Восьмая независимая
научно-практическая конференция
«Разработка ПО 2012»

1 - 2 ноября, Москва

2012 CEE-SEC R

Software Engineering Conference in Russia

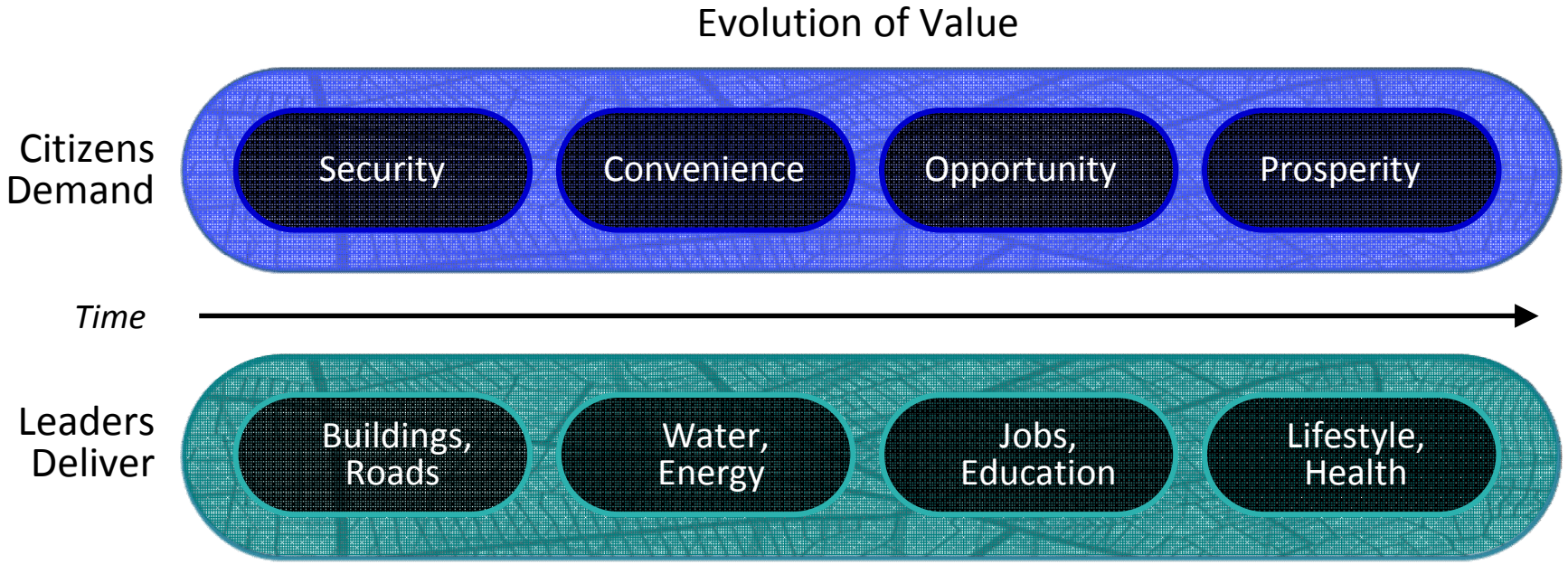
Smarter Cities: new opportunities for SW developers

Andrey Galitskiy

Smarter Cities Sales Leader, IBM, Russia & CiS

IBM

Citizens are placing **increasing demands** on leaders



For the first time in human history **the majority of the world's population lives in urban areas**.

WorldBank.org THE WORLD BANK Working for a World Free of Poverty

3 billion people – half the world's population – live in cities

Almost 180,000 people move into cities each day

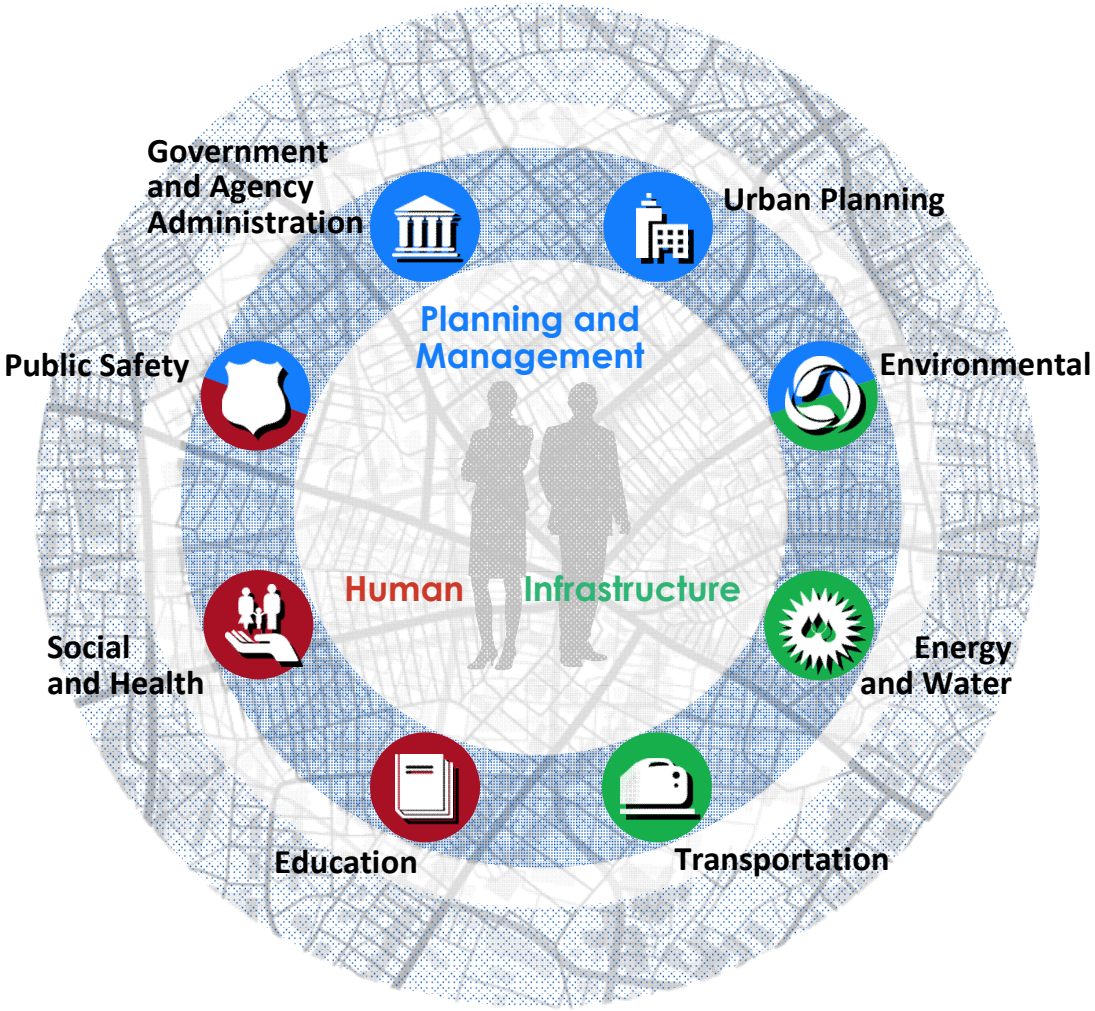
Two-thirds of all people will live in cities by 2050

IBM

2012 CEE-SEC(R)
Software Engineering Conference in Russia

Leaders **create opportunities** from today's harsh realities

Leaders must innovate across services to meet and exceed citizen expectations



Planning and Management

Design and implement a city plan to realize full potential for citizens and businesses; while efficiently running daily operations

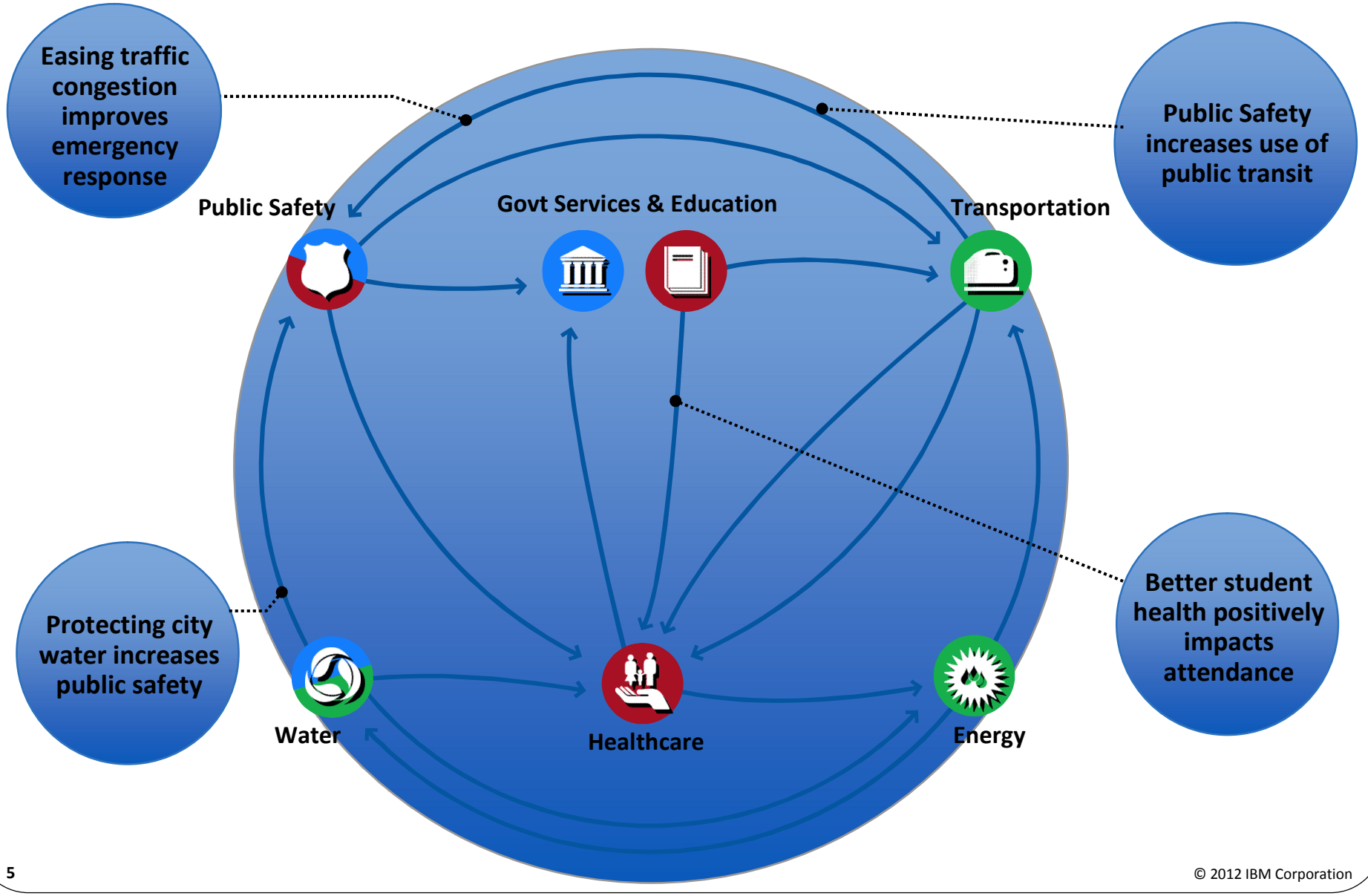
Infrastructure

Deliver efficient fundamental city services that make a city desirable for citizens

Human

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

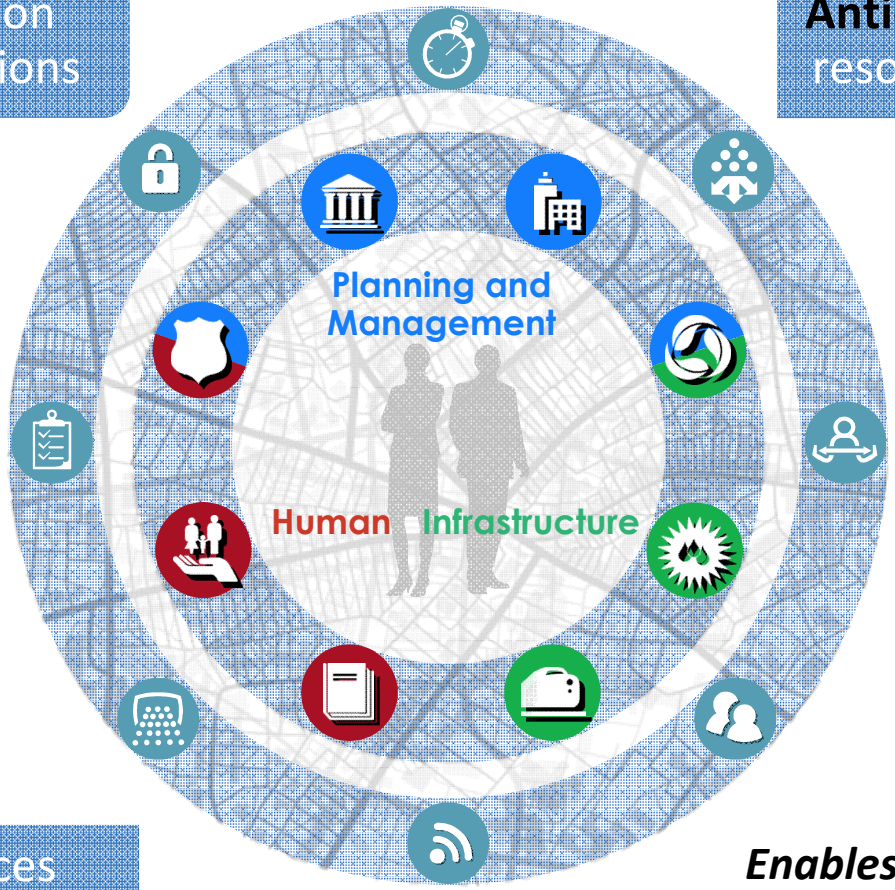
…enabling interconnections across systems to improve outcomes



To provide sustainable economic growth and enhanced quality of life

Leveraging information to make better decisions

Anticipating problems to resolve them proactively



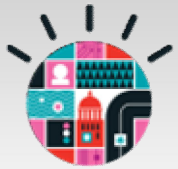
Coordinating resources and processes to operate effectively

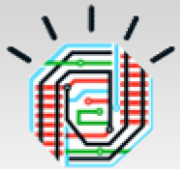
Enables leaders to better serve citizens and businesses in a rapidly changing world

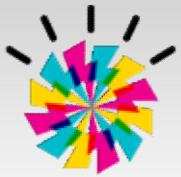
Smarter Cities solution set is growing

Prioritized Industries

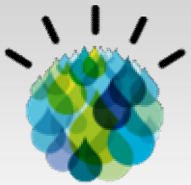

Public Safety


Government


Transportation


Energy


Healthcare


Water

Solutions

Planning and Management

- Operations INSIGHT
- Law enforcement and public safety
- Building management

Infrastructure

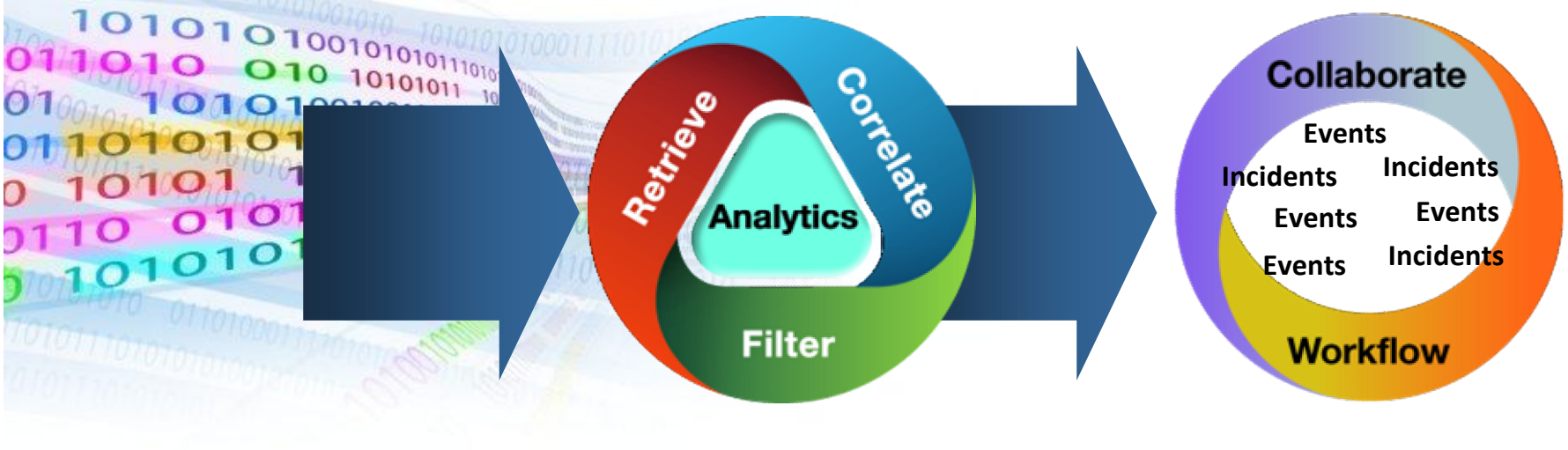
- Transportation management
- Water management
- Utility Network management
- Asset Management

Human

- Social Program Management
- Educational outcomes
- Citizen health and safety

What IT can provide to make cities smarter:

Collecting and analyzing data, while automating a collaborative response



Data → **Insight** → **Events / Incidents**

Leverage Information

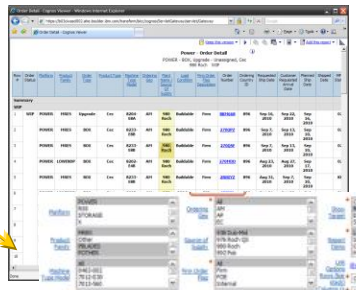
Anticipate problems through analytics

Coordinate resources and response using actionable intelligence

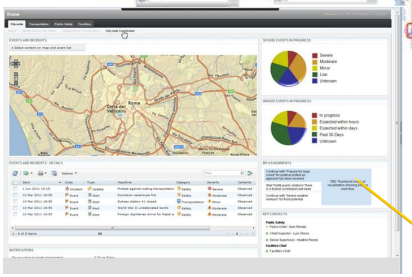
Analytics are key to converting data to information to insight

Video Analytics

Event Captured, video analytics / image stored locally



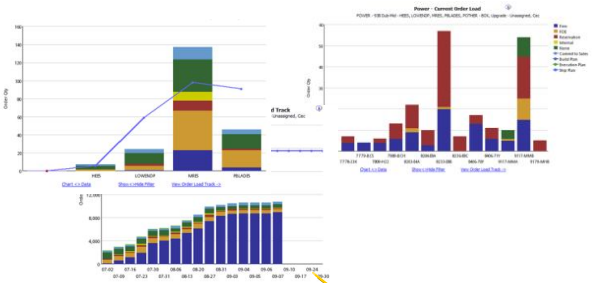
Captured data converted to CAP



CAP stored , and processed

Data Processing

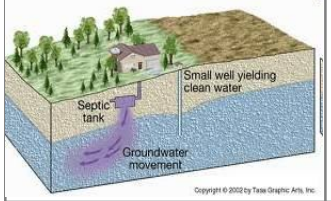
Charting, Geo Spatial



Data Analytics

Insight

Technology can make water management simpler and smarter!

Issue	Description	How tech can enable Smarter Water
	▪ Climate change	▪ Downscaled Climate models
	▪ Fragmentation of water resource management/ data	▪ "Collaboration platforms" - Integrate multiple sensor networks and data sets ▪ Application and data integration
	▪ Surface Water Contamination, Ground Water Contamination ▪ Availability of water	▪ Water flow and quality, run-off management sensing & systems ▪ Groundwater resource mapping ▪ Land-use tools ▪ Water accounting systems
	▪ Agricultural practices	▪ Precision irrigation ▪ Run-off management sensing and systems
	▪ Social attitudes, water pricing	▪ Smart metering for water (to enable differential pricing)
	▪ Leakage, losses	▪ Leak detection and management systems ▪ Loss of water because of theft or miscoded customer (commercial customer not paying commercial rates because of mistake)
	▪ Risk of levee failure ▪ Storm surges	▪ Sensing for structural health – "smart levees" ▪ Topological models ▪ High resolution weather forecasting

Smarter Metering Project – Dubuque, Iowa

- Dubuque wishes to conserve water and avoid wastage. Conserving water can also help consumers lower bills that are set to go up due to new, more accurate meters.
- IBM Research working with City, Water utility and 250 pilot residences and providing platform for all stakeholders to process and analyze consumption.
- Strategy is to leverage information, alerts and insights to encourage change in behavior resulting in conservation and fixing of leaks
- Present analysis in a simple, user-friendly form, game-based approach

Dubuque : Data Gathering Flow and Advanced City Services

250 pilot homes

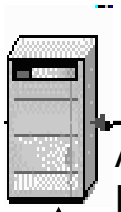
R900
Smart meter

Every
15 min

Wireless
Gateway

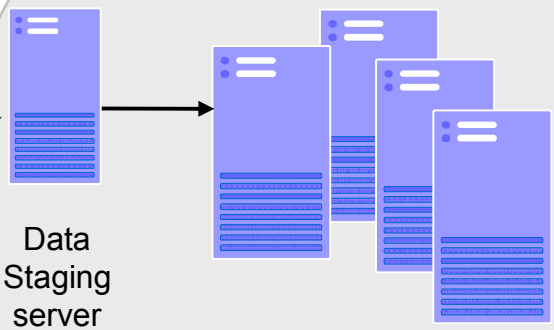
Hourly

Dubuque
Vendor's
FTP site



Anonymous
Data

IBM Cloud-delivered
Solution



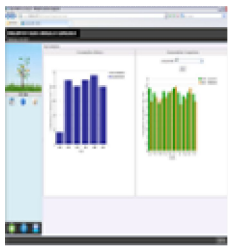
Data
Staging
server

Smart City Sustainable Model in the Cloud

6 extreme volunteer homes

Every
10 seconds

Data Logger +
R900 Smart meter



RESIDENTS can optimally manage individual resource consumption, incentives, mobility and wellness

CITY MANAGEMENT and Utilities can design and implement policies for optimal resource management

Enabling socially responsible citizens to collaborate

Backdrop

As the general public goes about their daily lives and encounter issues in the city, they can use IOC for Citizen Collaboration to report these issues for resolution.

Example

New graffiti appearing in a public area,

broken facilities that could cause harm, broken paving stones, garbage in children's play ground, signage missing, etc. Citizens report via MOBILE IOC connected application.

This information can be used to supply the office of public works an additional input to their maintenance schedule.

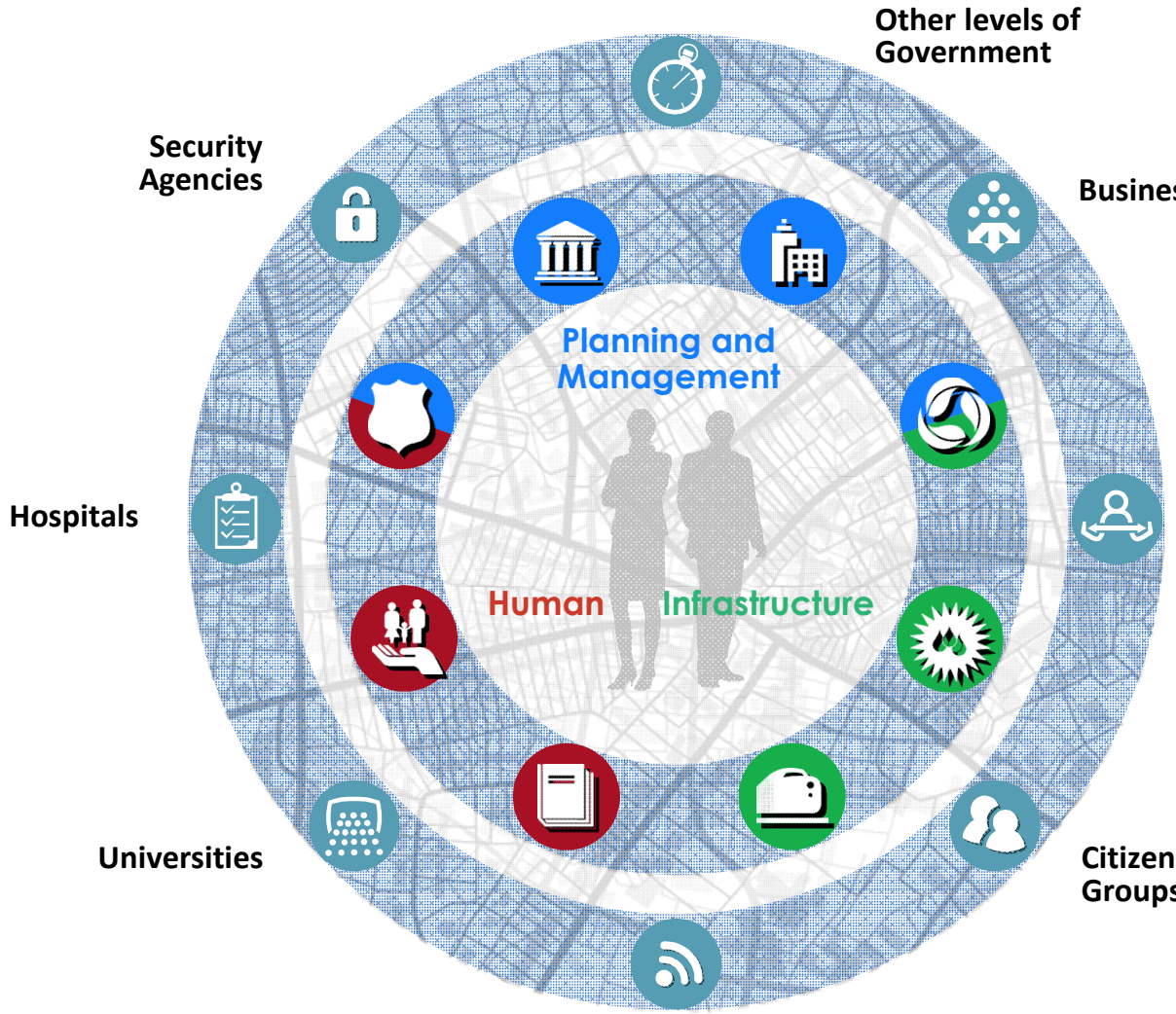
Using the IOC, this information can be combined with other information to help schedule, spot trends and optimize the response.

Smart Water Example:

Dynamic Pressure Control & Leakage Detection

- Lowering the pressure:
  - Significantly reduce water loss in the event of a leak
  - Reduce the energy required to provide water
  - Reduce the wear in water pipes
- Utilizes real time monitoring, hydraulic simulation, forecasting, and optimization techniques, to insure level of service

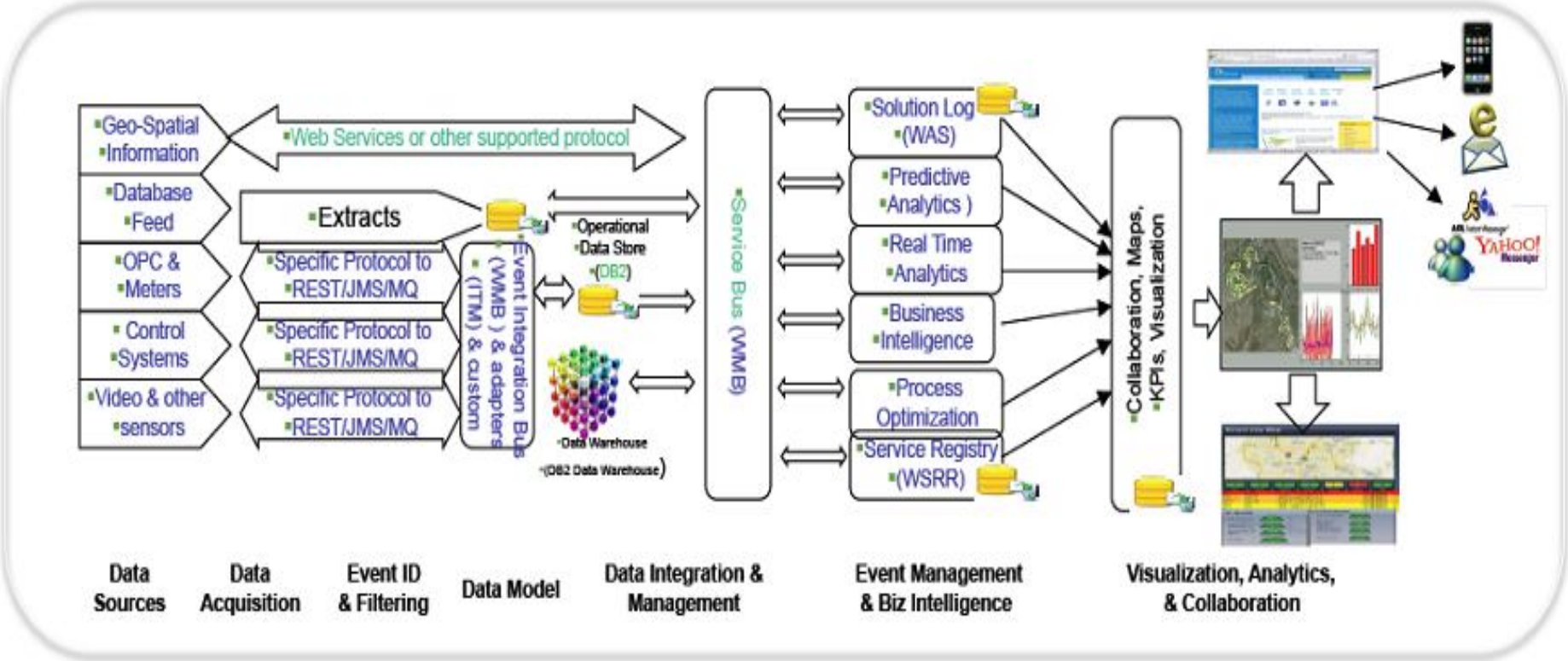
Reaching beyond city hall to collaborate and integrate…



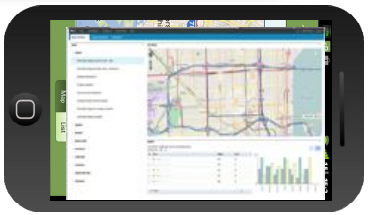
Developers

…engaging citizens and businesses

Solution Architecture: from data acquisition to analysis, representation, decision support and representation



May start with mobile and finish on mobile



Key Resources

ibm.com Smarter Cities site
www.ibm.com/smarterplanet/us/en/smarter_cities/overview/

IBM Smarter Cities Point of View
ftp://submit.boulder.ibm.com/sales/ssi/ecm/en/pub03003usen/PUB03003USEN.PDF

IBM Smarter Cities News
www.ibm.com/press/us/en/presskit/27723.wss

IBM Smarter Cities YouTube Channel
www.youtube.com/user/SmarterCities#p/p

IBM Intelligent Operations Center
www.ibm.com/software/industry/intelligent-oper-center/

IBM Smarter Buildings
www.ibm.com/smarterplanet/us/en/green_buildings/examples/

IBM developerWorks Smarter Cities
http://www.ibm.com/developerworks/topics/smarter cities

Andrey Galitskiy
Smarter Cities Sales Leader, IBM, Russia & CiS
galitskiy@ru.ibm.com
www.ibm.com/ru