IBM

Smart Cities

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City living- a few facts

In the last century, water use has been **growing at more than 2X the rate of the population**.[1]

Between **2000** and **2012**, natural disasters caused **$1.7 trillion** in damage and killed **1.1 million people**.[5]

Traffic congestion costs:
US – **$121 billion** annually[2]
UK – **£491 per car-commuting household**/year[3]
Beijing – **4.22% of GDP**[4]

By **2050, 70%** of the global population is expected to **live in cities and urban areas**[6]

[1] http://www.unwater.org/statistics/statistics-detail/fr/c/211811/
[2] https://www.rita.dot.gov/utc/utc/sites/rita.dot.gov.utc/files/utc_spotlights/pdf/spotlight_0313.pdf
[3] http://www.telegraph.co.uk/finance/newsbysector/transport/9734126/Trafiic-congestion-costs-UK-economy-4.3bn-a-year.html
[4] http://cedb.asce.org/cgi/WWWdisplay.cgi?295422
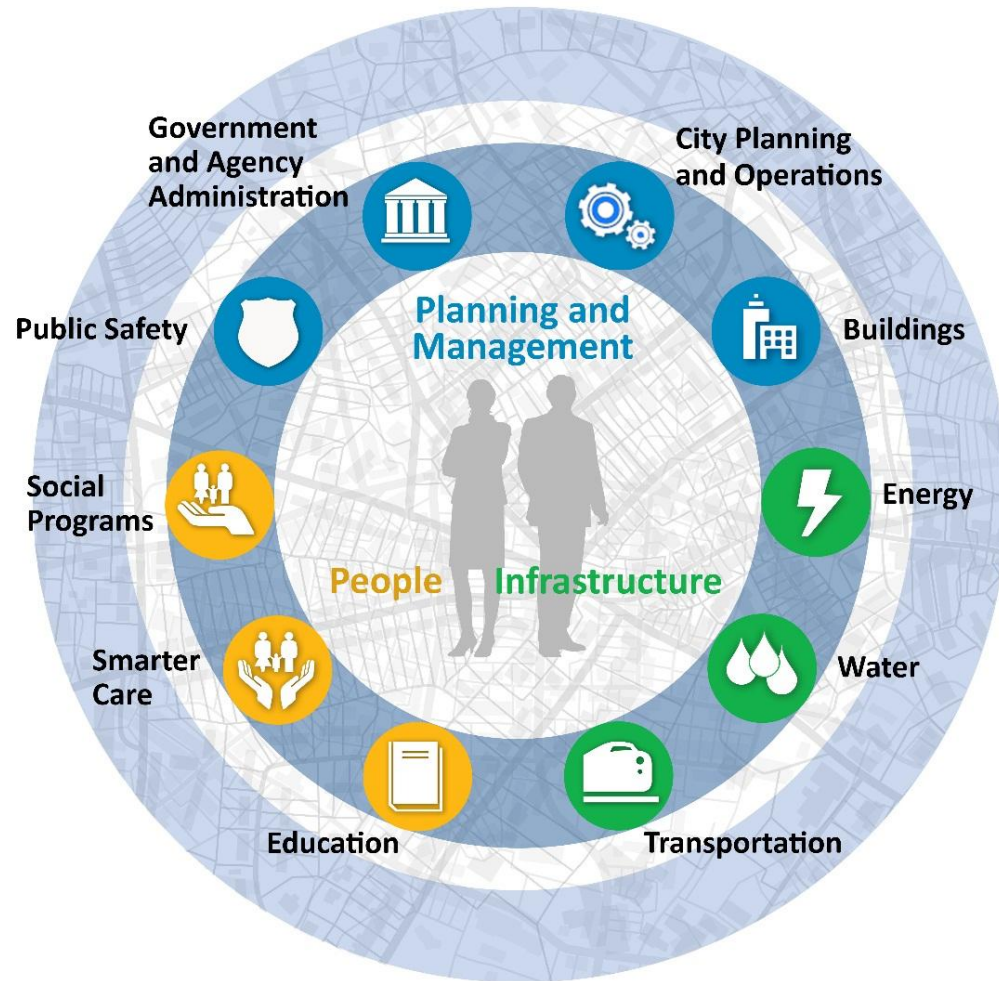[5] https://www.dosomething.org/actnow/tipsandtools/11-facts-about-disasters
[6] Meeting of the Minds Webinar, *From Fragile to Agile: Transforming Economies Through Business Models and Partnerships*, Riz Khaliq, August 13, 2014

Growing cities, growing challenges

CAMS help cities address the challenge

Cloud

Mobile

Social

Big Data

Internet of Things

Sample IBM engagements

- Edmonton, AB
- Minneapolis & Rochester, MN
- Portland, OR
- Rochester, NY
- Durham, NC
- Corpus Christi, TX
- Miami, FL
- Honolulu, HI
- Stockholm, Sweden
- Ultrecht, Netherlands
- Dublin, Ireland
- Madrid, Spain
- Lisbon, Portugal
- Zhenjiang, China
- Davao City, Philippines
- Bangalore, India
- Singapore
- Rio de Janeiro, Brazil

The cities of Dubuque and Istanbul are using analytics to understand peoples' movements to significantly improve their transportation systems

The challenge

Obtain accurate data that identifies where people are traveling from and to, their modes of transport and peak travel times in an effort to improve the cities' transportation systems.

The solution

IBM Researchers have developed analytics software that provides accurate and meaningful information about massive numbers of peoples' movements. These insights can be used by city managers to plan new transit routes, improve the efficiency of current transit systems, and coordinate the various transportation modes with the goal of moving around in cities more conveniently and comfortably.

How

It draws on transit data, geo-spatial information, census records, points-of-interest information and data from cell phones and smart phones. The telephone data is completely anonymous so no individual's privacy is compromised. By tracking the movements of thousands of people from place to place and correlating it with time and the speed of travel, the system understands the mode of transportation people are using and knows where they're traveling to and from.

The outcome

By learning the patterns of movement, and analyzing them in the context of the multiple modes of transit, city officials can troubleshoot traffic congestion, optimize transportation routes, reduce environmental impacts and increase the quality of life for their citizens.
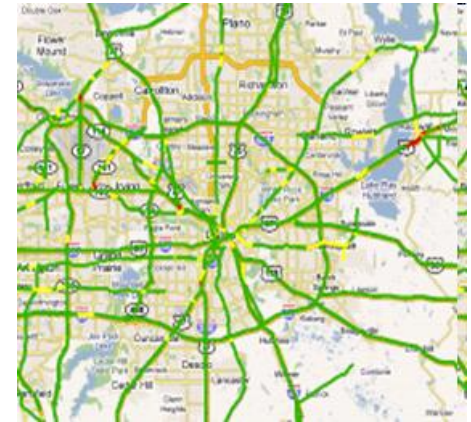
The Alberta government used advanced analytics as part of its Child and Youth Data Lab (CYDL) initiative toward better public policy making and service delivery for children and youth

The challenge

Limited ability to understand how government programs and services are used by C&Y, the interactions between them, and the gaps. Main issue: cross-departmental sharing of personal information.

The solution

Link administrative data on C&Y from across various departments to allow
research on policies, programs, and services across multiple sectors
(e.g., education, social services, health, justice) to determine impact and success level using anonymization technique.

How

- Each record linked in the CYDL is stripped of personal identifiers (one-way hashed) within the confines of each Ministry. Only the hashed data is securely transmitted to the Hub for processing by the AIRS software; the clear text of any personal information remains with department
- Project has appropriate governance: an ADM Steering Committee, ethics review, Privacy Impact Assessment and Information Sharing Agreements are in place
-Physical and data security protocols that match or exceed standards established by Statistics Canada for its Research Data Centres are in use

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