SMART CITIES –

FROM THE POINT OF VIEW OF A HUMAN BEING

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Abstract

Digital technology, mobile and wireless communication and the Internet have profoundly affected the personal lives of a great proportion of the world's population. And these technologies continue to develop in a way that guarantees that such changes will be a continuous.

We can broaden a consideration of this idea to ask how these technologies will affect our cities.

"Smart City" is a descriptor for infrastructure in urban environments which is integrated with new digital technology, with the result that it, the infrastructure, is more responsive, focussed, flexible, efficient and adaptive than it would otherwise be.

This sounds uncontestably good, but it would be worth firstly considering broadly how we would prefer our cities to develop, and then how Smart City technology could support these broad goals. We should also identify the dangers that could be inherent in these technologies, and whether it could be possible to avoid the pitfalls.

This presentation will consider these issues and suggest ways in which "Smart City" can be directed so that it can contribute to great cities.

Key Words

Smart City; Big Data; Adam Greenfield; Open Data; the Internet of things; City Analytics

This talk

Smart City is a term which exists in a forest of other similar terms and jargon, and whose precise meaning can seem vague. It is important for people who are not particularly technically focussed, but who nonetheless have a deep interest in cities, to attempt to achieve a level of understanding of what it might mean and what it promises – and perhaps threatens – and finally how we should engage with it.

This presentation then is from the point of view of a generalist who has read, listened to presentations and thought about the subject. My proposition is that the more technically arcane a subject, the more important it is for the laity to be able still to judge its worth.

Smart City starts with the availability of data – Big Data, and proceeds to the analysis and manipulation of this data for a variety of purposes. This second strand to the definition is sometimes referred to as City Analytics.

Smart City = Big Data + City Analytics

Big Data

Two questions are basic to our understanding. Firstly, what data is being collected and secondly how is it being collected?

Answering both questions simultaneously – there is a huge array of devices that collect data. People often refer to the "Internet of things". It is common now for council trucks and machinery to be fitted with sensors. These devices can track in minute detail the operations of the

equipment and the people operating it. Through the collection and analysis of this information managers can increase the efficiency of personnel and plant. Options such as the “Man down” alert can enhance the safety of operators.

Objects in the public domain are now commonly also able to collect information about themselves and their surrounds. The example is cited of the technology hub incorporated into a street light. This device, as well as providing illumination can be fitted with CCTV cameras, people counters, parking controls, electric vehicle charging sockets and Wi-Fi boosters.

The integration of this technology into many projects can be very simply done. An example at the Australian National University in Canberra will be shown.

Analysing and manipulating the data

There is an imponderable amount of information being collected about cities and their inhabitants every moment of every day. The emerging profession of City Analytics embodies a strong sense of mission about analysing, manipulating, interpreting this store of information, to enable better informed decisions about city planning.

Video examples will be shown to illustrate the application of the data and the means of manipulating and displaying the data. One example is the Smart DA, followed by an application of the relevant techniques towards increasing the uptake of active transport options in western Sydney.

These are applications that fit into the activities of local or state government agencies. But as long as the data remains “open”, individuals, community groups and the like can undertake similar exercises, related to smaller scale issues.

The issue of “open data” is emerging as major point of principle in the Smart City dialogue. Many public agencies such as, for example State Rail in NSW, insist that the data they collect must remain accessible to anyone who wants to use it. Conversely, the idea that collected data is locked, and becomes a saleable property and/or can be used to manipulate purchasing behaviour, among many other things is of great concern.

With data remaining open, as these examples demonstrate, it is apparent that manipulating data for better city outcomes is an exciting potential and one which could be a profoundly democratic tool.

Recently an important milestone for the earth occurred. Half the planet’s population now lives in cities. It is self-evident in this rapidly and radically changing situation that any reasonable technique that might help to keep or make cities liveable should be considered. Smart City is perhaps the most prominent idea on the list.

Is this then a chance for optimism about the future of the city?

The possible negative outcomes of Smart City

The collection of vast amounts of data, and the subsequent manipulation of it, begs the question of to what purpose is the data being put?

Smart City and the uncontrolled collection of information, the constant surveillance of people physically and in terms of their habits has many critics. The critics see this as the realisation of George Orwell’s *1984*, with Big Brother constantly watching. With this goes the notion of the Panopticon. This idea makes the point that once we are aware that we may be being watched at any time, we will behave as

though we are always being watched, making each person complicit in creating his or her own prison.

Orwell's vision of a police state based on surveillance is a political one – and parallels could be made with the iron curtain countries of Europe in the twentieth century. There are also those with concerns about the economic use of data collection and actuation.

Is it all just a conspiracy by the rich and powerful to become even richer and more powerful?

Leftist critiques certainly think it is. *"The smart city is predicated on – indeed is difficult to imagine outside of – a neoliberal political economy*" (Greenfield, 2013).

Many people not normally associated with the left – such as Jerry Harvey – feel that the misapplication of mass data can have bad social and commercial outcomes. His particular subject was the coming of mega-Amazon to Australia.

Consider the development of Amazon in recent years. Amazon is using data in a very sophisticated way to anticipate – and manipulate - consumer trends, supply an ever increasing range of goods to satisfy the consumers, and in an increasing number of cases actually making the consumables themselves.

The danger here is that, with reduced retail choices and more people shopping on-line, the city becomes less diverse, less public and less interesting.

There is a point at which vigorously competitive behaviour becomes dominant in the market – and then anti-competitive. This is happening and it is using Big Data and related techniques from the Smart City kitbag.

Beyond the sinister there is the fact that mind-boggling technology can often lead to banal outcomes - or it can provide excellent information for decision-makers, who then ignore it. Simon Head took this topic on in his book, *Mindless: Why smarter machines make dumber humans*. (Head, 2014)

Does our love affair with this technology amount to hubris?

Some commentators have claimed that Smart City is just the next in the line of failed urban theories, starting with Ebenezer Howard and reaching disastrous outcomes in the hands of the followers of le Corbusier.

And anyway, are we kidding ourselves about just how clever we are? An American mycologist, Paul Stamets talks about "Earth's natural Internet", which others have called the "Wood wide web". In his 2008 TED talk, Stamets describes unbelievably vast and subtle networks of fungal mycorrhiza which interconnect with "higher" plants, gathering information and setting up complex interactions for mutual benefit – a more or less exact model of the Smart City idea. Perhaps we just won't be able to produce such beautiful complexity ourselves.

In conclusion

Smart City = Big Data + City Analytics

There are many good and many bad potential outcomes.

We may struggle to work out where we sit in the spectrum, but what is certain is that Big Data and City Analytics are here and they're growing rapidly in size and influence. What to do?

1. xDon't see it as just something for the nerds. Don't be turned off by the complexities, but, on the other hand don't be seduced by the gadgetry. Develop an opinion.
2. Think about the possible dangers and down sides.
3. Insist on open data platforms.
4. Look for the low-hanging fruit in this - do something simple in your day to day design operations.
5. Remember that it is CITY that ultimately matters. The technology, as we who use it, must serve the goal of making liveable cities.

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Paul is a Registered Landscape Architect, celebrating 30 years post graduate experience in 2015.

He studied at The University of Sydney and at the Ryde School of Horticulture. Immediately after graduation he undertook a one-year contract with Ashfield Council, in the inner west of Sydney. In 1986 he established his own practice, Knox & Tanner, which later became re-branded as Knox + Partners Landscape Architects Pty Ltd. The company enjoyed 27 years of operation until 2013 when Paul merged the business with COMPLETE Urban.

Paul's proudest professional achievements include planning and design work for the University of NSW, The University of Sydney, The Australian National University, and parks and town centre designs for several local governments throughout Australia.

As Principal Landscape Architect for COMPLETE, Paul is involved in major park designs, cycleway planning and design, and urban renewal projects.

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