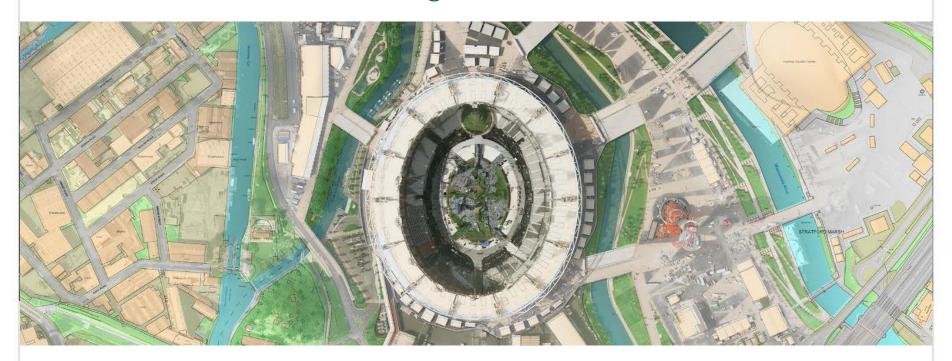
3D and CityGML Information integration for Future Cities



Carsten Rönsdorf

Practice Manager Future Cities, standards and 3D , OS International Tokyo, 2 December 2014















Smart cities use cases areas

```
Air
Water
Fire = Energy
Food
```

People incl. Transport

Social incl. Communication

Smart cities use cases

► Optimise use of resources

Environment

Transport

Energy/Infrastructure

Food

Housing

Emergencies/Resilience

► Optimise processes (inc. social aspects)

Economy

Experience

Community

Responsibility

Competitiveness

London 2012 Olympic Park aerial imagery captured 14 times



London 2012

Base Mapping Data

Large-scale topographic mapping Derived backdrop mapping

Address data Road Network Aerial Imagery Boundaries Height data Terrain data



Organising Committee Data

Venue Overlays LATM&P Road Event Routes Torch/Baton Relay Accommodation Access Routes Bus System routes Training Venues Security Measures





Stakeholder Data

Public Transport (Existing bus routes, underground network etc) Public facilities

Data management

(Schools, recreation areas, shooping centres etc)

City Operations

(CCTV, refuse collection, street works etc)

Traffic information/management and parking

Emergency Services

(Police stations, fire stations etc)



Content Management Systems, data adminstration
 Desktop GIS, CAD, graphic design tools
 Web mapping services, APIs, mobile devices



Product

Detailed Design

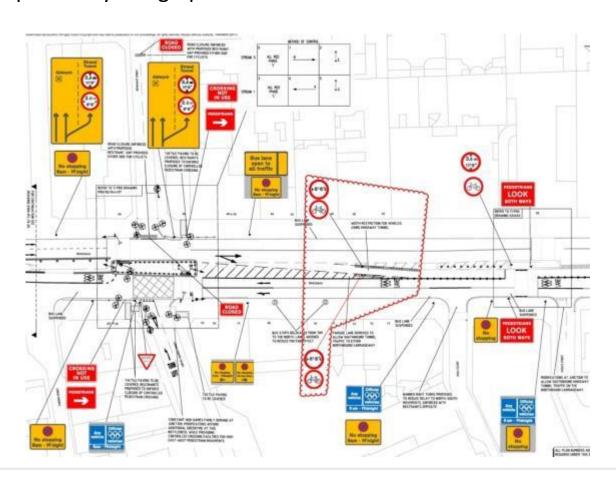
Public/Stakeholder/Client Communications

Modelling & Analysis

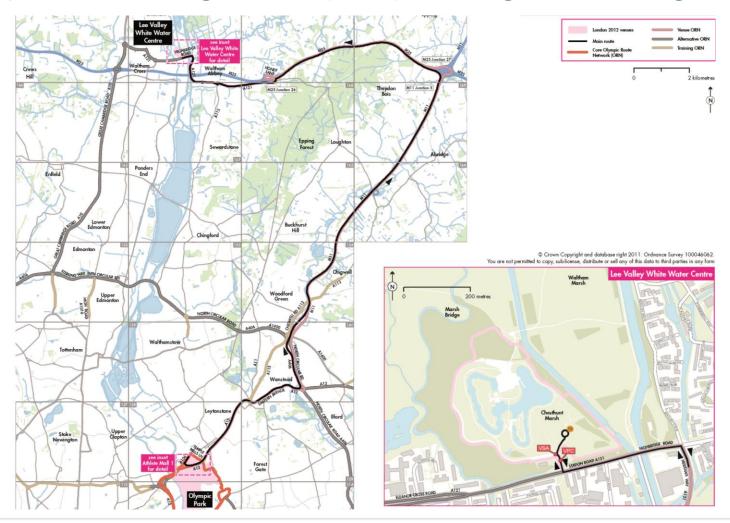
C3

Analytics and design: Detailed design

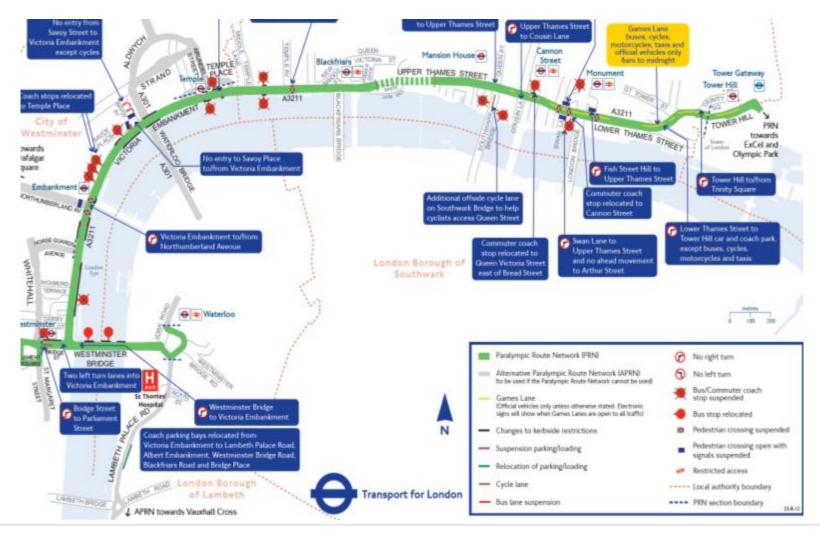
Underpinned by Geographic Information context



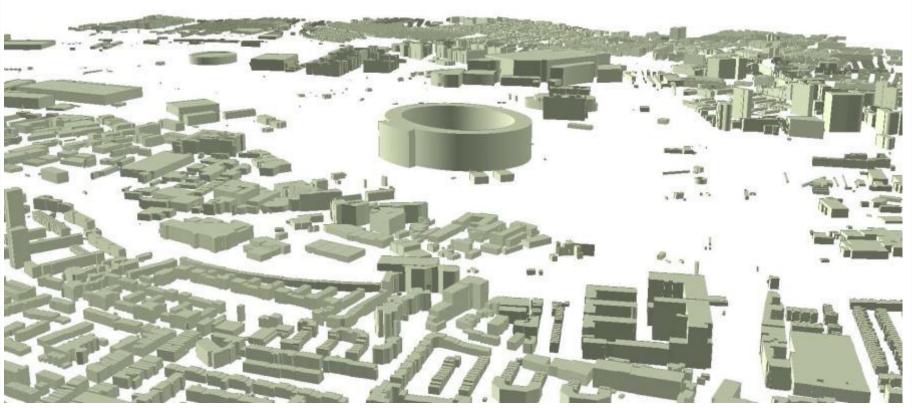
Analytics and design: Transport planning and routing



Communication: Release of information



Enabling the third dimension



Building Heights were automatically generated using in-house developed software processing a combination of OS MasterMap Topography Layer and High Resolution Imagery

Product creation: Signage, wayfinding and spectator

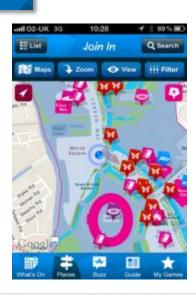
information











London 2012: Working collaboratively across Government: over 30 Government stakeholders













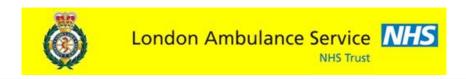












How smart was London 2012?

How geospatially smart was London 2012?



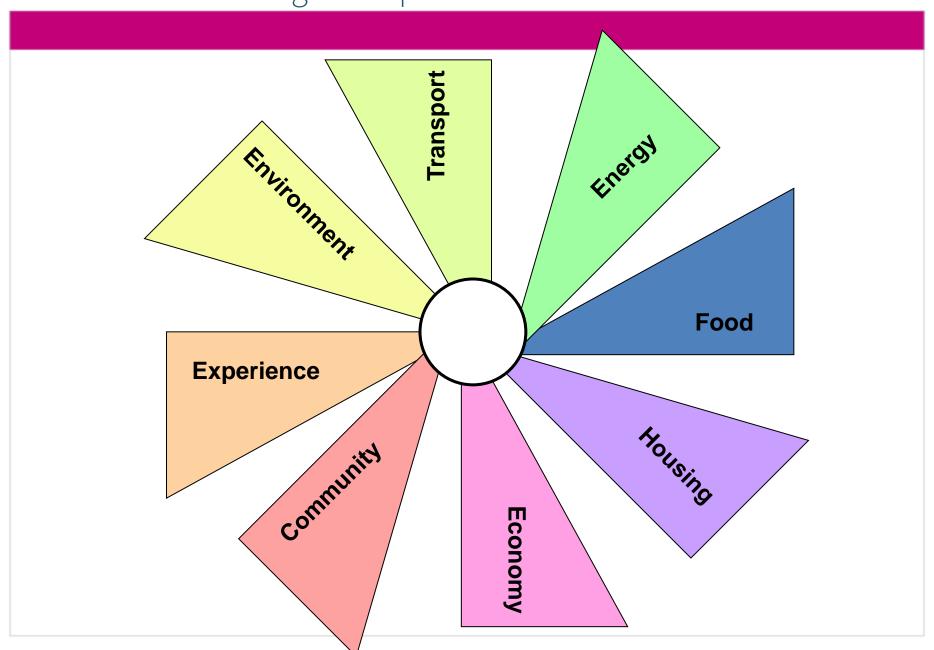
- Technology to make life better, safer and more sustainable
- Public, private and voluntary sector together with citizens

Smart, geospatially aware cities

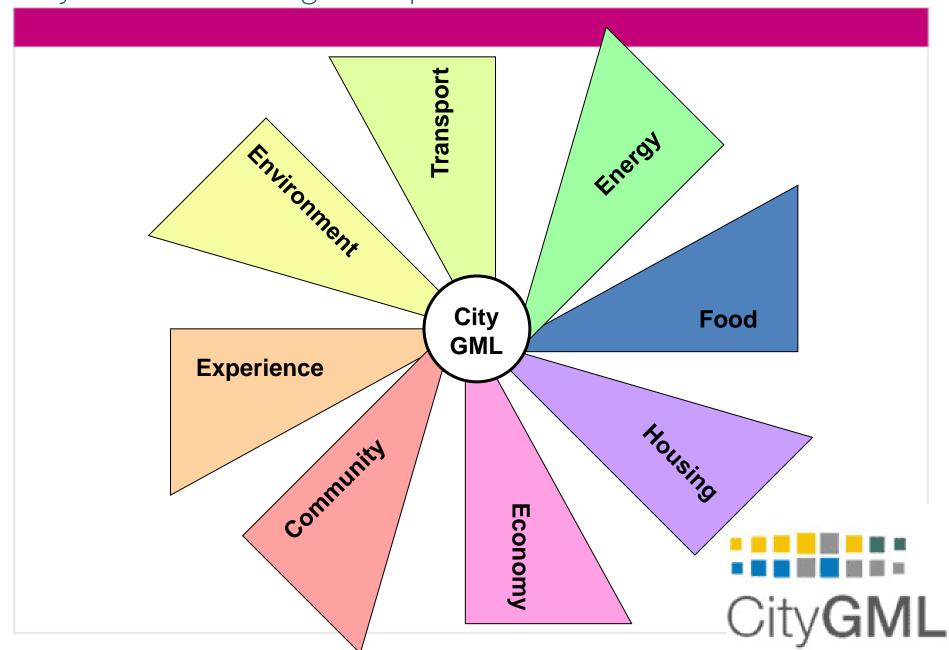
- Better experience through geospatial context
- Core reference data in 2D and 3D
- Identifiers and addressing
- Smart infrastructure (BIM, smart grid, ...)
- Indoor/outdoor integration
- Exploit spatial relationships

Information integration: Access, Analyse, Simulate, Steer

Needed: A data integration platform



CityGML: A data integration platform



Scope of CityGML

Application Domain Extensions (ADE)

Generics

Appearance

SityObjectGroup

LandUse

Relief

Transportation

Vegetation

WaterBody

ADEs

3D Cadastre

Utilities,

CityGML Core

GML 3.1.1

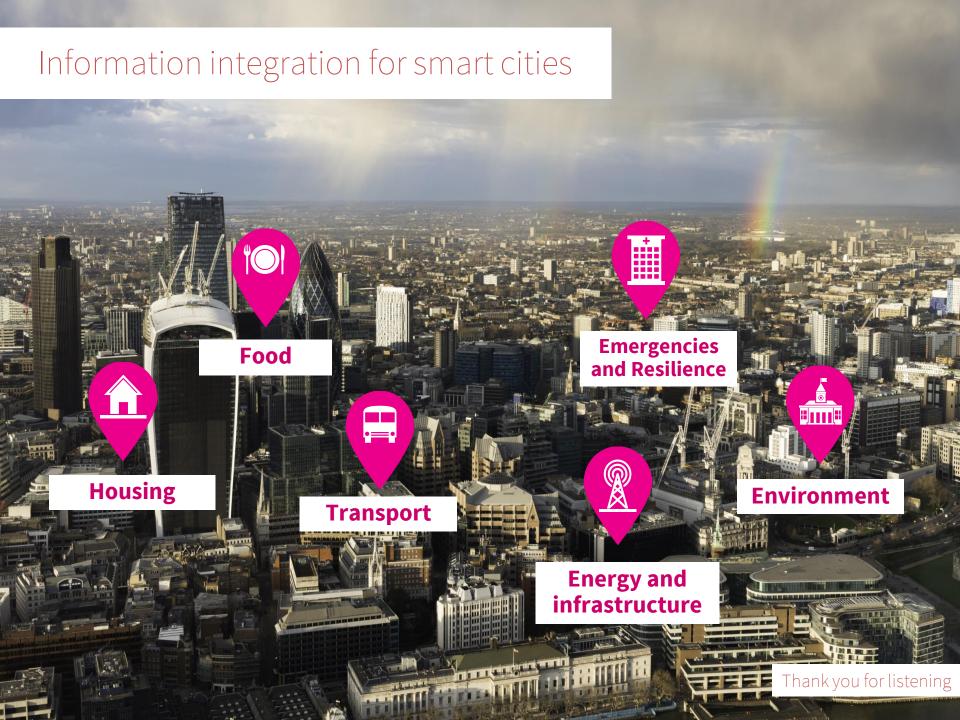
SityFurniture

Building

Nagel, Kolbe | CityGML 1.1

CityGML—Future Cities platform





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