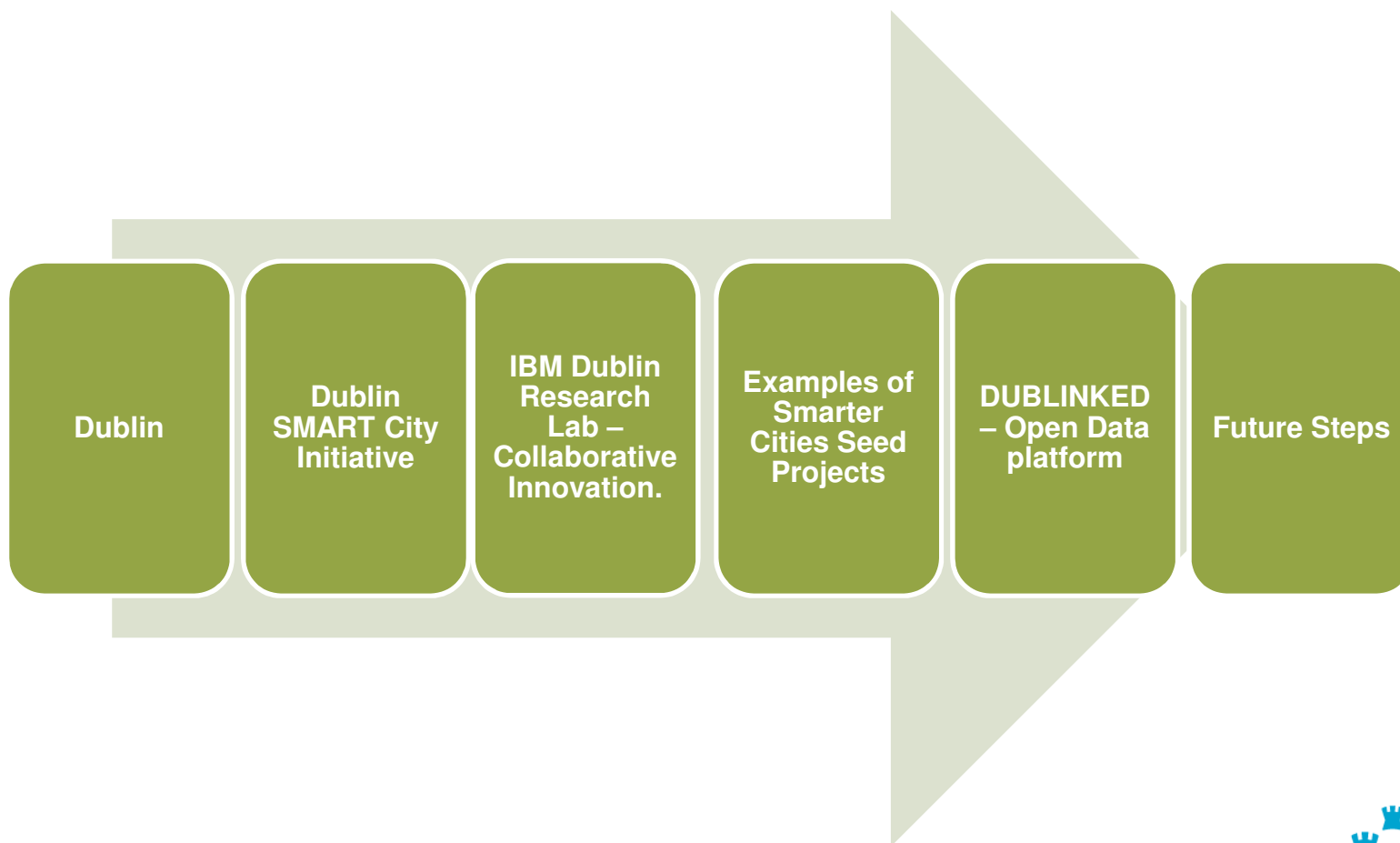




# The Dublin Experience – Fostering a SMART City where Creativity & Innovation Thrive

Brian Curtis Executive Manager ICT

# Presentation Content



# Introducing Dublin



**City Population**  
**506,211 +**

**Greater Dublin Area**  
**Population 1.66 m**

**39 % of national**  
**population lives in**  
**Greater Dublin Area**



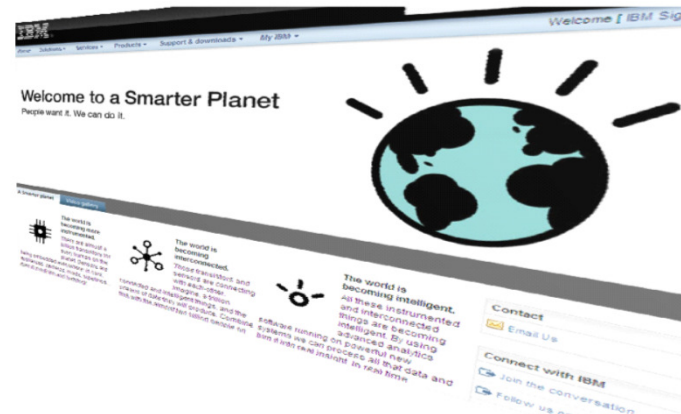


# Dublin Smart City Initiative

**SMART Dublin** is a vibrant and sustainable ecosystem where entrepreneurs, researchers and the city authorities collaborate together to use technology to build a smarter city supporting Job creation and Innovation.



IBM / Dublin Smart City projects launched in 2009  
Location of **IBM's Global Smart City Technology Centre** in Dublin



## Current Dublin Smart City Seed Projects

- Water
- Movement
- Energy

**City as a Test-bed for international product & service innovation**

## IBM Dublin Research Laboratory /Dublin City

IBM established research centre in Dublin

MOU established between the Dublin Local Authorities and IBM for research projects

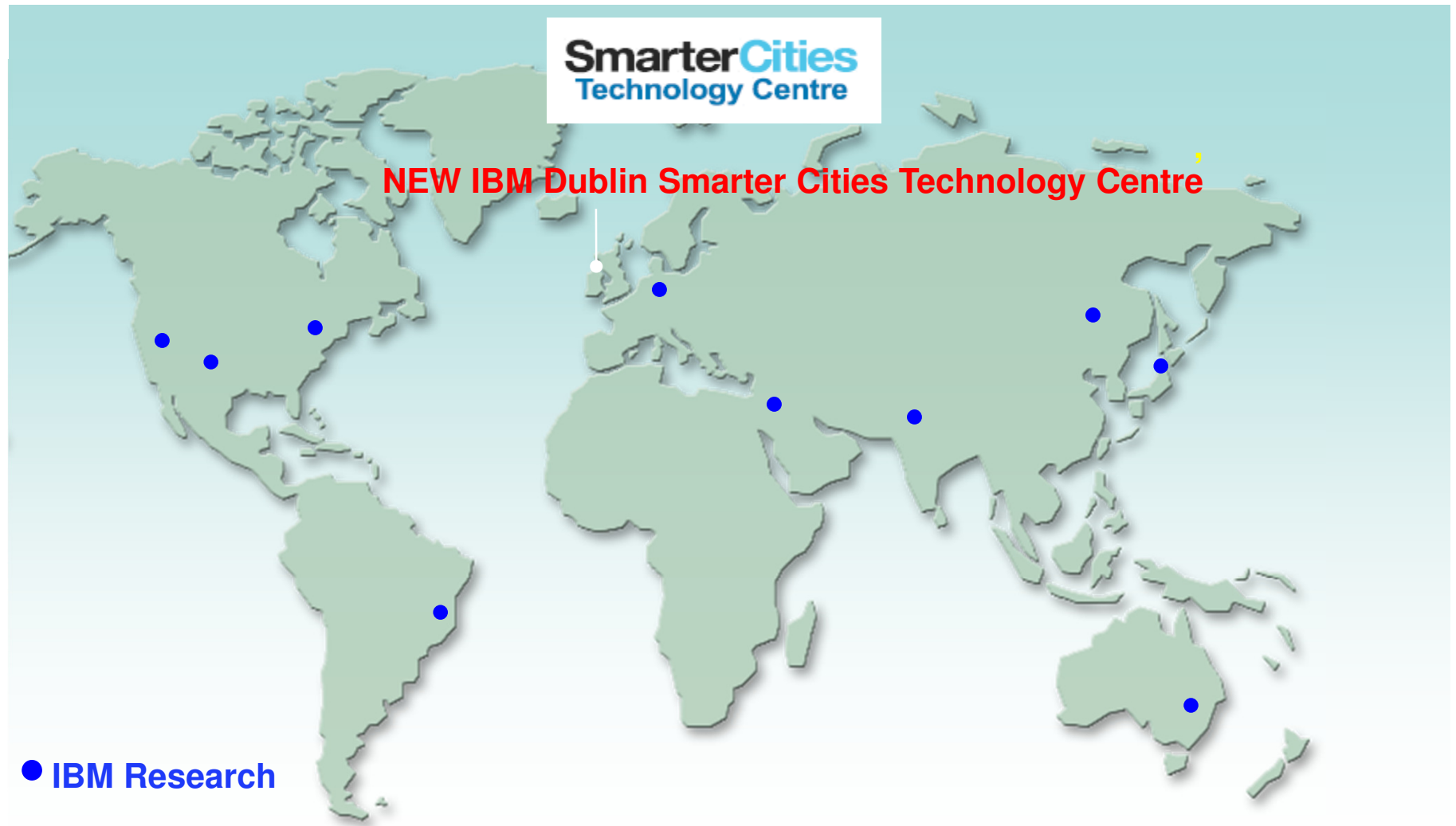
City to act as test bed for research

City supplies subject matter experts

IBM support “dublinked” open access to data operated by NUI Maynooth for the DLA

# IBM Research Worldwide

Collaborative smarter cities research



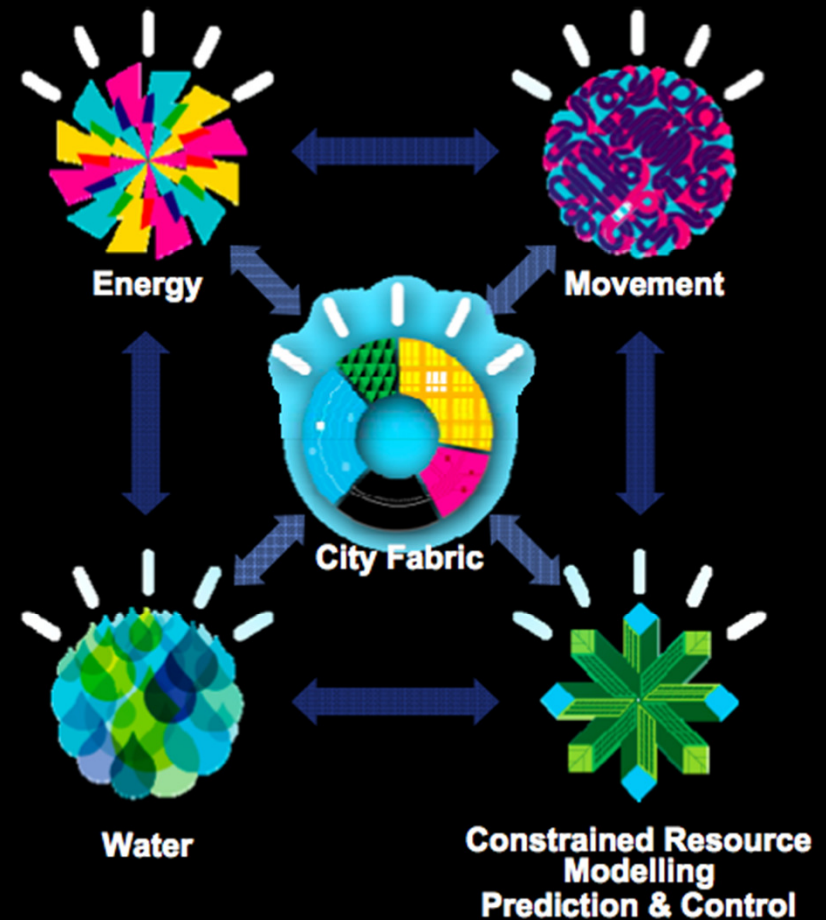
## Developing Intelligent Solutions Across a System of Systems



Optimization  
Forecasting  
Simulation

Predictive Modelling  
Driving New Economic Models  
Significant Collaborative R&D  
Skills Development & Growth  
Competitive Advantage

## Seed Projects



# Examples of Collaborative Smarter Cities Seed Projects in Dublin

## Transportation



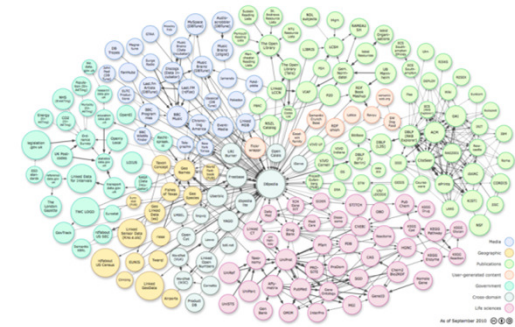
- Continuously assess the state of the public transport system
- Provides personalized, real-time advice to riders and dynamic load-balancing opportunities to transit providers

## Water and Energy



- Collaborative sensing of water/energy consumption in public buildings
- Enables occupants and facility managers to manage and optimize resource usage, and utility providers to predict demand

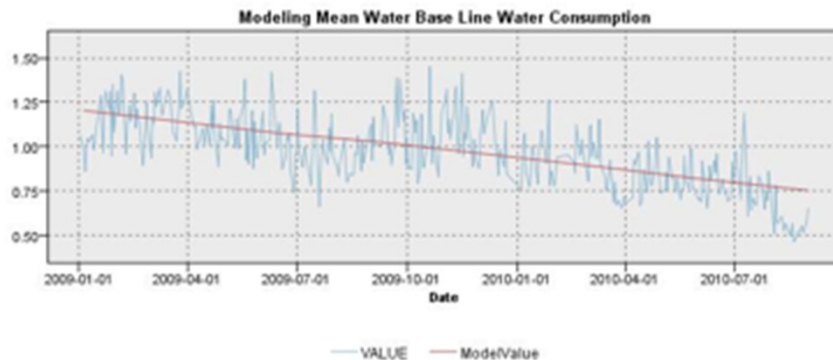
## City Fabric



- **DUBLINKED**
- Positions Dublin as a hub for smarter city research, development, and innovation

# Understanding and Predicting Consumption

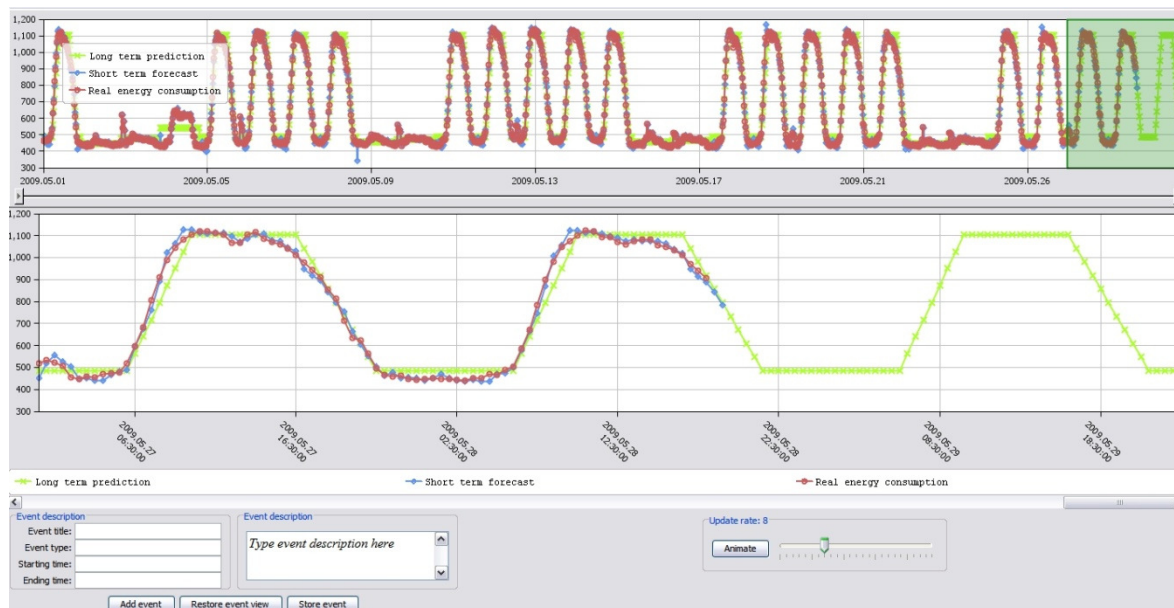
Gain Insights



Build Models



Extend and Apply Models



# Well Done!

Energy consumption in Civic Offices is down by 9%, thanks to your support. Let's keep up the good work this year!



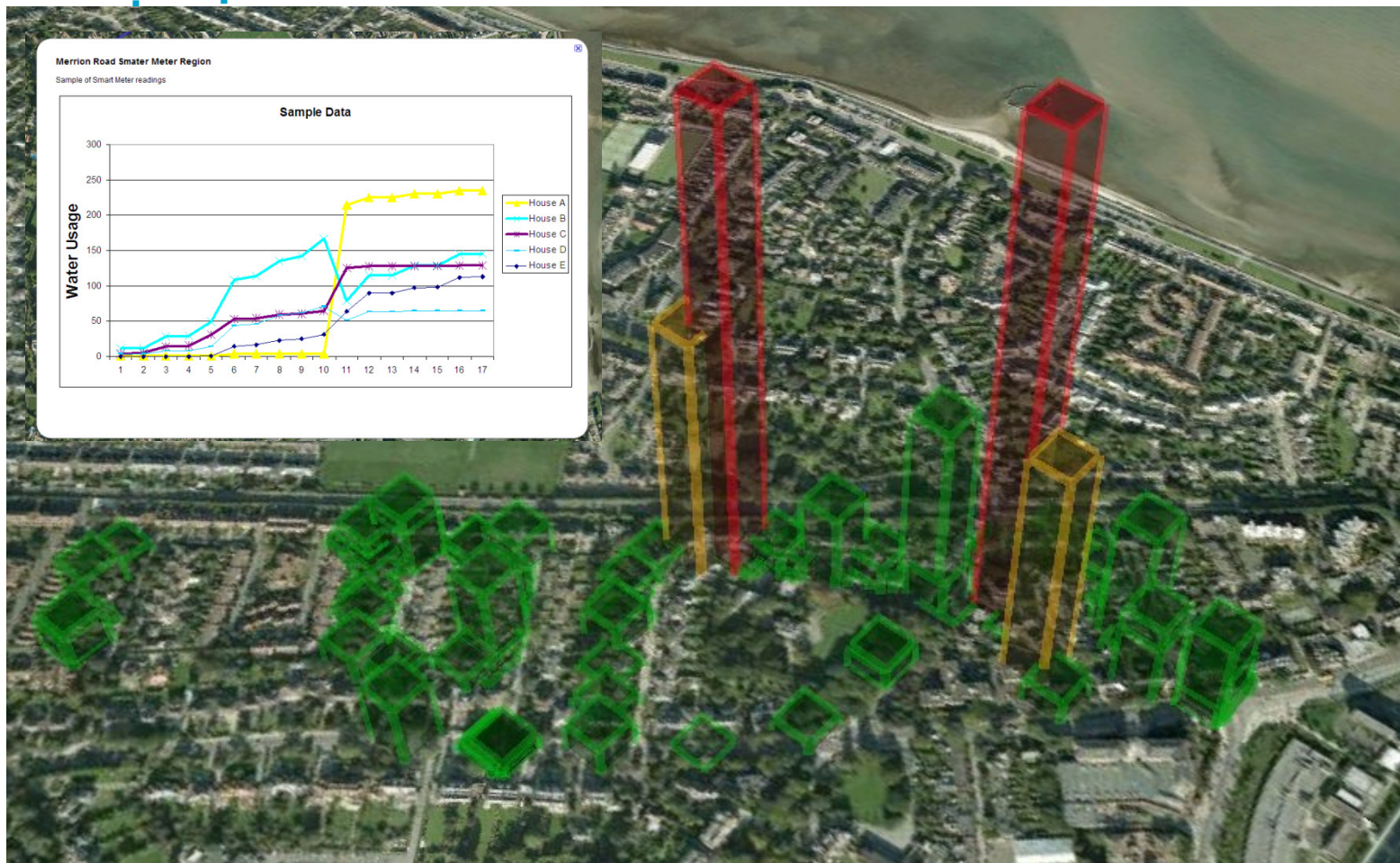
  
Dublin City  
Baile Átha Cliath

  
MINUS 3%  
Supporting INTELLIGENT ENERGY  
GROUP

  
codema  
Sustainable Dublin

  
Dublin City  
Baile Átha Cliath

# Merrion Water Project – SMART water



**Visualisation of high water consumption to support management and resource optimisation**

# Pilot Pressure Management for Water Networks

## Goals

- Reduce leakage through pressure management
  - Valve control
  - Valve placement
- Collaborate with Dublin City Council and Dublin IBM Research Lab

## Preliminary Results

- Pressure reduction potential of 30% through valve control
- Pressure reduction potential of 44% through valve placement
- Additional data needed to estimate leakage reductions
- Great working relationship between City and IBM

# Deep Thunder

Weatherproof your operations with local, short-term forecasts

Use of numerical modelling research tool to protect Dublin from Pluvial (Monster Rain) flooding.

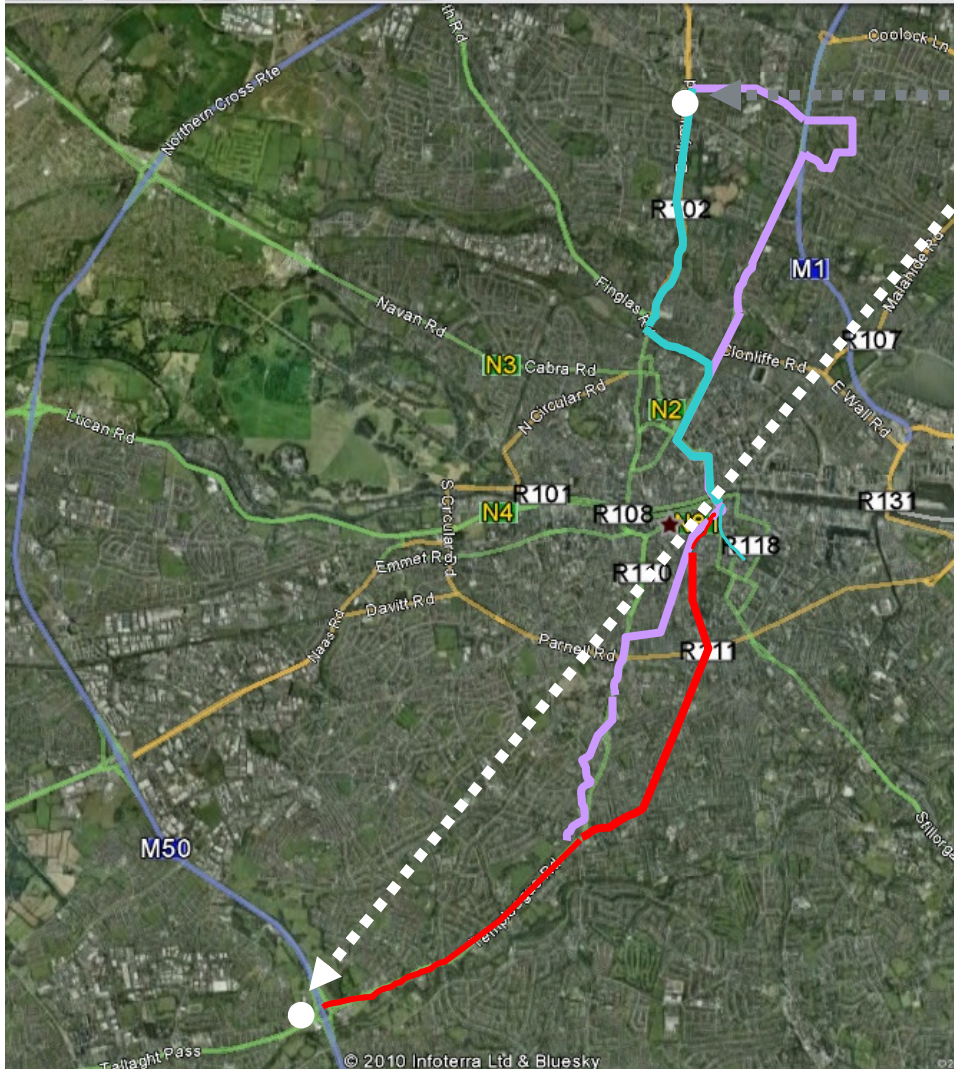
- Data interaction
- Weather forecast modelling
- High performance computing



FloodResilientCity



## SMART TRANSPORTATION



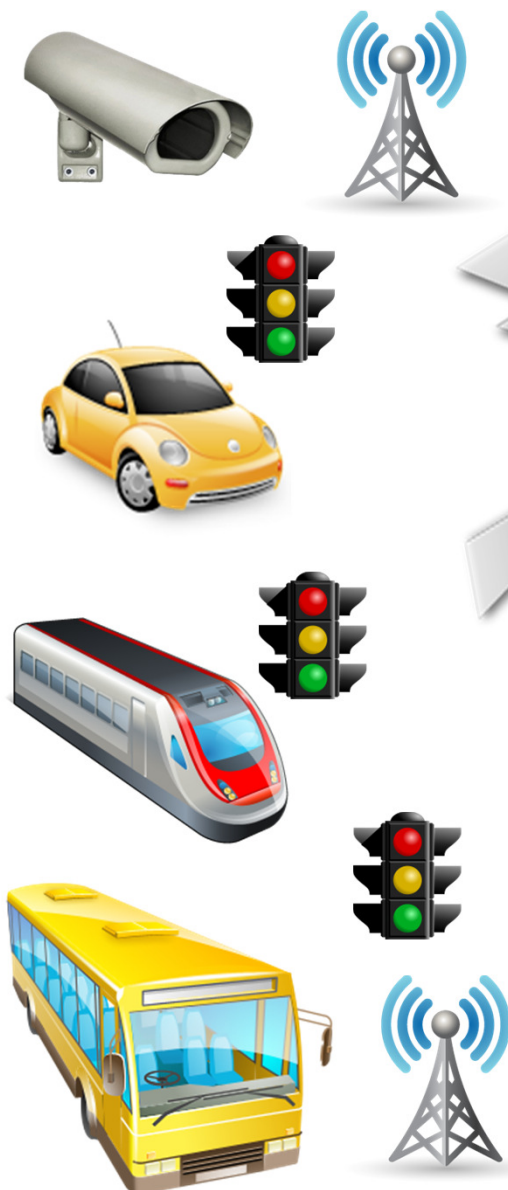
Suppose you want to go from here to here.

Many routes to accomplish the journey.

Each can involve connections, wait times, and uncertainty due to normal traffic patterns as well as unusual occurrences.

**How should you make up your mind ?**

## Raw (Primary) Data Sources



## Data Aggregation, Fusion, Analytics to Derive Insights



Open data  
(archived and  
real-time)

“Smart City  
Processing” =  
cleansing +  
alignment +  
inference +  
prediction +  
scheduling +  
optimizing +  
...

## Delivery Methods



Personal  
“Apps” and  
services

Public  
Displays

Real-time /  
predictive

## Users



**Feedback Loop: digital traces,  
crowd-sourced inputs, citizen  
science, co-design**

# “Dublinked” Open Access to Data



**Smarter government services:** An opportunity to infuse intelligence into needed services, stimulate economies and save taxpayer time and money

**Increased information sharing and collaboration drives smarter decision-making.**

#### **CITIZEN-CENTERED DESIGN**

citizen-centered business model to improve services, experiences and outcomes while lowering costs.

#### **INTEGRATED DELIVERY OF SERVICES**

needed programs with speed and accuracy. Enable cities to predict potential issues so preventative measures can be taken.

#### **BUSINESS AND CITIZEN SERVICES**

Interconnect dynamically with citizens, communities and businesses to spark growth, innovation and progress. Enable online license renewals and validation of license holders.

#### **GOVERNMENT ACCOUNTABILITY**

agencies manage, monitor, analyze and report on key initiatives, with measurable outcomes.

# City services produce data

## Fire Brigade, Waste, Water, Transport, Utilities



## Parks, Planning, Environment, Heritage, Litter, Maintenance



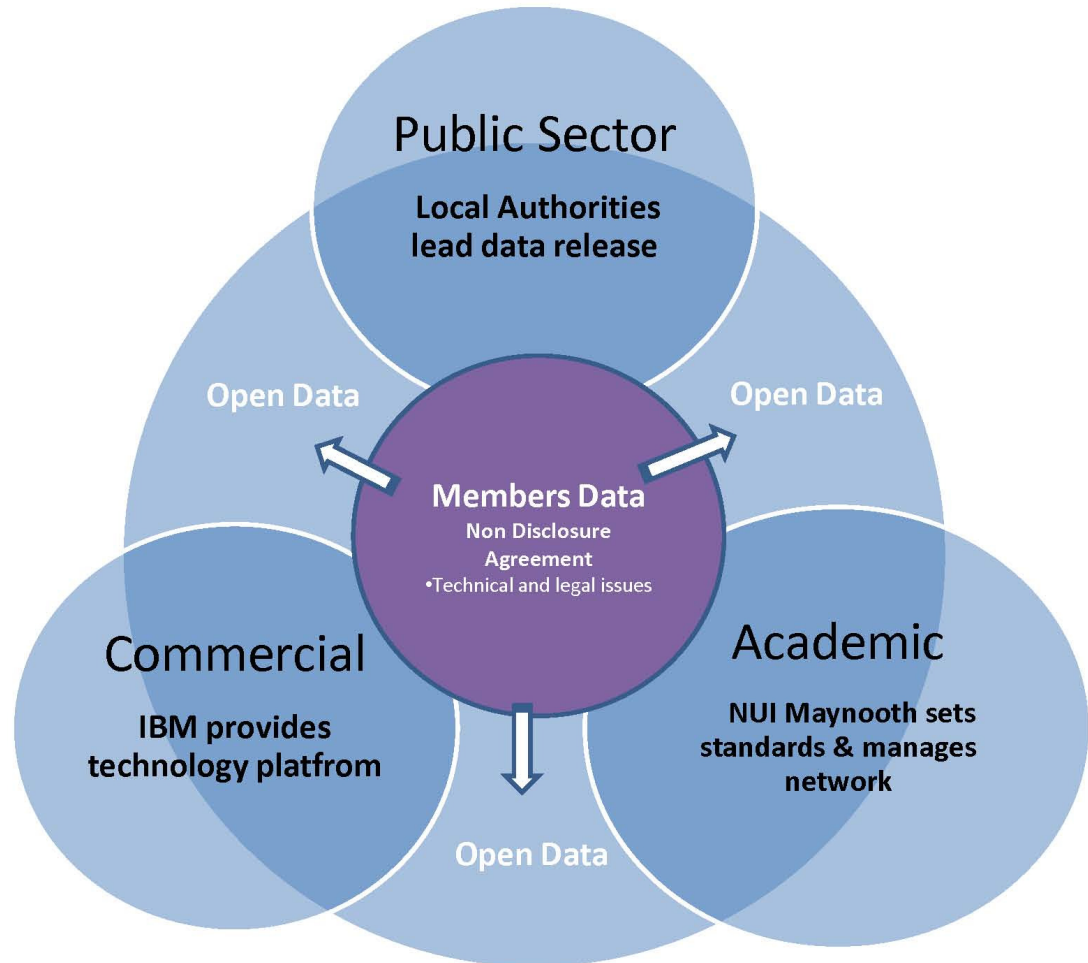
## Arts, Culture, Sports & Recreation



## Housing, Social and Community Services



# Dublinked model



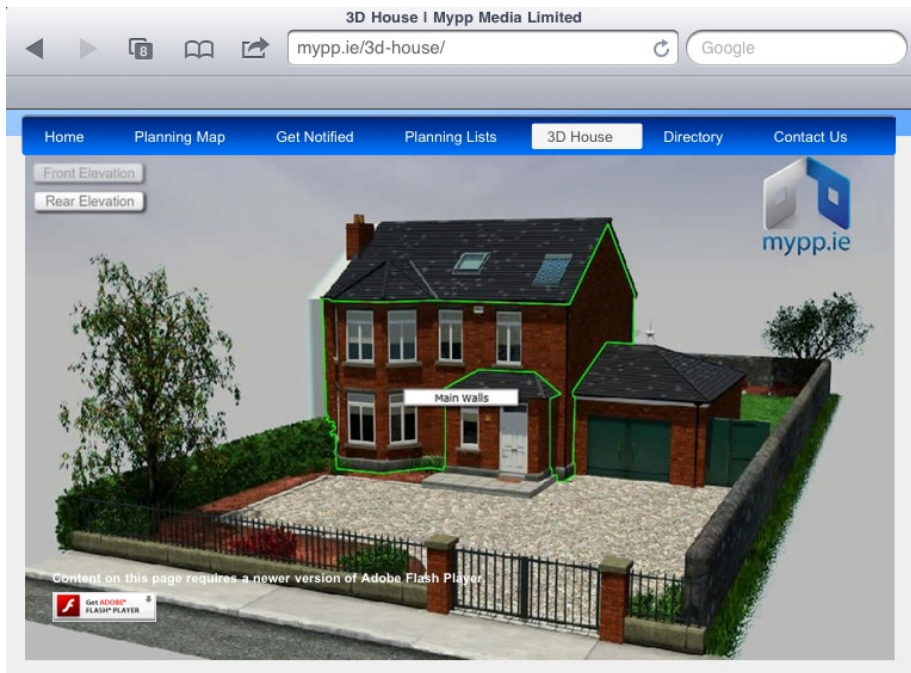
**More than a portal?**

**Members Collaboration Zone & Innovation Network**



# What we want?

- Use data in different ways
- Better city services & systems
- Build innovation & entrepreneurship
- Dublin region as a test bed for new products, services and apps



# Connected city

Information layers;

Traffic sensors, way finding, buildings, air quality, noise, cycling, road works, complaints...



Dublin City  
Baile Átha Cliath

Dublin City  
Baile Átha Cliath

## Future Steps

Develop relationship further with IBM Smart City Labs

Increase the sensor network over Dublin

Develop with other major cities the utilisation of common city data to allow benchmarking and joint development

Increase the number of agencies and data in “dublinked”

Establish City Operational Centre including emergency response



# Questions