

Fulcrum

ISSUE 80 - DECEMBER 16, 2013 - SMART CITIES

bureaucratic futures.

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To predict the future of technology, one has to figure out how it can be used by bureaucrats. Few trends in the professional world of architecture and planning have been as annoying over the last few years as the smart city phenomenon, but now it's time to give up resistance: it seems like smart cities are here to stay.

Why are smart cities so annoying? In the first place it's the old-fashioned futurism, the jubilant mood about new technologies, predicting how the world will become a better place by employing an endless stream of gadgets and technological inventions. As always, the position put forward is that technology is a value-free issue, from which anyone can benefit. In reality, decisions are based on efficiency and economy. The open access to new systems is therefore questionable. Also irritating is how the lure of big money (predicted smart city investments: \$3.3 trillion) has led to marketing campaigns that present electronic multinationals as do-gooders, only interested in creating more liveable and better cities. What it boils down to is a conference screen in your living room and a virtual hotline to the doctor and the library; what Richard Sennett called the 'stupefying smart city'. Like the videotape format war in the 70s, the big electronic and engineering firms are going for broke to win the race and set the standard for smart systems: first one company builds a flashy museum on the 'city of the future', then another wires a whole city as a demonstration project. But let's not pester the private companies. More disturbing are the politicians and policy makers, who are happily led by CEOs to become the main advocates of smart city concepts; uncritically joining the worldwide city competition to decide who is the smartest, announced in lists that are frequently revised according to fluctuating criteria. The first necessity in making smart cities valuable is that governments must stop following fashions, and position themselves independently of the private sector, acquiring knowledge and formulating a vision on how they want smart technology to serve and improve their cities.

This vision should not only be motivated economically. Because, of course, it is not a coincidence that smart city concepts are becoming popular now that we (at least in Western Europe) are in the middle of an economic crisis; smart cities seem to be the way to save on public finances by improving the efficiency in health care, traffic, safety and the coordination of public services. This has hugely contributed to their popularity.

Smart cities are here to stay. But in what way? I expect we will get the efficiency, but not the fun.

In our era, I'm sure there will be an 'integrated law enforcement solution' in which data of police, CCTV and security companies will be connected; I'm not so sure there will be auto-driving and auto-parking cars so that streets will become more liveable and usable. I'm sure there will be 'community intelligence' projects, a euphemism for further retreat by government and – under the guise of participation – an outsourcing of public tasks to citizens; I'm not so sure the future relation between government and citizens will be profoundly reformed into a more direct democracy. Despite the optimism of designers and architects I don't think the smart city will look very much different; its technology doesn't necessarily have spatial implications, as the realised examples show. The city will, however, become more efficient, controlled and regulated, in short: more boring.

Now that the showcase examples of smart cities in the East are increasingly seen as failures, there is a new type of smart city being advocated: a bottom-up web instead of a top-down mainframe. Surprisingly, it might not be the East but the global south where we will see the most interesting developments. A complete phase in urban development, that of the collective physical infrastructure (of banking, education and energy for instance) is being skipped by emerging economies. Futuristic systems are born from necessity, and have an urgency that accelerates development. I will be following this type of small scale smart city with curiosity.

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intelligence and the city.

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The new 'geographies of happiness' indices, which registers the 'mood' of a particular place and time by extracting data from social media, suggest that the flow of 'social' information is beginning to transform citizens from *consumers* of culture into *participants* and *producers* of culture. If new social phenomena are enabled by connectivity to social media, then to what extent are these tools changing our perception of the spatial identity of the city? Cultural events that combine physical and digital connectivity enhance participation and enable new kinds of communal identity such that what is 'local' is no longer confined to physical proximities of 'the neighbourhood', and an individual may simultaneously 'belong' to several different communities.

It is not only people that are connected. It is estimated that there are 2.5 billion people and 10 billion 'things' connected to the internet – although that number does include consumer items, computers and phones, used to connect. Estimates vary of the percentage of objects – including food, stock with barcodes, radio tags, sensors, instruments and the processors of industrial objects – that only communicate to other things. Consensus converges around 3 billion machine-to-machine entities. The 'Internet of Things' is the total of objects with machine-readable identifiers, and it is anticipated that more than 40 billion devices will be wirelessly connected by 2020, when the world population of people will be around 8 billion. Until recently, all digital information was input by people. Today, data is increasingly gathered, organised and disseminated without human intervention. These technologies originated from desires to map the quantity and location of stock in supermarkets, warehouses and factories. Now they are implemented for crops and livestock; for energy, water and infrastructural traffic flows; for stresses and wear in structures and buildings; for the activities and 'happiness' of their inhabitants; for ocean and atmosphere, and global weather systems. As network systems come online that enable synchronicity and convergence across currently disparate systems, it becomes

possible to foresee the crossing of a critical threshold in the quantity and quality of 'big data,' so that the state of being of the world can be continuously assessed, minute by minute.

Of course, machine intelligence is not similar in structure or processes to human intelligence. The processing power of your laptop has approximately similar processing power of a rat, and of course the rat has many sensory facilities and processes that the computer does not, (although the rat cannot run rhino and grasshopper).

The computer, through internet connectivity, does however have access to all the knowledge of the world.

Consciousness is widely agreed to be an emergent property of living systems: being able to form a mental model of self in its environment, and modifying that model through memory of past actions and experiences. The 'smart grids' of rapidly developing infrastructural systems are within the close horizon of achieving a degree of machine consciousness, albeit limited to the particularities of its own functionalities and flows. As the connections between these networks grow, and as connections increase between the physical world and the systems of human communication networks, the potential for the emergence of sentient and intelligent cities is established.

It is not certain that it will do so. It has to be acknowledged that in many, if not most, parts of the world short-term business interests are obscuring visions of a more egalitarian future, of a society in which collaboration is valued more highly than competitiveness; where information and knowledge are open and free to all, and in which citizens have increasing knowledge and can participate fully in the stewardship of their city, society and the ecology of their part of the world.

There is a great deal of image making by big IT corporations related to 'smart cities,' but when closely examined these initiatives are 'top down' systems that offer little more than the most basic functionalities of the current Internet of Things – and none of its potential for evolution from the bottom up.

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"Augmented City" by Keiichi Matsuda.