

# Institute for Future Cities

**Dr Robert Rogerson**  
**Deputy Director**  
**[r.j.rogerson@strath.ac.uk](mailto:r.j.rogerson@strath.ac.uk)**



# Institute Research Themes

- Sustainable city planning and implementation
- Risk, Resilience and Safety
- Urban Health and e-Health
- Business models, finance and economics
- Evidence based public policy and public service innovation

Each underpinned by Urban Data analytics, simulation and modelling



# Helping people visualise the city through data



Institute's CITY OBSERVATORY and  
DEMONSTRATOR

# What might the 2030 urban future be?

**60% WORLD'S POPULATION IN CITIES**

**+ DOUBLING OF MEGACITIES**

**BUT ALSO**

**- 85% FABRIC ALREADY EXISTS**

**- MOST KEY ISSUES ALREADY**

**KNOWN**



# Converging trends

- Urban lifestyles and systems will dominate almost all liveable spaces
- Solutions found in large cities are likely to be benchmarks for all cities
- Increasing use/reliance on technology and on the 'internet of things'
- Increasing challenge for cities to be resilient to unexpected change

# ... but also divergences

- Some cities growing rapidly
- Some cities with greater political autonomy
- Some with smarter citizens with rights and responsibilities
- Some focus on collective well-being
- Some (few?) balancing opportunities
- Some cities in economic and population decline
- Many cities within urban regions & limited control
- Some with centralised governance
- Some focussed on individualised or personalised care
- Most with increasing inequalities

# The city drivers of the future –

*in times of tight budgets change needs to be achieved in a smart way: our cities need to become 'smart cities'.*

citizens in urban areas consume 70% of the overall energy consumption and emit roughly the same share of greenhouse gases.





What might urban transformation look  
like?

**SMARTER SERVICES**

**SMARTER CITIZENS**

**SMARTER GOVERNANCE**

**SMARTER IMAGINATION**



UNIVERSITY of STRATHCLYDE  
INSTITUTE FOR  
FUTURE CITIES



# Smart city....

“should enable every citizen to engage with all the services on offer, public as well as private, in a way best suited to his or her needs.

It brings together hard infrastructure, social capital including local skills and community institutions, and (digital) technologies to fuel sustainable economic development and provide an attractive environment for all. “ (UK DTI)

# Smart cities....

## What...

modern digital infrastructure

an intelligent physical infrastructure

citizen centric service delivery

openness to learn from others

transparency of outcomes/performance

Leadership and vision



## Why...

enables citizens to access the information they need

manage service delivery on a daily basis

coherent service + citizen's needs

new business models

enable citizens to compare and challenge

deliver the necessary change

# Smart citizens + smart communities

- Citizens are at the heart of a city and also at the heart of the challenges cities
- Citizens must therefore also be at the heart of the solution
- Do not have a deep enough understanding of citizens to actively/effectively engage them.
- If smartly mobilized, the effect of citizen's behaviour, choices, creativity and entrepreneurship could be enormous.....

But a fundamental change is required

# UK approach include:

- City Deals – empower city authorities through local projects and initiatives
- TSB Demonstrator – demonstrate the added value of integrating city systems
- Foresight Project - focus on how cities can best contribute to economic growth



# Shared characteristics:

- Rights and responsibilities locally
- Focus on government + citizens
- Emphasis on 'drivers' for change
- 'Small steps' towards 'vision'
- Urban systems within global systems

## City Technology Platform

### SCOPE



Innovation  
& Engagement



Data



Connected  
Assets



Management  
& Control

City Demonstrators  
CCTV, Intelligent Street Lights  
Energy Devices, Mobile Devices

Glasgow  
Operations  
Centre

# EXAMPLE 1

future city | glasgow

- £24 million – 2013/14
- integrate small and big data across multiple agencies
- provide new information with added intelligence



Need to tackle deep-seated urban issues

Shift to meaningful  
multi-agency  
working



New collaboration with  
higher education and  
innovation



# 1. Data repository



# 2. Intelligent operations platform



# 3. Improved operational management



# 4. City observatory



“The city council is looking to upgrade its streetlights to more energy-efficient LED lights – likely to make up to 50% savings on one of the city's largest bills.....



But has also programmed them to increase in brightness if noise levels rise - for example if there is a disturbance in the area.”

The pilot project will be integrated with the newly built City Operations Centre, where CCTV cameras from across the city are monitored and staff can zoom in on any problems.

Helping to solve crime, some would say,  
but for others a privacy nightmare.



# Research innovation...

## Current projects

- Predictive street crime
- Community visions of sustainable futures
- Future built heritage
- Ethics and big data analysis

## Emerging future projects?

- Mobile sensors and the city
- District heating and community ownership
- Revised notions of mobility (rights and responsibilities)



# Example 2

CITY DEALS@  
26 cities across UK



formal contracts on  
project-led  
economic growth



£1.1 billion pounds (4.6 million Reals)

Over 20 years

Partnership – in funding

- in purpose

- in delivery

Infrastructure Fund (£1.1b)		Employment measures	
West End innovation quarter	Unlock employment sites	Claimants into sustained work	£4.5m (50%)
Canal and north gateway	New housing	Low income boost	£0.6m (100%)
Glasgow Airport rail + Bus links	Transport link	Medical centre at new hospital	£4m (25%)
		MediCity development	£1.2m (25%)

# Research innovation...

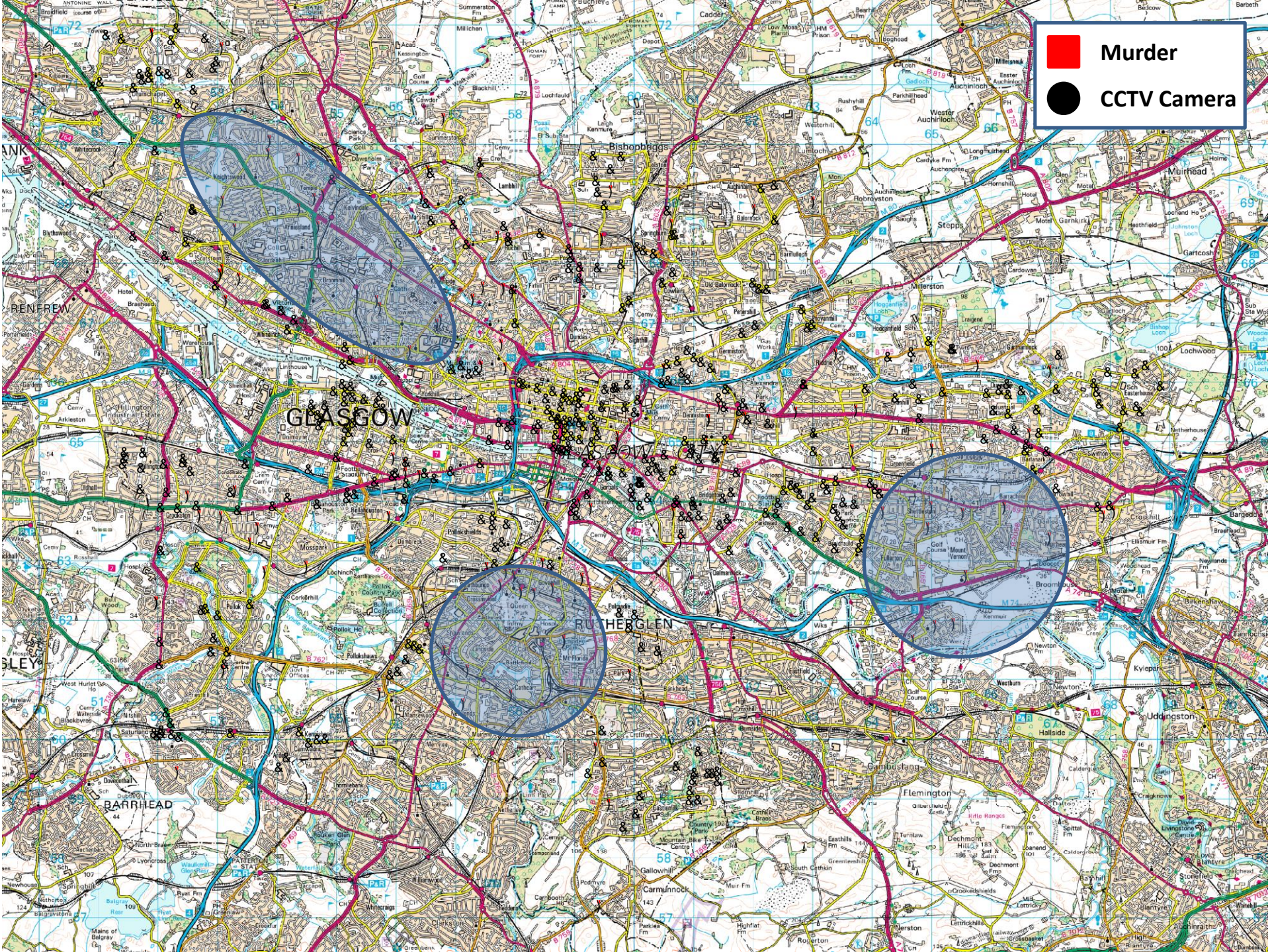
## Current projects

- Predictive street crime
- Community visions of sustainable futures
- Future built heritage
- Ethics and big data analysis

## Emerging future projects?

- Mobile sensors and the city
- District heating and community ownership
- Revised notions of mobility (rights and responsibilities)





 **Murder**

 **CCTV Camera**



# Research innovation...

## Current projects

- Predictive street crime
- Community visions of sustainable futures
- Future built heritage
- Ethics and big data analysis

## Emerging future projects?

- Mobile sensors and the city
- District heating and community ownership
- Revised notions of mobility (rights and responsibilities)







# 4

# Themes

Health.

Energy.

Transport.

Public safe

# Transformative aims – towards a future city

Enhanced connectivity and mobility

Advanced analytics

New forms of visualisation

Innovative collaborations

# Transferrable lessons

- Managed innovation
  - Focus on key projects
- Learning
  - Create platform for future vision
- Research
  - Link to national/international research
- Small steps, potentially large footprints
  - Foster environment of collaboration + innovation

# Getting the balance right....

