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MAKING SENSE OF VARIETY IN PLACE LEADERSHIP:

THE CASE OF ENGLAND'S SMART CITIES

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AWARDS

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ABSTRACT

There is rising interest in cities becoming 'smart' knowledge-oriented economies by prioritising more digitally-enabled modes of production and service delivery. Whilst the prevalence of these new organizational forms is well understood, the way that leadership agency is exercised (i.e. the actors involved and their modalities of action) is not. Drawing on new empirical data and sensemaking methodology, we reveal discursive patterns in how public agencies, private firms and communities 'see' and 'do' leadership within these place-based contexts, concluding that success in exploiting the social and spatial dynamics of 'smart' development lies in understanding actors' assumptions about commercial and social gain.

KEY WORDS: Smart City, Leadership, Place, Knowledge, Urban and Regional Development, Sensemaking

JEL CLASSIFICATIONS:

O – Economic Development, Technological Change and Growth

INTRODUCTION

Over the last decade, the number of cities around the world announcing their formal intention to become 'smarter' in a post-industrial knowledge-oriented economy has grown significantly. Smart Cities advocate the involvement of new public-private-community collaborations in the application of new information and communication technologies (ICT) in modernising and improving the infrastructure and efficiency of cities in the digital age, to better integrate their physical and social capital and gain important 'constructed advantage' (COOKE and LEYDESDORFF, 2003; IBM, 2010; EU, 2014). However, conceptual confusion associated with 'what a smart city means?' has witnessed the unhelpful bundling together of aspects of a number of (albeit related) urban and regional development ideas such as, 'intelligent cities', 'knowledge cities', 'digital cities', 'creative cities', 'green cities', 'entrepreneurial cities', 'science cities' and so on (see for example, HOLLANDS, 2008; ALLWINKLE and CRUIKSHANK, 2011; VANOLO, 2014). At the same time, concerns about 'who smart cities are for?' reflect an overly corporate image of Smart Cities as technologically underpinned neo-liberal spaces where business influences and the pursuit of investment attractiveness prevails over the social domain (VANOLO, 2014: 884; MARCH and RIBERA-FUMAZ, 2014). The resulting idea is that Smart Cities represents an "empty and ambiguous concept, [which] is being deployed on more of an imaginary and discursive level...than materially" (MARCH and RIBERA-FUMAZ, 2014:2). This reflects an enduring critique about the symbolic nature of urban policy, on the basis that it serves to support the political agenda at the time (ATKINSON, 2000) rather than address the more socially minded problems of tackling urban digital inequalities and social disconnection (HOLLANDS, 2008: 314; GILBERT, 2010; SHELTON et al, 2015).

This paper responds to calls to examine the 'actually existing' Smart City (SHELTON et al, 2015) in the context of a wider political economy (MARCH and RIBERA-FUMAZ, 2014) by considering the role that leadership plays in urban and regional development. That is, where purposive attempts are being made to generate, share and exploit the new explicit and tacit knowledge that emerges from close problem-solving interactions between firms, public agencies and local communities (CARILLO, YIGITCANLAR, GARCIA and LONNQVIST, 2014; SOTARAUTA, 2016). The paper does so, by plugging a so called 'methodological deficit', the nature of whose enquiry has been rooted epistemologically in an over-reliance on rational, scientific, deductive principles and has ignored the role that context and human agency plays. This is important as NONAKA and TAKEUCHI (2011) point out: "since all social phenomena (including business) is context dependent, analysing it is meaningless without considering peoples' goals, values and interests, along with their power interests" (p.58). This implies the need for more pluralistic ways of understanding how actors 'see' (interpret) the knowledge that lies at the heart of constructive advantage and how they 'do' (enact) this through leadership (UHL BEIN, 2007; SOTARAUTA, HORLINGS and LIDDLE, 2012). This paper forms part of a special issue on 'Leadership in City and Regional Development' which examines both empirically and theoretically, how 33 actors from private firms, public agencies and communities across 4 English Cities, conceptualise and navigate the complex leadership endeavour that arises within place-based contexts like Smart Cities. Findings suggest that due to the wide range of actors involved, and their differing conceptualisations of the nature of Smart City growth, a more methodologically reflexive (MABEY, 2013) and contextualised (GERHARDT, 1994; RILEY and HAWE, 2009) analysis of the Smart City leadership endeavour is required. This requires future research into place-based leadership to develop a fresh understanding of the relationship between leadership and the political and contested nature of contemporary urban and regional spaces.

LITERATURE REVIEW

Problematising Place Leadership in the Knowledge Era

In seeking to ascertain what a Smart City means, we are first required to consider how cities might become 'smart' sub-national economies in the first place. This, in turn, requires an understanding of the role that knowledge plays in urban and regional development and innovation. A full review of the construction of advantage in the knowledge era is beyond the scope of this paper (see COOKE and LEYEDESDORFF, 2003, for a detailed historical synopsis of the nature and contribution of knowledge to regional economic development). However, reviews of the knowledge management literature remind us that in addition to its important role in the functioning of the economy (NONAKA AND TAKEUCHI, 2011), shifts towards a knowledge–based economy have led researchers to consider more discursive (i.e. rooted in language) conceptions of 'constructed advantage' than the more material (rooted in money and possessions) concept of 'competitive advantage' (COOKE and LEYDESDORFF, 2003). A further epistemological shift arises when considering how such advantage might be achieved. This is on the argued basis that private firms aren't the only places where human and material capital is stored or re-structured to capture knowledge (PENROSE, 1959; HOWELLS, 2002). This challenges the long-held assumption that the failure to yield competitive advantage in organisations, (HOWELLS, 2002) is due to managers' failure to exploit knowledge properly (i.e. through explicit as opposed to tacit means) or their failure cultivate the right type of knowledge (i.e. commodified knowledge versus more experiential wisdom) (NONAKA and TAKEUCHI, 2011). This leads us to our first research question: *RQ1: Who are the range of actors and how do they intepret the knowledge they perceive as being critical to urban economic performance?*

Our second point relates to more recent debates within the place leadership literature as the 'new paradigm of regional policy' (CEC 2009 p.xi) on the basis of the "tendency to ignore the complexities of the 'human touch' in social and economic progress" (COLLINGE and GIBNEY, 2010, p. 380) or how leadership is enacted in more complex ways across multiple spatial scales (GIBNEY, COPELAND and MURIE, 2009; SANDFORT and BLOOMBERG, 2012). This means that although goal-oriented leadership has some important explanatory relevance in urban and regional development settings, at least where it is concerned with more formal and purposive attempts to gather, motivate, integrate, resource and guide the talents, abilities and capacities of individuals, groups and organisations (PONZINI and ROSSI, 2010; MENU, 2012; SOTARAUTA et al, 2012; BEER and CLOWER, 2013), the debate still continues around the extent of meaningful causal relationships between sub-national leadership and good and/or bad (or simply very mixed) local development outcomes. It appears that for the development of prosperous, fair and inclusive cities, a more distributed and locally adaptive form of leadership is required for knowledge creation, exploitation and spread (COLLINGE and GIBNEY, 2010; SOTARAUTA, et al, 2012). This is in the sense that whilst place provides context, place leadership supplements organisational and political accounts of leadership by paying greater attention to the fluid, contingent and dynamic conditions of social, economic and environmental change in cities and regions where rational/ technical planning intersects with meanings, values and relationships (DAVOUDI, 2012:438; MASSEY, 2005; HEALY, 2010: 23-48). Observation suggests that whilst cities and regions are organised in the conventional, political and legal sense, place leadership involves a more complex, large-scale social and economic co-production of activity comprising a range of power and resource-related, community and personal agendas and negotiations across organisations, disciplines and professions (GRINT, 2010). This implies the need for a 'much broader palette of both relational and technical leadership attributes [to] enable leaders to transcend their more familiar operating parameters' (GIBNEY, COPELAND and MURIE, 2009: 8). We can see this in the different expressions of

formal political, public service, business and community leadership, but how this shapes and, at the same time is shaped by, these sub-national settings, is much less well understood (GIBNEY, COPELAND and MURIE, 2009; COLLINGE and GIBNEY, 2010; SYDOW, LERCH, HUXHAM and HIBBERT, 2011; HAMBLETON and HOWARD, 2013). So our second research question is: *RQ2: How do different actors manage the social-spatial dynamics of knowledge-based development?*

Our third and final point relates to the dynamics of leadership both in and for the Smart City in the context of global changes to the nature of organizations and boundaries of identity (SANTOS and EISENHARDT, 2005). This is on the argued basis that whilst less conventional ways of leading are likely to be apparent, we still know little of the dynamics involved or how actors might mobilise knowledge differently across differing territories and scales. What we do know is that place leadership in the knowledge era prioritises the enabling and guiding of a more fluid, relational interaction and collaboration between a wider range of individuals, institutions, firms and other community level groups who are unlikely to share ideological views (MABEY and FREEMAN, 2010; KNORR-CETINA, 1999; ORLIKOWSKI, 2002; GIBNEY, COPELAND and MURIE, 2009; SOTARAUTA, 2014). GIBNEY, COPELAND and MURIE (2009) characterise such place leadership as seeking to regenerate, renew, and sustain the collaborative learning cycle; facilitating interdisciplinarity across the institutional boundaries, sub-territories and professional cultures in order to promote the development of innovation across the public and private domain; and ensuring the comprehensive engagement of local communities so that they can both contribute to and benefit fully from the outcomes (GIBNEY, COPELAND and MURIE, 2009, p.10). Important features here, are that leaders are judged less by prescribed status (i.e. who they are) and more by what they enact (i.e. what they do). That is, they operate in the more fluid conditions of the knowledge era by regularly passing the baton, to the extent that it is not always clear where leadership is emanating from (GRINT, 2005). In short, the significance of new knowledge canot be pre-determined but emerges from a mutual interaction between agency (what actors do) and structure (the organisation

or space in which they operate) (GRINT, 2010). Thus, the idea of the all-powerful, individual transformational leader to be found in the (functional) business leadership literature and reflecting earlier heroic and 'great man' leadership theories would appear to have little currency in the complex Smart City setting. The difference being, that with the Smart City setting, the intent is arguably more collective and publicly-minded with public-private-community collaborations, namely to help create a strong common purpose across a wide range of constituent groups, which it would be impossible to lead directly due to political diversity, technological diversity, community diversity and geographical spread. This brings to the fore, a greater concern with leadership purpose (KEMPSTER, JACKSON and CONROY, 2011). For example, an emphasis on co-created community-values leadership in urban and regional development settings may lead to leaders attempting to galvanise actors around their own totalizing ideology (BARLEY and KUNDA, 1992) and manipulating followers into compliant patterns of behaviour (MACINTYRE, 1985). Quite apart from these more sinister scenarios, it is highly unlikely that any-one individual will possess all the local knowledge necessary to lead. Instead it implies the need to enable the leadership in others on the basis that leadership of such complex spaces such as Smart Cities is more likely to involve a wider range of actors who do not share ideological views. This leads us to our third research question: *RQ 3: How do different actors mobilise knowledge exchange across multi-actor networks, comprising conflicting political agendas?*

METHODOLOGY

Conceptualising Place Leadership in the Knowledge Era

Objectives of research

RQ 1 Who are the range of actors and how do they interpret the knowledge they perceive as being critical to urban economic performance?

RQ 2 How do different actors manage the social-spatial dynamics of knowledge-based development?

RQ 3 How do different actors mobilise knowledge exchange across multi-actor networks, comprising conflicting political agendas?

Theoretical framework

The "tendency to ignore the complexities of the 'human touch' in social and economic progress" (COLLINGE and GIBNEY, 2010, p. 380) requires something of a more methodologically reflexive approach. Sensemaking (WEICK, 1995) has been used extensively in the policy sciences to show how multiple views can lead to differing outcomes (see FISCHER and FORRESTER, 1993 for an excellent collection of case studies using this approach). Rooted epistemologically in social constructivist ways of analysing the discursive patterning in what actors say and do, sensemaking is premised on the idea that actors use mental framing devices to make sense of the world around them and that this is shaped by their past professional training and/or experience. In our study, we use sensemaking to look for discursive patterns in actors' narratives about how they 'see' (interpret) and 'do' (enact) Smart City leadership differently. Linked to this approach, the use of ideal-types allows for a reliable comparison of this more subjectively-oriented experience with an objective hypothesis, based on the dynamics of how this might develop under ideal conditions (GERHARDT, 1994: 81). RILEY and HAWE, (2009) explain the value of this more methodologically reflexive process and how it might assist in analysing a complex phenomenon like Smart City leadership:-

> *"Understandings are needed that appreciate the complexity of the phenomenon, taking into account the sometimes vexed experiences of practitioners at the coalface of intervention implementation. In particular the practitioners' viewpoint may be*

> *critical for illuminating theories of action that could strengthen intervention effectiveness"* (RILEY and HAWE, 2009:2).

Broadly following an ideal-types approach (GERHARDT, 1994, RILEY AND HAWE, 2009) enabled the so-called 'abductive analyses' of individual Smart City leadership cases in context, producing 33 *individual case constructions* (each detailing 'what happened and when'). Subsequent "*case comparison* result[ed] in the emergence of patterns of similar cases" (GERHARDT 1994:98) thus forming the basis of the five *empirical types* of smart city leadership, which we describe in detail in the findings section.

Conceptual framework

Reviews of the place leadership literature, discussed earlier revealed five generic leitmotifs that were known to exist in knowledge-oriented place leadership endeavours. These were useful as guiding themes, in a process of 'coding down' in our analysis of place leadership in a Smart City context.

Table 1: Developing a conceptual framework for place leadership (about here)

Sample

Four (out of a possible fifteen) Smart Cities in England were identified with local authorities as lead partners who had formal policies in place to align their economic development aspirations to Smart City goals through 'actually existing' pilot projects. This was in line with current EU guidance on the mapping of Smart Cities (EU 2014) and our aim to respond to the call to examine the 'actually existing' smart city (SHELTON et al, 2015; VANOLO, 2014; MARCH and RIBERA-FUMAZ, 2014). Each city represented different geographies of scale, with populations ranging from under 500,000 to over 1 million, together with an array of smart urban and regional development projects

including a *'smart sustainable project'* (SITE A) involving the application of new digitally integrated energy management technologies by private firms in partnership with social housing residents, community organisations and schools; a *'smart green energy project'* (SITE B) bringing together innovation, skills and environmental resources from across the city to take advantage of new 'green markets' and grow more environmentally sustainable businesses; a *'smart community engagement project'* (SITE C) to test smart working around mobility, engagement and the environment through web-apps to enable community reporting and a crowd-sourcing device to allow members of the public to share feedback on their experience of new energy saving devices; and a *'smart health and social care project'* (SITE D) in the context of public service budget reductions. Key participants were sampled purposively from each of the four Smart City sites, ensuring that they covered a range of leaders operating in executive, director, top-manager, operational, manager, project and civic or community roles; and representing different private firms (multi-national enterprise, small and medium business and micro-business); public agencies (local authority, health, housing, education), and communities (organisations as well as residents). Interviews were 60-90 minutes in duration and sought to elicit details about the nature of different actors' involvement in the Smart City project; their understanding of the aims and goals of the Smart City project and their experience of how the project was organised and managed in order to generate, share and exploit knowledge in the place-based context of Smart Cities.

FINDINGS

Making Sense of Place Leadership in England's Smart Cities

The data reported draws on theoretically and empirically derived analysis using sensemaking and ideal-types to reveal stable patterns in the discursive language that actors' used to describe how they saw (interpreted) and did (enacted) Smart City leadership across the 4 cities in England. Five

empirically derived varieties of Smart City leadership are reported (*themes are shown in italics*), each distinguishable by shared interpretations of the type of knowledge perceived to be critical in terms of urban economic performance and how knowledge was mobilised through leadership in supporting collaborative working; blended learning; complex problem-solving; distributed leadership and power-sharing. In keeping with a sensemaking approach, analytical themes are represented discursively in the shared language of actors. In maintaining the anonymity of the sites and individual cases involved, reference to the four sites and the 33 cases involved is made alphanumerically throughout (e.g. Site A, Case 4, reads A4).

1. *Techno-environmental leadership – Integrating sectors to build long-range, strategic infrastructure projects*

Techno-environmental leaders (n=12) were typically titular in nature, operating in Senior Executive roles within *public agencies and private firms* (A1, A2, B1, B2, B3, B4, B5, B6, C6, C8, D1, D6) and driven by a shared *public interest* in securing *multi-vocal support* and capital investment for *long-range, strategic partnerships* such as reducing the carbon footprint (B4); building energy sustainability (A3) or tackling the digital divide (D1). This was mobilised by a collaborative atmosphere which focused spatially on 'place-shaping' and relationally on building a "strong culture of trust" (A3, B4, D1) across "the world of practitioners" (C8); "around the world" (D1) and "…across the city" (A1) by "*channelling innovation* across a disparate cultural base' (D1):-

> "There's a branding thing around us and...we've got the biggest cluster of life science and medical technology companies in [name of city], but we're not known as that...people still think of us as car and automotive really" (D1, Senior Executive, Public Agency).

This *experimental approach* to complex problem solving, whilst "allow[ing] time to make new discoveries" (A1), was tempered by the use of positional power, in order to protect project, product

and process related learning, on the basis that 'some projects will not succeed' (D1) and that leaders will have to "stand in the firing line…if the project fails' (B1, B5):-

> "The leaders' already committed', I talk about the agenda, big people…I'm travelling with the kings pass'…we're at the forefront of that" (D1, Senior Executive, Public Agency).

2. *Techno-economic leadership: Mobilising business and people to use new technology*

Techno-economic leaders (n=5) were also titular in nature and operating in Senior Management roles within *public agencies and private firms* (A4, B7, B8, B11, D3) but this was through involvement more locally, with Smart City boards (rather than via strategic partnerships). These types shared a *personal (rather than a public) interest* (i.e. "I'm interested in the personal gain for my company" (D3)) in integrating knowledge around engineering management projects, such as by helping businesses and people to secure the benefits from using new technologies (B7).

Leadership was enacted here by attempts to *improve the data quality* in the sourcing of new *projects to source new technology/engineering solutions* such as: "energy network management" (A4); "facilitating the synergy of facilities and services" (B8); and "improving the usability of NHS/ Social Care data" (D3). Here, efforts to build a collaborative atmosphere were more "*conscious of organisational hierarchies"* (than rooted in partnership) because of a techno-engineering concern with managing the commercial supplier or client relationship" (A4).

> "So the NHS provide us with their data from…staff records and we create graphs that are shared on-line, obviously password protected. [this is] shared on-line with appropriate people which show things like sickness absence rates and benchmark" (D3, Company Director, Private Firm)

In terms of leadership for complex problem solving, this was through more *formal "meetings* focused on bid development" (D3) (in the case of private firms) or a scrutiny function (in the case of public agencies) ensuring "that the project works according to council standards, laws and processes or that funding is used appropriately" (B7). This heightened sensitivity to organisational culture and hierarchy might explain the adoption of a gentler *learning by doing approach* to blended learning *(A4, D3)* across the product as well as the project process, as this Director from a private firm explains:-

> "They let me [private firm] do a presentation to all their people [public agency], and they were very nice about it…but it hasn't moved me forward…they're all kind of like, 'oh well, you know…it's a bit difficult for us to recommend things'…they're all terribly worried…about…doing something out of turn…it's a sort of anxiety that public [agency] officials have about being seen to help or promote any particular business" (D3, Director, Private Firm).

3. *Techno-participatory leadership – Connecting local residents to new technologies*

Techno-participatory leaders (n=6) comprised actors at an officer/ manager level within *private firms, public agencies and community agencies* (A6, A7, A8, B9, C5, D4) who saw Smart Cities as a way of connecting residents to new technologies by communicating the benefits of *engaging with technological change.* This was on the basis of the perceived wider social benefits that could be gained, such as well-being or employability:-

> "It's the engagement of the participants and getting them to understand how the project works" (A7, Community Engagement Officer, Public Agency):-

> "We're providing opportunities for residents to have access to some quite complex really intelligent technology, - the community are absolutely vital, residents are involved in

everything that we do. For us, it's not about bringing a solution to a place, handing it over and then walking away. It's about working with people to identify what their needs are" (A6, Officer, Community Agency).

"We had some very basic details of providers, operators out there that were on different systems, [but] we didn't actually have a core system" (D4, Manager, Public Agency).

This more informal approach to "connecting organisations in a different way" (C1) represented something of a *curating approach* to complex problem solving, as expressed in language such as "The devils in the detail" (B9); "it sounds pretty basic but…" (D4) or "old people don't do IT" (D4). This resulted in a *co-production approach* to blended learning, aided by the building of trust and ready communication which was considered essential to maintaining good community relations in the longer term and lasted beyond political cycles. However, tensions arose around the sharing of power with some actors bemoaning the need of some private firms to exert power through maintaining a knowledge hierarchy, which clashed with the wider community's need for a *non-hierarchical view* of partners' roles and contributions (A8).

4. *Techno-social leadership – Brokering to share the learning from new technology projects*

Relatively rare in this sample (n=3), but important in that they were operating in the spaces between commercial, social and institutional parties in order to break down professional silos, were techno-social types, comprising *universities* in partnership with public agencies (A5, C7, D2). These actors could be distinguished discursively from other types, by their *professional interest* (rather than public or personal interest), not only to disseminate the learning from new technology projects (A5) but with a view to actively tackling the professional silos that they saw existed (C7, D2). This was rooted in their past experience of working across disciplines and of having to balance the needs of

very different stakeholders who did not share an ideological view, as this manager from a public agency below describes:-

> "It's very interesting actually" [that] Trusts and universities don't talk to each other" (D2, Manager, Public Agency).

Maintaining a collaborative atmosphere here was with a view to working towards a 'win-win' situation between the commercial partner's business, market and technology priorities and the wider urban (social) regeneration agendas of the city (i.e. 'chatting to him'/ 'people I knew'/ 'a few of us talked to him' (D2). It followed that space for maintaining such complex problem solving was enacted through *brokering* by challenging assumptions and dealing with "challenging relationships" (D2) ("it was hard work but we got through it" (D2)). It might also explain the more performative approach to *leadership identity* (i.e. "that was the act of leadership" (A5); "we had to get our act together" (C7)). *Sensemaking* was also evident as a leadership tool in understanding what was going on ("this is NOT what the NHS should be about" (D2) and "we're trying to translate what's there in practice") (D2).

5. *Techno-community leadership – Developing bottom-up technology & engineering solutions for market*

Techno-community types comprised a broad mix of titular leaders and informal leaders within *private firms, public agencies, community agencies as well as universities* who were motivated equally by a commercial as well as a social interest in developing workable/ replicable technology and/or engineering solutions for market through *informal/ bottom up processes.* One Director from a public agency described how this involved "a very different mix of people" (C1), another, from a community agency agreed, by stating how:-

> "It's about creating a community that will enable...a body of practice to exist. So its creating an audience...and a certain flow from people who have tangential interest [in] becoming more engaged (C2, Manager, Community Agency)

Typical projects included a large private sector partner working together with a public agency and local residents to gather low income residents' experience of green energy; a public/ private/community sector project to encourage responsible *hacking*[i]; a community partner working in collaboration with private firms and public agencies to licence a network of community reporters; and a university-led project using crowdsourcing technology to gather residents' experiences and challenge assumptions about the benefits of adopting heating technologies and thermal insulation:

> "[we're trying to develop]…a hackspace - it's a kind of community-run space where people can do, particularly digital, um electronic and hardware and kind of manufacturing projects" (C1, Director, Community Agency).

Techno-community types' more pragmatic approach to collaborating involved adopting a much *looser-coupling* of the formal expressions of interests that described the involvement of other leadership types in smart city projects. This meant that for many, [the project] "was never explicitly part of Smart Cities" (C1) which led to some quite different approaches to complex problem-solving, as this University actor described:

> "We're not trying to do technocratic solutions...we're trying to look at how people...can use the Smart City concept to achieve something ..and we felt that the trends that are going on in the information society...one is fragmentation...and decentralisation, but on the other hand these peer to peer channels have really mushroomed...so we thought, we'll take this idea of peer reviews and crowd sourcing and we apply it to heating and insulation (C3, Project Manager, University).

However, this seemingly masked some difficult attempts to share power, particularly with public agencies, as in the case below, where one actor talked about a 'mafia' type relationship developing with so called 'policy elites' in their city, who were perceived to be using their positional power over local resources to control what gets done in terms of urban development and ultimately, who benefits:-

> "The policy elites in [name of town] are very insular and they have protected themselves from any kind of collaboration and out…outside influence...as a university, we couldn't do anything about that….you can't own these spaces because as soon as someone starts to own them, it becomes about the person rather than the event" (C1, Director, Community Agency).

DISCUSSION

RQ 1 Who are the range of actors and how do they interpret the knowledge they perceive as being critical to urban economic performance?

Having revealed patterns in the way that actors interpret and enact leadership in different contexts, our first finding responds to claims about the need to better understand how actors frame and articulate the knowledge necessary for achieving constructive advantage in the 'new' place-leadership era (NONAKA and TAKEUCHI, 2011; HOWELLS, 2002; COOKE and LEYDESDORFF, 2003). This suggests that some of the variety we see in smart city leadership contexts might be partly explained by perceived differences in the perception of the leadership purpose in Smart Cities (KEMPSTER, JACKSON and CONROY, 2011). For instance, with techno-environmental types, this purpose was evidently bound up in a public interest in developing

long-range, strategic, technology-led projects across sectors. Seemingly behaving like "Eco-leaders" (WESTERN 2013) in leading by facilitating the whole system, these leaders need to make space for leadership to flourish in order to address the complex and multifarious types of social and environmental challenges posed. Techno-economic types, on the other hand, driven by a more commercial need to exploit new gaps in the market for their firm or cause, appear to behave more like "Controllers" (WESTERN 2013) where the leader can become embroiled in seeking to maximize efficiency through a more administrative (UHL BEIN 2007) and operational and strategic type of management (GIBNEY, COPELAND and MURIE, 2009). With the techno-social type, the value of capturing and disseminating the knowledge and learning embedded in the 'doing of the project', would appear to be driven more by a brokering desire to stimulate professional interest in how commercial, social and institutional partners might interact to reduce professional silos around learning and development. This is in complete contrast to the techno-participatory type whose facilitative approach to engaging communities is more in keeping with UHL-BEIN et al's (2007) description of 'enabling leadership' on the basis that it "structures and enables conditions to address problem solving, adaptability and learning" (p.299). This is similar (in form) but different (in purpose) to the techno-community type, whose motivation was to produce new, community-based knowledge for commercial as well as social gain by using a more informal, bottom-up approach. These latter three types have some correspondence with the "Therapist" and "Messiah" discourses of leadership (WESTERN, 2013) where both are people-oriented, with the former relying on giving followers psychological support and building team-work and the latter emphasising a shared vision but through a strong ethos and loyalty to the leader. Our data suggest that, depending on the individual leaders concerned, one or other of these discourses dominated to bring about ethical and sustainable leadership solutions.

RQ 2 How do different actors manage the social-spatial dynamics of knowledge-based development?

Our second finding correlates with the idea that although leadership is often seen as the vehicle by which knowledge-oriented endeavours to build constructive advantage are realised (UHL-BEIN 2007), there has been little effort to explore what these new place-based models of leadership actually look like in practice (LIDDLE, 2010*).* On the basis that place povides important context for such study, it has thus far proven challenging to gather knowledge from mulifarious sources, not to mention how it is exploited for operational purposes (to the ultimate benefit of local systems such as health, social care, energy and transport) and develop new products (e.g. from technology firms) and new services (e.g. digital, health). What we saw in the study, was that by being methodologically reflexive using sensemaking and ideal types, it is possible to adopt a more pluralistic approach by analysing how a range of leaders sought to create different atmospheres which are conducive to them pursuing their particular version of the smart city reality. Hence, for techno-environmental leadership types, in order for them to tackle the complex, multi-faceted 'wicked' issues they seemingly report, they needed to be socially-oriented, transformational and leader-centric in approach so that they were individually accountable (i.e. 'front-facing') but at the same time able to work *relationally* across sectors to connect up competing and disparate agendas (KNORR-CETINA, 1995) and *integrate* different interests over the longer term through collaboration (KROGH, ICHIJO & NONAKA 2000). This collaborative atmosphere ties in with WESTERN's, (2013) account of the Eco-leader's twin role in "looking both ways: internally at the organizational network and externally at the ecosystem of the wider world…making holistic connections enable emergent capacity and adaptivity" (2013, p. 283). In contrast, and true to Controller leadership discourse, techno-economic leadership is more akin to exploiting market opportunities (albeit for commercial as well as social gain), and so could be witnessed drawing on more conventional, some might argue, transactional and managerialist approaches (CLARKE and NEWMAN, 1997). This is often the case with more senior

individuals holding processual power and operating in more hierarchical top-down organisational contexts. Techno-social leadership, as brokers and enablers of entrenched professional silos, saw themselves as offering an important mechanism in tackling the 'fragmented policy' which is known to lead to policy failure in urban deprived areas (GIBNEY, COPELAND and MURIE, 2009, GILBERT, 2010). This, as we saw in the cases, was by working in the spaces between agents to stimulate alliances, people, ideas and technology (GRINT, 2005). This approach is in direct contrast, to the techno-participatory leadership types, who, as middle managers often reported being better-placed to deal with organisational governance issues and accessing resources because of their location at the service-level organisationally (JACQUES, 1989, in UHL-BEIN et al, 2007). Linked to this, but also different in terms of its more 'bottom-up' purpose, is the techno-community type whose leadership desires to secure workable/ replicable technology and engineering solutions for market, when invoking the Therapist discourse, are to motivate and support the actors around them, such that they self-actualise and engage in the ethical good of the place. These findings link to SOTARAUTA et al's (2012) idea that by better understanding the importance of place in terms of innovation systems, social capital and regional clusters and *where* the deadlocks occur, we can begin to ascertain *what conditions are required* to create the capacity to take action (SYDOW et al, 2011 in: MENU, 2012).

RQ 3 How do different actors mobilise knowledge exchange across multi-actor networks, comprising conflicting political agendas?

Our third and final point relates to the notion that whilst we understand that less conventional ways of leading are likely to be apparent in place-based leadership like Smart Cities, we still know little of how actors mobilise knowledge differently across differing territories and scales. This required some consideration of Smart Cities in the context of global changes to the nature of organisations (SANTOS and EISENHART, 2005). As we can see in the cases, techno-environmental types' need for appropriate resourcing to build strategic partnerships, sometimes led them to use their positional

power in order to sustain them in the longer term in building their particular brand of place (MABEY and FREEMAN 2010). However, in keeping with GRINT (2010), this also brought tensions where, at the same time as cultivating inter-dependence and autonomy through being experimental, this type of leadership needs to simultaneously manage, more formally, any legal and fiscal responsibilities (as in the case of 'State aid notification' see quote below) which typically longer term, more strategic, infrastructure projects would bring about:-

> "State aid is where the European Commission would investigate any public authority funded programme that may well distort the market by purchasing products and services from one supplier over another" (C7)

Hence, as WESTERN, (2013) notes of Eco-Leadership, where the ecosystem requires resources and nurturing to self-regulate, our findings suggest that this appears subtly different from the 'all powerful' transformational leader in that it DOES require the use of positional power in order to sustain this. The consequence of this of course is however, felt very deeply by other actors, who share a different purpose of the Smart City leadership endeavour. Examples might include techno-economic types' experience of having to fight to secure their place at the decision making table when seeking procurement opportunities monopolised by larger players. Another might include techno-social types' experience of needing to broker professional groups, jealously guarding their professional expertise (on the basis of perceiving to already have all of the technological solutions already to hand). Similarly with, techno-participatory types, in aiding the process of co-production with residents in their use of new technologies, on the basis that this will assist in tackling the longstanding problem of urban digital inequalities and associated social disconnection (HOLLANDS, 2008: 314; see also GILBERT, 2010). Again WESTERN's (2013) description of Messiah discourse is instructive here, because while some such leaders retain a clear ethical stance, others can be exploitative because of being driven by more commercially rather than socially

oriented goals. This latter problem makes understanding the role that these different types play especially important given what we know about the challenges facing communities who are struggling to manage ongoing disinvestment, decline and the loss of skills that follows industrial decline (ARMSTRONG, 2006; BURFITT & FERRARI, 2007; GILBERT, 2010).

CONCLUSION

There is an argument that unprecedented technological and economic changes have led to substantial shifts in the way social institutions and places, typified by the sub-national urban space, are led. Well established organizational forms like bureaucracy are declining in their influence and relevance. While often criticized as conservative and restrictive, some herald the weakening of positive bureaucratic values like accountability, loyalty and rule-governed action as a potential loss (DU GAY, 2000). But the more ambiguous, fragmented and structurally diverse settings, like that of a Smart City, are populated by multiple actors and agencies (government representatives, pressure groups, and interest and consumer groups). While this calls for a more dynamic and democratic leadership it can all too easily lead to the unhealthy pursuit of self- or party-interest or a market-driven agenda, and all of this weaving between complex legislation, regulation and policy advice. Distributed knowledge-oriented leadership appears to offer greater participation, but may in fact disguise institutionalised power inequalities, as we have seen (BOLDENH et al, 2006). At first sight then, something of a vacuum yawns between the two and the idea of an ethically-driven leadership of urban spaces would seem to be under threat. However, the converse to threat is opportunity and there is some optimism, supported by the findings in this paper, to suggest that a fresh understanding of place leadership in the Smart City is required; an understanding that embraces the political and contested nature of contemporary urban and regional spaces. Rather than relying on a single leadership approach, we have found evidence, in UK cities at least, of a range of leadership types operating in the Smart City context, each with defining characteristics and pertinence to different

urban settings. Further credence is given to these types by noting their correspondence to the dominant discourses of leadership in mainstream leadership literature (WESTERN, 2013, UHL BEIN, MARION and McKELVEY 2007, CLARKE and NEWMAN, 1997; CLEGG, 1990; HOOD et al, 1999, MARCH & RIBERA-FUMAZ 2014). Hence, it seems that it is indeed possible to cultivate multi-level and shared leadership which is explicitly attuned to political strategies, to balancing power among competing vested interests and which relies upon stealth, negotiation, relationship management and bottom-up support to effect local and regional change. That this avowedly 'political leadership' (CLARKE and BUTCHER, 2009) of Smart Cities might provide such a middle route (i.e. by eschewing the twin dangers of rational, unitary, managerialist solutions on the one hand and self-serving, short-term commercial expediency on the other), requires further investigation on an international scale to highlight shared characteristics and learning and development needs.

NOTES

[i] Modern day 'hackers' emerged out of the artificial intelligence labs in MIT in the 1960's (known as ARPANET) and refer to individuals or groups of individuals who deliberately look for vulnerabilities in ICT systems with a view to fixing them. This approach is increasingly being used by public agencies (such as 'NHS hackdays') to highlighting flaws in the system or bring dispersed data together to aid service delivery. The concept of 'messing' has its roots in a later attempts to find free ways of making long distance 'phone calls, otherwise known as 'phone phreaking'.

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Table 1: Developing a conceptual framework for place leadership

1. **Collaborative atmosphere** – The idea that place leadership is *multifarious, dynamic and polyvocal* is rooted in the notion that it stimulates a positive collaborative working atmosphere that supports the creation and spread of knowledge (KROGH, ICHIJO and NONAKA 2000) across individuals, institutions, firms and other community level groups (KNORR-CETINA, 1995; ORLIKOWSKI, 2002; GIBNEY, COPELAND and MURIE 2010; SOTARAUTA, 2016).
2. **Blending learning** – The idea that effective place leadership *promotes and sustains learning and innovation* is rooted in the notion that it promotes a blending of different types of knowledge and expertise from different sources across boundaries and themes (GIBNEY, COPELAND and MURIE, 2009; GIBNEY 2012; SOTARAUTA, 2016).
3. **Allowing space for complex problem-solving**– The idea that place leadership *traverses power, resource and personal interests* is rooted in the notion that no single organisation has all the answers and that space is required to bring together traditional actors with more fluid/ self-organising groups (GIBNEY, COPELAND and MURIE 2009; COLLINGE, GIBNEY AND MABEY 2012; HAMBLETON 2015; SOTARAUTA 2016).
4. **Distributed Leadership** – The idea that place leadership is *fluid and distributed* within and across networks is rooted in the notion that leadership moves around as participants shift between leading and following (SOTARAUTA 2016; see also KROGH, NONAKA, RACHSTEINER 2012) and is more of a social process, working in the spaces between agents to stimulate alliances, people, ideas and technology (GRINT 2005, DAVOUDI, 2012:438; MASSEY, 2005; HEALY, 2010: 23-48).
5. **Power-sharing** – The idea that place leadership is *co-creative and participatory* is rooted in the idea that it allows for complex socio-economic and environmental problems to be tackled by empowering diverse actors to act across territories and scales (GIBNEY, COPELAND and MURIE 2009; SOTARAUTA, 2016).