Who Should Lead the Development of Community Technology?

Lisa Koeman
ICRI Cities
University College London
London, UK
lisa.koeman.12@ucl.ac.uk

Hans-Christian Jetter
University of Applied Sciences
Upper Austria
Hagenberg, Austria
hans-christian.jetter@fh-hagenberg.at

Abstract
Developing technology to support local communities requires a good understanding of the needs and wishes of the involved stakeholders. We describe our engagement with a community in London, as part of an ongoing effort by the local government and local community groups to involve residents in the area's regeneration process. We discuss the different perspectives on technology, local data and the responsibilities of stakeholders that emerged during a workshop in the community centre. Remarkably, neither the residents, council members or community organisers felt they were in a position to conceive, develop or maintain tools, raising the question: who should lead the development of community technology?

Author Keywords
Community technology, local data, workshop

ACM Classification Keywords
H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous.

Introduction
Through "citizen-led development", the local council and active community groups in Brixton (London, UK) aim to involve local residents in the area's regeneration process. As part of this process, various workshops and other types
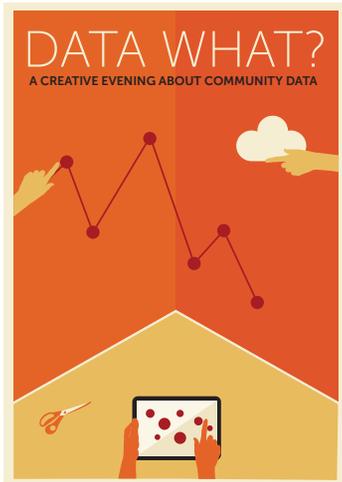
Figure 1: Front and back of flyer distributed in the neighbourhood

of events have been organised, intended to engage the community in thinking about the future of the area. Several researchers have followed and participated in these engagement strategies. For example, to encourage people to think about the effect of the regeneration process on air quality, the Intel Collaborative Research Institute on Sustainable Connected Cities (ICRI Cities) has deployed air quality sensors in the area. To further explore the role of technology and local data in Brixton, researchers were invited by a local citizen-led organisation to get more involved. As a result, it was decided the Urban Lab (UCL) and ICRI Cities would collaboratively organise an evening event in the community centre on local data and technology.

Workshop

To invite people to the event (coined 'Data What?') we created flyers and posters (see Figure 1) and distributed these in the community centre and at the annual street fair. Furthermore, invites were sent to all people on the mailing list of the community centre. The event was attended by 13 people, ranging from local residents to council employees and organisers leading the community-led development. After an introduction to urban data projects (from Nikita Barsukov's maps of routes taken by joggers in a variety of cities [1] to Nuage Vert [2] and Visualising Mill Road [3]), and an extensive discussion on the value of such projects, four tablets with a custom air quality visualisation application were handed out — one for each table. The application allowed people to view historical data on hourly NO2 levels at different sites close to Brixton, and enabled people to explore the relation between sensor locations, the effect of traffic on air quality, and seasonal changes in air quality. Attendees were guided through the application and provided with information on air quality and data quality. All tables were

given time to further explore the data and share their findings with the others.

After a brief recap of the urban data projects, attendees were encouraged to think about data relevant to the local area. To support this discussion, all tables were given 12 theme cards addressing various topics (see Figure 2). People were encouraged to annotate the cards with ideas. A discussion was held afterwards to collaboratively discuss the suggestions.

Figure 2: Theme cards

At the end of the evening, attendees were given a take-home booklet. They were encouraged to use this booklet over the next 7 days. The booklet was divided into 7 sections, each meant to be filled out on a different day. All days represented a theme (e.g. safety, nature) and contained several questions aimed at probing people to think differently about their environment and the role of data. Furthermore, several visualisation probes were included, such as an empty map of the local area ("Please annotate the map [...] with your memories, associations, knowledge or anything you would like to share about the area.") and a manual mood indicator.

As a resident, I do not need data to live well.

Figure 3: Comment from a resident regarding interest in different data sources

Perspectives

Informed by findings from previous workshops and events in the area, we anticipated it would be challenging to encourage discourse on technology and the role data could play in Brixton. To our surprise, however, attendees were keen to discuss their ideas and perceptions of the area — so much so that several additional aspects of the workshop were skipped to allow for longer debates. During the event, it emerged the key stakeholders had distinctly different perspectives, which will be briefly discussed below.

Council
The council employees attending the workshop all shared a vision of how technology and data can be useful for the local community: through the development of a *data portal* or *data store*. Their **open data perspective** represents the idea that making local data publicly available will enable residents to explore, search and visualise this data. The council is currently actively working on creating such a data portal. When asked about specific applications, council members presented several ideas for tools they believe could be useful. These examples included maps showing how money flows through the area, maps showing historical changes in 'social make-up', and visual overviews of longitudinal rent data. While the council is working on creating a data portal, they are not working on creating specific tools or visualisations as it is believed that these will be developed by others once the data is available.

Residents
Residents attending the workshop had a distinctly different view on how local data could be useful in Brixton: via apps. In their **personal applications perspective**, local data can be used to develop mobile applications and websites. Suggestions for such tools included an application to avoid crowds, an application that allows them to remotely view the length of the queue for housing benefits, and an applications to geotag rubbish for collection. While most residents had some ideas of the roles local data could have in their life, one attendee did not share this perspective (see Figure 3). There was little agreement amongst residents on which tools would be most useful. Though many expressed seeing value in using technology in the community, identifying specific needs or wishes proved difficult. All residents did agree that it was not up to them to conceive, develop or maintain tools or technologies. Similarly, they did not appear to have great interesting in the council's data portal, as they believe they do not have the skills or knowledge to make use of it.

Community organisers
The community organisers see their role as representing the residents during the regeneration process. As such, their views are those of the residents. While they are willing to provide support to those developing tools or technologies (e.g. meeting spaces, workshop organisation,

etc.) they are not able to conceive, develop or maintain it themselves due to a lack of skills and resources.

Researchers
Finally, as researchers we have an **informed development perspective**; while we have the skills and resources to develop community technology we believe it should be conceived by, together with, or based on the knowledge and needs of the local community. Furthermore, in order for such tools and technologies to be effective in the long run, we believe the community should be able to take care of the (basic) maintenance. The systems we develop should also have a certain level of research relevance, to ensure findings can eventually be published.

Who leads?
The different perspectives that emerged during the event reveal the difficulties of community technology development. A key question is: who *leads* community technology development? While it is often believed that residents have specific unfulfilled needs and wishes, no such needs or wishes emerged during the 'Data What?' event. Though residents proposed several ideas that they believed would make their life easier, none of these suggestions went beyond what is already available via existing websites and mobile applications.

Are we, as researchers, overestimating the creativity and innovative ideas of 'regular' residents? What do we do when the down-to-earth everyday needs of residents are so far removed from the ideas for community technology held by the council and researchers? Is it up to us, as researchers, in such situations, to lead, by developing what we believe will make a difference?

Acknowledgements

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