



IBM BusinessConnect 2014

A New Era of Smart

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IBM BusinessConnect 2014

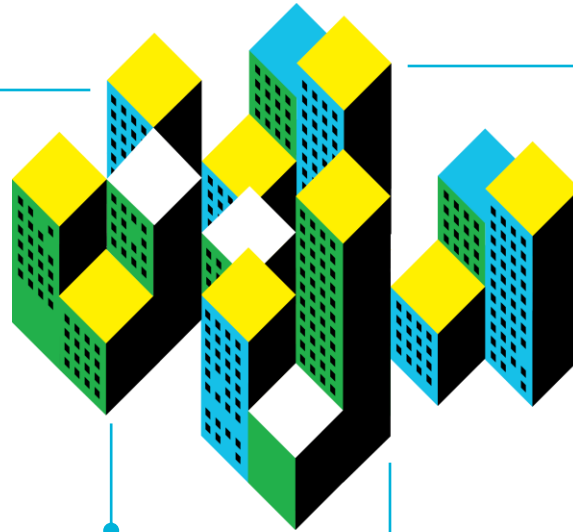
A New Era of Smart



Cities around the globe are under pressure to reinvent themselves

Citizens demand

security, convenience,
opportunity and
prosperity.



Increasing pressure

is caused by declining
budgets, aging infrastructure,
increased threats and growth
of complexity.

Leaders deliver

safety, water, transit systems,
energy, economic vitality,
education, lifestyle and health.

Fast-paced technology landscape

includes open data, big data and
analytics, mobile, cloud and social.





Realities faced by many cities

City leaders often struggle with being data rich and information poor.

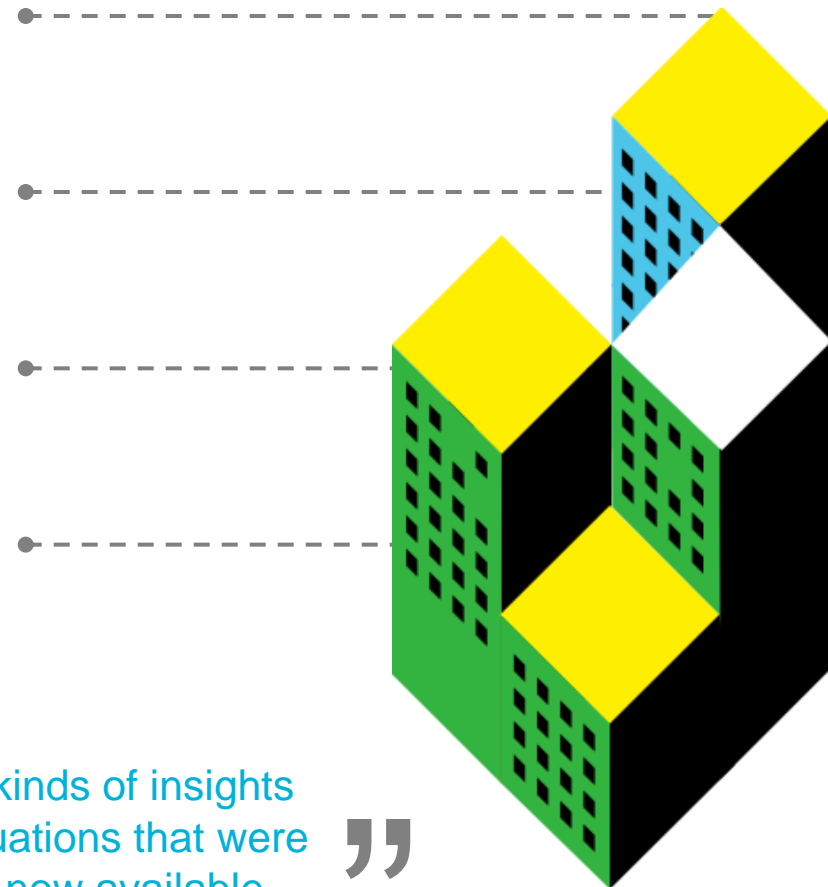
Challenges exist in utilizing cross-city resources.

City solutions may lack input from citizens, and cross-line-of-business city executives.

Capital investment dollars are limited; can be technically challenging to roll out.

“ The system is a teacher. The city is gaining all kinds of insights about day-to-day operations and emergency situations that were never before possible – simply because data is now available. ”

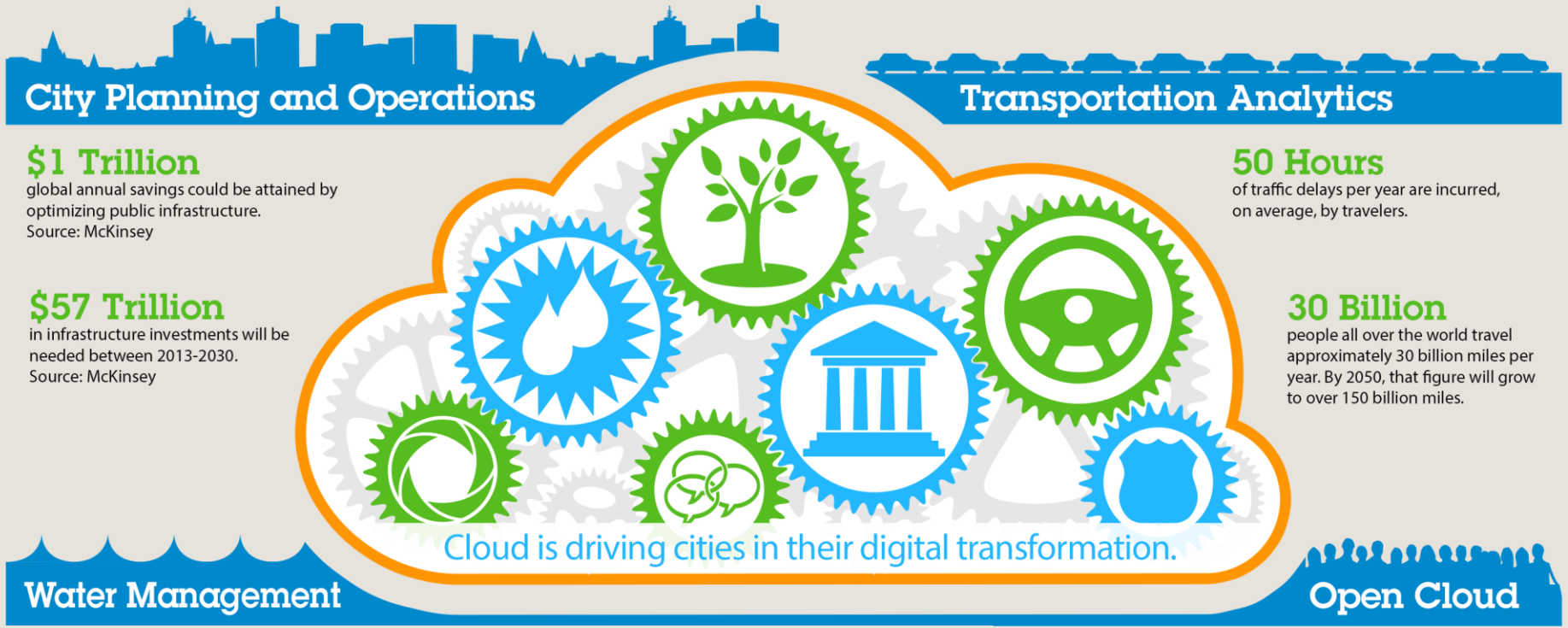
—Chief information officer (CIO), U.S. Midwest city





Challenges and opportunities...

Smarter Cities: Turning Big Data Into Insight



City Planning and Operations

\$1 Trillion

global annual savings could be attained by optimizing public infrastructure.
Source: McKinsey

\$57 Trillion

in infrastructure investments will be needed between 2013-2030.
Source: McKinsey

Transportation Analytics

50 Hours

of traffic delays per year are incurred, on average, by travelers.

30 Billion

people all over the world travel approximately 30 billion miles per year. By 2050, that figure will grow to over 150 billion miles.

Cloud is driving cities in their digital transformation.

Water Management

60%

of water allocated for domestic human use goes to urban cities.

\$14 Billion

in potable water is lost every year because of leaks, theft and unbilled usage.
Source: World Bank

37,000

cloud experts support IBM's industry team alone.

\$6 Billion

has been invested by IBM in more than a dozen acquisitions to accelerate its cloud initiatives.



Big Data plus Analytics EQUALS a Smarter City



Starts with data

- ✦ Open Data
- ✦ Video
- ✦ Sensors
- ✦ Citizens
- ✦ Legacy Applications



Monitor, visualize, analyze

- ✦ Social Media Analytics
- ✦ Correlation
- ✦ Prediction



Automate, notify, coordinate

- ✦ Knock down silos across City Departments
- ✦ Open data + private data = multiplier effect

Smarter City Solution, software as a service

Capitalize on new insights

Create system-wide efficiencies

Collaborate in new ways



Cities in action: using analytics to understand, predict, and act



Major U.S. city improves citizen services, doing more with less by knocking down interagency silos
95% improvement in police investigation times



Brazilian city gains ability to alert public sooner, coordinate relief effort more efficiently, respond faster
Predict rain, possible flash floods - initiate action



Major U.S. city harnesses cross-department data to provide common view of event planning, operations
Reduce complexities, maximize citizen benefits



Metropolitan area in France uses advanced analytics to improve services, enable citizen participation
Resolve faster: 10% traffic flow improvement



IBM Smarter Cities software portfolio *Designed for ... cities and beyond*

Water

- +Water / wastewater operations
- +Water conservation
- +Water efficiency management

Transportation

- +Transportation operations
- +Traffic prediction
- +Transit analytics

City Planning & Operations

- +Infrastructure planning
- +Permit optimization
- +Tax & license fraud

Video Analytics

- +Event-based surveillance
- +Automated video analysis
- +Real-time alerts



Intelligent Operations Center (IOC)

- + City-wide situational awareness, cross-department collaboration
- + Intelligent response via integrated standard operation procedures
- + Performance monitoring with dashboards and KPI's
- + Advanced, decision support analytics
- + Citizen collaboration and social media analytics
- + Public event management, emergency management

Improved Outcomes for Citizen Benefit, Economic Vitality, and Operational Excellence



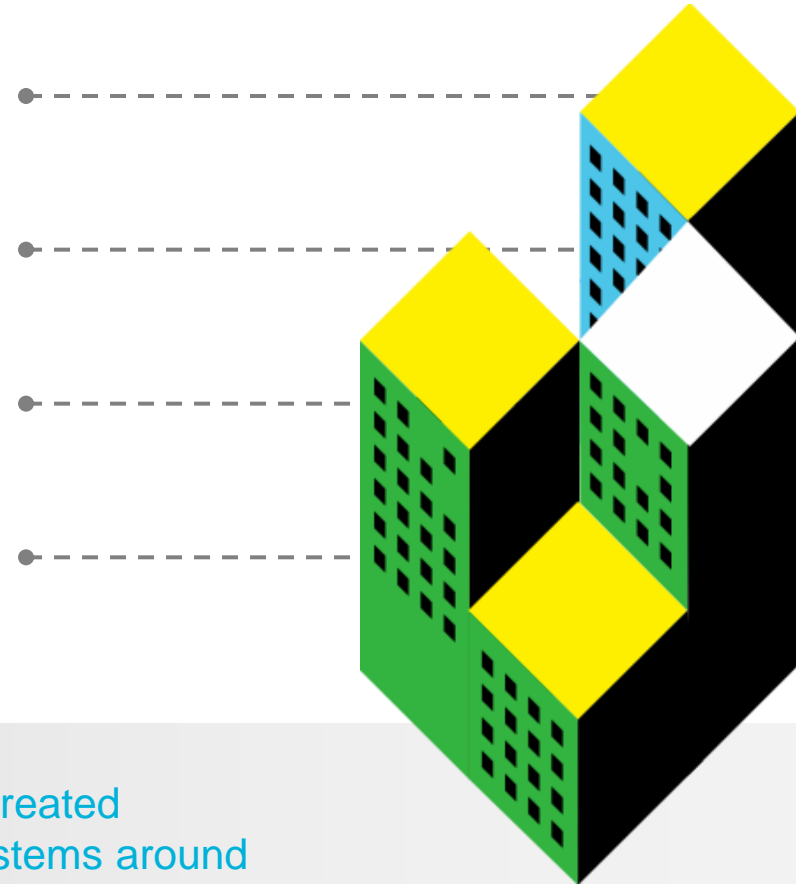
Water management realities

Significant disruptions from weather events and aging infrastructure

Water and wastewater quality issues, water supply and demand gap

Workforce challenges, difficulty in finding skilled resources

Operational efficiencies that are crucial to reducing costs and recapture revenue



Every year, more than 32 billion cubic meters of treated water physically leak from urban water supply systems around the world, while **16 billion cubic meters are delivered to customers for zero revenue.**¹

¹ The World Bank Group, *The Challenge of Reducing Non-Revenue Water (NRW) in Developing Countries*, Bill Kingdom, Roland Liemberger, Philippe Marin, December 2006.



IBM Intelligent Water solution capabilities



Pressure management

Explicitly manage to achieve network pressure targets

Recapture revenue and lower costs



Pipe failure prediction

Focus on system reliability and preventive maintenance effectiveness

Lower costs and operational risks



Asset management, operational information

Proactively manage incidents and maintenance repairs

Lower repair and maintenance expense



Situational awareness

Leverage data holistically, including weather, to create insights and improve water management

Lower risk, improve efficiency and engage citizens



IBM smarter water management in action



Miami-Dade County Parks, Recreation and Open Spaces detects, identifies and repairs leaks quickly, dramatically cutting costs

\$1 million+ estimated savings related to water costs and proactive leak detection



Digital Delta uses insights from big data to transform flood control and management of the entire Dutch water system

Up to 15 percent reduction in the cost of managing water



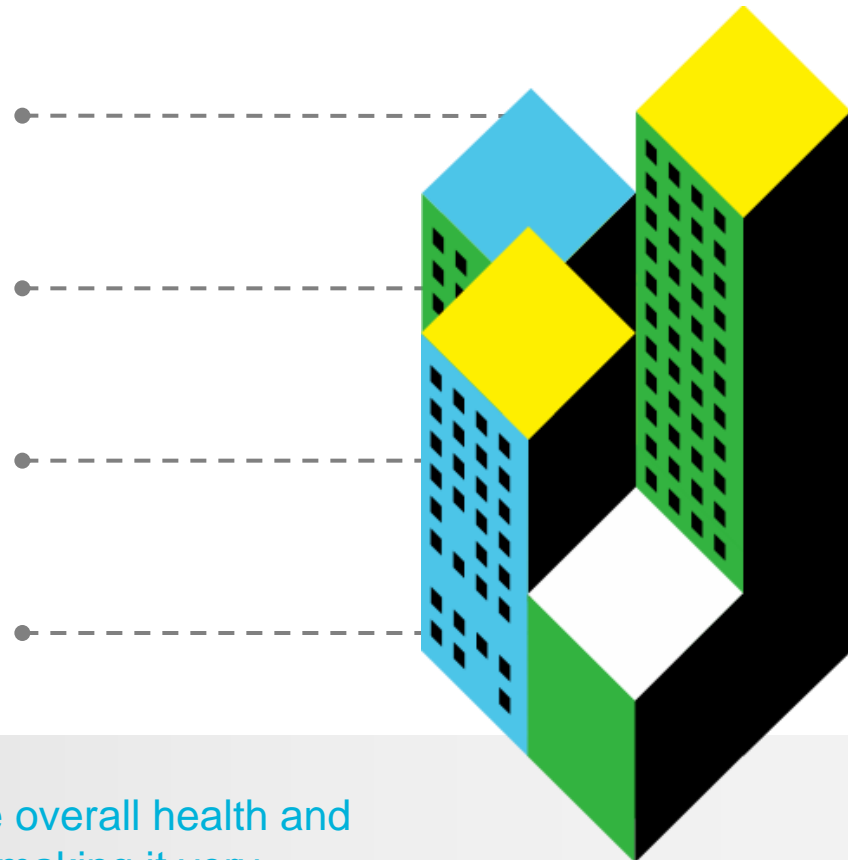
Transportation management realities

Ever-increasing demand while budgets and expansion are constrained

Transportation maturity directly impacts economic vitality

High expectation to deliver quality services and timely information

Basic obligation to keep citizens safe and manage incidents fast



“

Until recently we had a fragmented view of the overall health and real-time status of Dublin's transport network, making it very difficult to identify traffic congestion in its early stages because the causes of a delay had often moved on.

”

—Brendan O'Brien, head of technical services, Roads and Traffic Department, Dublin City Council



IBM Intelligent Transportation, Video Analytics solution capabilities



Congestion management

Gain insights into patterns of traffic behavior, predict traffic congestion, execute optimization

Improve traffic flow, increase capacity of infrastructure



Incident management

Automatically detect incidents, engage citizens, initiate emergency operations

Faster incident response, improve citizen safety



Schedule management

Understand current vehicle locations, predictive insights on arrival times, unsafe patterns, etc.

Improve ridership, increase revenue



Integrated operations

System-wide visibility with near-real-time, high volume data integration, fusion

Improve operational efficiency



IBM smarter transportation management in action



A turnpike authority in the United States analyzes traffic and road conditions to help improve traffic flow and ease congestion

Greater than 96% accuracy for 30-minute-out traffic predictions in early live tests



Zhenjiang, China, is transforming its public transportation system, and using analytics to manage traffic patterns across the city

More rapid response to traffic jams and crowds, reducing wait times and helping ensure capacity



Planned and unplanned events, non-emergency and emergency

**Planned Events
(Non Emergency)**

How well are you prepared ?



Parade, Festival, etc.

**Unplanned Events
(Non Emergency)**



Major Congestion

**Planned Events
(Emergency)**



Extreme Weather

**Unplanned Events
(Emergency)**



*Building Collapse
due to Extreme Weather*

What is happening in 'real-time' ?



IBM Event Management solution software capabilities *IBM Intelligent City Planning & Operations, Video Analytics*



Cross-agency planning

Identify conflicts with permits, use historical and background data, visualize and confirm sufficient resources

Enhance planning using available data, experiences



Event monitoring

Use real-time data, video analytics, social media analytics, etc.

Proactively identify incidents, potential incidents



Intelligent response

Collaborate and take action on non-emergency incidents, invoke emergency management

Help enhance public safety for large public events



Post analysis and review

Leverage data and experiences, such as incidents, social media postings, trending data

Provide planners with insights, promote growth



IBM Emergency Management solution software capabilities *IBM Intelligent Operations Center, Video Analytics*



Situational awareness

Aggregate data from disparate sources, provide real-time geospatial and "heat map" views



Analytics and planning

Understand and analyze trends, correlate disparate events, execute automated workflows



Stakeholder collaboration

Share mission critical information: operational decision support for inter-agency fixed and mobile communications



Intelligent response

Evaluate potential impacts of events, transition back and forth from "live state" to "what if" state, take action



More effectively manage normal and emergency operations



Help avoid or limit adverse incidents causing harm to people or property



Allow for focus on changing priorities, provide for precise decision making



Complementary investment: integrates with multiple third party solutions



The city government of Davao is coordinating cross-agency emergency response efforts with unprecedented speed and efficiency

Gained the ability to better anticipate impending crises and plan and prepare proactively



A public safety agency in Brazil uses video analytics and interagency collaboration to keep people safe during major events

More rapid detection of security threats through deep rules-based analysis of near-real-time video content



Rete Ferroviaria Italiana secures its railway network, helping to prevent vandalism and theft, with an automated, intelligent video surveillance system

Alerts security guards of suspicious activity, enables savings to be invested back into its business



A free economic zone in Asia proactively responds to public safety threats with automated surveillance analysis

Enables police and emergency response teams to react more quickly, improving public safety

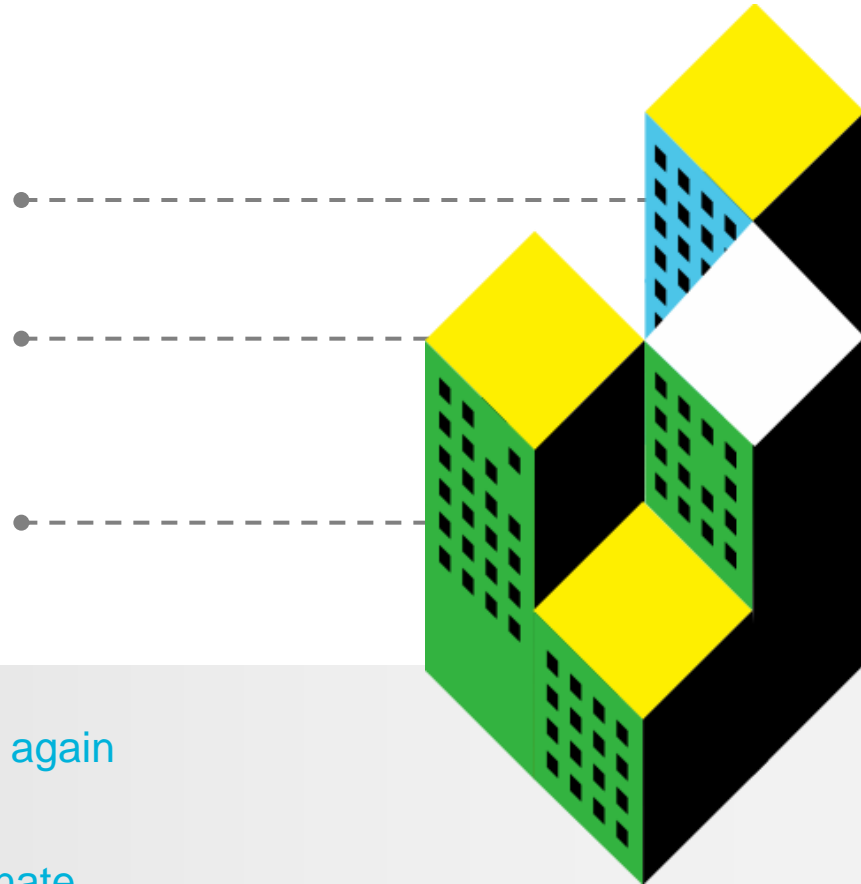


Infrastructure and Capital Planning realities

Good streets are regularly torn up to fix sewers and pipes underneath

Departments do not have tools to collaborate on planning and execution

Citizens and businesses are directly affected by unnecessary projects



“Forty percent of the roads we work on are cut again within the year.

We should become a clearinghouse to coordinate both our own and third-party projects.”

—Official from a city public works department



IBM Intelligent City Planning and Operations solution capabilities

Infrastructure and Capital Planning



Infrastructure profiling

Identify cross-agency projects, combine data, visualize assets, score health



Maximize funds coming from multiple sources



Combine infrastructure projects to minimize disruptions to citizens



Investment planning

Predict failure, assign rules, perform advanced analysis



Funding optimization

Assign treatments, combine treatments, rapidly iterate



Prioritize correctly to fix critical problems quickly



Reduce planning time and cost



Project prioritization

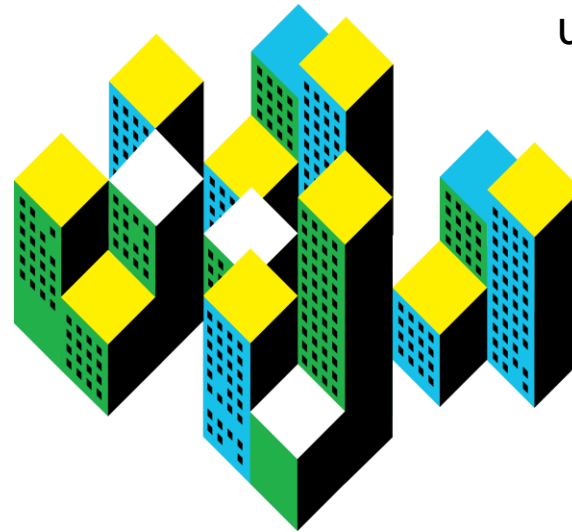
Define rules: which funds can be applied by asset; optimize funding against prioritized projects based on rules



Enabling fast time to value with IBM Smarter Cities software as a service (SaaS) offerings

TIME: Start quicker, get small projects up and running quickly

SKILLS: Get started with less need to staff up or acquire skills



BUDGET: Low capital expenditure, pay only for what you use

VALUE: Focus on user experience, accelerate time to value



Total cost of ownership considerations for Software as a Service (SaaS) and on-premise software environment

On Premise

- Perpetual License
- Hardware (CPU, storage, backup, network, power, cooling)
- Datacenter Services (network, bandwidth, disaster recovery)
- Administrators (database, web server, security, backup)
- Installation (external services or internal IT)
- Upgrades (external services or internal IT)
- Network and Application security scanning
- Hardware upgrades
- Development / staging environments

Software as a Service (SaaS)

- ☐ Subscription License
- ☐ Included
- ☐ Included
- ☐ Included
- ☐ Included
- ☐ Included
- ☐ Included
- ☐ Included
- ☐ Included



IBM has an extensive global ecosystem of market leading partners that we work with to deliver Smarter Cities solutions

Examples:

Water

AECOM

elementblue™
intelligent • innovative • ideas

HDR

UST Global

Transportation

PTV GROUP

transdev
MOBILITY INSPIRED BY YOU

AECOM

UST Global

Planning and Protection

esri

infor

PRIORITYE
Intelligent Decisions at the Speed of Sight

UST Global

Video Analytics

ANIXTER

IXP

MER Security

Schneider Electric

SNAP SECURITY
mobile security solutions



Announced:

- IBM Smarter Care
- IBM Counter Fraud Management
- IBM i2 National Security and Defense Intelligence
- IBM Intelligent Video Analytics
- IBM Intelligent City Planning and Operations
- Enhanced IBM Intelligent Operations Center, Intelligent Transportation, Intelligent Water

Stay tuned:

- IBM Smarter Counter Fraud
- Smarter Cities Software as a Service
- Enhanced IBM i2 Intelligent Law Enforcement
- Enhanced IBM i2 Intelligence Analysis portfolio
- Innovations underpinned by IBM Research

Announced:

- IBM Cúram Universal Access
- IBM Cúram Outcome Management
- Enhanced IBM Intelligent Operations Center
- Enhanced IBM Intelligent Transportation
- Enhanced IBM Intelligent Water
- IBM i2 Intelligent Law Enforcement
- IBM i2 Fraud Intelligence Analysis
- IBM Intelligent Investigation Management
- IBM Patient Care and Insights

Announced:

- IBM Intelligent Operations Center -- on premise and on IBM SmartCloud
- IBM Intelligent Transportation -- on premise and on IBM SmartCloud
- IBM Intelligent Water -- on premise and on IBM SmartCloud
- IBM Smarter Buildings
- Enhanced Smart Vision Suite on Intelligent Operations Center

Acquired:
TRIRIGA
i2 Group
Cúram Software

Acquired:
StoredIQ





Leadership position

Ranked #1 among smart city suppliers

“[IBM’s] continued investment in research and development (R&D), products and city engagements has allowed it to maintain its **leadership position despite the growing number of heavyweight competitors.**”

NAVIGANT
RESEARCH

Integrated solutions

Game changer in the marketplace

IBM leads the way as a **game changer** in the smart city marketplace, **based on client engagements and integrated solutions** combining state-of-the-art hardware, software and services.

FROST & SULLIVAN

Unmatched capabilities

Brings all the pieces of the smart city puzzle together

“The **breadth and depth of capability** in software and services ... along with the **ability to analyze and integrate information** and provide executive dashboards and citizen interaction is probably **unmatched in the market.**”

FORRESTER®

1 Navigant Research, *Navigant Research Leaderboard Report: Smart City Suppliers*, Eric Woods and John Gartner, 3Q 2013.

2 Frost & Sullivan, *Strategic Opportunity Analysis of the Global Smart City Market*, August 2013.

3 Forrester Research, *Service Providers Accelerate Smart City Projects*, Jennifer Belissent and Frederic Giron, July 30, 2013.



Comprehensive solutions

are built for city operations, are based on open standards and incorporate best practices.



Lines of business

can monitor and more easily understand and drive efficiencies and improvements across multiple-agency environments.



Advanced analytics

can drive return on investment and help transform organizations.



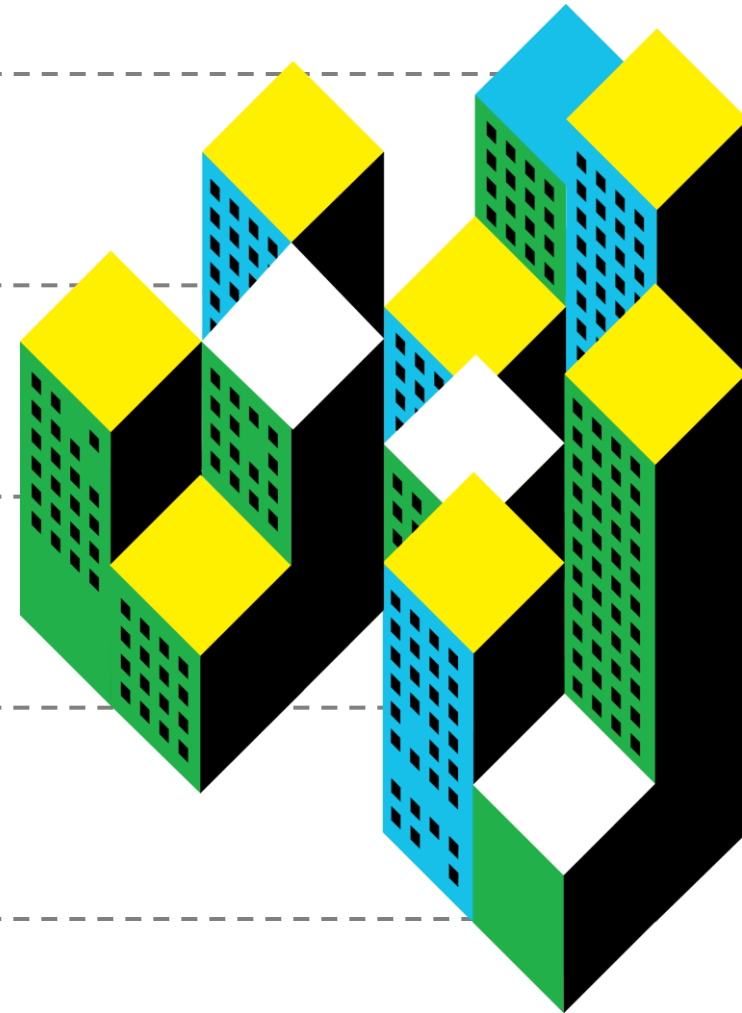
A rich ecosystem of IBM Business Partners

offers potentially greater business value.



Software as a service

offers faster time to value and lower cost of ownership.





Thank You