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SMART CITIES: REFLECTIONS ON EFFORTS TO STANDARDISE A NEW CONCEPT

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Abstract: In the UK, as elsewhere, policy-makers are keen to promote 'smart city' policies in an effort to encourage national innovation and boost international competitiveness. Like the 'eco-city', the concept of the 'smart city' requires definition, even standardisation, if it is to be of practical value to policy-makers, planners and developers. To this effect, the UK government commissioned the British Standards Institution (BSI) to define smart cities through a series of Publicly Available Specifications (PAS). Simon Joss was invited to contribute to this work by joining the Steering Group in charge of drafting and reviewing PAS 180. In this short essay, he reflects on his involvement in this process.

Keywords: smart city, standards, standardisation, definition.

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Eco-cities are an urban innovation touted as one of the solutions to conjoined problems of urban sustainability, environmental degradation, and climate change. While they were proposed as early as the 1970s, they have only become real in the last decade or so, with announcements of the construction of model eco-cities Dongtan, near Shanghai, China, and Masdar, near Abu Dhabi, UAE. Hundreds of related initiatives are now underway or about to be launched worldwide. But can these cities really do the job their advocates claim they will?

In our recent global survey of eco-city initiatives, we pointed to the confluence of several factors – including a focus on ecological modernization, technological innovation, and international knowledge transfer – which has contributed to a second generation of sustainable cities: these are characterised by the central involvement of international firms, strong underpinning by

national and transnational innovation policies, and the application of new technologies (Joss et al. 2013). 'Smart cities' are part of this new trend.

While there is currently no single accepted definition of the 'smart city', the concept incorporates three core features; these are variably emphasised by different actors: first, the promotion of the city as hub for knowledge-intensive, competitive economic activities; second, the essential interconnectedness of urban systems and the need for integrated and networked solutions; and consequently, third, the opportunity for technological innovation, and especially the application of information and communication technologies for digitally linking up and coordinating various urban systems in an overarching information system.

> …a Smart City…brings together hard infrastructure, social capital including local skills and community institutions, and (digital) technologies to fuel sustainable economic development and provide an attractive environment for all (DBIS 2013).

> From a technological perspective, a smart city is intelligent, integrated and networked (Acatech 2011).

> In an increasingly urbanised world, a Smart City looks after its citisens by harnessing the latest data capture and communication management technologies to deliver high-value services derived via robust modelling techniques. Smart approaches to services such as transport, utilities and waste management have the potential to transform the efficiency and sustainability of urban communities, leading to significant reductions in both cost of service provision and carbon emissions, and to improve the quality of life for citisens (BSI, n.d.).

It should come as no surprise that the potential for socio-technical innovation has stoked the interest of national agencies, international organisations and technology and engineering firms. South Korea was among the first countries to embark on a national strategy to apply 'ubiquitous', or 'smart', technology to urban planning (Joss et al. 2013). More recently, other countries, including China, Germany and the UK have launched similar national 'smart city' policies.

In the UK, the Department for Business, Innovation and Skills recently commissioned the British Standards Institution (BSI) to develop a 'Smart Cities Standards Strategy' (BSI n.d.). This strategy entails the development of (national) standards aimed at facilitating the uptake of the smart cities concept. And as the BIS website points out, pursuing such a strategy is expected to benefit UK business in becoming a global leader in smart city innovation. As a result, BSI has begun to develop several Publicly Available Specifications (PAS), which are fast-tracked standards developed to BSI guidelines and through stakeholder consultation.

The BSI invited me in spring 2013 to join their Steering Group for PAS 180: Smart Cities Vocabulary. The scope of this PAS is to define concepts and terms for smart cities relating to

various urban infrastructures, systems and services. Concurrently, PAS 181: Smart City Framework has been under development. Both specifications are due for publication in early 2014.

The Steering Group comprised a small number of experts in economics, the built environment, planning and technology. Together, our task was to review and write draft texts and – following a public consultation process in autumn 2013, which elicited over 160 responses – to analyse the stakeholder statements and prepare the final draft. My own contribution also included preparing texts for the governance section of the PAS, given my expertise in the area.

As a researcher involved in analysing the emergence of 'eco-city' frameworks and standards of one kind or another, being part of an official process of developing a standardised framework for smart cities has been a fascinating experience (IEI n.d.). For one thing, it has given me new insights into what drives the effort to develop standards and how this is accomplished in practice. For another, it has highlighted the challenge of arriving at a common conceptual language that manages to incorporate complex technical information, while at the same time being accessible to a broad spectrum of potential users (planners, city authorities, technology firms, community groups etc.). This challenge is particularly great when dealing with a concept such as the 'smart city', which engages with inherently complex systems – the city, sustainability, technology – in new ways and combinations. The approach chosen for PAS 180 – namely, not to define any particular model or framework of the smart city/smart city systems in too narrow a way at this stage, but instead to outline and define various smart city elements and dimensions – strikes me as appropriate: it is designed to facilitate the process of developing a common understanding and language, while leaving room for further refinement and clarification in due course in the light of the evolution of the concept and its practices. Indeed, the intention is to review PAS 180 in future years.

At a more general level, the growing effort to standardise concepts, such as 'smart cities', 'sustainable communities' and 'eco-cities' on the part of national agencies, professional bodies as well as voluntary organisations reconfirms the trend towards more 'ubiquitous' approaches to urban design and planning. This is quite understandable, given both the challenges and opportunities of unprecedented urbanisation globally, and the related economic and technological potential. At the same time, one needs to be mindful of the limits of the technocratic language and use of standards, given the social, cultural and political plurality and diversity of cities and city life.

PAS 180 is due to be published in early 2014. After two years, the PAS is expected to be reviewed and a decision taken as to whether it should become a formal British Standard.

The paper should be referenced as follows:

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