ACCOUNTING FOR SMART CITIZEN KNOWLEDGE IN CONTROVERSIAL REGIONAL DECISION-MAKING PROCESSES?

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INTRODUCTION

There is an increasing realisation that contemporary cities are under ever increasing stress from a variety of sources, from population growth and rapid urbanisation, to sustainability, security and their social functioning. The very magnitude of these problems that Ackoff (1999) referred to as ‘multidisciplinary messes’ demands co-ordinated collective action within cities. Partly in response to this need for co-ordinated collective action, we have seen increasing policy interest in the concept of “smart cities” to connect and bind citizens together to stimulate these collective activities. Still present but far more implicit in these discourses have the emerging idea of the “smart citizen”, as a key agent and possessor of particular kinds of useful knowledge with the wherewithal to participate in these collective solutions. Effective smart city solutions therefore should according to this approach seek to join up these citizen knowledges and make them accessible to policy-makers in their own urban deliberations and planning.

The smart citizen notion brings back questions of citizen participation in the resolution of some of these challenges, as might be envisaged in efforts to reduce of a city's environmental (waste) footprint. But despite the increasingly ubiquity of “smart cities” and “smart citizens”, it is hard to perceive how this differs from existing forms of participation and consultation. The engineering demands and pressures that these infrastructures raise can have the effect of making the smart citizen a passive recipient of these new technology opportunities rather than smartly articulating whether these technologies even make sense: this raises the spectre of the “citizen” almost being rendered invisible behind a dense array of new technology investments.

This can be illustrated with the way that the “smart citizen” is conceived of around smart grids technologies within efforts to secure urban energy transitions and hence urban sustainability. Common to a range of technological interventions is a new notion of a smart meter user as a ‘prosumer’, that a citizen simultaneously produces and consumes electricity, and ultimately derives personal benefits from actively participating in European energy markets. But a more imminent urban energy challenge is that of energy insecurity, with far more potential to save energy through old-fashioned insulation activities than through innovative prosumer technologies. In seeking to promote smart grids, policy-makers may actually potentially aggravate this issue of energy poverty,
and create another dimension to the multiple overlapping problems that constitute social exclusion (Byrne, 1999).

Thus we see a risk here in the emerging smart city discourse: there is a realisation of the potential within their citizens to help improve the quality of decision-making. But pragmatic pressures restrict those citizen knowledges’ uptake and use, potentially ultimately leading to ‘dumb urban policy-making in smart city environments’, and exacerbating social exclusion. We therefore ask the question *What are the barriers blocking absorption of citizen knowledge by urban policy-making communities in controversial regional planning questions?* To answer this question, we take as our example a case from the Netherlands where citizens held knowledge a decade ago that would have improved the quality of a decision that has led to a range of overlooked environmental problems. By understanding how citizens as “non-experts” can develop expert knowledge that becomes embedded in regional policy-making communities, we hope to assist policy-makers in their efforts to make better use of that citizen knowledge.

**CITIZEN KNOWLEDGE IN SMART URBAN POLICY NETWORKS**

To transcend this issue of smart cities as a purely technological construct, we situate them in a literature of smart policy-making emerging around governance in networks. Although the term governance has been so widely adopted that it now appears to encompass simultaneously everything and hence lack analytic value, we still believe that in its original form it envisages a clear potential role for “smart citizens”. Marsh & Rhodes (1992) advanced the notion of governance within their work on policy networks, highlighting how in the context of increasingly complex societies, governments were no longer exclusively capable of developing optimal policy proposals in isolation from societal stakeholders. There was such a wide range of knowledge salient to those problems, diffused through so many different actors, that it was impossible to solve those problems without co-ordinating and directing the flow of knowledge to solve the problems.

Rhodes (1997) advanced this idea of governance in networks as an optimum means of decision-making as the most effective way of accessing the diversity of available knowledge. His ideal-type governance involves multiple network relationships where private, non-profit, individuals as well as organizations all interact developing policies for and delivering public services. From this perspective the state’s role should focus on producing policies, set goals, ensuring transparency and public accountability. Rhodes (1997) regards good governance as a system supporting new public management, where, no actor should have a monopoly over information and expertise.

Policy-makers seek to incentivise policy network participants to come to common agreements for example by rewarding that agreement with government contractual funding. For city-regional
governance, policy-makers increasingly become embedded in network relationships. These are very useful for the policy makes because they provide access to different knowledgeable actors’ knowledge regarding urban and regional policy problems. Smart citizens in theory can contribute their knowledge alongside other experts in exchanges leading to consensus positions and policy-choice selection. Indeed, given the fact that smart citizens would be expected to have detailed context-specific knowledge without which the social dimensions to these problems would be unaddressable, urban governance networks would seem to demand the involvement of smart citizens.

THE STRANGE DISAPPEARANCE OF THE SMART CITIZEN

Alongside this demand for citizen expert input, we cannot help but notice the recent rise of disruptive citizen movements across Europe that have sought to foreground their own knowledges in response to problematic urban policy choices. Perhaps most prominent have been a series of high-profile urban occupations, such as the Indignados movement in Spain, Nuit Debout protesting social labour market policies, or a number of high profile university occupations in the UK and the Netherlands. Elsewhere in the Netherlands there have been large scale mobilisations such as “Nee tegen AZC” (Dutch refusal against asylum seekers), or the “Groninger Bodem Beweging” (Dutch anti-earthquakes movement) which underscore this recent citizens’ dissatisfaction about their exclusion from participating in these policy networks.

This suggests that these policy communities are potentially achieving suboptimal outcomes, just as much as if they were to ignore the (non-)expert knowledge from more central urban actors such as transport companies, social landlords or large landowners. If policy makers aim to make cities truly “smart”, they also need to use all smart knowledge resources they possess more efficiently, including “smart citizens”. We argue there is a need for a new approach to optimizing urban policy-making by better involving citizen (smart) knowledge in more formal and formalized urban governance processes. In this, we are inspired by the ideas of Henri Lefebvre (2008) where he advances the idea of the right to the city as an appropriate response to recent urban challenges generated by issues such as population growth, rapid urbanization and capitalism. He contends that this right to the city “can only be formulated as a transformed and renewed right to urban life” (2008, p.35) and that “[the] right to the city [would be] far more than a matter of individual liberty to access urban resources: it [would be] a right to change ourselves by changing the city” (2008, p.23). In this we see him referring to individuals’ capacity to engage, challenge and change existing orders and notions of rights, and in particular to contest technocratic policy processes that systematically downgrade and ignore citizens’ interests.
Liberal democratic societies involve very particular kinds of representation that allow for a strong division to be made between collective representatives and citizens. Peak collective organisations speak for individuals by aggregating up to joint voices, whether unions, political parties, employers’ confederations, professional bodies, employer associations, or churches. But at the same time, an increasing fragmentation within societies has seen these aggregating bodies lose their mass membership subscriptions, with the result observed by Davidson & Iveson (2014) that “self-described democracies are increasingly democratic in name only” (p.1). From our perspective, we take from Lefebvre (2008) the emphasis of the urgency of renewing democratic governance to reflect people’s desire for governments that reflect their wishes and advance their interests, rather than a revolutionary impulse to create whole new social systems.

The key challenge for democratic societies with this hollowing out of their democratic structures has been the emergence of what can be considered as a kind of expert technocracy in its place. In the perspective of this post-political age (cf. Žižek, 1999), big political disagreements between left and right have been reduced to questions of pragmatism regarding the best pathways towards particular desirable end goals, such as sustainability, inclusion, resilience or security (Davidson & Iveson, 2014, p. 3). The smart city challenge becomes framed as an indisputably good end goal, where policymakers (expert managers) take choices between alternative perspectives informed - or at least validated - by external experts, “learned professors … who can really understand the complexities … [who] must propose suitable solutions to the problem” (Davidson & Iveson, p. 6).

Other, different kinds of actors’ (non-expert) knowledge, such as citizens, are increasingly relegated to a late stage of the process, to engagement, consultation, and acceptance-building (Healey, 2008; Bevir & Rhodes, 2010). The missing citizen problem can be therefore framed as a process of closure within these manager/ adviser expertise circuits where citizens’ expertise is ignored in constructing alternative forms of smart urbanism (Brenner, et al, 2012; Isenhour, 2011). Effective smart city governance therefore demands policy-makers to understand the ways in which citizens can have expertise, and how that then legitimates their voices to be heard in these smart urban policy networks.

The knowledge of experts tends to be regarded as being universal and externally validated, whilst that of lay citizens as being highly specific and context dependent. In Table 1 below, we identify five kinds of knowledge processes which may bestow a particular validity on particular kinds of expert whilst simultaneously framing lay citizens as non-expert, and their knowledge as being inadmissible within these wider policy circuits. This framework in turn provides a basis for policy makers to better place citizen knowledge in perspective as part of a more informed judgment about its applicability to particular smart citizen governance situations.
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<th>‘Expert’</th>
<th>‘Lay citizen’</th>
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<td><strong>Peer recognition</strong></td>
<td>Valued and appreciated in wider communities of peers, as demonstrated by publications, esteem indicators, conference presentations, Commission memberships.</td>
<td>Valued and appreciated in your own community as providing insights into particular community problems and articulating desires and wishes of community for urban futures.</td>
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<td><strong>Professional indemnity</strong></td>
<td>A policy-maker under public law is taking a reasonable decision by drawing on the advice of experts, and can point to their expertise to help guard against uncertainty.</td>
<td>Citizen knowledge is not legally recognised as being responsible as basis for future decision, and its use is dictated by primarily political choices/ consideration.</td>
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<td><strong>Transferability of knowledge to other situations</strong></td>
<td>Expert knowledge is framed as being more widely applicable, with transparency to allow its use by others.</td>
<td>Lay citizen knowledge is produced through inductive learning in a particular context and does not seek connections with elsewhere.</td>
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<td><strong>Accreditation</strong></td>
<td>The expertise of the expert is validated by formal bodies, such as examination authorities, learned, professional societies and universities.</td>
<td>The lay citizen has acquired their knowledge through a range of non-accredited trajectories or those only weakly related to the expertise.</td>
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<td><strong>Methodological rigour</strong></td>
<td>There is an accepted methodology with a rigour constructed through external validation that is evident and possibly traceable.</td>
<td>Knowledge is constructed in inductive and emergent ways through collective social learning processes with an evolving methodology appropriate to the particular urban threat.</td>
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The Case of Wastewater Injection in North East Twente

To explore the validity of citizen knowledge we explore the role of citizen knowledge in a controversial regional case of wastewater injections in former gas fields in North-East Twente, the Netherlands. Twente is an old industrial region within the Overijssel province in the eastern Netherlands. In the mid 2000s, citizens tried to persuade government that wastewater injections were environmentally irresponsible and would lead to environmental problems that indeed emerged a decade later sparking a policy-maker panic. With citizen knowledge rejected a decade ago, we contend that the policy process would have been more ‘smart’ to at least seriously consider that knowledge rather than simply dismissing it out of hand as non-expert. We do not make a judgement on which knowledge holder was correct, merely noting the missed chance to prevent environmental problems. To do this, we provide a case study of the way that citizens constructed their knowledge and explore the extent to which that lay knowledge could also be considered as ‘expert’.

What we have presented as a narrative of knowledge production we have retrospectively constructed via fieldwork. We firstly became aware of the issue since mid-2014, when it appeared with increasing frequency in a local newspaper. In December 2014, after a local TV station ran a three-part series highlighting the threats and dangers of oil water injection, regional policy-makers hastened to deal with the problem and where possible to build on the citizen expertise that had built up in the preceding period. We searched local traditional and social media to identify the key actors in this process, and undertook 11 interviews with those involved in the process. We also attended a public meeting, question and answer session on 23rd November 2015 held by a Commission jointly established between two Provinces to re-evaluate the historical decision to permit injection and observed the discussion of this Commission’s interim report by the provincial parliament in March 2016.

We have interviewed citizens-experts, local- and provincial politicians, journalists and citizens with various connections to the case on the way that knowledge was created, circulated and their incorporated or not within various kinds of political and policy process. In what follows, we have combined the interviewees and the analysis of the citizens knowledge dossier, the governmental- and political documents, and the media files to provide an overview of ways in which citizen knowledge was created in this case. Using the framework developed in the previous section we are able to analyse the extent to which it can be considered as expertise.

The Social Life of Expert Citizen Knowledge

In 2004, the Dutch Oil Company announced in a regional newspaper its plans to start pumping oil in the province of Drenthe, in the Eastern part of the Netherlands, using a steam extraction method
which produced polluted water as a by-product. Since the province of Drenthe was unwilling to store the waste water, which was unsuitable for reintroduction in domestic supplies, the Oil Company chose Twente as a wastewater storage location because of its near exhausted gas fields. These gas fields were originally connected by gas transport pipelines to the Drenthe province, and it was that extant pipe network that would greatly facilitating extraction, transport and wastewater injection. Based on a ‘tried-and-tested’ methodology (the C2 approach), comparing different options for technical, financial and environmental suitability, an expert-consultant declared that wastewater injection in the gas fields was the best disposal method. However, the wastewater injection method required a number of permits, both for zoning and for due diligence. The latter required an environmental impact assessment in 2007, which a Twente citizen challenged on the grounds of the presence of the chemical pollution in the water, thereby questioning the safeness of injecting in these gas fields, as the EIA was claiming. However, these objections and questions were ignored by the licensing commission. The presence of chemicals in the water, however, triggered the citizen to dig a little deeper to ensure that the mistakes made in a previous environmental disaster, the “Vasse Tar Pits”, were not about to be repeated.

Following the EIA, the Dutch Oil Company and governmental bodies released further information regarding the gas fields. At the same time, the citizen approached a contact with specialist chemistry knowledge to further analyse the various environmental claims made to date. Together they wrote a small literature review on the safety of injection; to gather more knowledge on the (side-)effects of the wastewater on the Twente geology, they performed a comparative analysis and some practical experiments. Based on this, they were able to draw a map to visualize the underground geology as well as the wastewater injection. They identified that the gas fields were not deeper than 1 km below the surface and much closer to the surface than the 3 km distance which the EIA claimed. The citizen decided pass this collection of information as a “dossier” through to the local provincial politicians at the time responsible for licensing the injection activity.

In 2010, a group of local citizens worried about the impact of the injections started a lawsuit with the Council of State to challenge injections. The local group nominated the expert citizen, who they regarded as an expert on the issue, to present his results and findings (the citizen knowledge) in court. However, the appeal was declared inadmissible by the judge. In 2011, the local citizen lodged a protest against the spatial permit for placing the required pumps where the local authorities were the licensing authorities. This provided him once more with the opportunity to present his results and findings, thereby comparing the regular expert knowledge with his own citizen knowledge. This time he was able to share his dossier with local councillors, however, it was read by not more than a few
politicians who seemed to lack technical understanding of the issue, and therefore chose to trust the Oil Company’s expert knowledge ahead of the citizen knowledge.

The citizen continued to seek external validation for his knowledge via experts from local mining companies, consultancies and universities to get feedback on his knowledge dossier. Through these efforts, a journalist from the provincial television station became aware of the citizen (and the wastewater injection story) in 2014. The journalist produced three news reports on the issue involving formal experts, a local politician and the two citizens. Following these reports, the political weather changed towards one of greater scepticism. Just two months later, four municipality councils and the provincial council requested independent research on wastewater injection’s effects. When a number of environmental issues potentially related to the wastewater injections arose in 2015, the scepticism towards corporate experts grew and consequently demanded a more political approach to solve the issue rather than technocratic.

Closer inspections were performed by politicians and the Dutch Oil Company showing leakages in some local houses’ exterior walls and their subsidence. At the same time, an activist group was founded by a group of local citizens to stop the wastewater injections. Their petition collected almost 30,000 signatures (in an affected region of just 100,000 inhabitants). Recently, the wastewater injections are suspended because of corroded pipelines, at the same time resulting in to a suspension of oil extraction (the Dutch Oil Company is currently fixing the pipelines pending the evaluation of the relative desirability of options for safe water disposal). In contrast to the first evaluation of options, this evaluation conceded (in response to citizen pressure) the need for public support for the chosen disposal option, with the petition leading the provincial government to declare that there is no public support for wastewater injections.

**Validating Citizen’s Knowledge as Legitimate Expertise**

The Dutch wastewater injection case illustrates a situation where local (smart) residents challenged prevailing expert knowledge with their non-expert knowledge, which eventually was proven right. By reflecting on how these citizen practices may be considered as valid in comparison to the norms of performed expertise we can better understand how policy makers could better use of smart citizens’ knowledge.

Certainly the initial view of various political authorities that the citizens were not experts appear to rest more on the policy-makers assumptions that citizens’ knowledge could not be regarded as formal expert knowledge. This whole process initially started with a single smart citizen’s knowledge whose non-expert knowledge was repeatedly overlooked by policy makers because of his ‘non-expert’ status. However, this did not stop this smart citizen on trying to gain expert validation by seeking
affirmation from a specialist in a weakly related field. Certainly, the smart citizen and his expertise developed trust among its peers and became increasingly valued and appreciated in his own community. This is demonstrated by the knowledge dossier that we encountered being circulated within the wider knowledge community as citizens tried to raise their voices and express their community interests.

It is perhaps also significant that it took a public TV reportage by the provincial broadcaster for citizens and the wastewater injection case to actually receive the consistent attention of local politicians and experts. Consultants (formal experts) were later to confirm citizens’ concerns that the wastewater injections seemed to be less safe than the scenarios proposed by the Dutch Oil Company. It seems therefore that it took the political sensitivity triggered by local media involvement that allowed citizens to place the issue on the policy agenda at provincial and national levels.

The wastewater injection case highlights the role that status plays in establishing ‘expertise’. The smart citizens’ scientific evidence was built up through an inductive learning process, where a smart citizen initially acquired knowledge through a range of accredited (research) and non-accredited trajectories (consultations of a specialist in a weakly related field). At the end of this process this smart citizen delivered a sufficient level of expertise which would have allowed politicians to question the experts’ existing EIA report earlier and to take control of the situation already in 2008.

Consequently, this suggests that smart city policymakers should look beyond the status of an expert for permitting involvement in governance networks, and not restricting their involvement to passive participation and acquiescence. Our case suggests that the citizens had generated knowledge through an inductive, autodidactic approach that could have strengthened the overall decision-making process. The study also shows arguably more importantly that governments are not good at dealing with the complexity inherent in governance networks. Instead of assuming that the government knows best and acting accordingly, they assume that a very limited set of experts know best, and act accordingly. This does have the advantage of producing certainty because the issue of judging which side of a complex technical debate can be reduced to a judgement of which expert is more valid (a decision which policy-makers perhaps feel more competent to make).

In conclusion, a diversity of knowledge from actors with different statuses may help to produce knowledge that ultimately leads to more ‘smart’ policy processes. We are struck here by the role played in the local media of signalling the substance of the case, and indeed providing the citizens with a platform the case highlights the important role of the local media as a body in receiving citizen's signals and providing them with a platform which was inevitable to neglect by all governmental bodies. But at the same time we can see here that the role of media is not necessarily optimal because
what makes something newsworthy is not the same as policy-relevant, and the actors here were lucky to find this concordance. This raises the question of what other kinds of organisation could act as a mediating and validating platform between citizens and governmental entities to imbue the citizens with the status that their knowledge could demand, and that is something that requires more systematic study. But nevertheless, policy-makers should urgently address the ways in which citizens can have their expertise validated, thereby enabling them to contribute to and optimising smart urban policy networks.

BIBLIOGRAPHY

Lefebvre 1990