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SMART TECHNOLOGIES, ALGORITHMIC GOVERNANCE AND DATA JUSTICE

This panel engages critically with the development, application and emerging effects of 'smart' technologies of governance. Attending specifically to the ramifications of new forms of ('big') data capture and integration implemented by or for state agencies, the panel describes how the rollout of these technologies impacts on and is shaped by contexts prefigured by social and economic inequalities.

Two specific arenas are addressed and juxtaposed, with two papers on each of these. The first arena is the introduction of 'smart city' technologies and their implications for low income and marginalised communities. Often presented as novel augmentations of urban space, enhancing and customising the urban experience at the same time that they increase the city's efficiency and 'awareness', smart city technologies also reconfigure urban spaces and how they are understood and governed by rendering the city a site of data generation and capture. This presents new opportunities and risks for residents and powerful commercial and state actors alike.

The emergence of public WiFi kiosks as a means of providing internet access to underserved communities, as one panellist describes, can be shown to expose low-income residents to new forms of surveillance and to new kinds of inequity in terms of the asymmetry of information made available to the parties in the exchange at the kiosk. Surveillance and data capture is organised to particular ends and powerful interests shape and leverage the design and affordances of such initiatives in particular ways. Insofar as concerns are raised about these developments, they are commonly framed in terms of individual rights to privacy, missing the scale of the issues involved. It is not merely that 'opting out' becomes untenable. As other panellists show, the issues involved are fundamentally social rather than individual in that they foreground questions around the appropriate relations between state and commercial actors, the use and nature of public space, and the uneven distribution of rights of access to space, information, and other resources within the city. Economically disenfranchised groups are not only denied meaningful access and participation, but colonised by data processes designed to extract various forms of value from their use of 'public' infrastructure which may not best serve their own interests.

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The second arena addressed by the panel is the role of algorithmic governance and artificial intelligence in the provision of social welfare. This context is described in terms of both the effects for the frontline service encounter, and the design, justification, and implementation of the technologies reformatting this encounter from key locations within state agencies. Emerging technological infrastructures for social welfare do not simply reconfigure how existing services are offered and accessed. They facilitate the identification of new target populations for intervention, at the same time that they introduce additional burdens, hurdles and forms of intervention and surveillance for these populations. As such, it is evident in the design and application of these technologies that they accord with and expedite punitive logics in welfare provision, providing new opportunities for the application of dominant neoliberal governance strategies.

In both arenas, one can conceptualize 'pipelines' for the implementation of these developments. These pipelines are interstitial and heterogeneous, and combine different timelines, technologies and actors. They are often technically or administratively opaque or otherwise obscured from view. This gives rise to a methodological and intellectual problem, around the extent to which researchers can say they know *enough* to point to determining instances, political agendas, commercial agreements, incidental alignments and so on in such a way as to advocate effectively for democratic input and oversight. In this sense the papers assembled highlight how these developments call for new politics of method, new modalities of analysis and critique, and more effective activist and academic engagements with the question of how ideals of justice and equity can best be instantiated in these contexts.

Smart Wifi Kiosks and Trust Trade-Offs in Digitally Deprived Communities

Justine Humphry
University of Sydney

Public WiFi has been promoted by local governments as part of a solution to establish internet connectivity in urban centres to those who lack or cannot afford digital access. While some critics have argued that municipal WiFi projects have failed to deliver their promise of a low-cost internet solution (Fraser, 2009, Tapia, 2011), freely accessible WiFi systems have found new life in the roll out of smart WiFi kiosks in citywide digital transformation projects. WiFi has given cheaper and faster internet access to those who rely heavily on mobile access such as people experiencing homelessness (Humphry, 2014) and low-income households that lack home broadband. Yet, public WiFi is proving to be a poor and contingent solution for meeting the long-term connectivity needs of these digitally deprived communities, with the potential to amplify a host of data security, privacy, racialised surveillance and profiling risks.

The growing critical literature on smart cities has focussed on the dangers of engineering cities as programmable sites of data capture and harvest (Mattern, 2017; Kitchin, 2011), the expansion of digital surveillance (boyd & Crawford, 2012; Lyon, 2011), and the lack of citizen participation in new urban designs and their governance

(Joss, Cook & Dayot, 2017; Meijer & Bolívar, 2016). Few have examined the implications of smart city solutions for digital inclusion, even though these often promise to improve public access to free WiFi, mobile charging, telephones and other services. While freely accessible WiFi might increase 'buy in' from municipalities embarking on smart infrastructure projects, some suspect that their real effect is to lock users into low trust/high risk systems that collect and process data for advertising and smart city application. What do these trust trade-offs mean for digitally deprived communities who rely on these services yet have historically been subject to heightened regulation and policing through a vast collection of surveillant technologies (Browne, 2015; Scannell, 2018)?

This study explores these questions through the case of LinkNYC, a smart WiFi kiosk network that is being installed across the five boroughs of New York City by the private company Intersection, in partnership with the City of New York. LinkNYC has been operational since January 2016, with 1778 active at time of writing and a plan to reach 7,500 in eight years, replacing NYC's ageing public payphone network (LinkNYC a). The WiFi kiosks, called 'Links' provide a suite of services, including free phone and internet access, USB charging, a red emergency button and wayfinding services. The large obelisk-looking structure has a side-facing 55-inch digital screen and two cameras. For Intersection, LinkNYC represents a 'first-of-its-kind communications network', a city-wide test bed for its global smart city product (LinkNYC b). The cities of Philadelphia and Newark have adopted the Links with subsequent implementations in London and Glasgow. These implementations represent some of the first manifestations of smart city imaginaries that have been building momentum over the past two decades. LinkNYC is therefore an important case for understanding the digital inclusion implications of large-scale smart systems and their infrastructural politics (Bowker & Star; Winner 1980).

The research has so far involved a document analysis of promotional material and media coverage of LinkNYC, 36 interviews and site observations in East Harlem, Brooklyn, Central Manhattan and Queens. The interviews were carried out with homeless WiFi users and former staff of the Office of New York City, representatives of Intersection, members of RethinkLink, a community activist organisation and staff of homelessness services. The recruitment aim was to elucidate different aspects of the development, representation, use and public reception of LinkNYC, following the model of the cultural circuit (du Gay et al 1997), and to capture the diverse experiences and understandings of the actors involved.

In this paper, I argue that trust, understood as placing one's information, identity, safety or health into someone else's hands, with confidence of a benefit (Gambetta, 2000), is something that digitally deprived communities trade off in their use of smart WiFi systems. Important context for this analysis is that in New York City, nearly one third of households lack home broadband and many of these are in predominantly low-income Black American neighbourhoods in upper Manhattan, the south Bronx and central Brooklyn (MOCTO, 2018). Users who rely on Links for access make strategic decisions in their engagement with the system, weighing up the benefits of use against the known risks. Some of the risks are *insecure connections* because of lack of support for wireless encryption in low-end Android devices; *reduced physical safety* as Links are

accessed in open public spaces, and *greater exposure to police and legal enforcement* since even with limits placed on sharing data and camera footage in the Intersection privacy policy (LinkNYC c), there is potential for this information to be used as evidence of a crime. Browne's ideas on the role of technologies in the surveillance of Blackness are adopted to analyse the dynamics of trust established through interaction with the Links. This includes consideration of what is given up and made visible in using the service, such as personal information or geolocation data, as well as what is given or withheld in return, such as making available for public scrutiny the purpose, use and protection of data collected and shared.

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Dehumanising Human Services: How Digital Welfare Initiatives Transform the Relationship Between the State and Citizen

Scarlet Wilcock
University of Wollongong

Governments around the world are increasingly looking to new and sophisticated information and communications technologies (ITCs), including advanced data analytics and artificial intelligence, to assist with the delivery of social services (see, eg., Henman 2010; Harlow and Webb 2003). The introduction of these 'digital welfare' initiatives is routinely touted as a means to increase the efficiency and quality of government service delivery, a claim that endures despite a growing list of 'e-government failures' (Jenner 2009). Notable Australian examples include the failures associated with the 2016 e-census (MacGibbon 2016) and the much-criticised and possibly unlawful 'robo-debt' regime (Carney 2018). Notwithstanding these incidents, the Australia Government is forging ahead with 'one of the world's largest social welfare ICT system transformations' known as the Welfare Payment Infrastructure Transformation (WPIT) (Arthur 2015).

The WPIT is a 7-year, $1 billion digital enhancement project led by Australia's central welfare delivery agency, the Department of Human Services (DHS). It encompasses a suite of projects broadly underpinned by the aim of creating 'a flexible welfare service delivery system for now and into the future' (DHS 2018a). A core pillar of the WPIT is the replacement of the DHS's aging payment infrastructure with a more modern and flexible system based on the SAP suite, which has facilitated a series of new commercial linkages between IT companies and the welfare state (Hendry 2018; Arthur 2015).

At the same time, the WPIT has delivered a series of smaller 'client-facing' projects, including the introduction of three virtual assistants to help beneficiaries to access benefits online, a new online document lodgment and appointments portal, and a claims tracker so that beneficiaries track the progress of new payment claims (DHS 2017a: 22-3). The introduction of these client-facing initiatives is ostensibly designed to improve access to welfare entitlements. As the DHS (2017b: 119) vows, the 'WPIT's outcomes

will save welfare recipients time and effort by offering easier access to improved digital services'.

This paper explores the transformative effects of the WPIT's client-facing initiatives. Its focus is on how these initiatives have redrawn the relationship between the state and welfare-citizen at the macro and micro levels. Drawing on Foucault's (2007; 2008) concept of governmentality and critical literature on welfare administration (esp. Henman 1997; 2006; 2010), this paper begins from the position that the technologies of welfare administration – including new digital welfare platforms and processes – are inextricably linked to welfare policies and politics. Technologies are not simply neutral tools to support policy implementation, but are forms of governance, which can themselves propel, shape and/or disrupt processes of welfare policy and practice.

Drawing on these conceptual resources, this paper traces how the WPIT's client facing projects have shaped the minutiae of welfare administration at various junctures in the welfare state. It seeks to contextualise and connect these micro-level reforms with broader processes of welfare reform. In doing so, it draws on analysis of two documentary data sets. The first data set includes the electronic forms, menus and interfaces deployed as part of these 'client-facing' initiatives. These represent the visible manifestation of the state in these new welfare interactions. The second data set comprises policy and other official documents that purport to capture the objectives and vision for the WPIT including these client-facing initiatives. These data provide the basis for connecting changes to the 'micro-processes' of welfare administration to broader socio-political visions of welfare reform.

Whilst these client-facing initiatives are perhaps smaller-scale than other aspects of the WPIT, as this paper argues, these initiatives have nonetheless reconfigured the architecture and operation of the welfare state, including the relationship between the state and welfare subject. Collectively, these initiatives operate to delay or deny recipients' access to departmental officials via the phone and in person, that is, they literally and figuratively 'de-humanise' welfare provision. This has gone hand in hand with cuts to frontline DHS staff and the closure of DHS offices. The WPIT's client-facing initiatives also place new micro obligations on welfare recipients to 'self-manage' their welfare entitlements. However, in this process, the state is no less present. In fact, these new digital welfare initiatives create new ways for the state to interact with and intervene in the lives of welfare recipients, albeit 'from a distance'. In this site of welfare governance, the state is simultaneously present and absent in the lives of welfare recipients. This serves to both propel and re-shape broader processes of welfare reform.

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Social Justice in the Age of Datafication: The Case of Smart Cities in Australia

Danielle Hynes
University of New South Wales

Tanja Dreher
University of New South Wales

The scholarly and activist agenda on ‘data justice’ developing in Europe and North America has much to offer media and communications research in Australia, including research focused on the social justice implications of nascent ‘Smart Cities’ developments. In this paper, we outline the significance of interrelated frameworks of Data Justice (Dencik, Jansen and Metcalfe 2018; Taylor 2017), Media Justice and Design Justice (Costanza-Chock 2018) for research on social justice in the context of ubiquitous digital media and datafication in Australia.

We begin by outlining the key arguments on social justice in the age of datafication. Crucially, in a context of ‘ubiquitous surveillance’ (Andrejevik 2011) in which individuals and societies are ‘colonised by data’ (Couldry and Meijas 2018), a data justice framework approaches datafication as a pressing issue of social justice, not simply individual privacy (Dencik, Jansen and Metcalfe 2018). The aim is to avoid data-centrism in studying and understanding the implications of datafication – which now extends to aspects of social life including housing, welfare, employment, education immigration, policing and more. Yet while digital media and processes of datafication have rapidly become ubiquitous, the impacts, harms and benefits are highly unevenly distributed (Eubanks 2018, Dencik, Jansen and Metcalfe 2018; Costanza-Chock 2018). It is therefore vital to focus on data practices and experiences in everyday life, and not only technologies and algorithms, for understanding the challenges and opportunities of datafication. We also note the enduring significance of the politics of representation – as stereotyping and marginalization in mainstream media and public debate are a key factor in the ways in which welfare recipients and residents of social housing are framed in policy decisions and program development.

Extending beyond the more conventional focus on privacy and ethics, a data justice approach foregrounds vital questions of political economy. Situating data in the context of social structures and interests, data justice researchers ask what interests are being advanced in rapid processes of datafication via digital media? What are the implications as functions that were previously the preserve of governments and state agencies are increasingly undertaken in public-private partnerships or by multi-national corporations? What are the labour conditions and the possibilities for regulation under ‘surveillance capitalism’ or ‘data capitalism’. And what might be the possibilities for collective or cooperative alternatives?

Throughout the past decade, cities across the planet have been embracing the term ‘smart city’, with many actively seeking to become ‘smarter’ through encouraging innovation in the use of data-driven technology. Most smart city initiatives utilize this type of technology to plan and manage various, sometimes interconnected, city processes (Shelton, Zook and Wiig 2015). Technology-driven smart city initiatives promise to improve cities through making better informed, more objective decisions (Kitchin 2014). Sometimes these initiatives do improve efficiency and urban life.

However, the dominant understanding of smart cities has been one that is commercially led and corporate driven (McFarlane and Söderström 2017). In taking a data justice approach to Smart Cities it is important to begin with the question, what interests are being advanced?

In November 2018 the Australian federal Minister for Cities, Urban Infrastructure and Population announced the outcomes of Round Two of the Smart Cities and Suburbs Program, allocating $21 million of the $50 million fund to 32 projects across the country (Department of Infrastructure, Regional Development and Cities 2018a). The 52 programs funded during Round One of the program, announced in November 2017, included $5m to 'Switching on Darwin' with a co-contribution of $5m. This $10m project aims to implement smart infrastructure such as lighting, parking and wifi throughout Darwin. A $13.5m project (including co-contribution) in Newcastle aims to deliver a benchmark for integrated city systems including smart bus stops, parking and roadside poles (Department of Infrastructure, Regional Development and Cities 2018b).

Whilst these programs are exciting it is important to examine the imperative focus on innovation and new technology in the program, a key funding criterion is that projects 'apply innovative smart technologies that generate, store and process data to target urban challenges' (Australian Government 2018). It is necessary to question whether this focus perpetuates the idea that innovative, data-driven technology automatically leads to improvement by virtue of being innovative and data-driven (McFarlane and Söderström 2017).

The program also raises concerns around encouraging or furthering public-private partnerships. To be eligible for a grant, applicants must be able to fund at least 50% of the project through non-Commonwealth sources. Whilst this funding could come from other levels of government or NGOs, multiple collaborators are encouraged, increasing the likelihood of public-private partnerships. Involving private actors in the distribution of traditionally public-run services can lead to the technology involved being proprietary and therefore inscrutable, furthering what is described by Pasquale as the creation of a 'black box society' (Pasquale 2018).

Further scrutiny and critical research is necessary around these projects to investigate whether they perpetuate the deification of data and the idea that its utilisation in decision-making and service delivery leads to improved objectivity and efficiency. Socially engaged research will listen to the voices of marginalised communities in debates on big data that are usually dominated by technology experts. The research should critically examine the assumptions underlying data-driven decision technologies, foreground the experiences and aspirations of the communities most vulnerable to the negative impacts of datafication, and identify innovative ways of preventing these injustices.

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Algorithmic Governance in the Australian Welfare State and the Emerging Ethics Discourse

Andrew Whelan
University of Wollongong

Alexandra James
La Trobe University

New digital technologies have emerged within the context of the neoliberal welfare state, in Australia as elsewhere. Associated with promises of efficiency gains, productivity growth, and the zero contact administrative encounter, an extensive literature addresses the deployment of these technologies in welfare state administration (see e.g. Dubois et al 2018; Oswald 2018; Roy 2013). These developments are summarized variously as artificial intelligence (AI), big data analytics, machine learning, and algorithmic or 'stochastic governance' (Sanders and Sheptycki 2017). This terminology describes here the consequential application of computational techniques to state records, and, thereby, the people they represent, at scale, in decision processes previously owned and occupied by experienced administrative personnel.

The transition to algorithmic governance puts traditional ideals of acaccountability, transparency and democratic process under pressure. Blackbox machine learning and AI decision-making render transparency largely obsolete. It is often unclear how policy is turned into algorithm (or vice versa), and questions remain as to the capacity of operational powers to provide direct oversight and comprehend the protocols enacted. Processes of immediate and fundamental importance to clients of state services are likely to become more opaque to those clients and the assumed neutrality and scientificity of these computational processes and outputs is particularly pernicious.

As a result, there is increasing concern that the widespread use of such techniques may result in the codification and automation of bias, discrimination, and injustice, entrenching existing inequalities and generating new ones (Eubanks 2018, Madden, Gilman, Levy and Marwick 2017, Mann and Daly 2018). Well-publicized controversies in Australia such as My Health Record and 'Robo-debt' have damaged levels of public trust and confidence in the state and corporate actors involved.

In this context, a discernible discursive shift has occurred. Attention has turned to the development of *ethical* technologies and associated frameworks. It is anticipated that ethical frameworks can ameliorate potential harms resulting from the use of these new technologies and engender public trust. However, the extent to which ethics can alter the current trajectory of emerging technologies is questionable. Such technologies are designed to operate within and reinforce, rather than transform, the prevailing neoliberal agenda. Pivotal questions are further raised with respect to the designers of ethical frameworks and the values, codes and position of the represented voices.

A wide range of actors and instruments stemming from civil society, corporate bodies, and public institutions are central to the deployment of the ethical technologies discourse. 'Ethics' provides an alternative marketing platform for home-grown technologies in countries unable to replicate the technological dominance of China and the US. This discourse enables state agencies to bypass concerns around the initial implementation of algorithmic and AI techniques, reframing the discussion in terms of *how* and *when*, rather than *if* and *why*. It remains to be seen whether the development

of ethical frameworks will involve meaningful democratic participation. Tracking the processes by which these ethical frameworks are produced is critical to directing greater attention to the design of algorithmic governance futures.

The literature on policy, the state, and bureaucracy furnishes valuable perspectives on how processes like this shape service delivery, and thereby the contours of the administrative state as it is encountered in everyday life (Gupta 2012; Lea et al 2018; Lipsky 2010; Shore and Wright 2003). This literature reminds us that developments in policy and delivery are shaped in and through existing power dynamics. Algorithmic governance does not appear fully formed and then simply roll out through the state apparatus. The introduction of new administrative techniques, or the introduction of ethics as the discursive padding for those techniques, is not a *fait accompli*. It is a heterogeneous process running on multiple parallel rails. It has a long history. The elements of the assemblage are also heterogeneous: legal documents, forms of civil service, technocratic, and engineering expertise, organizational structures and routines, proprietary hardware, software and so on.

Policy documents, white papers, media releases, and news reports provide a basis for tracing how the discourse of ethics enables and justifies the embedding of artificial intelligence, big data, and algorithmic governance techniques in social welfare provision. Drawing on institutional ethnography (Griffith and Smith 2014; Kearney et al 2018), we trace the relations between key sites within the state driving welfare automation, and evidence the common tropes in commitments to ethics being espoused at these sites. In doing so, we identify the ideologies, governing institutions and shifting power dynamics which shape the everyday experience of recipient citizens.

Our interest is not in how algorithms might not be fit for purpose, or whether procedures can be established to ensure adequate oversight of automated decision processes. The available evidence in Australian welfare shows that these processes are themselves not innocent or neutral in their design or implementation. As such, the networks and agencies in which these processes are conceived, developed, approved and executed warrant attention. The interest lies in scrutinizing these networks and agencies, the relations between them, and their evidential traces, with sensitivity to the extent to which they are themselves discernibly opaque, unaccountable, or otherwise instantiate the kinds of governance problems they go on to install at system levels.

Through engaging with the development of ‘ethics’ across these sites, we hope to highlight how state actors legitimate leveraging technologies for innovative ends, counter to widely espoused values of benevolence, procedural fairness, democratic oversight and accountability, and equality before the law.

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