



## Smart Cities ...

### ... why they're not working for us yet

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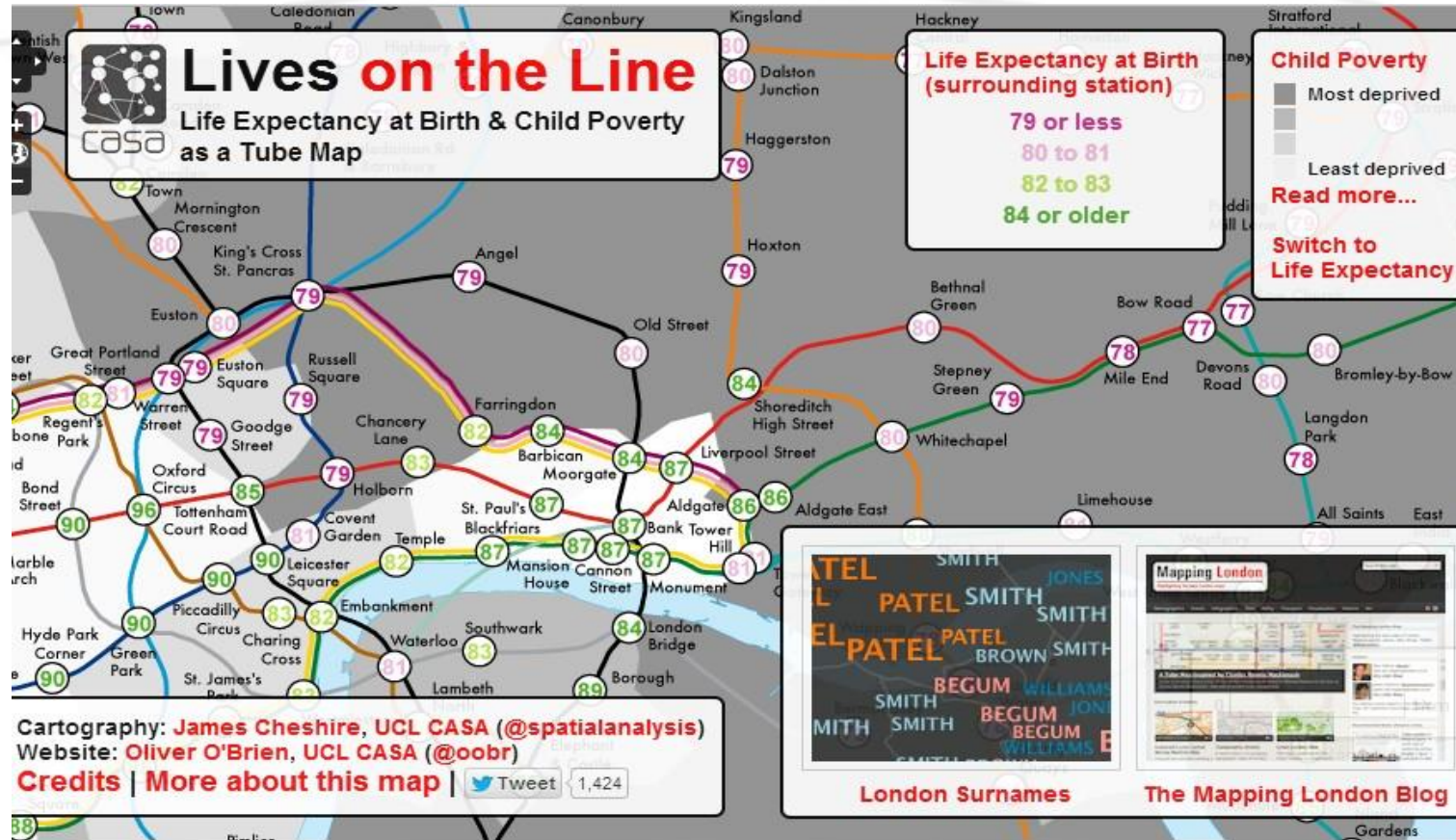
# The idea of a “Smart City” (or town, or region, or community) is 20 years old; but it has so far achieved very little.



Smart Data & Technology

- The goal of **Smart Cities** is to invest in technology in order to create economic, social and environmental improvements. That **is an imperative economic and political challenge**, not a technology trend.
- **The vast majority of Smart City initiatives to date are pilot projects funded by research and innovation grants.** There are very, very few sustainable, repeatable solutions yet.
- The “bottom up” innovation that individuals, communities and businesses carry out with technology every day is a vital component of Smart Cities, but it is not enough on its own: **creating change on an urban scale requires top-down leadership**, policies and investment.
- Private sector investment will not deliver social, economic or environmental outcomes **unless it is incentivised to do so.**
- Most **local governments are not using the tools available to them** to build Smart Cities: procurement policies, planning and development frameworks, social and entrepreneurial investment funds and support services.
- Because **Smart Cities** is usually discussed as a technology trend not an economic and political imperative, it **has not won the support of the highest level of political leadership**, and the widest level of **community and citizen engagement.**

# Smart Cities command attention because cities face fundamental challenges from inequality, global population growth and economic competition, and climate change.



“Lives on the Line” shows a difference of 21 years in life expectancy at birth today between the poorest and richest areas of London. This inequality is repeated in all of the UK’s major cities, and is a measure of our failure so far to deliver public services and infrastructure that give everyone an equal opportunity for a happy, healthy, successful life. This challenge is likely to get harder to address in future as ageing populations in Western economies threaten the funding of public services; as global development creates stronger competition for jobs and economic activity; and as population growth and climate change create increased competition for resources.

<http://life.mappinglondon.co.uk/>

**Smart Cities command attention because cities want to harness the potential for technology to enable fundamentally new ways to deliver services more effectively at lower cost; and for communities to create services for themselves**



### Traditional hotel chain

- Founded in 1919
- Over 680,000 rooms in 91 countries (2015)
- Over 310,000 employees and franchise employees (2015)
- Market capitalisation \$29.6B (2015)

### Online peer-to-peer market for temporary accommodation

- Founded in 2008
- Over 800,000 rooms in 192 countries (2015)
- 600 employees (2013)
- Estimated value \$13B (2014)



open source

1997



2003



2006

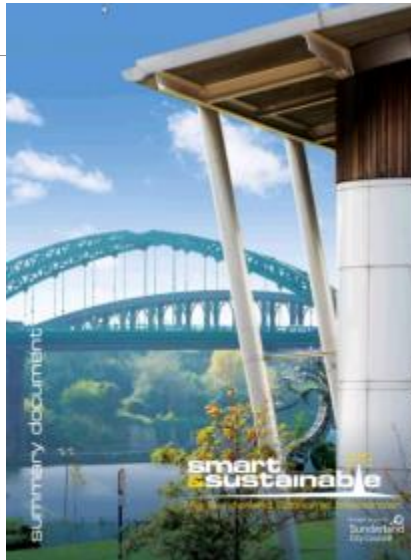
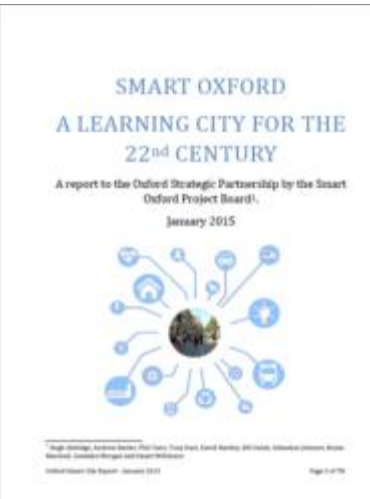


2006



2007

# Smart Aspirations: As a consequence, from nations to cities to rural regions to islands, we are creating aspirational visions for a sustainable, vibrant future enabled by technology ...



**Smart Reality: ... but the vast majority of investments in smart technology support private sector profits and are simply indifferent to wider public sector and community objectives.**



“Never mind the “Sharing Economy”: here’s “Platform Capitalism””, Sebastian Olma, Institute of Network Cultures, October 2014

<http://networkcultures.org/mycreativity/2014/10/16/never-mind-the-sharing-economy-heres-platform-capitalism/>

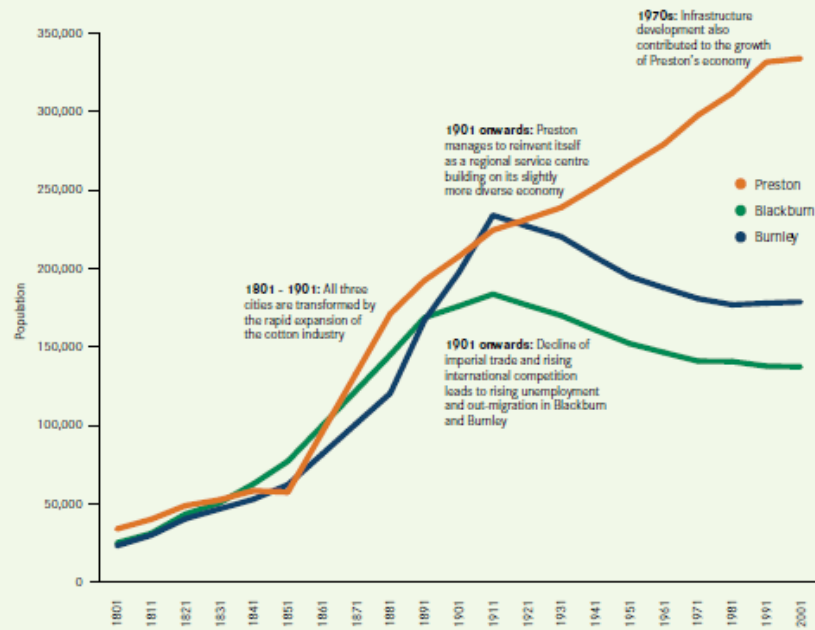
# In the 20<sup>th</sup> Century, cities failed if they failed to develop their economies to take account of developments in technology. The evidence is worrying that we are failing again now.



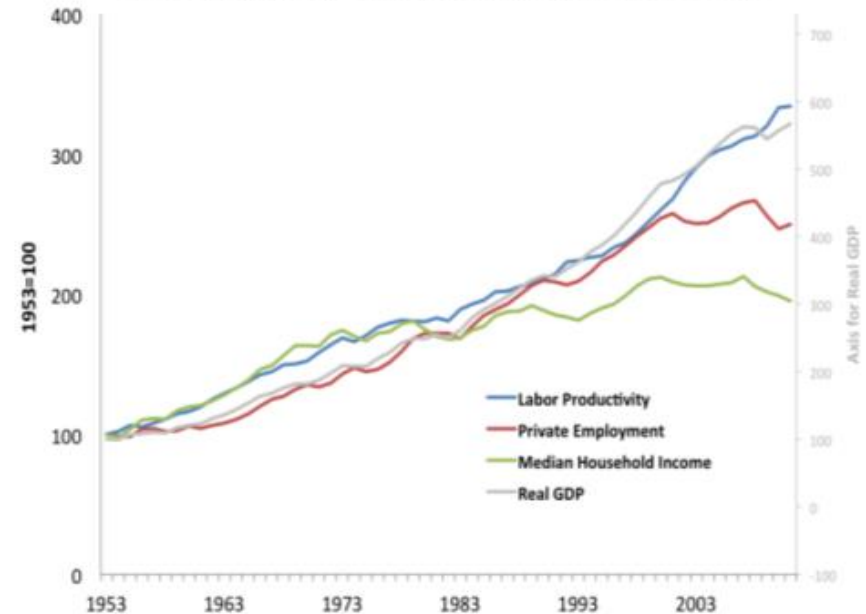
Throughout the 20<sup>th</sup> Century UK cities that did not adapt their economies to new technology lost jobs, employers, residents and investment.

Since the 1980s as computers spread into homes and businesses, growth in GDP has not created growth in US household wealth. New wealth is primarily being captured by the owners of “platform businesses” such as Amazon, Apple, Uber and Airbnb.

**Figure 20:**  
Population change in Blackburn, Burnley and Preston, 1801 to 2001



**US Productivity, GDP, Employment, and Income: 1953-2011**



“The Second Machine Age”, by Andrew McAfee and Erik Brynjolfsson, summarised in <https://www.foreignaffairs.com/articles/united-states/2014-06-04/new-world-order>

**Smart Cities should adapt existing business models, public policies, spending and investment streams to use smart technology to deliver the social, economic and environmental outcomes we have set out.**



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*“Private investment shapes cities, but social ideas (and laws) shape private investment. First comes the image of what we want, then the machinery is adapted to turn out that image.”*

*The Death and Life of Great American Cities, Jane Jacobs*  
[http://en.wikipedia.org/wiki/The\\_Death\\_and\\_Life\\_of\\_Great\\_American\\_Cities](http://en.wikipedia.org/wiki/The_Death_and_Life_of_Great_American_Cities)

## **Six sustainable business models for Smart Cities:**

1. Incentivising entrepreneurial businesses and investors
2. Scaling up social enterprise
3. Harnessing education and innovation
4. Regulated industries
5. Outcomes-based public procurement
6. Harnessing property development



# Six sustainable business models for Smart Cities:

## 1. Incentivising entrepreneurial businesses and investors



- **Summary:** link city-wide outcomes (opportunities and challenges) to start-up investment funding and support services.
- **Example:** iCentrum, Birmingham
  - £7m extension of the Innovation Birmingham startup incubator.
  - Funding, support and commercial opportunities are available from corporate partners (e.g. RWE nPower) public partners (e.g. Centro) and accelerators (e.g. Transport Systems Catapult).
- **Scale of investment:** typically €10,000s to €1,000,000s invested in startups by accelerator programmes, innovation grants, venture capital or corporate investments.
- **Other examples:**
  - Cognicity (London), Sunderland Software Centre, Bristol Engine Shed
  - ...

<https://www.innovationbham.com/office-space/icentrum/>



# Six sustainable business models for Smart Cities:

## 2. Scaling up social enterprise

- **Summary:** create a forum in which non-traditional businesses, innovators and initiatives can connect with cross-sector regional support.
- **Example:** Birmingham Smart City Alliance
  - A non-commercial collaboration of 20 regional organisations, sponsored by Chief Executives and equivalent.
  - Includes mandated organisations (local authorities), business support services, charitable foundations, local service providers, universities and businesses.
  - 2 new businesses and social enterprises launched, many other organisations and initiatives supported.
- **Scale of investment:**
  - Typically €1,000s to €10,000s from business support funding to “in kind” benefits.



<https://birminghamsmartcityalliance.wordpress.com/2015/04/09/our-first-annual-report-the-birmingham-smart-city-alliance-2013-2015/>

# Six sustainable business models for Smart Cities:

## 3. Harnessing education and innovation



- **Summary:** agree regional priorities between local government, university, community and business organisations and create a consistent “living lab” environment with executive support.
- **Examples:** Glasgow, Newcastle, Milton Keynes, Bristol
  - Collaborations supported by the Council Leaders and Chief Executives, Mayors, and leaders of local universities and technology companies.
  - Secure €1,000,000s of research and innovation funding from national innovation programmes, university investment and corporate research and development.
- **Scale of investment:**
  - From €100,000s to €1,000,000s.
- **Challenges:**
  - Research and innovation funds are limited and will not support cities everywhere.
  - Not all cities have sufficiently strong Universities.

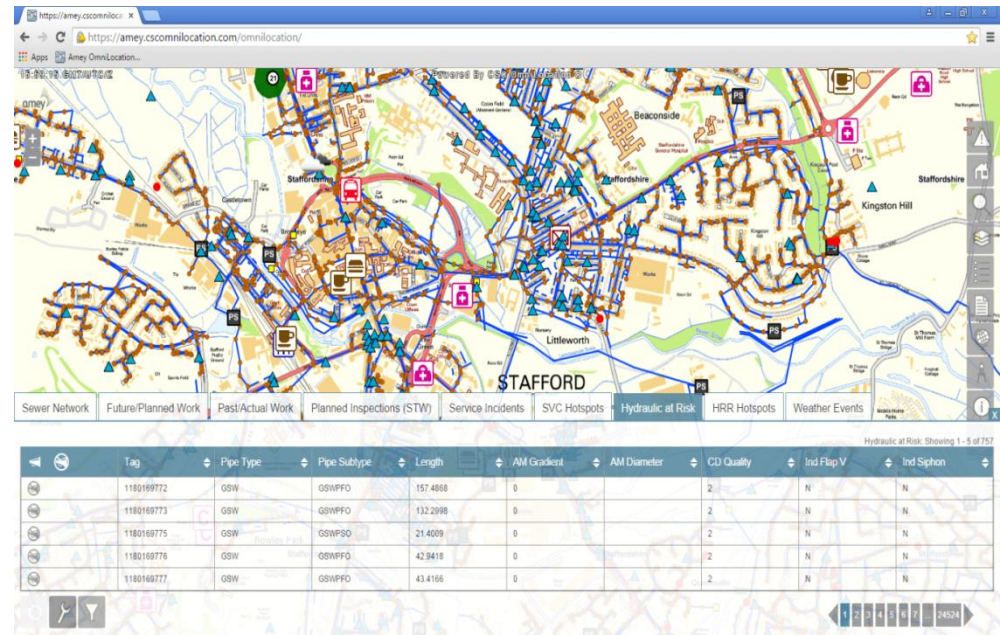


# Six sustainable business models for Smart Cities:

## 4. Regulated industries



- **Summary:** impose performance indicators and financial penalties to incentivise competing or monopoly providers from private sector to invest in innovation.
- **Example:** Severn Trent Water
  - OFWAT imposes financial penalties if permitted levels of clean water leakage or sewer overflows are exceeded. Permitted levels fall annually. Penalties are passed on to competing private sector subcontractors.
  - Amey are currently piloting Smart technology to predict the causes of leakages and overflows in the Severn Trent Water network, and prevent them occurring.
- **Scale of investment:**
  - From €10,000s to €1,000,000s.

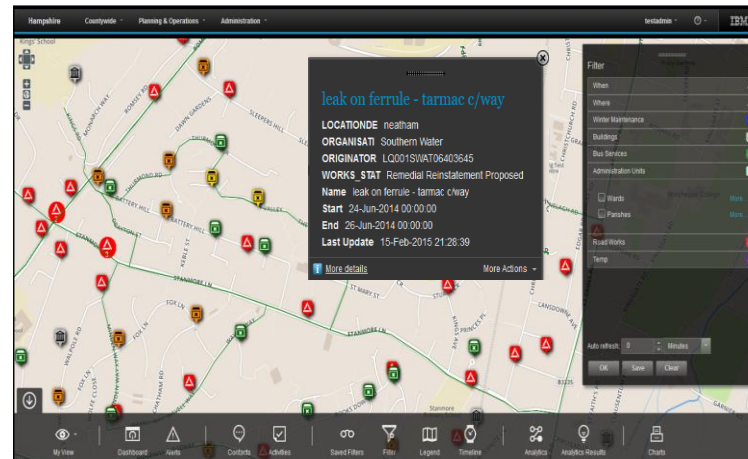


# Six sustainable business models for Smart Cities:

## 5. Outcomes-based public procurement



- **Summary:** public sector finances are under pressure, but still represent vast spending streams – a typical UK city council spends €1,000,000,000s annually. Procurements can be shaped to incentivise private sector suppliers to invest in smart technology to deliver public outcomes in return for retaining a share of financial savings.
- **Example:** Staffordshire County Council
  - Amey and Staffordshire County Council have formed a 25-year highways maintenance joint venture charged with delivering road surface quality and minimising the economic, community and environmental impact of roadworks, including utility works.
  - €1,000,000 secured to implement a “Smart City” platform to deliver joint works.
- **Scale of investment:**
  - From €10,000s to €1,000,000s.



# Six sustainable business models for Smart Cities:

## 6. Harnessing property development



- **Summary:** over €15,000,000,000 is invested in new build property in the UK annually, subject to planning policies administered by local authorities. By adapting policy to require investment in smart infrastructure, private sector investments can be directed to support local public outcomes.
- **Example:** Queen Elizabeth Park, London
  - The London Olympic Legacy Development included “Smart City” criteria and local social, economic and environmental outcomes in the competitive award of this €600,000,000 residential, retail, leisure, educational and business property development. The winning consortium committed over €1,000,000 investment in smart technology to support local communities.
- **Scale of investment:**
  - From €100,000s to €1,000,000s
- **Scaling the approach:**
  - The British Standards Institute has issued guidance for adapting planning and development frameworks.



# Success factors and successful styles for carrying out Smart Cities programmes



- **Commitment, Collaboration, Consistency**
  - Commitment and engagement of the most senior local government leaders
  - A collaborative, empowered regional stakeholder forum
  - A clear, consistent, specific local vision
  - Community engagement
- **Take Action Now**
  - Focus on investment and delivery by using existing policy tools to demand that existing spending and investment streams deliver the vision
- **Look for Translational Leaders**
  - Defined by Robert Zolli in "Resilience: Why Things Bounce Back"
  - Leaders who create innovative growth and resilient communities by combining the resources of formal large-scale institutions with the resourcefulness and informality of local people, communities and businesses
  - <http://www.fastcompany.com/1842367/tropical-tale-tourists-networks-and-new-kind-leadership>
- **Adopt Smart (Digital) Urbanism and the "Massive/Small" principle**
  - Kelvin Campbell's "Smart Urbanism" movement provides policy and urban design tools for creating environments in which "massive amounts of small-scale innovation" can flourish
  - Smart Digital Urbanism adds digital characteristics: open data, open APIs, open standards, open networks, open supply chains ...
  - <http://www.massivesmall.com/>



**Thankyou**

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