

➤ **Data Innovation and City Governance**
How London (UK) and Toronto are
responding to the opportunities and
challenges

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HOW DATA BECAME COOL

“ART IS THE TREE OF LIFE, SCIENCE
IS THE TREE OF DEATH”



THOMAS GRADGRIND



“Now, what I want is Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life.”

1964: LIMITS TO RATIONALITY: DATA AND THERMONUCLEAR WAR



2014: DATA GOES TO THE OSCARS



Thirteen nominations, two awards

DATA AND THE CITY

- How we got here
- Big Data, Open Data, Smart Cities – what matters and why
- Challenges/opportunities for cities:
 - Economic development and growth
 - Citizen Engagement
 - More efficient service delivery
- Implications for organisational structure, governance, authority

THREE KEY INNOVATIONS

- Internet
- Personal Computer
- World Wide Web

INTER-NETWORKING

- ‘Dumb’ innovation – no specific application in mind; take in a data packet and deliver it
- Creativity at the edges; an architecture for permissionless innovation; a “global machine for springing surprises”: file-sharing, VOIP, e-mail, etc (John Naughton)
- No central authority; open source; agnostic about content
- Later commercialisation sets up tensions

PERSONAL COMPUTER

- Computer becomes a mass product
- Room-size to desk-top to laptop to phone...and beyond
- Data and digital technology becomes central to home and family as well as the world of work
- Increased personalisation means more consumer choice - and more data on individuals available to business

THE WORLD WIDE WEB

- **Vannevar Bush and the Memex (1945); Stewart Brand's Whole Earth Catalog (1968)**
- **Tim Berners-Lee's "vague but interesting" proposal goes online at CERN in Jan 1991 and subsequently the world not the same**
- **Continues to evolve: 1.0 (static) to 2.0 (interactive) to 3.0 (semantic web) to...**

BIG DATA

HOW BIG IS BIG?

- “Data sets that exceed the boundaries and sizes of normal processing capabilities”
- Astrophysics, particle physics, genomics generate huge volumes of data
- Sensors, Internet of Things – Big Urban Data
- Unstructured data, eg from Google, Facebook, etc

“DATA” IS NOT INFORMATION

- Challenges of big data –harder to extract information, and hence value, from data
- A film has 1000x more data than a book. But not 1000x more information
- Signal to noise ratio; the numbers do not “speak for themselves”
- Machine learning will become essential; automating (part of) the process of discovery

OPEN DATA AND OPEN GOVERNMENT

OPEN DATA

- In less than 10 years, has moved from a radical demand to the default (almost)
- First stage: ‘Get the data out there’; FOI a driver
- Next: make it available in right format; engage with users
- Now, moving towards common standards/ontologies

OPEN GOVERNMENT

- **Open Data a necessary but not sufficient condition for open government**
- **Open Government also means: changes to process, protocol, records-keeping; culture change; outreach/engagement**

'SMART CITIES' AND THE INTERNET OF THINGS

A 'SMART CITY' DEFINITION

“A smart city gathers data from smart devices and sensors embedded in its roadways, power grids, buildings and other assets. It shares that data via a smart communications system that is typically a combination of wired and wireless. It then uses smart software to create valuable information and digitally enhanced services.”

Smart Cities Council website

THE 'SMART CITY' PROPOSITION

- **New and cheaper solutions to urban issues**
- **Cross-cutting, integrative, 'system of systems' approach**
- **Harnessing the power of data and technology**
- **Support city leadership and capacity**

'SMART CITY' CONCERNS



- Supply-side defines problems and solutions. CISCO: 'smart and connected cities', 'Internet of Everything'. 'Smarter Cities' and 'Smarter Planet' are IBM trademarks.
- A 'new panopticon' based on surveillance and control? Privacy as a cultural battleground

DATA AND CITY GOVERNMENT

- For public policy, visualisation and other tools essential
- Demonstrable clear benefits to residents
- Consent, ownership
- Disintermediation and end of deference

PERSONALISATION, LOOK & FEEL, BRANDING

me.gov

Defining characteristics

7



Engagement How governments interact with citizens
Offer What's provided for citizens
Focus How the offer is structured
Optimization How the offer is improved over time

departments.gov

Presence
"You can find us online"

Information

Internal silos

None

services.gov

Function
"Our service works online"

Information and transactional services

Citizens as users

Manual testing and UX

me.gov

Feel
"We have a relationship online"

Experiences

Individuals or segments

UX, automated testing and real-time adaptation

INTRODUCTION

ENGAGEMENT

OFFER

FOCUS

OPTIMIZATION

IN PRACTICE

Source: WPP

FOR CITY DECISION MAKERS

- Informational asymmetry
- Shrinking budgets and semi-permanent austerity
- Understanding the issues – strategic, technical and political capacity

LONDON: THE UNREAL CITY?

FOR MUCH OF 20THC, LONDON IN DECLINE

Unreal City,
Under the brown fog of a winter dawn,
A crowd flowed over London Bridge, so many,
I had not thought death had undone so many.
T S Eliot, "The Waste Land" 1922

Rain gray town
Known for its sound
In places
Small faces unbound
The Byrds, Eight Miles High, 1966

**London's population fell from 8.6million to 6.8million
between 1939 and the mid-1980s**

GROWING CITY

- Population inflected in mid-1980s and has since grown strongly
- Economic transition from manufacturing to advanced producer services
- London and New York City the only two alpha++ world cities
- Complex reasons: global market in finance and business services; role in expanded EU; time-zone and language; deep assets; open-ness to people, goods, services and ideas

London's deep assets #1: Knowledge Economy



London's deep assets #2: Global Hub



London's deep assets #3: Infrastructure



DATA GROWS THE CITY

- Data is both ‘real’ and ‘unreal’; for example the ‘cloud’ is a network of physical connected structures, and ‘big data’ analysis consumes big energy
- Key sectors of the London economy are now largely about data: financial services, digital creative, marketing and advertising, university and health sector research
- We don’t normally think of the economy in these terms; implications for value chain, skills, how we measure activity

TORONTO: THE ACCIDENTAL CITY?

TORONTO THE GOOD

- Legacy of Protestant virtues – hard work, lack of ostentation, practicality above dreaming;
- Inhibits thinking big; risk aversion; ambivalence towards economic success
- “A good place to mind your own business”



ACCIDENTALLY GLOBAL

- Toronto is one of the most diverse cities in the world
- The *Economist* says Toronto is the best city in the world to live in; *Grosvenor* says the most resilient
- *Vogue* says Queen St West is the second coolest neighbourhood in the world
- Toronto scores well in most 'global cities' surveys; combines economic dynamism with good quality of life
- Survey of surveys - Toronto just outside the 'Big Six'

TORONTO'S GROWTH

- Projected growth in the GTA: current pop of 6.4m projected to grow by 3m over next 28 years
- This similar to London's growth in absolute terms from a lower starting base
- Jobs growth in GTA – tens of thousands pa

WHAT ARE TORONTO'S DEEP ASSETS?

- Eds and meds – world-class universities, hospitals, research institutions
- One of the best public education systems globally; high PISA outcomes and equity; No1 library system
- Successful immigration and integration; global linkages; can attract talent
- Low crime, high quality of life
- Social equity (but is that changing?)
- Stable banking system

INNOVATION & THE TORONTO ECONOMY

Toronto a leader:

- Intelligent Community of the Year 2014
- iWaterfront, SIRT, innovation centre, CISCO
- Innovation District, MaRS, developing the eco-system
- Research funding to Big Data, high performance computing
- Waterloo Technology Triangle
- Big Data and service delivery eg 311, transit

But:

- University-city links could be stronger
- More support/encouragement for mid-size firms?

OPEN DATA AND OPEN GOVERNMENT

- Civic Engagement, moving beyond just the specialists
- Culture change: from owner to custodian of data; corporate approach; information as asset
- Demand for data – the more released, the more requests
- Innovation in smaller cities also: Guelph, Markham; internet voting
- Need to move from tactical to strategic approach

WHAT ARE THE IMPLICATIONS OF DATA INNOVATION?


PRELIMINARY COMPARISONS	London	Toronto
Economic growth	London Plan, EDS Infrastructure Plan 2050 Smart London Plan Catapults, MedCity	Growth Plan (Province) Collaborating for Competitiveness iWaterfront, MaRS/innovation district
Citizen Engagement	London Datastore Talk London Spacehive/High Streets	Open Data Wellbeing Toronto Idea Space
Service efficiency	Early stage	Early stage

GOVERNANCE

- In both cities, complex governance with several layers of government, agencies, diffused control
- Engagement and dialogue vital; underpins legitimacy and licence to operate
- To maximise the opportunity from data and digital innovation, organisation and culture change as or more important than the technical issues.

City leaders need to understand the city's deep assets, culture and history

- **“A city should be like itself” (Jane Jacobs)**
- **“Every city can try...True, the chances are not equal. But the disadvantages are no longer of the permanent, immutable kind: they can be changed by public and by collective private action.” (Peter Hall)**



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