The City Collaborative – How can a city think better?

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Over many years I have been interested in what tools can help big cities and big city administrations to think. How should they tap the brainpower of their citizens, their staff, their universities, and their businesses to solve problems? How should they combine online and offline tools? How can they better use data – and also get better at judgements?

Visiting many city governments has confirmed for me that their tools for thought and decision-making lag far behind their tools for such things as transport management or infrastructure. The ideal is a city that can mobilise many different kinds of intelligence to help with problem solving, policy and action. This should be part of any serious vision for democracy in the 21st century – democracy needs to go beyond offering alternative programmes to citizens every few years, and become instead a continuous process of argument, deliberation, decision and action in which government acts with the people, as well as for them.

There is plenty of activity happening under the label 'smart cities'. But this tends to mean investment in hardware, sensors, and IT systems for managing infrastructures &c, perhaps inevitably because of the large firms involved. Sometimes it's also about clever apps and websites. This is all healthy – but none of the showcase smart cities appear to be doing any serious innovation around broader notions of intelligence (and as yet there are no serious centres of evidence about smart cities).

Here I set out some ideas for a more intelligent city, a broader notion of what smart cities mean, and how these ideas are beginning to be applied.

Collective intelligence

One way of thinking about this is to look at the components of intelligence, and how these might be reused at the level of a city (some of this is covered in the paper I co-wrote for Nesta last year on collective intelligence; we are also applying this in detail to a single field with the on-going work on the Health Knowledge Commons, linking data, predictive modelling, experiential knowledge &c to provide patients and doctors with the most useful knowledge).

The elements of intelligence include:

- consciousness, and consciousness of being a self or agent
- reflexivity – the ability to observe one's own thought processes
- observation – the ability to see, hear, smell the world
- attention – the ability to focus
- cognition – the ability, or abilities, to think and reason
- creation - the ability to imagine
- memory – the ability to remember
- judgement – the ability to judge and decide
- wisdom – the ability to make sense of complexity and to integrate moral perspectives

So how do any of these look at the level of a city? A comprehensive programme for smart cities needs to address all of these. Here I look at just a few elements:

Accurate observation – a first step is knowing what is happening in as close to real time as possible, covering everything from crime to business start-ups and jobs. This will include:

- control rooms like Rio's now famous panopticon
- statistics (usually with a lag, but increasingly becoming close to real time)
- gathering and mining other data sources
- commercial data
- new methods such as the UN Global Pulse semantic analysis of Twitter to predict unemployment levels
- Shared tools – such as city level equivalents of Intellipedia, the wiki used by US intelligence agencies for non-classified information
- sensing systems – for air quality, traffic flows etc, all set to be revolutionised by the Internet of Things
- citizen knowledge – sometimes aggregated by platforms (like Patient Opinion in health), or gathered by tools like Fixmystreet

Tools for observation have improved very rapidly in recent years. The flow of information into city governments is potentially an order of magnitude

greater than a decade ago. This is a great step forward – but also creates new challenges of capacity to cope.

Accurate diagnosis – then there is the ability to make sense of shifting patterns. This is a lot harder than the accumulation of data. Some hope that simply gathering data will automatically show up new patterns (this is the 'fourth paradigm' movement in science). Making it transparent, available in formats that are easy to match and mine, is already changing behaviour and opening up new insights. Here there are many tools to draw on:

- data pattern recognition tools
- predictive modelling like PARR that's used in the UK health service, or the many challenges on Kaggle
- data combination –like cities linking data on waste production with population statistics to estimate illegal migrants

The key is to link data to capacities to think – most of which are not yet automated.

Cities contain enormous brainpower but it is used in very inefficient ways, situated in research institutions, university departments etc without effective linkages to action.

The missing piece is not just the accumulation of data, and making it open, but also active orchestration of analytic and diagnostic capacity – through:

- commissions that consult, sift evidence, generate options and consult
- formal research collaboratives that bring together multidisciplinary groups
- practitioner collaboratives like the ones in health
- innovation programmes
- the many tools for analysing issue trees, logic analysis – all designed to interrogate assumptions about causation (eg what really explains spikes in gang violence or successful business start-ups)

The Strategy Unit model I helped develop within national governments attempted all of these – linking strategy formulation by a staff team drawn from all sectors into a network of researchers inside and outside the system is another.

Wikis can play a role, as can task forces and surveys – the key is the orchestration of this knowledge so that it is easily accessible, combining face to face interaction and online.

Wise decision making – a step beyond good diagnosis is the ability to make good judgements in conditions of uncertainty. There is a whole science (or probably more accurately, a craft) relating to effectiveness and wisdom in judgements and leadership. The further we move away from data the more intangible, qualitative judgement capacities become key. Involving people with direct frontline experience in decisions is important too (most governments make the most important decisions with no one in the room who has direct knowledge of the topic); so is tapping into experience of past successes and failures, as well as lateral perspectives and 'beginner's mind'.

There is not space to rehearse these arguments here. But the practical supports for wiser decision making can be thought of in terms of how cities organise three levels of knowledge:

- **Proven:** knowledge about what is clearly proven to work can be helped by evidence centres – orchestrating knowledge about what is working or not within a sector globally, wherever possible validated by randomised trials (Nesta is now heavily involved in this through the Alliance for Useful Evidence, the creation of new 'what works' centres, and detailed work on what it means for something to be proven). It's still surprising how few institutions own the problem of orchestrating knowledge in this way. Far more time and money goes into the supply of new research than into making it useful and used. Proven models can be found through formal evidence scans, literature reviews, and systematic reviews disseminated through tools like Cochrane, NHS Evidence, NICE and many others. Project Oracle is an interesting example of an attempt to orchestrate evidence at a city level, in a field where evidence is very partial and much of the day to day work is done by NGOs.
- **Promising**: given that evidence is generally uneven, cities also need to be able to map promising ideas through scans of emerging practice, a role for networks like SIX (the social innovation

exchange). Again there are well established ways of doing this, and showing how programmes can progress up hierarchies of evidence.

- **Possible**: in many fields active innovation is needed to find better ways of solving problems. Here we come to the active cultivation of new ideas through methods like camps, incubators, accelerators, crowdsourcing, Living Labs and prizes. Some will be incremental; others will point to radical ways of reshaping systems, and power structures.

All three have a vital role to play in the thinking of a city. They are not hard to organise or to fund, particularly in high priority fields. Some interesting tools try to link several layers – like New York's work on an ecosystem for technologies in schools, or Helsinki's work on low carbon housing. But there has been surprisingly little systematic innovation in city thinking.

All of these are tools to support democracy rather than replace it. Where public money is concerned decision making still has to rest with elected leaders and their officials.

Democracy also needs to involve robust challenge and argument – smart systems don't substitute for values. Hence the importance of projects like the open ministry in Finland and the many others trying to link online influence to offline parliaments and assemblies.

Most of the tools described above are not just for City Hall: they are also tools for improving the knowledge and understanding of all the parts of the city: small businesses, charities, professions &c and the public. Seen in a bigger picture they are part of what makes democracy function well.

Some of the other aspects of intelligence also have obvious relevance at the level of a city. One is **memory** – how is memory of past plans or projects made easily accessible? Quite simple knowledge management platforms and procedures could achieve a great deal, in particular recording which individuals worked on what projects in the past, along with 'lessons learned' exercises. These remain very rare in the public sector. Another is **creativity** – a great deal of innovation is underway that's designed to tap mass creativity, albeit with uncertain results so far. I would also add in **attention** – any city government needs to be able to sustain attention on long-term challenges while also attending to short-term pressures.

The London Collaborative

A few years ago I helped shape an attempt to bring these ideas together. It was both a success - in that it generated momentum and practical ways of organising a more intelligent city - and a failure in that a change of mayor and a stark public spending crisis led to it being stopped just as it was beginning to work.

The London Collaborative's aim was to bring together three tiers of government – national government, which controlled most public spending in the city; the mayor and Greater London Assembly; and the 32 boroughs, which were responsible for many key services such as education. It was funded by the London peak bodies, led by the Young Foundation (where I was chief executive) and also involved the Office of Public Management and Common Purpose. The idea was to encourage more effective common problem-solving across the city through:

- joint events to create a community of leadership – with the 600-1000 or so leading public officials taking part in events together, some also involving business and civil society
- working groups cutting across all tiers focused on problem solving and innovation, specifically on workless households, retrofitting and behaviour change – drawing on the energy of younger officials, who then had to pitch ideas to groups of chief executives
- future oriented scans and events to forge consensus on major challenges and priorities
- a web space for collaboration

Looking to the future we envisaged many new elements:

- open data stores – which have now largely been achieved
- wikis for the main public agencies to share information and knowledge – for example on economic conditions in parts of the city, gangs, transport (intellipedia was one of the models for this – a great innovation which unfortunately was trialled in US intelligence agencies, just about the most unsuitable territory imaginable)
- a much more systematic clearing house for commissions from academics in the main universities, including regular sessions linking

decision makers and researchers on topics such as public health or gang violence
- a rolling process of strategy development for key crosscutting issues, ideally with mutually transparent plans, data etc across the different tiers and agencies

Despite support amongst many of the key chief executives, the peak bodies were lukewarm and saw this as an institutional threat. The London Collaborative deliberately didn't have any power, and didn't try to duplicate the many negotiating forums that brought together public bodies. But its potential influence was challenging to more traditional bureaucratic bodies. In retrospect it would probably have been better for the collaborative to have a clearer base within the system – eg coordinated by a rising star official but using outside capacities to organise its activities. The programme would have also benefitted from having a lab capacity – somewhere where officials with promising ideas could go for a few days or weeks at a time to develop them.

At the time I asked many people involved in city governance around the world what parallel solutions there were to the challenge of how to help cities to think and make the most of their intelligence. Many had research institutes, strong relationships with groups of universities, and the beginnings of sophisticated open data. But I couldn't find any that had anything resembling a collective intelligence system, and most were bedevilled by tensions between the tiers of government. So the task of creating the world's first intelligent networked city – in this sense that goes well beyond hardware - remains undone.

The actions that would be taken to grow a stronger capacity would include many of the elements described above, possibly trialled around a particular cluster of issues, such as public health or crime.

The key is to have a clear point of coordination; a vertical connection between the different layers of intelligence – ie data, information, knowledge, judgement - rather than stopping short at data; and a clear focus on usability and impact: ie how do all of these contribute to better decisions and better outcomes.