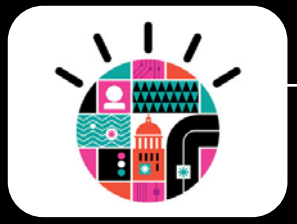

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Delivering the Smarter Cities Agenda:

Networks for more competitive, effective and efficient cities

Mike Small
Smarter Cities Solutions Leader
Middle East and Africa

mike.small@ae.ibm.com

CISCO IBM

Safe and Sound

Public safety solutions from IBM and Cisco

Highlights

Strategic information to help make better public safety decisions, anticipate problems and coordinate resources for more rapid and cost-effective response

Real-time situational awareness through advanced, integrated voice, video and data collaboration, analytics and asset-management tools

Key performance indicators to help identify trends, fine-tune use of resources and more closely track spending

Detection, assessment and response integrated into a holistic public safety function for municipalities, with the potential to reduce risk, consolidate programs and avoid waste

Headlines from New York to Mumbai make it clear. For municipalities around the world, now is not the time to make safety a low priority.

Terrorism may be top-of-mind, but it is only one on a growing list of threats to public safety faced by government officials everywhere. Add to it everyday crime, illegal immigration, biohazards, natural disasters, and the protection of city property, and the extent of the problem becomes readily apparent. Compounding matters is the very real expectation by citizens and urban dwellers that government agencies are responsible for controlling those threats and safeguarding their communities.

At the same time, constituents are holding municipal officials increasingly accountable for what they perceive to be unacceptable costs and added tax burdens. In a nutshell, agencies face two apparently irreconcilable demands: ensure public safety in a time of unprecedented security challenges, and do it without increased expenditures.

And make no mistake. The expense is staggering. In the year 2000, the annual cost of crime in the United States was estimated to be nearly $1.7 trillion.[1] In Europe, the price tag for protecting against crime in England and Wales is equivalent to 6.5 percent of the gross domestic product for the entire region.[2]

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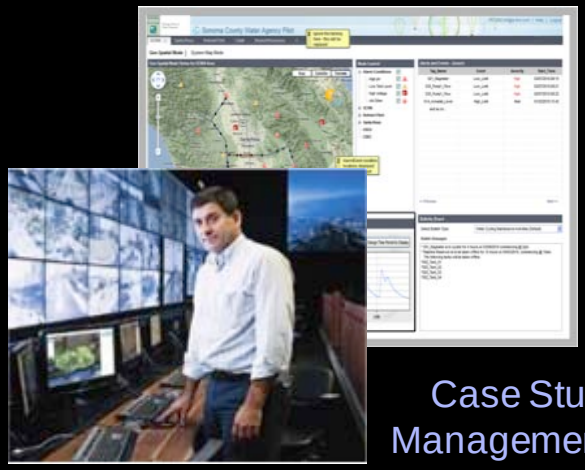
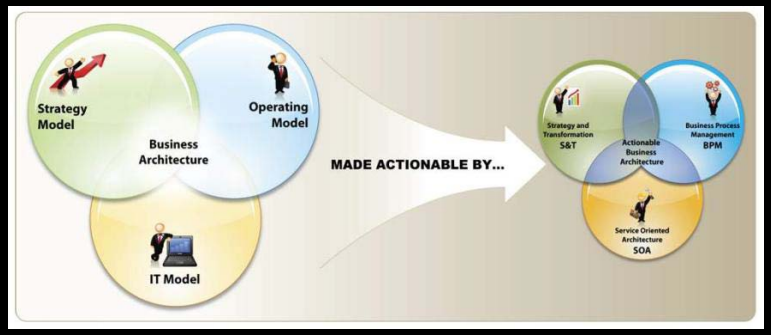
Agenda

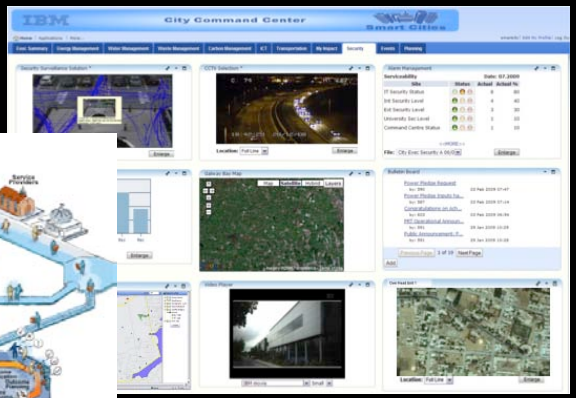
What is a Smarter City?



Case Studies: Emergency Management, Water, Transport



Where do I start and how do I get there?



Technology to Deliver Smarter Cities

Intelligent

Interconnected

Instrumented

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Smarter Planet: a response to a global challenge

ACCELERATING GLOBALIZATION
Countries and societies are becoming more economically interdependent across social, political and cultural boundaries, as illustrated by current economic conditions.

CHANGING DEMOGRAPHICS
Median ages are rising in the developed countries of Italy, Germany and Japan, but dropping in developing ones such as India.

EVOLVING SOCIETAL RELATIONSHIPS
Today, governments are expected to deliver results and value through secure, private services that are available anywhere at any time.

RISING ENVIRONMENTAL CONCERNS
Societies and governments are becoming more attuned to what the earth can provide and what it can tolerate.

EXPANDING IMPACT OF TECHNOLOGY
The adoption of the Internet is remaking the landscapes of business, healthcare and government.

GROWING THREATS TO SOCIAL STABILITY AND ORDER
From terrorism to armed conflict to pandemics to natural disasters, the character of threats is changing.

Citizens Demand	Security	Convenience	Opportunity	Prosperity
Leaders Deliver	*Walls, Roads*	*Water, Energy*	*Jobs, Education*	*Lifestyle, Culture*

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Visions of a Smart City…

The Well Planned City

The Healthy and Safe City

The Sustainable Eco-City

The Cultural-Convention Hub

The City of Digital Innovation

The City of Commerce

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A Smarter City ….

…… is one that *integrates technology* into a strategic approach to sustainability, citizen well-being, and economic development …… but also stressing the importance of integration and interaction across multiple domains.

Pike Research

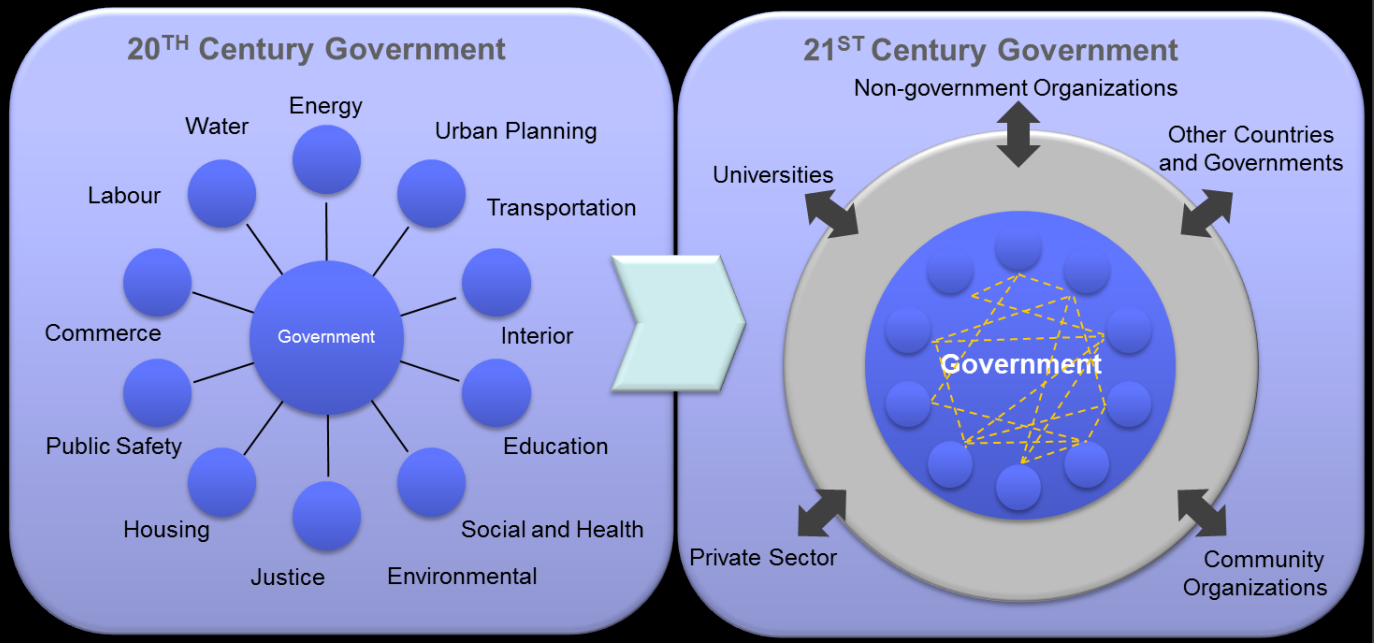
© 2011 IBM Corporation

A Smarter City ….

…… is one that *integrates technology* into a strategic approach to sustainability, citizen well-being, and economic development …… but also stressing the importance of integration and interaction across multiple domains.

Pike Research

Collaboration: within governments and across the community
- essential for policy development, planning and management.



Planning and Management
Design and execute a city plan to realize full potential for citizens and business; while efficiently running daily operations

Infrastructure
Deliver efficient fundamental city services that make a city livable for citizens.

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

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Aging infrastructure requires city action

Water

Municipalities lose as much as 20% of their water through leaks.

Transport

A major traffic jam in China caused gridlock for 60 miles and lasted ten days

Energy

A blackout in the Northeast of the US affected over 55 million people.

The main role of technology in urban systems is to sense the activity to be able to monitor, manage, visualize and optimize

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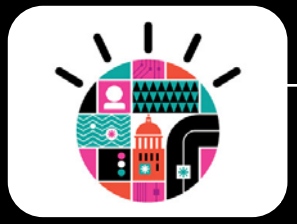

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A Smarter City ….

…… is one that *integrates technology* into a strategic approach to sustainability, citizen well-being, and economic development …… but also stressing the importance of integration and interaction across multiple domains.

Pike Research

has moved from… Reactive to Predictive to Proactive: Applying advanced analytics and industry expertise at all levels of the organization to more precisely predict - and continuously act on - risks and *opportunities.*

Reactive	Real time	Predictive	Proactive
Fixing what *happened*	Reacting faster to what happens	Understanding what could happen	Managing away the risk or the event

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Instrumented, Interconnected, and Intelligent:

the ingredients for smarter government and smarter smarter cities

Intelligent

- Fusion and real-time analysis of information for public safety
- Assessment of trends for city planning and policy development
- Evaluating outcomes of social services to improve welfare of citizens
- Transparency in government and society

Interconnected

- Anywhere anytime access for citizens
- Dynamic information support to improve effectiveness of government employees
- Critical cross-agency information sharing for key decisions
- Collaboration across governments and with extended community

Instrumented

- Sensors that enable management of energy and resources
- Management of critical equipment used in transportation, water distribution and waste disposal to prevent outages & accidents
- Digital video surveillance to protect public buildings and the transportation infrastructure and to protect citizens in public areas
- Real time situational awareness to enable cities to respond to events

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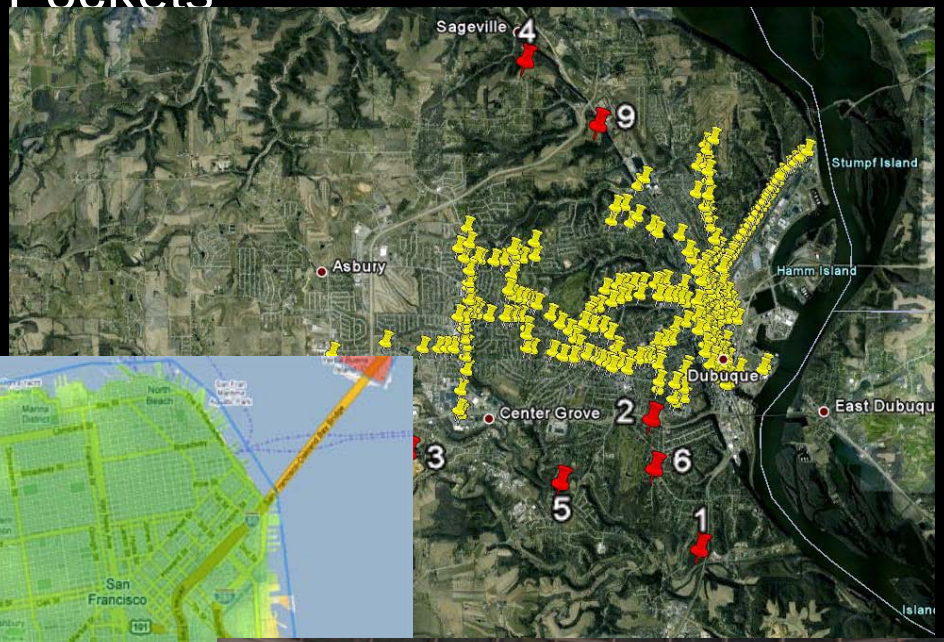
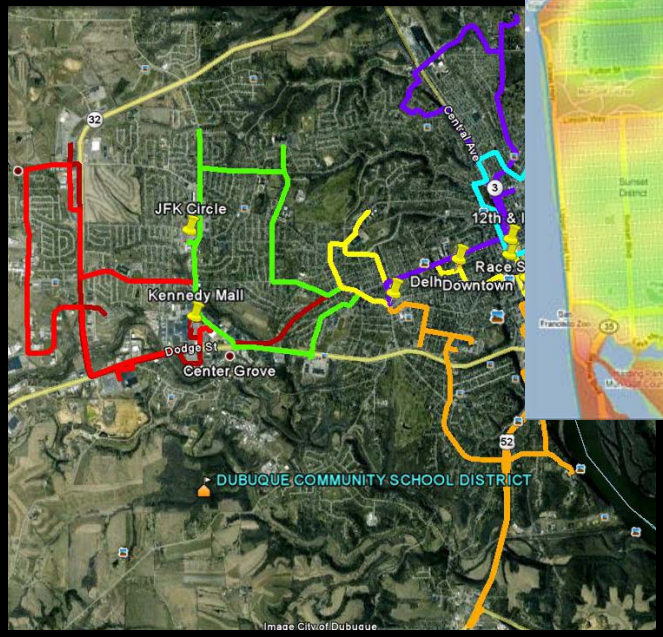
A City in Motion: Sensors in our Pockets





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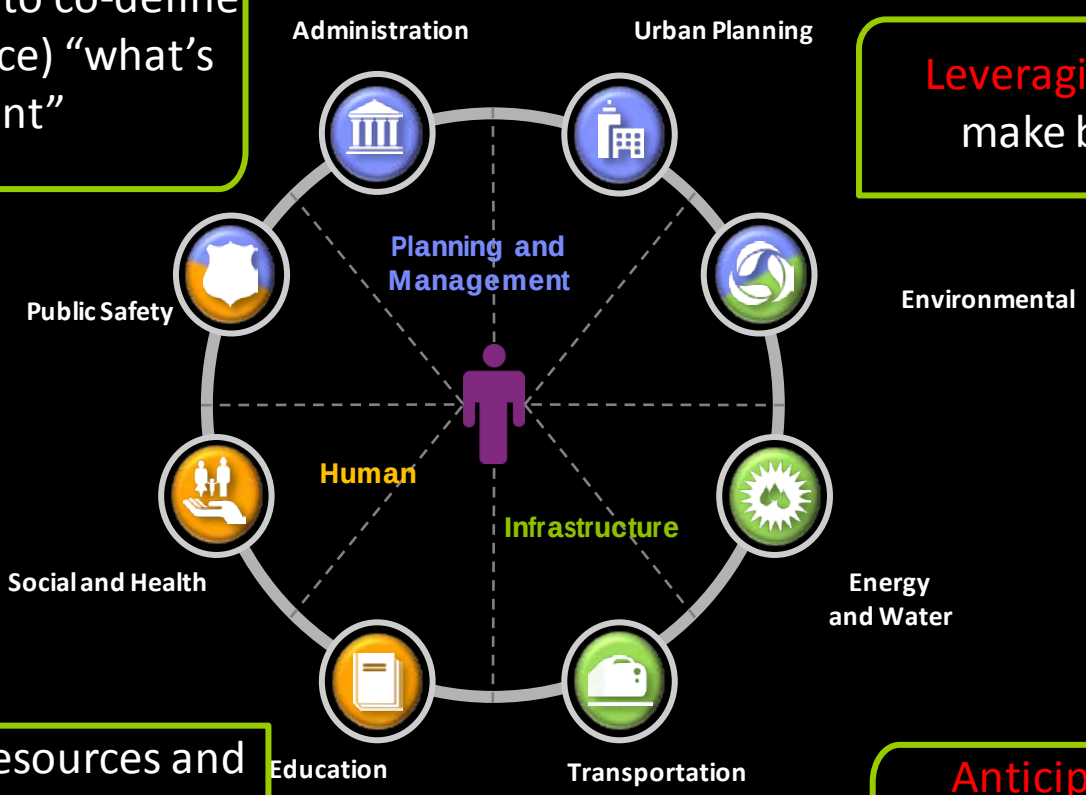
Collaboration: within governments and across the community
- to ensure the economic health, welfare and security of citizens

Engaging people to co-define (even co-produce) "what's important"



Leveraging information to make better decisions

Coordinating resources and processes to operate effectively

Anticipating problems to resolve them proactively and manage risk

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Dubuque: Smarter City Living Laboratory

SUSTAINABLE DUBUQUE
viable • livable • equitable

IBM Smarter City Sustainability Model | Tuesday June 28, 2011 | Alerts | Chat | Edit Profile | Change Password

Energy Consumption Report for 285958

June Usage (kWh) 670 / 773 — Till Date / Month-end Estimate

Trend 2% — Lower than average

Rank 19 ↓1 — Among 30 households

Green Points 3

OCT NOV DEC JAN FEB MAR APR MAY

Consumption by Hour — Sat June 25, 2011 — $ | kWh

kWh

12am 6am Noon 6pm 12am

Peak Consumption Insight

Last month, 35.4% of your consumption happened dur peak period (7 am to 8 pm on weekdays). Lower peak consumption lowers the carbon footprint for your utility.

June 2011 Comparison with Neighbors

Neighbors Like You $ 128 | Your Consumption $ 125 | Efficient Neighbors $ 87

Manage your consumption

- ☐ Set a goal of 5% reduction for the rest of June. Read more...
- ☑ Change light bulbs to lower energy bulbs. Read more...
- ☐ Unplug TV and microwave when not in use. Read more...
- ☑ Use clothes dryer during off peak hours. Read more...

Set it

Select activity | Activity tracking | Activity history | Share story

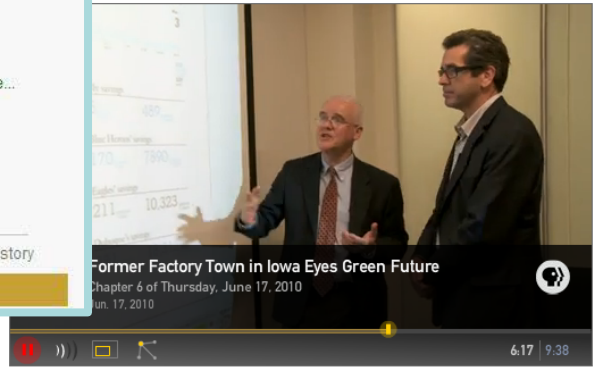
More about IBM energy portal | About IBM | Resources | News | Contact us

The 10 Smartest Cities on the Planet [Slideshow]

8. Dubuque, Iowa

In 2009, IBM declared Dubuque would become the "first integrated, smart city" in America, with interlocking systems watching the interplay between water, electricity, and transportation. This year, the city embarked on the first phase of the program, installing smart water meters in the homes of 311 volunteers. The meters measured consumption and wirelessly transmitted data to IBM servers every fifteen minutes, which homeowners could check online. The point was to see whether awareness of their usage encouraged them to conserve. The results haven't been published yet, but next year IBM intends to roll out similar experiments as part of the Dubuque 2.0 initiative.

just put people back to work but to also make the city work again.



Producers Cameron Hickey and Tom McNamara, editor David Kreger and special correspondent Miles O'Brien for Blueprint America

JIM LEHRER: Next: another of our Blueprint America reports on infrastructure. Tonight: A factory town bets on a green future. Our story was produced with WNET New York. The reporter is special correspondent Miles O'Brien.

YouTube **http://www.youtube.com/watch?v=mBSVITlkiBw**

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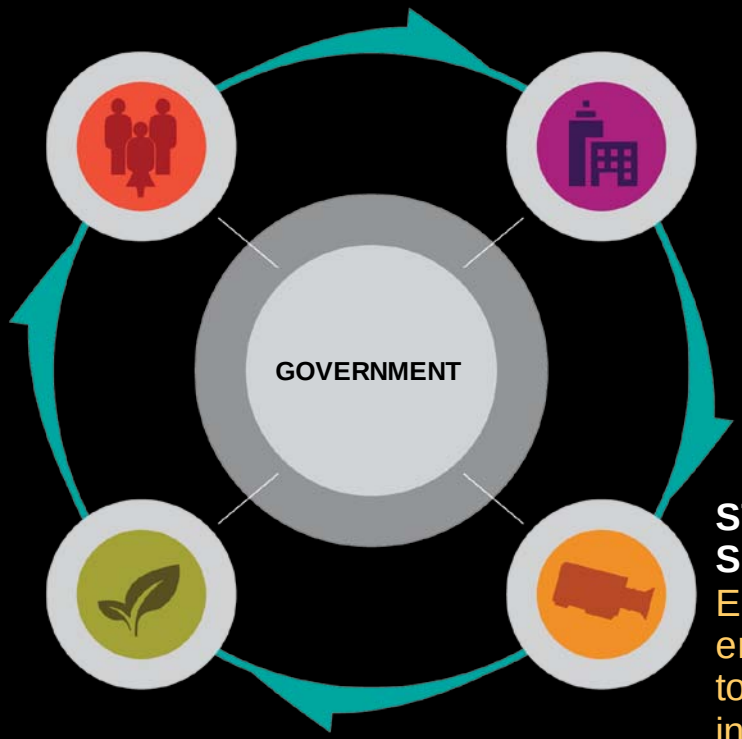
Collaboration: within governments and across the community
- and to ensure the economic health, welfare and security of citizens

IMPROVE CITIZEN AND BUSINESS SERVICES
Connecting people to programs based on individual needs—achieving sustainable outcomes while reducing operational costs and maximizing taxpayer value.

MANAGE RESOURCES EFFECTIVELY
Leveraging business intelligence and planning to improve insight and elevate performance with visibility and control.



ENSURE A SUSTAINABLE ENVIRONMENT
Deploying environmentally responsible operations, from energy efficiency and conservation to transportation management and the pursuit of renewable resources.

STRENGTHEN NATIONAL SECURITY AND PUBLIC SAFETY
Enabling defense and law enforcement organizations to achieve situational awareness, increased speed of command and combat superiority.

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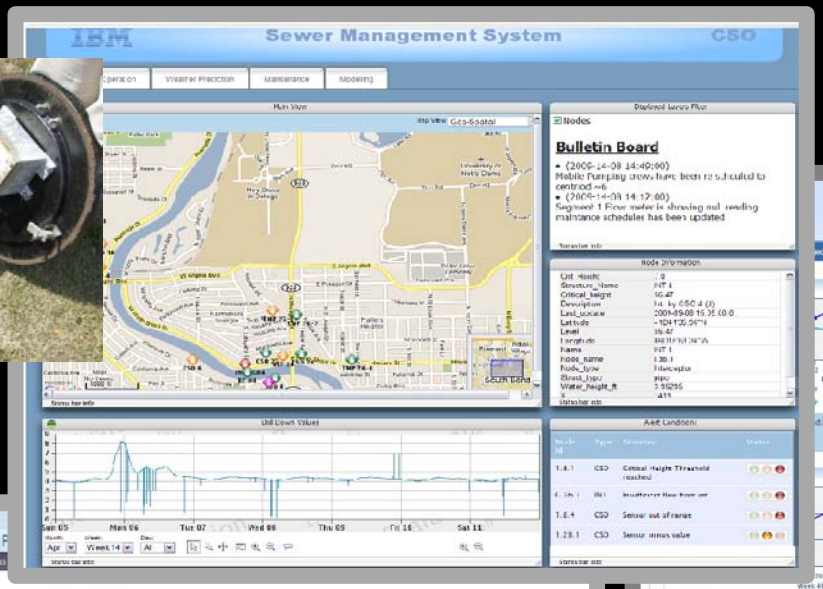
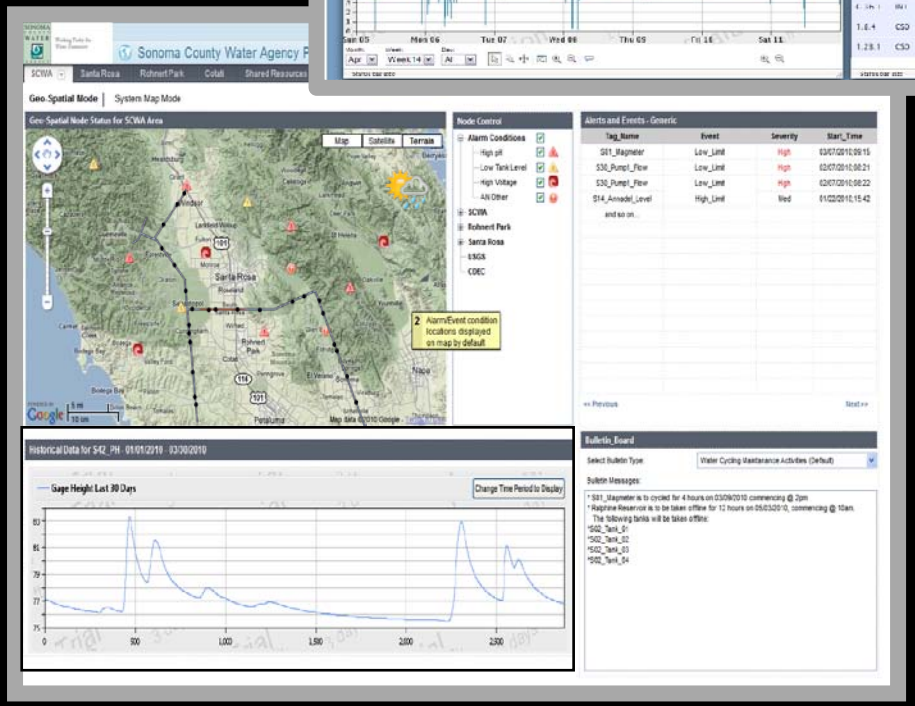
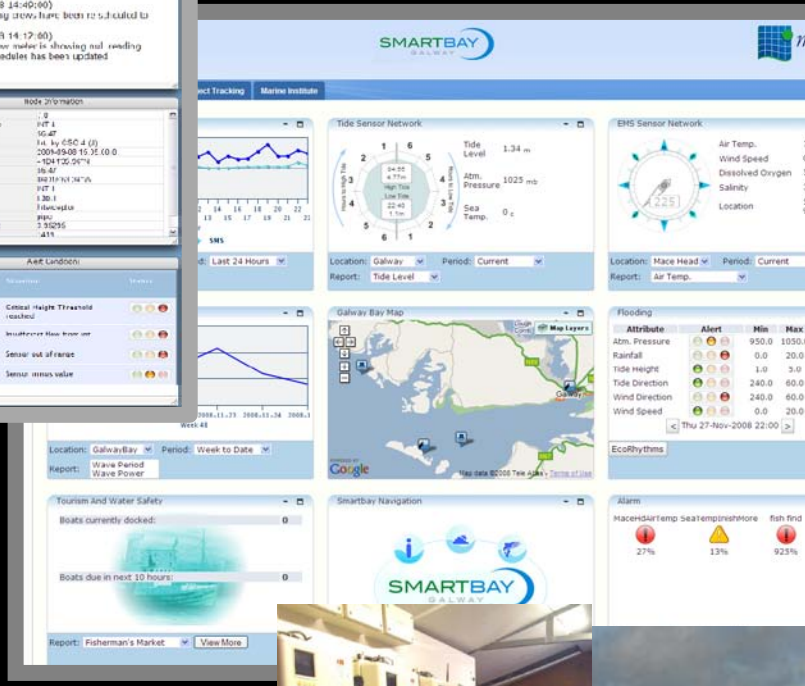
Smart Water: Sensors everywhere







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Innovative leadership in Rio de Janeiro transformed city operations

- Initial focus - prevent deaths from annual flooding
- Expanded to manage all emergency response situations
- Analyzes weather, energy, building, transportation, & water data in real-time
- Nationwide adoption in advance of Olympics and World Cup

Increasing efficiency in resource deployment, expanding early warnings to 48 hours, and coordinating all agencies in response

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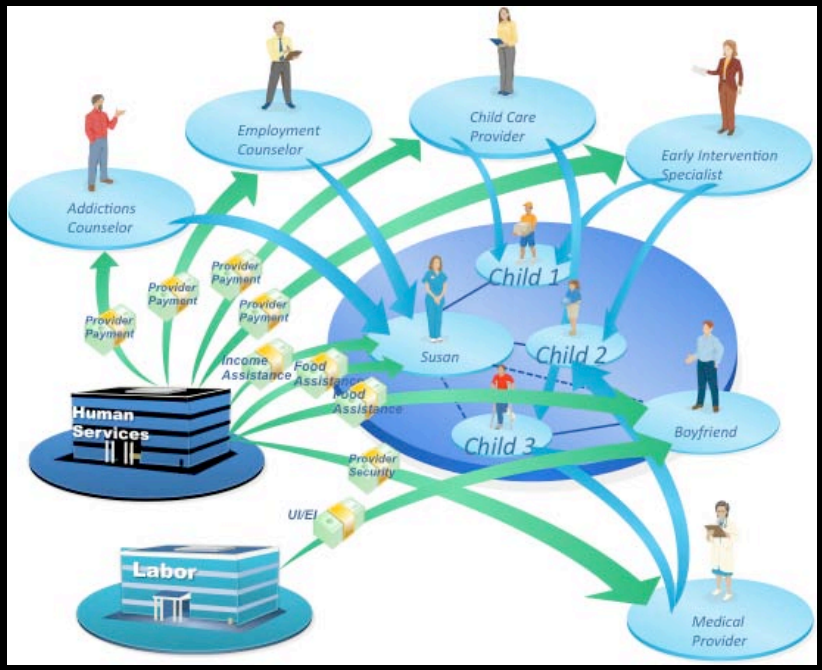
Innovative leadership in Alameda County transformed social services

- Initial focus – increase effectiveness of social services case workers
- Expanded to integrate all key social services departments
- Provides better service to clients, avoids overpayments and detects fraud
- High value results:
  Average annual benefit: $24.7M
  ROI: 631% with payback in 2 months

Alameda County Social Services Agency



Reducing benefits overpayment, improving appeals litigation, and increasing productivity for 1,200 case workers

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The IBM Intelligent Operations Center for Smarter Cities

enables city leaders to apply global best practices

Inspired By

Public Safety

- Predict, monitor, and mitigate crisis situations
- Automatically analyze video streams for threats
- Analyze data to detect and act on criminal patterns

Transportation

- Improve traffic management
- Optimize roadway capacity
- Enhance travel experience

Water

- Analyze water use and consumption patterns
- Predict asset failures to reduce costs
- Optimize work orders to improve service

Over 25 new and enhanced use cases based on lessons from inspirational leaders.

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Intelligent Operations

Realtime Video

Work Management and Optimization

KPI Dashboards

Drilldown

Conditions/Alert Map
Route Optimization
Traffic Video

Incident Dispatch

Sensor Data
Predictive
Analytics
and Modeling

Geospatial Status Map

Interoperable Voi

Intelligent Operations Center

Intelligent

Predictive Analytics
Modeling & Simulation

Analytics

Domain Specific Data Models

Standard Operating Procedures & Workflow

Orchestration & Optimization

Dashboards

Geospatial

Visualization

Cisco Mobile Command and Control vehicle

KPI's

Events

Directives

Interconnected

Flood Management

Traffic and Road Information

Cisco Video Surveillance Manager (VSM)

Cisco Physical Access Manager (CPAM)

Cisco IP Interoperability, & Collaboration System (IPICS)

Cisco Mobile Command Satellite vehicle

Mobile Emergency/ Event Networks

Sensor/Event Management

Service bus + "the network"

Commander Vehicle

Instrumented

Floodplain Sensors

Cisco and Other IP Cameras, Cisco IP Encoders for Analog Cameras

Cisco IP Access Gateways

Alerting System

Interoperability (HF, FM, VoIP, PSTN, Satellite Phone

PSTN

Cisco LMR Gateways

Cisco LMR Gateways

Satellite Phones

Cisco Unified Communications

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IBM Shows Tools For Smarter City Management

The Operations Center platform bundles information-management software with dashboard-style analytics, performance measures, and monitoring capabilities.

By **Doug Henschen** InformationWeek
June 06, 2011 01:21 PM

Here's IBM's message to cash-strapped cities: It won't take a pile of money and months of consulting and integration services to deploy the IBM Intelligent Operations Center for Smarter Cities, a software platform announced on Monday that is aimed at holistic city monitoring and management.

The IBM Intelligent Operations Center for Smarter Cities bundles a range of software components including a database (DB2), application server (WebSphere), business rules engine (iLog), data integration and data management (various InfoSphere pieces), and business intelligence and real-time monitoring (Cognos). By bringing everything together into a single product, which starts shipping later this month, IBM says it has made the technology easier to purchase and deploy.

Slideshow: IBM Empowers Smarter Cities

(click for larger image and for full slideshow)

"It's a massive shortcut that helps cities integrate all kinds of

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- Strategy: BI and Analytics in Healthcare

Warren Buffett invests $10bn in IBM for 5% stake

MORE

35 2 0

Recommend Tweet +1

AP | Nov 16, 2011, 12.29AM IST

OMAHA: Warren Buffett said Monday that his company has spent $10.7 billion to buy more than 5% of IBM's stock this year, a surprising move by the billionaire investor who has long shied away from investing in high technology companies.

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Multiple options help city leaders deploy technology regardless of size

On Premise:

- Build on workload optimized platforms
- Leverage infrastructure readiness services

Shared Services:

- Work together across multiple cities
- Share services using preconfigured systems

Cloud Delivery:

- Log on to your smarter city environment
- Customize interfaces, reports and data inputs

"It's about transforming the way we do business, so we can invest that money in front-line service delivery"

Chief Superintendent Avon & Somerset Police

Inspired By

© 2011 IBM Corporation

Together we will create a planet of Smarter Cities

IBM: helping to help city leaders globally to innovate to meet and exceed citizen expectations

- 100 years of experience making the world work better through the use of technology
- Real products to enable sustainable economic growth
  - *Leveraging information to make better decisions*
  - *Anticipating problems to resolve them proactively*
  - *Coordinating resources to operate effectively*
- Local solutions based on global insight from 170+ countries

*Over **2,000 city projects** leverage on IBM to help them transform into 21st century cities*

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Together we will create a planet of Smarter Cities

City of Zhenjiang

http://www.ibm.com/smarterplanet/us/en/smarter_cities/overview/index.html

City of Rio

http://www.ibm.com/smarterplanet/us/en/smarter_cities/overview/index.html

Demonstration of the Intelligent Operations Centre

http://ibmtvdemo.edgesuite.net/software/industry/intelligent-oper-center/demo/3137_ControlRoom_Web.html

http://www-01.ibm.com/software/industry/intelligent-oper-center/

Intelligent Operations Centre

http://www.youtube.com/watch?v=BT3Q4zyiNfA

*Over **2,000 city projects** leverage on IBM to help them transform into 21st century cities*

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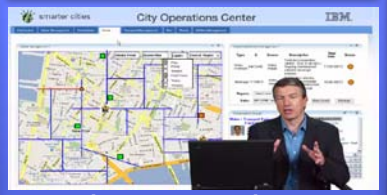
Demonstrations on YouTube

http://www.youtube.com/watch?v=nCT2-PIx5a4&feature=related

Introduction

IBM Smarter City Operations Center



City Operations

http://www.ibm.com/innovation/us/thesmartercity/index_flash.html?cmp=blank&am...

IBM Smarter Cities

http://www.youtube.com/watch?v=NU19fWq6MRY&feature=related

Smarter Buildings

http://www.youtube.com/watch?v=KxHNVcO0JHM

Smarter Cities

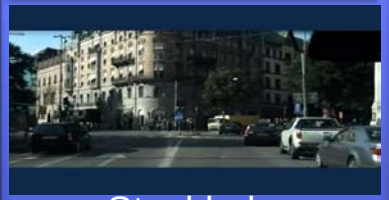
Smarter Cities: Introducing

Introducing Smarter

IBM Predictive Analytics

Smarter Policing

The City of Stockholm



Stockholm

2:09 Watch Later Error IBM - SMART CITIESby BarcelonaDigital976 views

Smarter Planet

IBM Smart Cities

Nairobi

The Future City

Future City

Smarter Cities Rio

Rio Crisis Ops

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