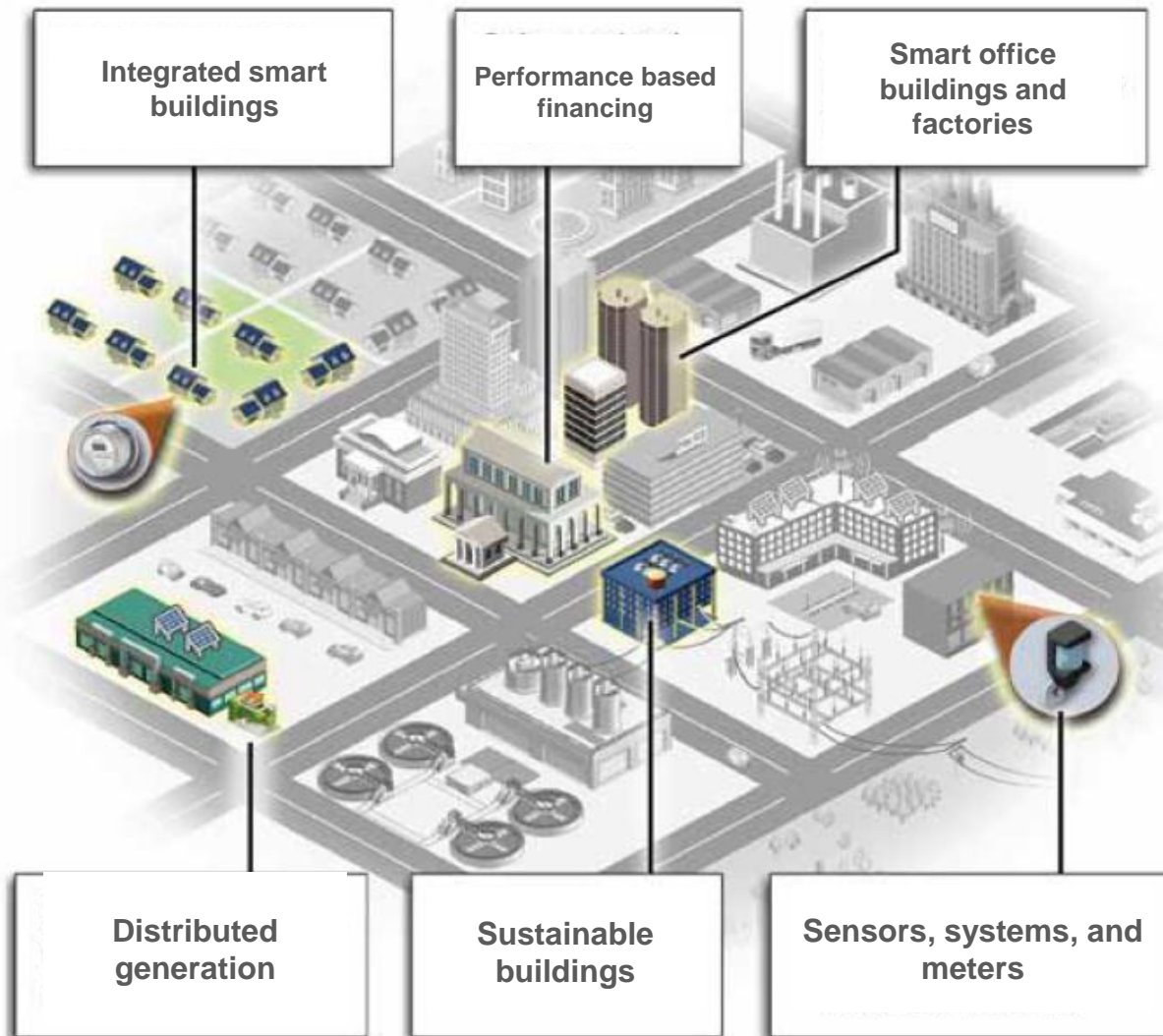
Making buildings smarter

sensors, meters, systems and software to monitor and control a wide range of building functions

– lighting, energy, water, HVAC, communications, video monitoring, intrusion detection, elevator monitoring and fire safety

Source: Smart Cities Readiness Guide

Smart Energy

Smart meters

Alternative energy

Communications network that connects smart meters

Visualization and analytics

Clearly defined interconnection standards

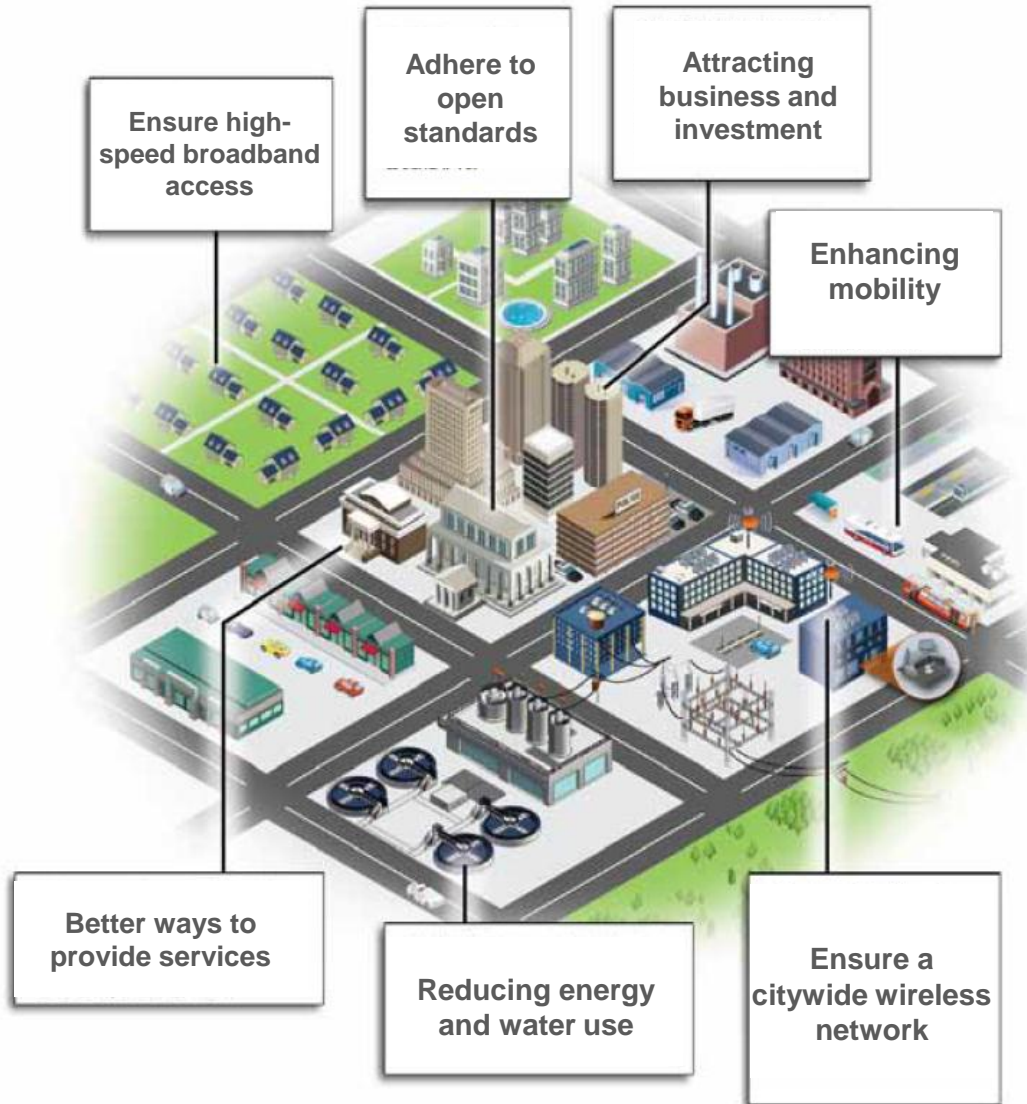**Automation equipment**

Automated outage management

Energy's critical role in smart cities
Smart energy powers the technologies that are the foundation of a smart city, from smart meters that offer two-way communications between customer premises and utilities, to outage management systems that make the power grid more resilient.

Source: Smart Cities Readiness Guide

Smart Telecommunications

Ensure high-speed broadband access

Adhere to open standards

Attracting business and investment

Enhancing mobility

Better ways to provide services

Reducing energy and water use
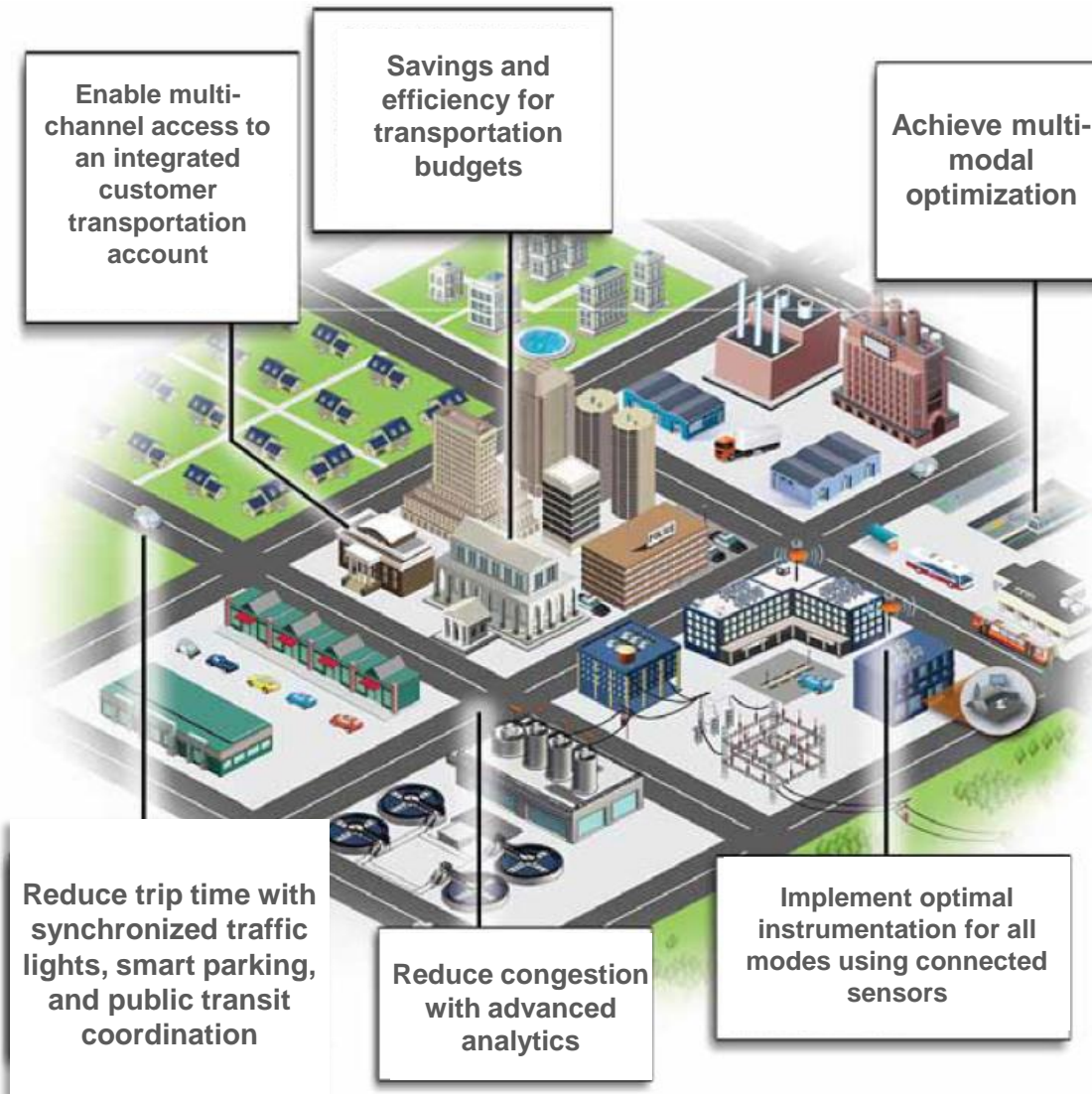
Ensure a citywide wireless network

Telecommunications targets and benefits
To build a proper foundation for a smart city, you must have high-speed broadband and city-wide communications.

Source: Smart Cities Readiness Guide

Smart Transportation

Enable multi-channel access to an integrated customer transportation account

Savings and efficiency for transportation budgets

Achieve multi-modal optimization

Reduce trip time with synchronized traffic lights, smart parking, and public transit coordination

Reduce congestion with advanced analytics

Implement optimal instrumentation for all modes using connected sensors

Easing traffic congestion by deploying ICT

Advanced analytics and instrumentation can provide cities with the information they need to minimize it.

Source: Smart Cities Readiness Guide

Smart Water and Wastewater

Green water systems

energy and health outcomes.

Smart water meters

Water quality and reliability utilizing sensors

Lowering operational costs by predicting and preventing problems

Eliminating wasteful leaks with automated fault management

Sharing data with neighboring cities in the same watershed

Water targets and benefits
Due to population growth and climate change many cities face severe water challenges.

Smart water systems can make dramatic improvements to the cost, safety and reliability of urban water supplies

Source: Smart Cities Readiness Guide

Smart Cities and the Role of ICT

A smart city uses the latest technologies to enhance a city's livability, workability and sustainability via ICT.

In developing a Smart City, there are three data-intensive tasks: collecting, communicating and "crunching."

Collect   Communicate   "Crunch"
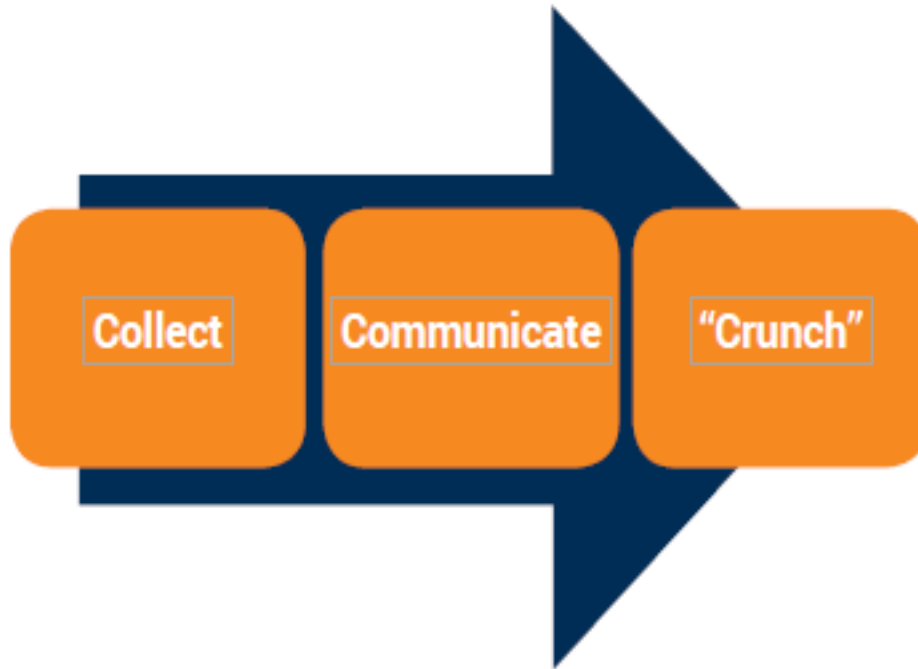
- **Collect information** about current conditions across all responsibility areas (power, water, traffic, weather, buildings, etc.).

- **Communicate information**, sometimes to other devices, sometimes to a control center and sometimes to servers running powerful software.

- **Crunch data**, analyzing it to present information, to perfect (optimize) operations and to predict what might happen next.

Our Approach

Bechtel's approach is holistic - master planning, engineering, building in alliance with many vendors and the city itself.

We look at the whole life cycle cost.

Can apply to expansion or rehabilitation of existing infrastructure in cities or to new cities.

Bechtel Case Study: Gabon

INFRAWORKS
- Natural topography
- Using the Watershed
- Road (form) redevelopment/ widening creates utility corridors
- Public transit
- Basic smart technologies

Angondje new community

Walkable, mixed-use community with schools, parks, civic spaces, commercial and residential served by public transportation.

Public-private development

Libreville SmartCode

Bechtel Case Study:
Waad al Shammal, Saudi Arabia

Project is structured around the core industries
of phosphate processing plus:

- Other significant minerals
- Downstream industries
- Shale gas industries
- Support and logistics services

- Master plan also includes a fully planned
  new city for workers and families with a
  population of about 100,000

Smart technologies:

- Smart concepts in urban planning,
  water, power, and transportation.
  Extensive use of alternative energy
  and water reuse.

Bechtel Case Study: King Abdullah Economic City, Saudi Arabia

Smart infrastructure components and goals:

- Sustainable technologies
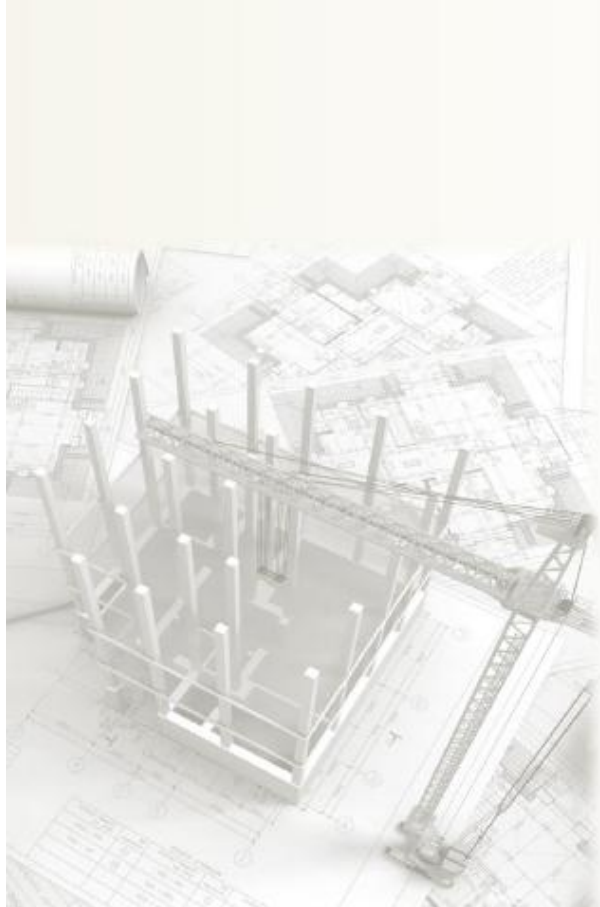- Flexible and resilient utilities strategies
- Resource efficiencies

Major components:

- Telecommunications
- Water and wastewater
- Transportation
- Energy
- Security
- City management
- Collaboration

Source: King Abdullah Economic City Authority

SCC acts as an advisor and market accelerator

SmartCitiesCouncil
LIVABILITY | WORKABILITY | SUSTAINABILITY

Vision
A world where digital technology and intelligent design are harnessed to create smart, sustainable cities with high-quality living and high-quality jobs.

Mission
To accelerate global growth in the smart cities sector by lowering barriers to adoption via thought leadership, outreach, tools and advocacy.

Smart Cities Council (SCC)

Smart Cities Readiness Guide

The Smart Cities Council Readiness Guide is the first collaborative and comprehensive framework for a smart city, against which cities can assess their readiness to innovate – identifying a path, taking next steps and measuring their progress. The Guide is a conceptual roadmap to address growth strategies by focusing on universal principles that unite key areas such as energy, transportation, water and public safety.
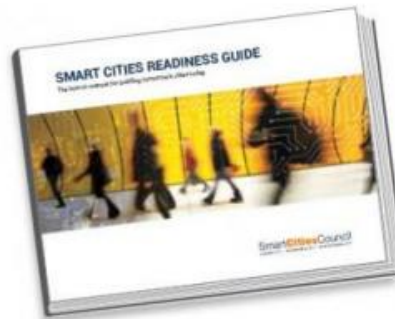
Through actionable recommendations, the Guide equips city leaders with objective, vendor-neutral guidance to make confident, informed decisions. It lays out simple and powerful technology "targets" for cities to achieve. A city can then use the roadmap and ideas developed from the Guide to shape its Requests for Proposals (RFPs).

The Readiness Guide was prepared with input from best-in-class companies across many industries. In addition, more than 50 of the world's foremost independent experts on smart city development—from academia, research and advocacy—have reviewed and contributed to the Guide. A global knowledge base of practices and policies gives cities a mandate for action and a foundation for success. The Readiness Guide serves to focus and structure a city's path to the 21st Century.

SMART CITIES READINESS GUIDE

Download for free

Information Center

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Smart City Concepts

   Definitions and overviews

   Responsibility areas

      Built environment

      Economic development

      Energy

      Health and human services

      Payments

      Public safety and security

      Telecommunications

      Transportation

      Waste management

      Water and wastewater

The Enablers

      Analytics

      Citizen engagement

      Computing resources

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