

# Future cities demonstrator

## COMPETITION FOR LARGE-SCALE DEMONSTRATOR PROJECT FUNDING



**Technology Strategy Board**

Driving Innovation

# Glasgow City Management System



# ■ TSB Future Cities Demonstrator Competition

Demonstrate at scale, and in use, the additional value that can be created by integrating city systems

- *Integration of city systems - horizontal, broad*
- *Innovative and ambitious use of technology*
- *Potential for large impact on economy, quality of life and environment of the city*
- *Enable businesses to test new solutions*
- *Allow UK cities to explore new approaches*
- *Citizen engagement - positive impact on people*

enabling data | enabling technology | enabling research & development  
enabling investment | enabling businesses | enabling people



## ■ Why Glasgow?

- *Glasgow is on a journey - a proud history of embracing challenge, delivering change and benefits combined with an ambitious revised Future Vision*
- *Scale and depth of capital investment taking place and planned including: Commonwealth Games 2014, Technology & Innovation Centre, South Glasgow Hospital, Transport Improvements, Glasgow Community Safety Services HQ at Eastgate, Conferences & Events*
- *Strength of public, private and academic partnerships (the 'triple helix') - strong collaborative ethos, committed city stakeholders*
- *Excellent national and international reach*



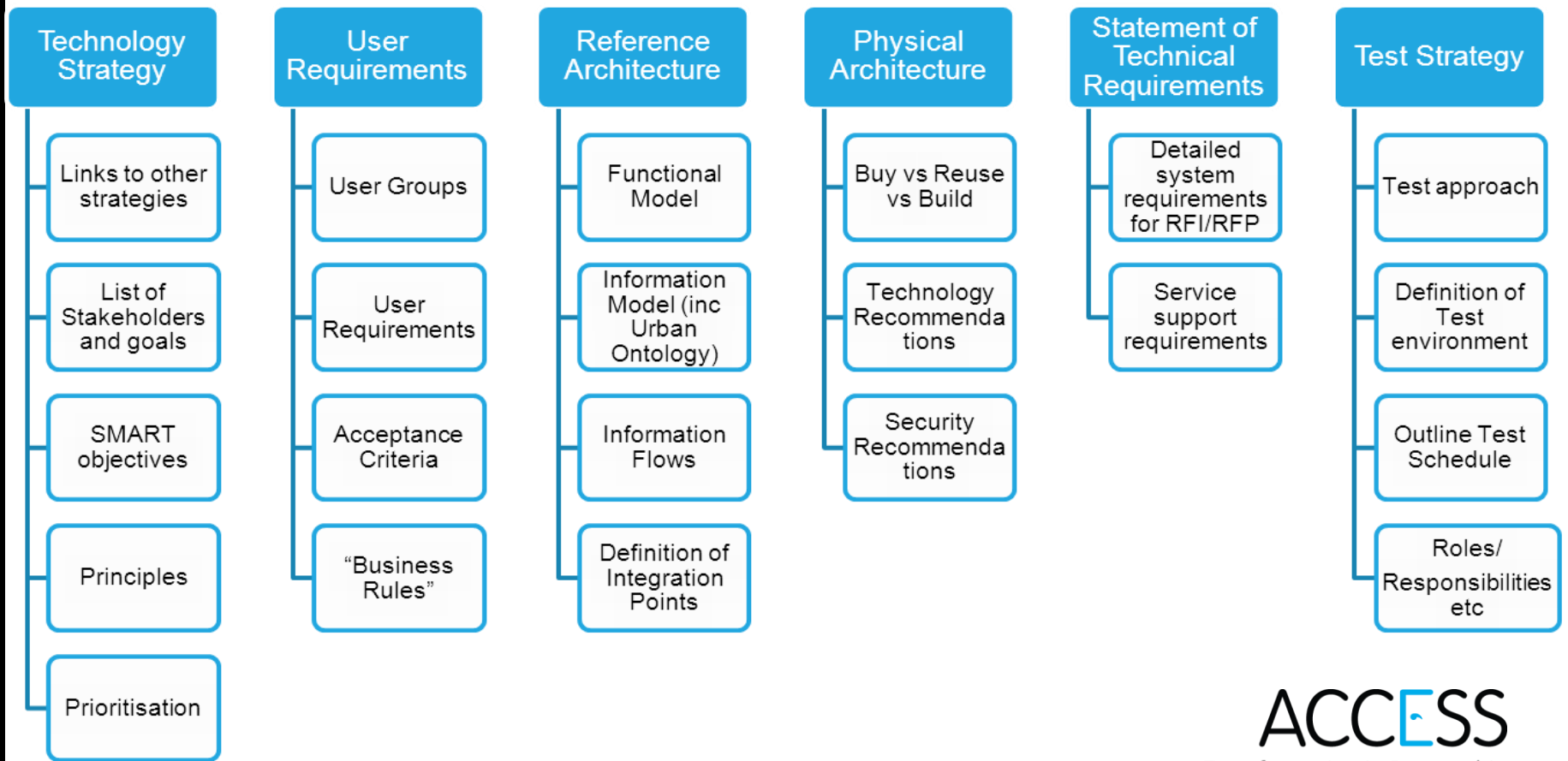


## Glasgow City Management System

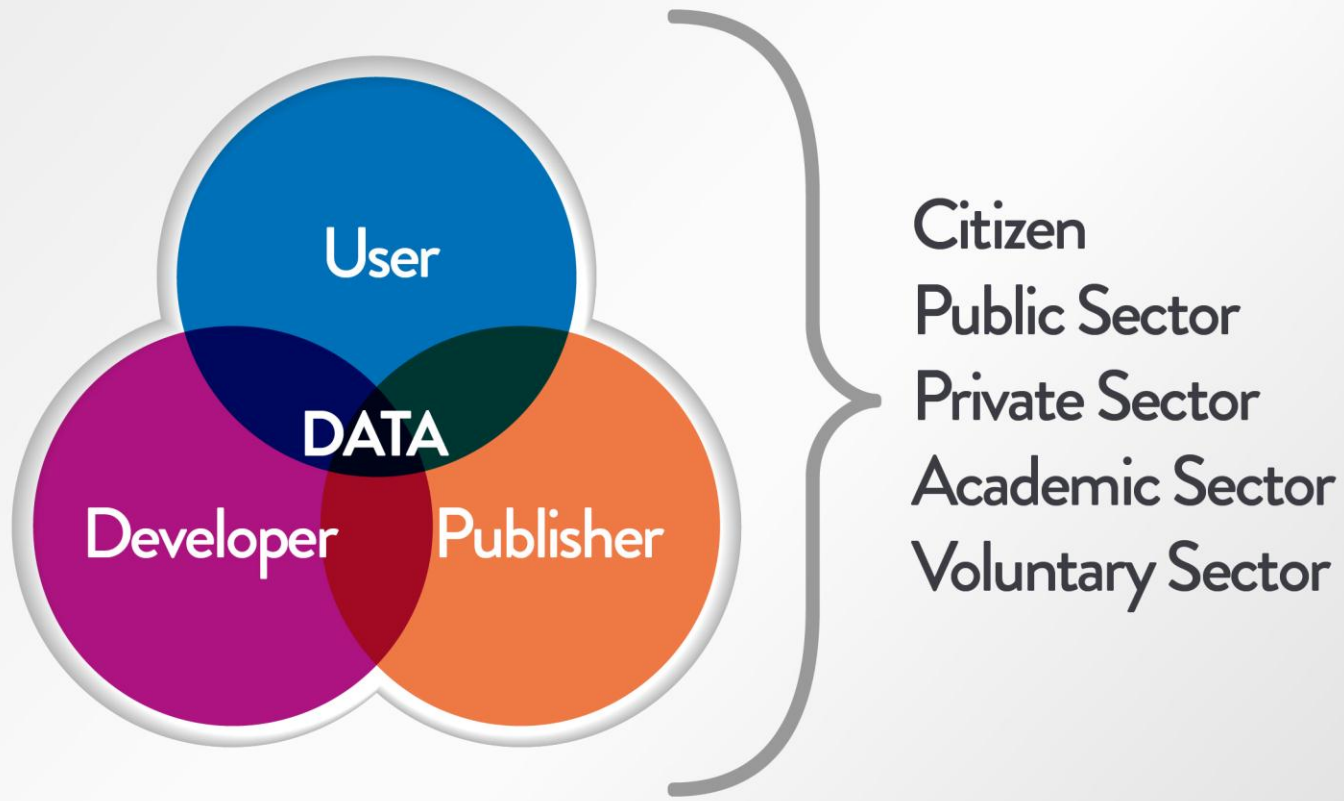
Technology infrastructure enabling the integration of city systems and data across multiple agencies for the delivery of improved and responsive city services, and to facilitate wider engagement with the citizens of the city. Large-scale easily replicated test-bed.

- **Data Repository** - the 'Big Data' store enabling the organisation and integration of small and large previously unconnected datasets, including an **Urban Ontology of Asset Management** (ontology: the specification of conceptualisations, used to help programs and humans share knowledge)
- **Intelligent Operations Platform** - analytics, workflow, event rules, semantic models to handle real-time information and response
- **City Dashboards** - common city operational management platform, customisable and providing data in a live environment
- **City Observatory** - 'open data' providing an accessible view of Glasgow including the **'MyGlasgow' Smartphone App** for continuous responsive engagement and feedback loops

# Phase 1 - Architecture Design (May, June & July 2013)



# ■ User Requirements



# Beta Web Portals (from June 2013)

[open.glasgow.gov.uk](http://open.glasgow.gov.uk)  
Data Portal

[map.glasgow.gov.uk](http://map.glasgow.gov.uk)  
Map Portal

[dashboard.glasgow.gov.uk](http://dashboard.glasgow.gov.uk)  
Dashboard Portal



## City Technology Platform



**Data**

- from Files
- from Operational Databases
- from Data Repositories
- from other Open Data Portals ("Internet of Information")

**Real-Time Events**

- from Workforce (where possible)
- from Web-Services and Business Applications
- from City Infrastructure ("internet of Things")
- from (Volunteering) Citizens ("Internet of People"/ "Crowd-Sourcing")

# City Dashboard

### Traffic Incidents (5)

- Closure - Eastbound**  
George Square
- Road Traffic Accident**  
West Nile Street
- High Winds**  
The Clyde Arc
- Anti-Social Behaviour Warning**  
George Square
- Power Failure**  
Nelson Mandela Place

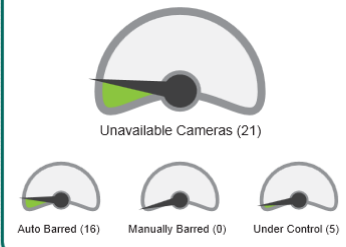
### Emissions Alerts (5)

- Dangerous Levels**  
Hope Street
- Dangerous Levels**  
Cathedral Street
- Requires Attention**  
Queen Margaret Drive
- Low Level**  
Oban Drive
- Low Level**  
Bovar Street

### My Glasgow App (5)

- Broken down vehicle**  
Great Western Road - 120 Reports
- Green man light failure**  
Argyll Street / Hope Street - 112 Reports
- Running water on the pavement**  
Argyll Street - 58 Reports
- Pipe band playing**  
George Square - 12 Reports
- Shop break-in**  
Bath Street - 2 Reports

### Live Eyes



Unavailable Cameras (21)  
Auto Barred (16) Manually Barred (0) Under Control (5)

### Web Statistics

#### A&E Wait Times (5)

- 99 mins** Southern General Hospital
- 65 mins** Glasgow Royal Infirmary
- 35 mins** Western Infirmary
- 25 mins** Gartnavel General Hospital
- 9 mins** Victoria Infirmary

### Live Rail (5)

- Argyll & Bute - West**  
2 Minute Delay
- South Lanarkshire - East**  
3 Minute Delay
- Inverclyde - North**  
8 Minute Delay
- Rendershire - West**  
6 Minute Delay
- Glasgow Central - Incident**

### Water Monitoring (5)

- City Centre**  
120mm/hr - Flood risk high for 1:59 mins
- Hillhead**  
60mm/hr - Flood risk medium for 1:01 mins
- Kelvingrove**  
50mm/hr - Flood risk medium for 45 mins
- Bellahouston Park**  
10mm/hr - Low flood risk
- Tollcross**  
10mm/hr - Low flood risk

### Crime Risks (5)

- City Centre**
- Hillhead**
- Kelvingrove**
- Bellahouston Park**
- Tollcross**

### Corridor Travel Times (5)

- 25 mins** M8 J19 Anderson  
M77 J7 Fenwick
- 19 mins** M74 J1A Polmadie  
M74 J4 Maryville
- 10 mins** M8 J25A Braehead  
M8 J19 Anderston
- 10 mins** M8 J25A Braehead  
M6 J1 Hermiston Gait
- 9 mins** M8 J6 Newhouse  
M8 J3 Livingston

### Street Lighting(5)

- A9 Berriedale Breas**  
Great Western Road
- A68 Soutra Mains Farm**  
Queen Margaret Drive
- A889 A9 - Dalwhinnie Distillery**  
Dunbarton Road
- Grant Street**  
Dim
- Hospital Street**  
Dim

### Weather Alerts (0)

There are currently no weather alerts.

### Equipment Faults (1)

Type 1: 0; Type 2: 1

- 2 TS/GEORGEST/QUEENSTREET**  
TRAFFIC SIGNAL FAULT

# City Dashboard

**COLUMNS:** + Add - Remove    **MODULES:** ↓ Maximise all ↑ Minimise all ↻ Reflow    Welcome Dev User | [Log Out](#)

A&E Wait Times    Corridor Travel Times    Crime Risks    Emissions Alerts    Equipment Faults    Live Eyes    Live Rail    My Glasgow App    Street Lighting    Traffic Incidents

Water Monitoring    Weather Alerts    Web Statistics

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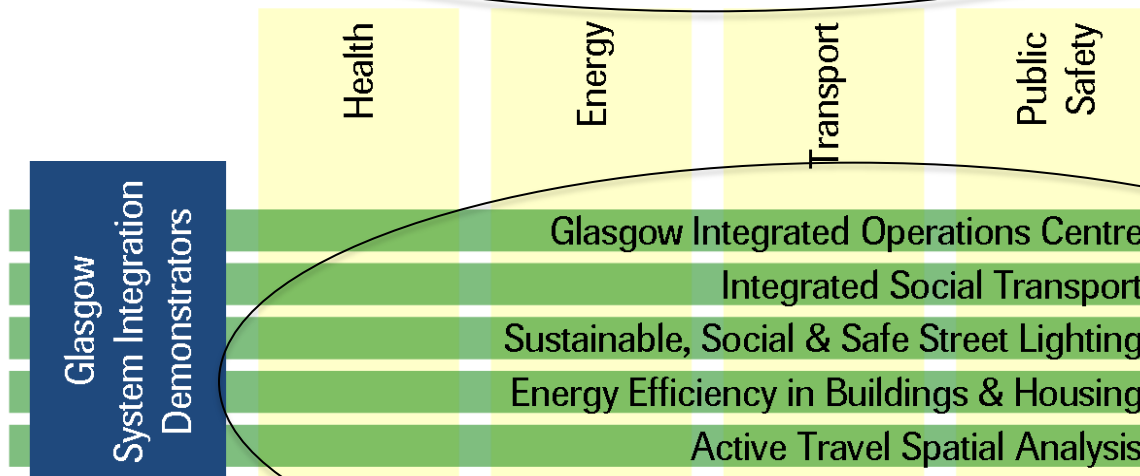
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# Glasgow City Management System

Glasgow  
Future Cities  
Demonstrator  
Proposal



*Enabling  
Platform*



*Benefits  
Realisation*

Project Management, Research & Evaluation  
Industry Placements, Conference & Events

# Glasgow System Integration Demonstrators

Demonstration of the enabling potential of the Glasgow City Management System will be illustrated through five system integration demonstrators chosen to evidence advanced integration of city systems and benefits realisation in real-time during the course of the TSB Future Cities Demonstrator.

These were selected following wide stakeholder consultation and engagement throughout the UK and include:

- *Glasgow Integrated Operations Centre*
- *Integrated Social Transport*
- *Sustainable, Social & Safe Street Lighting*
- *Energy Efficiency in Buildings & Housing*
- *Active Travel Spatial Analysis*

# Glasgow Integrated Operations Centre





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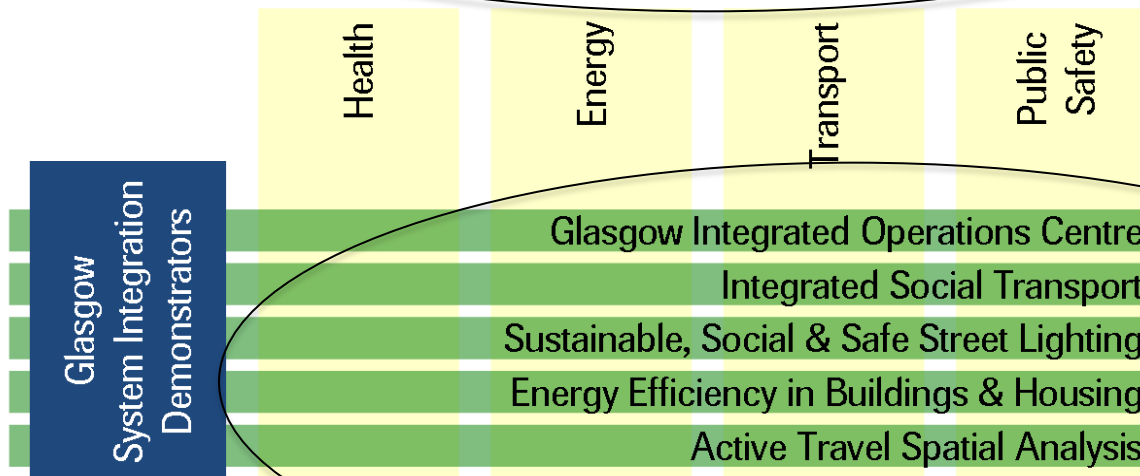
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## ■ Join the journey, keep in touch...

- [future.city.glasgow.gov.uk](http://future.city.glasgow.gov.uk) <coming next>
- [open.glasgow.gov.uk](http://open.glasgow.gov.uk) <coming soon>
- [TSB\\_FCD\\_PMO@glasgow.gov.uk](mailto:TSB_FCD_PMO@glasgow.gov.uk)
- [#futurecities](https://twitter.com/futurecities)