Bristol, Britain's Flagship 'Smart City'

War on all things Smart

[ed. – Also see the supplement to this volume of Return Fire; 'Smarter Prison? – Call for War on the Technology Multinationals']

> *We're creating an environment where in a year or two, not five, the whole world will look at Bristol for the future of smart cities."*
> *– Dimitra Simeonidou, High Performance Networks Lab, Bristol University*

The city of Bristol, south west U.K., has begun a multi-million pound experiment to create the 'smart-city' of the future, which would cement Bristol as a global leader in the telecommunications world. The wider area of Avon (mainly the 'post-industrial' estates of Bristol and Bath) already hosts the largest digital technology sector in the British Isles outside of London, and receives funding from the government as such.

City authorities and allied technological entrepreneurs are working to kit out Bristol with a city-wide 'digital fabric' of the very latest in sensor and connectivity technology, to make it the world's first open 'programmable city'. A high-speed fibre-optic network (making use of disused cable ducting owned by the council) is being combined with a new 'city operating system' that will power an experimental network. In the coming spring of 2016, 1,500 sensor-equipped lampposts are being launched around the city; the vast majority of Bristol will be covered in a Radio Frequency (RF) mesh. This is predicted to revolutionise the way that emergency response, traffic management and other municipal services are handled, and track certain vehicle locations, with eventual alleged trickle-down 'benefits' such as informing residents of parking spaces and air pollution (ahem, from those parking spaces) in an increasingly mechanised and technified environment.

The 'Bristol Is Open' collaboration (between Bristol University, Silver Spring Networks and the city council) are running the project in partnership with NEC, the Japanese IT giant, to hook into other sensor-based technologies for the cities of the 'Big Data' future. 1,200 of the lampposts, along the 'Brunel mile' connecting the central train station with the harbourside commercial district, will act as WiFi nodes in a city-wide 'canopy of connectivity', and the remaining 300, also WiFi enabled, are to be used to test more advanced smart-city capabilities. This data will be managed and processed on the $18 million BlueCrystal2 supercomputer at the University of Bristol. The supercomputer will run CityOS, an operating system designed specifically to handle communications throughout the smart-city network, designed by Professor Dimitria Simeonidou.

As of March last year, the naescent project had already received £5.3 million in funding from the government's 'connected cities' plan, with a total of £75 million-worth of infrastructure and technology available from the city council, university and a number of commercial partners.

This is the vision that NEC have for eventual life in such a city, according to their website: *"A display on your dashboard window alerts you that weather conditions have made your usual route to work less favorable and, subsequently, reroutes your trip to the office based on real-time calculations of optimal conditions. As you pull into a public parking garage, another alert notifies you of the closest parking spot, determined by an estimation of your workplace based on your established commuting patterns. As you approach the office, you receive a reminder that today is Election Day. "Would you prefer to vote at a physical terminal (requiring 15 minutes of travel), or simply to cast your vote using your personal mobile device?" The decision was easy, and after a few taps, you select candidates for mayor, city council members, and citywide legislation. Such a description of a technologized city may sound somewhat far-fetched, even futuristic. But thanks to efforts currently underway in several major Western cities, such a vision is not one of the future but of present reality. Indeed, urban centers have increasingly adopted technologies like Big Data, the Internet of Things, and distributed sensors to produce what many are calling the Smart City of the future."*

As well as investigating the potentials for a 'smarter' Bristol, this project is explicitly a test-run for implementing smart city technology around the world. The network has a built-in emulator that allows it to simulate any city in the world; data from New York could be taken and run on Bristol's network as if it were real. The system can then be exported and used elsewhere. Essentially, Bristol is becoming a city-wide laboratory for Capital's urban favoured environment.

The sensors will collate vast amounts of raw data, which the council is already equipt with various 'Big Data' processing platforms to analyse; Bristol has already opened up almost two hundred of the city's data sets on traffic flows and energy use, crime trends, targeted advertising, generating new innovative businesses, as well as encouraging citizens to interact with the city in new, digitalised ways. 'Acoustic detection sensors' have also been mentioned; similar uses have been made of microphone-equipt lampposts in major cities of the United States, with audio recording and gunshot detectors linked straight to police targeting 'high crime areas', to be combined with surveillance video. As opposed to the reactions which their use in obtaining convictions have earned across the Atlantic, as a precursor to the Bristol Is Open initiative the PAN innovation team began a four-week project in Bristol during 2013 called Hello Lamp Post, to introduce smart-city technologies more 'softly'. The project's co-creator, Ben Barker, was featured in media at the time. *"Smart cities, where technologies play an important role, tend to be perceived as high on efficiency yet low on warmer, human elements, Barker explains. "Our starting point was a desire to use the city's existing infrastructure to encourage human interaction through storytelling and story sharing." "* In a bizarre mix between Artificial Intelligence and a chat forum, users were offered the opportunity to 'communicate' with street furniture like lampposts, postboxes, and bus stops via text message by using the repair numbers found on these objects as SMS codes. The object would "wake up" and respond in kind with a series of text messages, "*sharing interesting content about that specific location left by others who've come before*".

Quite how this counts as human interaction escapes us, but then again we must be missing out on the 'smart' adaptation to a world where everything 'of worth' has a code number, where communication is something that happens through screens, where engagement with each other and the more-than-human world shrinks to an amputated and isolated interface with an algorithm. (Perhaps the banal and never-ending conversation about nothing which continuously unspools

on the social network feeds can hint at the 'warmth' enabled by communication in our era.) The scale of this anthropocentric reduction can be read in Barker's claim that *"what's most interesting about this is that it will be very much an organic, living, evolving thing shaped and re-shaped according to how the people use it"*, as if the total limitations to any relation with a life outside the cybernetic maze were not inherent in the framework. If the consequences of PAN's initial experiment seem trivial, consider the calibre of its sponsors; including IBM, HP, Toshiba…

The managing director of Bristol Is Open, Paul Wilson, imagines a city in which emergency services arrive before anyone has placed a call, as well as using the grid for everything from keeping an eye on *"isolated elderly citizens"* (because, while on the daily treadmill, who has time to spend with elders in actual person today, and wouldn't an algorithm be just as good?), to *"monitoring pollution levels, carbon emissions and energy consumption[… it is the] mother of all big data systems"*. (One could be forgiven for thinking of stipulations to punish those who don't recycle rigorously enough, or who consume their prescribed ecocidal products or power supplies 'inefficiently', etc…) Such networks are touted as potentially allowing various services which, in mass society, are deemed too complicated for human-scale self-management — such as monitoring one's health via a panorama of apps, to 'smart bins' which will communicate directly with the authorities when they're full. This is forecasted as a step further into the landscape in which everything which can be impregnated with microchips coalesces into an ambient environment, in constant communication with itself and the State; the so-called 'Internet of Things', where, of course, the people (human or not) become simply the 'things'.

A glance to other 'smart city' models unfolding currently, can inform us of the directions for Big Data (because the global techno-industrial innovators are certainly paying attention to each other). In Santa Cruz, U.S.A., computer systems analyse historical data to work out the prime places a 'property crime' (a.k.a. class war) is likely to occur at any given time, and direct police to the vicinity automatically. In Amsterdam, Holland, the Smart City Initiative provides a wireless network offering 'serious games' linked to domestic smart energy meters, to domesticate youngsters into the techno-rationality required for the 'eco-industrial' consumer of the future. NEC themselves have worked for years in the fields of facial recognition technology, military hardware, crowd behaviour analysis technology and Artificial Intelligence, as well as mobile phone and nano-technology breakthroughs, and the Smart Cities provide a playground for their application. For example, as they again boast on their website; *"NEC's internationally acclaimed biometric identification technologies are now being used on smartphones at South Australian Police and Northern Territory Police to fight crime and enable immediate identification. Biometrics in combination with access control and video monitoring systems will ensure Smart Cities are able to rapidly respond to safety incidents when required."*

The 'Bristol is Open' network means it is most likely that unfolding hi-tech projects (driverless cars specifically are often mentioned) will always come to Bristol first before being rolled out across the country, due to the unprecedented level of connectivity. The system already allows terabites-per-second data transfers for collaborative research and development programmes between global universities (Bristol Univeristy itself having, among other things, a long history of military, vivisector and genetic-engineering scientists).

Meanwhile, Bristol Is Open has been in talks with leaders from China, India and Singapore who are interested in the model. Even in the more prosperous countries, hunger, homelessness, toxic chemicals in the water supply, the lack of affordable housing are all back on the agenda. The global elites see it as a high priority to develop 'solutions' for the problems posed by ram-

pant urbanisation, population pressure and 'resource' depletion. Of course the solutions will be only more technology, more control, and more greenwashing – Bristol itself hosted the title of 'European Green Capital' for 2015 – and more profits for the same as usual. Many technology corporations are now taking on previous responsibilities of the State, and become key gateways to city services, along with so much else.

Almost two hundred years ago, in the midst of the urban squalor of the time, the man who gave his name to the 'Brunel Mile' where the most advanced of the Bristol is Open technology will be premiered was overseeing the construction of the well-known Clifton Suspension Bridge. Islambard Brunel was one of the most important figures of the Industrial Revolution, and the blight of his lauded works have changed the face of the English landscape. (One of his many other famous achievements was the first steam-ship to engage in trans-Atlantic service, smoothing the way for the continued colonisation of the Americas.) However, only days after the ceremony which launched the works was over, rioting broke out in Bristol after a local magistrate threatened a mob with imprisonment while he was opening the new Assize Courts, and the works were stopped. For three days the rioting didn't stop (during which the palace of the Bishop of Bristol, the Mansion House, and wealthy homes were looted and destroyed, along with demolition of much of the gaol), and Brunel himself was sworn in as a special constable. Finally order was restored after cavalry charged with drawn swords through the mob in central Queen's Square, but the uprising had seriously dented commerical confidence in Bristol, and construction of the bridge was much hampered.

At the dawn of the new industrial revolution of Big Data technologies and the converging sciences, a handful of attacks on university laboratory constructors, 'green' technology firms and civil order and tranquility itself have bloomed in the night around the city of Bristol in the last few years. Once again the investors, developers, financiers and technicians present themselves to those of us who, wherever we are, will not tolerate the scientifically-rationalised dystopia they have in store for us.

War on all things Smart

War on all things Smart
Bristol, Britain's Flagship 'Smart City'

from Return Fire vol.3 chap.1 (winter 2015–2016) — PDFs of Return Fire and related publications can be read, downloaded and printed by visiting returnfire.noblogs.org or emailing returnfire@riseup.net

theanarchistlibrary.org