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Malé Luján Escalante and Christopher Boyko

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Abstract

This paper discusses ideas of *digital public spaces* as a framework for making sense of an experience of collaborating in *Numbers That Matter*, a short cross-sector engagement design project that explored open data, wellbeing and wearables devices. The investigation addresses the phenomenon of 'digital coming to matter' and the hybridity that this emerging digital-physical domain imposes, in terms of public and private, individual and collective. The ideas and concepts are found in the intersections of New Materialisms, specifically the Agential Realism of Karen Barad (2007) and Design Research. This paper explores a methodological set of ideas for working together with people, open data and participatory technological design.

PART I: Context. Creative Exchanges in *digital public spaces*

Have you ever wished that there was a better way of reporting potholes on pavements and roads? And what about those times when you wanted to forage for berries, but were not sure which ones were poisonous? Or you had cold hands and you could not warm

them up fast enough? While potentially seen as quite trivial problems in the grand scheme of things, the above scenarios all could have small-scale, happy endings by exploring the potential of three things together: wellbeing, open data and wearable technologies. How they combine, exactly, and how they could be useful to communities of people who are not your average wearable technology or open data 'geek' is exactly what the *Numbers That Matter* project considered over a year period of research.

This paper recounts the experience of *Numbers that Matter*, a research project that is part of the UK Arts and Humanities Research Council-funded The Creative Exchange, which explores the idea of *digital public space* through practices of knowledge exchange.[1] The paper begins by defining the nascent term, *digital public space*. Subsequently, three fundamental principles of digital public space will be expounded, providing a framework that can be applied to the *Numbers That Matter* project. The project then will be described, highlighting the research design, methods and outcomes.

Defining digital public spaces

> "Where anyone, anywhere, anytime can access, explore and create with digital content."[2]

'Digital Public Space' was an initiative that began within BBC Archive Development and is now being investigated by the BBC, BFI, Tate, British Library, Arts Council England, FutureEverything and as a general project of The Creative Exchange and its partners

[1] For more information about The Creative Exchange, please visit thecreativeexchange.org
[2] From The Creative Exchange website http://thecreativeexchange.org

across various sectors.[3] In *Digital Public Spaces* (2013), Hemment describes the Digital Public Space in terms of an 'accessible cultural and arts archive', institutionalised in the figures of the BBC, British Public Library, Europeana Archive and potentially others. Most of the other authors in the same publication follow this idea of archive, problematising the 'public' in terms of access, and focusing on Heritage, Culture and Arts.

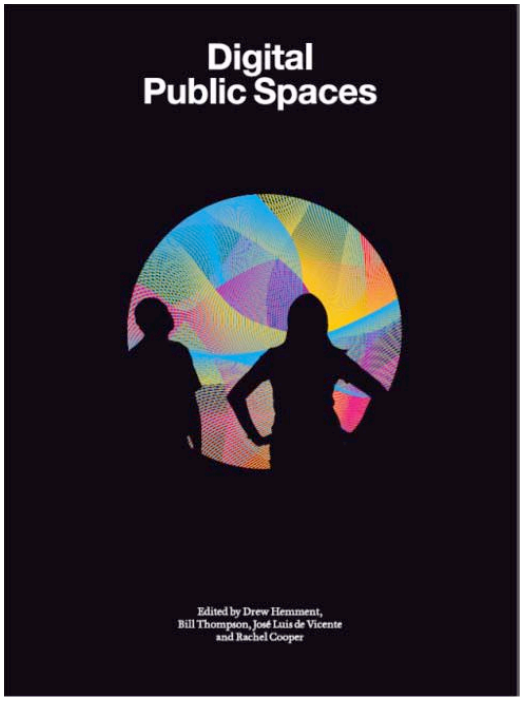

Figure 1. A publication of FutureEverything on Digital public spaces.[4]

Digital Public Space, in these initial discussions (FutureEverything Conference 2014; Hemment et al. 2013), was defined following a specific word order in which digital public space is,

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[3] FutureEverything CEO Drew Hemment, together with Bill Thompson (BBC's technology journalist) and Professor Lady Rachel Cooper (Principal Investigator of The Creative Exchange), have co-written and compiled much of the literature currently found on Digital Public Space (Hemment et al., 2013).
[4] Available http://futureeverything.org/wp-content/uploads/2014/03/DPS.pdf

1) Either a 'public space' but digital, or,

2) A 'digital space' - as in the internet - but made 'public', as opposed to private ownerships of information.[5]

In both cases, the understanding of culture is reduced to notions of heritage, museum archives and extremely good, high-definition quality pictures of museum collections. To contest this capitalised notion of "Culture" is to propose digital public spaces that pertain to a concept of culture with a lower case 'c', one that includes everyday human making, daily stories, anonymous comments, individual notes, marginalized voices, peripheral discourses, and contested practices. *Digital public spaces* then, in lower case, are made of accumulated uses and reuses of everybody's culture, producing and reproducing plurality rather than the digital reproduction of "priceless" archives, curated and selected under a very specific political and economic interest.

In the case of 'public space' but 'digital'*, digital public space* is seen as a parallel of the physical world, as a layer on top of the public square or the city. In the second case, *a* 'digital space' made 'public' or 'opened', it sounds as if digital public space is private and is *just* getting public, a project that relates archives with 'democratisation' and accessibility. This paper proposes an understanding of *digital public spaces*, as phenomena, as an emerging domain, as a set of human practices inseparable from material implications.

In both cases as well, the uses and protocols of 'public' become problematic, as it is problematic in the concrete world: what exactly is the public, the museum, the library,

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[5] For more on this idea see the following authors in 'FutureEverything Conference 2014' (Hemment et al., 2013): Ageh, Bridle, Crossan, Le Dieu, Jacobs, Thompson, Myerson & Molga.

the road, the mall, the square? Is the public here indicating a mode of behaviour? Or referring to a particular context? Public as opposed to private? Public as targetable audience? Public as state service? This paper proposes that the 'public' in *digital public spaces*, refers to encounters between the individual and its collective. This paper proposes a framework in which *digital public spaces* are to do with togetherness; for this, digital access is key.

Marleen Stikker (2013) posits *digital public space* as 'Public Domain 4.0' and describes it, almost, as the evolution from domain 2.0 or cyberspace:

> Technology has transformed our physical space: Internet of Things, RFID, sensors and advanced mobile technology. It now occupies the streets, our homes, our shops, our transport systems. We live in the time of "interreality", of mixed reality – there is interference between the programmed and the physical space. (p. 32)

And she adds:

> The blinking cursor is no longer outside of us. We are the cursor. It is internalised, as it were – as a third, additional domain. (ibid)

Digital public spaces are happening, are generated by and are generating new reconfigurations of reality that transform subjectivities and inform the making of the everyday. This paper proposes *digital public spaces,* not as an institutional vision, not as state policy, not as utopia, but more as Foucault's notion of heterotopia (1986, 2002). *Digital public spaces* share with *heterotopia* qualities of the temporal, contesting, creative. They are collective spaces of appropriation (2002, p. xvii). In the *Numbers that Matter* project, *digital public space* is open to the idea of exploring

how wearable technologies and open data can be appropriated within creative, collaborative processes to foster collective wellbeing.

Following Stikker's ideas of *coexistence* of physical and digital, digital public spaces emerge as a third domain, comprised of three main principles : (1) the digital and physical; (2) public and private, and; (3) ways that people relate to each other.

PART II: Framework

1. Coexistence of the digital and physical: How digital comes to matter.

The digital is no longer a space that one visits but is the space in which one lives. One sees it breaking out from its screens, and feels it fusing through its permeable boundaries with our everyday mundanities and excitements. Networked oyster (transport) cards, library cards, QR code bus stop timetables, smart bins and other contraptions of the Internet of Things are beginning to pin down a certain awareness of inhabiting a shared space of information–tangible nature.

In this context, *digital public spaces* can be defined as the digital-physical phenomenon that is reconfiguring relations, culture and technology, not as dichotomous terms, but as entangled, co-constituting notions. New Materialisms ontological perspectives, specifically the *agential realism* of Karen Barad (2007), offer theoretical coordinates to approach these non-binary physical-digital entanglements. By situating the research within these coordinates, this paper aims to inform methodological settings of creative projects within the physical-digital. Baradian *agential realism* premises that are useful to approach the modelling of the methodologies of *Numbers That Matter* include:

- *Materiality*

Matter is considered not in its stable, concrete and fixed surface, but also refers to a complex, dynamic, unstable set of ongoing, generative relations of human and nonhuman, social and technological.

- *Intra-action*

Intra-action is considered as the inseparability between objects, subjects, *discourses* and *apparatuses* and agencies. *Intra-action* emphasizes humans and things coming together through on-going, generative encounters and the force within performances of sociotechnical encounters, merging boundaries of all agencies involved.

- *Performativity as a material-discursive practice*

Performativity is considered as a practice that takes *discourse* – the construction of knowledge through language – into the creation of reality. Butler's (1990, 1993) take on the term has largely explained subjectivity, gender and bodies, and extends Foucault's conception of re-acting, internalised discourses. The point of separation of Barad from Butler and Foucault is that Baradian *material-discursive performativity* considers agencies not as exclusively human, but as also performed and enacted by things and *apparatuses*.

- *Entanglements and boundaries*

On-going dynamics of *intra-activity* mean instability of the boundaries and deeply connected ways in which everything is *entangled* with everything else. Nothing is inherently separate from anything else, but separations are temporarily, *material-discursively* performed.

To understand the physical-digital hybridity that *digital public spaces* propose as *Baradian* socio-technical apparatuses, that entangle practices in an networked intra-active relation of human and non-human actors, resolves the dichotomy problem. However understanding the intra-action of polarities, like physical-digital, but also private-public and one-others, does not just mean an ontological leap, but affects the way one relates with knowledge (within a context of research), relates with things, data and people.

Making sense of participatory methodologies through material oriented ontologies, *Numbers that Matter* found it easier to think about collective wellbeing in terms of intra-action, and formulate a proposal of wearables beyond the typical, individual-centred, commercial perspective. Instead, *Numbers that Matter* explores practices of qualifying communities, rather than quantifying selves.

2. Coexistence of private and public: open (and closed) data

Encountering people and things within the hybrid digital-physical space enhances the scale and capabilities of the human body, as well as troubling the boundaries between human and non-human. In this digital-physical dynamic, the enhanced, boundary-less body is constantly leaving digital footprints in the physical world.

Data are being collected and published openly about places inhabited, services used, things consumed. Networked sensors are recording data, from smart environments to mobile apps. But what happens to data generated? Who is handling them and how? What “digital” hides behind trendy devices and lines of code? Open data claims to

be *about* everyone, but it is not *for* everyone. Open data is all information published on the Internet and made available to anyone who wants[6] - but with one condition: access is subjected to expertise.

Making data into images, numbers, sounds, garments or other meaningful interfaces are practices directly responsive to digital public spaces. This making the digital physical proposes interactions embedded into objects or landscapes, *performative material discursive practices*. Digital makers are not just designing objects, but relationships and worlds, connecting and irremediably dividing in the act which connects *some* but not *all*.

Technological apparatuses with mobile microprocessors and networked beams, smart textiles and garments, 3D printers, laser cutters and plotters are laying out not just a craft, but a whole distinct aesthetics of the real. Data translated into dots, sounds, colours, stitches or photos are building practices that have agencies in the world and narratives of the real.

Apart from the evident effect on experience of the concrete, physical-digital systems are merging aesthetic features of the real and experiences of it, as well as many other classic frontiers. These include authorship and commons, private property and appropriation, knowledge production and exchange, arts and techno sciences, and objects and the experience of them. Ultimately, though, what is merging is people and data.

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[6] Definition of the Open Data Institute (https://theodi.org/what-is-open-data)

- *Choreographies of people, data and stuff*

Demographically, open data users are overwhelmingly male and generally spread between micro-enterprise and SME (small-to-medium enterprise) businesses in the private sector, local and national public sector institutions and academic institutions (Davies, 2010). There is a very limited representation of voluntary sector workers and civil groups, community organizations or vulnerable communities. Practices of making the digital physical emerge within the *digital public spaces*, connecting some and irremediably dividing others. *Numbers that Matter* imagined communities having more agencies to connect – rather than disconnect – and with this, avenues to work out their own collective wellbeing, within the hybrid experience that *digital public space* is installing.

3. Digital public spaces as encounter spaces: exploring potentialities of practices of making digital physical for community connectivity and collective wellbeing.

Through participative and creative processes, it is possible to *materially-discursively* perform connections rather than disconnections, to offer agencies to communities to think about collective wellbeing and use transforming practices to produce more relevant interactions with open data, making numbers matter, especially for digitally vulnerable communities or those that have not been targeted by market developers. *Numbers that Matter* explored a reworking of wearable apparatuses by combining creative methods that could allow communities to identify issues, needs and challenges for their collective wellbeing in thinking themselves part of *digital public spaces*.

What does wellbeing mean in this sense? The academic and practitioner literatures are rife with definitions, but one stands out with its simple, clear message: "Doing well – feeling good, doing good – feeling well" (White 2008). Implied in this definition is a sense of enjoying a certain standard of living or welfare ("doing well"), being satisfied with ourselves and our lives ("feeling good"), helping others to live a good life ("doing good") and being physically and mentally healthy ("feeling well"). Thus, wellbeing is about how we feel at a *personal* level – happy, satisfied, good quality of life, healthy – as well as ensuring that the *people and places around us* are doing well.

Much wellbeing research tends to examine how individuals are doing in their own lives (e.g., mindfulness; Brown and Ryan 2003) and how they are coping with the environments in which they live (e.g., the relationship between wellbeing and housing; Evans, Wells, and Moch 2003). A lot of publications also revolve around the effective measurement of wellbeing (Boyko, Cooper, and Cooper 2015), as it is believed that we are not doing this correctly. Often, wellbeing is assessed quantitatively and objectively (e.g., crime rates in a neighbourhood) at the expense of more qualitative and subjective approaches (e.g., "How do you perceive crime rates in your neighbourhood?"), and explores the individual, rather than the collective. What is missed out by not taking a more varied approach to researching wellbeing are the untold stories of those who struggle for a voice and the un-heard.

PART III: Numbers that Matter, the project

Numbers That Matter joined together designers, artists, cultural researchers and technologists from Lancaster University, University of Dundee, FutureEverything and Manchester Digital Laboratory as well as 'geeky gurus' from agencies such as Tandot, FoxDog Studios and Hackspace Manchester.

The project was set up to explore the intersections between collective wellbeing, open data and wearables through creative practices. It also aimed to generate collaborative practices that described, generated and informed digital public space methodologies. *Numbers that Matter* was not attempting to design a product or artefact, but rather form innovation at a methodological level, designing a creative research process that empowered participation, inclusion and conversations; processes that allowed for encounters.

The following questions guided our research:

- *Open data awareness:*

How can we craft awareness of big, Open Data and intimate personal data generation within communities that are not usually "in touch" with data?

- *Connecting communities through wearables technologies:*

How can we move beyond obvious wearables solutions and their dominant demographic (white, young, socio-economically mobile and digitally comfortable)? How can we foster the making of wearable technology, designed to connect communities, that is not necessarily 'market-ready'?

Figure 2. The figure in the left, the typical commercial imaginary of market targeted public for wearables. In the right, is what Numbers that Matter had in plan; how to address public usually forgotten by technological innovation markets.

- *Wellbeing:*

How can we think about wellbeing beyond individual self-reflection, and more in collective and civic-minded terms? How can we enquire about people's wellbeing without imposing a 'researcher's narrative'? What sort of device, processes or practices would boost collective wellbeing?

1. Research design

Numbers That Matter began in September 2013 with several discussions from the project team – researchers from Lancaster University and Dundee University, and the geeky gurus from Tandot – about the types of people or communities with whom we wanted to engage. We sought out people or groups of people that have a say in urban life, that have enough contact with others in their everyday life to be able to act as

'thermometers' of their own community. The team discussed what type of people in the community were the ones that listen and see, and were good at expressing empathy. We wanted to talk with them about wellbeing, open data and digital-physical technologies (wearables).

Once we had identified three communities, the next stage was to establish contact and conduct *in-situ* rapid ethnographies with each of them in March 2014. Using the findings from these rapid ethnographies, we then organised and ran a hackathon-community event in May 2014 that emphasised the wellbeing, open data and potential wearable needs of these communities, and bridged the communities with hackers and makers. Hackathon entrants developed ideas and a winner was chosen who best exemplified the ethos of *Numbers That Matter*. After the hackathon, the team worked with the winner to trial the idea and created an open source activity book to help different communities better understand their connection to wellbeing, open data and wearables (June to October 2014).

2. Research methods and analysis

a) In-situ Rapid Ethnographies

We considered the notions of 'community node' and 'wellbeing watchers' to inform our decisions about which communities to study. We believed that such people often were privy to confidences and conversation about issues in their neighborhoods, or had a sense of civic wellbeing or "ill-being". The brainstorm included homeless people, nuns, school children, neighborhood watch groups, men-only clubs, hairdressers and taxi

drivers. Resources and accessibility decided for us on three groups: hairdressers, taxi drivers and neighborhood watch groups.

The team decided that rather than extract people from their natural environments or workplace it was a better idea to contextualise conversations. Inspired by mobile methods (Anderson 2004; Büscher and Urry 2009; Büscher, Urry, and Witchger 2011; Dewsbury 2010; Merriman 2014) the team visited the communities and in effect shadowed them, gleaning insights from conversation from the side-lines.

Hairdressers:

Naturally, the best way to have a conversation with a hairdresser is to get your hair cut. Three members of the team interviewed apprentices with heads tipped back as they shampooed and rinsed. All well-groomed, the team built a small collection of semi-structured interviews about hairdressers' neighborhood, themselves, their spare time and their favourite uses of technologies.

One of the risks of enquiring about wellbeing is that very easily the conversation can fall into rushed clichéd answers, complaints, or mainstream ideas of wellbeing, rather than a more thought-out, individual and unique experience. In order to avoid filling out lengthy questionnaires, the team opted for lived, experienced conversations. These had to be memorised, as there was little chance to refer to notes whilst having one's head massaged.

Taxi Drivers:

With the same shadowing strategy and contextualised conversation, two team members took taxis to research destinations in Greater Manchester, from train stations to hairdressers and to neighborhood watch groups. The team interviewed cabbies, with the same, open question, conversational style.

NEPHRA Good Neighbours: Residents Association

Three more of the Numbers that Matter team visited the NEPHRA Good Neighbours community centre, in New Moston, Greater Manchester. The team shared lunch and afterward ran a participatory workshop with the neighbours. The majority of participants were older people with hearing difficulties; conversations were adapted with care for their needs, to discuss routines, what could improve those routines, favourite things, where in the city people felt most content and ways of sharing information with the local authority.

Insights from the encounters

The team could map general aspects about these 'community nodes'. For example, hairdressers tended to retire from the industry by the age of 40, suffering from poor posture, tendonitis and joint issues. Their favorite app was Pinterest, but apps in general were problematic because they felt encapsulated in their phones, out of reach when hands are busy and most of the time exposed to water and chemicals.

Some of the older taxi drivers struggled to use their navigation system devices while driving. In the community of neighborhood watch groups, many were apprehensive

about pavements, where they constantly battle to fit wheelchair and walking aids. Others talked about strolling along the city and parks limited to the perimeters of Wetherspoons, famed for accessible toilets and a source of drinking water.

While the findings were generally useful, the research team found many obstacles in putting them together; they often were conflicting, different, and drew contradictory pictures. The most inspiring findings were in the singularities of the stories. It was hard to develop tags and codes to classify them in analysis. What was important about those encounters was not so much the recording of the conversation but the material setting, what was not said, the atmosphere, the variety of food that neighbours brought to share, and tired legs of the hairdresser without a complaint. If there was a clear finding, it was a call to consider empathy.

The challenge presented was how to communicate these stories to enable and foster creativity, and affect empathy in technologists, hackers and makers who would respond to the hackathon call.

b) Personas and Scenarios:

The accounts we gathered were necessarily partial; they arose from the intimate, the personal and the lived story. With these fundamentals in mind, the research team designed ‘personas’ and ‘scenario’ as tools to communicate the ethnographic findings.

Figure 3. This is an exampled of a persona, used in the hackathon to communicate findings of rapid ethnography.

The 'persona' and 'scenario' tools were created, as a system that communicates, transmits and evaluates lived contexts with all the complexities encountered. We chose stories per community, and used comics to represent them as personas (Maxwell, Woods, and Abbott 2014), trying to include our experiences in the encounter through drawing and plain language.

In the 'scenario', 'personas' could meet in an imaginary context. The 'scenarios' represented certain socio-technical settings in which the 'personas' would be in tension with conflicting needs or aspirations. By playing 'personas' in 'scenarios', the participants of the hackathon, could realise, consider and articulate the situations, uses and misuses, encounters and divisions of the settings. By assembling the 'personas' in

the 'scenarios', contradictions of interests, opportunities and connections could spark. It was a very simple tool, but it worked to open discussions about the ethnographic findings and to illuminate design processes and boost empathy.

c) Hackathon

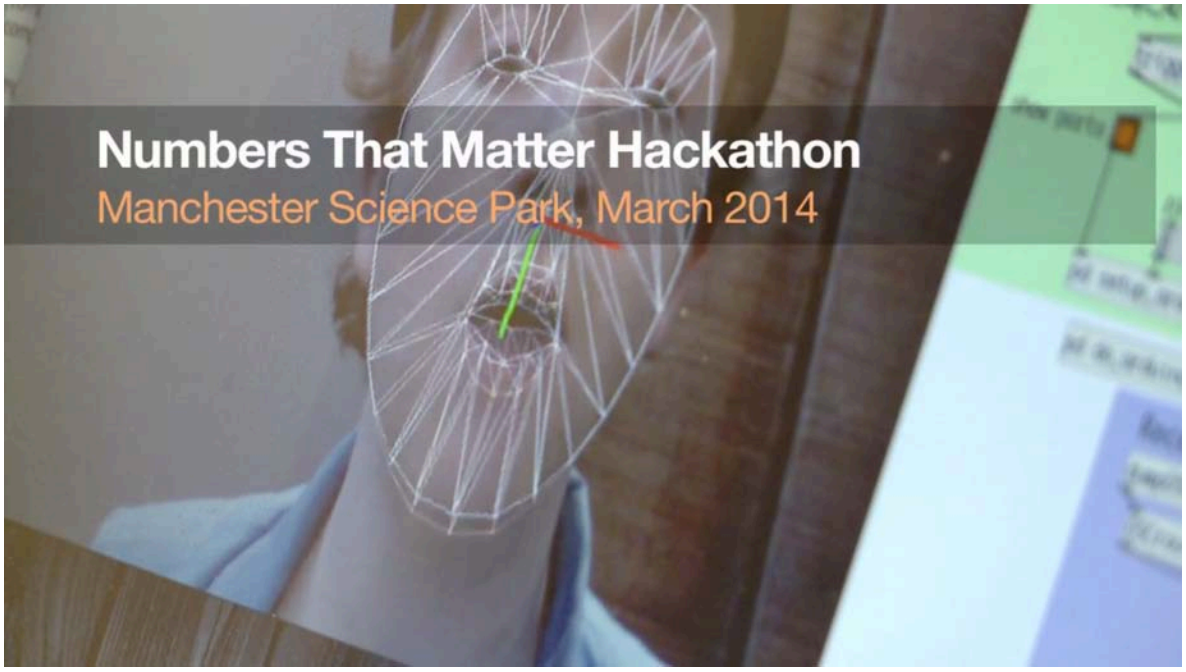

Figure 4. Testing Arduino to read face movement during Numbers that Matter Hackathon.

The *Numbers that Matter* participatory event identified with the concept of 'hackathon', complete with prizes and pizza, but distanced itself from the 'programmer' hackathon approach. It was important for the team to design a process in which the community of hackers, makers, designers and other interested parties 'felt good'.

The weekend hackathon started with participants introducing themselves and members of the team giving 'Lightning talks', using 'personas' and 'scenarios', to inform

participants about the communities we researched. From there, participants were asked to form teams of two or more and then given time to develop their ideas for a wearable that incorporated open data and wellbeing; designing something that spoke to one or more of the communities we studied was important. The creative, interdisciplinary and collaborative ethos of the project was highlighted from the beginning of the hackathon and demonstrated by further talks from hackers, designers and 'geeks' throughout the weekend. The ethos also permeated the making space, where participants and researchers had the chance to meet and encounter in a non-competitive, collaborative environment.

Emerging Project ideas

By the end of an intense couple of days of exchanging knowledge, experimenting, prototyping, testing, and playing with ideas, things and numbers that matter, the makers and designers presented the following hacks (please see this video for more details of the hackathon):

Figure 5. Path Pattern Hack, in the making

'Path Patterns' was a hack for a device made for shopping trollies and wheelchairs that would show the best route for a desirable destination as well as the proximities of clean toilets and a water source.

Figure 6. Tumors for better society hack

'Data Tumours' took a more artistic approach, where people could wear inflatable tumours that show subjectivities and feelings as an extension of the body - for example, how tired or sad people were in a particular moment. The idea was to raise empathy and understanding without the need to express it with language.

Figure 7. Superforager is an art project that emerged from NTM and uses wearable tech to encourage foraging in urban areas. It is led by artist Sam Jones, in collaboration with Laura Pulling, Neil Winterburn and Tim Brunsden.

'Super Forage' was a wearable tool belt that would direct and connect people or communities to forage in cities. In so doing, the tool belt would encourage people to be curious about the outdoors.

Figure 8. Happy Hands Team of Hackers in the NTM Hackathon

'Happy Hands' was a hack of smart gloves for older people, and people who either suffer from cold hands or work outdoors. The gloves would keep their hands warms as well as have a connecting function, such as the proximity of a friend, or send some health information to a GP, or inform about weather conditions. The latter hack was the winner of the event.

3. Project Outcomes

Field Trial

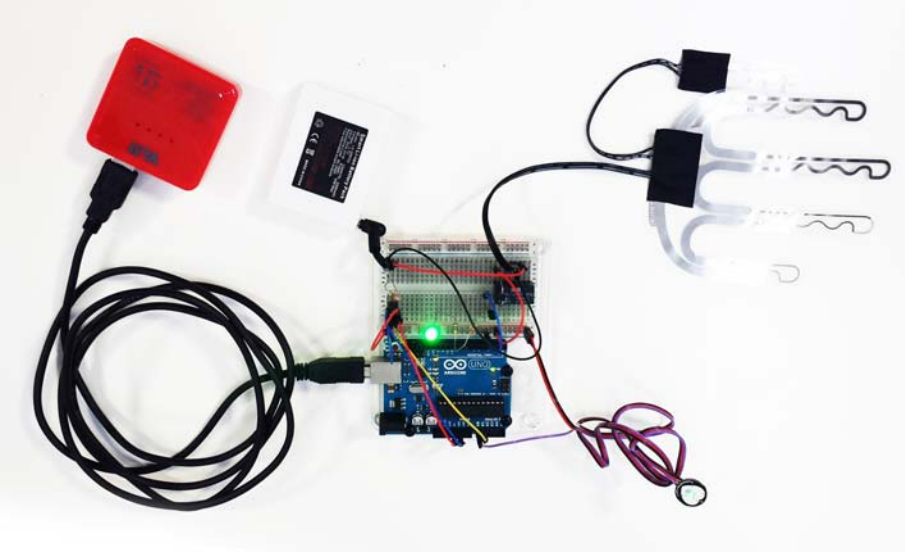

Figure 9. Happy Hands Prototype

Numbers that Matter and The Creative Exchange supported the dissemination, rights to showcase and follow-up research with the winning hack, 'Happy Hands'. During the field trial, the main creator of 'Happy Hands' worked with the project team and others over a period of 6 months to improve, refine, distribute, prototype and showcase their work, and make it available to be used by individuals in their communities. As the field trial progressed, 'Happy Hands' evolved into 'Made with Glove', and toured in Design and Technology conferences, like FutureEverything, and PrimeConf: Best of British. The Creative Exchange continues to support the 'Happy Hands' creator in the next steps of her journey as entrepreneur, where she is taking a more fashion design approach (http://madewithglove.co.uk).

The winning hack has met the challenges of *Numbers That Matter*. Their idea was to use open data in a way to inform and connect people that suffer from cold hands (because of health problems or age) and people that work outdoors. The hack also proposes uses of small or individual data to connect to health centres, in case medical

attention is needed, or to connect to other people, allowing users who know each other and who are within the same area to encounter, or to connect people that are far from each other by sending signals (heart bits or 'warm' poke).

Activity Book: working with data and people

Numbers that Matter created a free, downloadable activity book as a tool that can serve future communities, researchers, hackers, designers, students and others to think about people and data together. It focuses on playful activities and knowledge exchange tools that would serve communities exploring how open data affects their wellbeing and their expectations of wellbeing. The book includes a guide on how to build their own 'personas' and 'scenarios' tool.

This toolkit was meant to make the road of communities and researchers a bit less bumpy. The toolkit narrates the *Numbers That Matter* story as a short tale to inspire others with a relatable experience. Simple and playful activities were designed for people starting a project or idea, or a discussion about wellbeing, wearable technologies and Open Data as locations of digital public space.

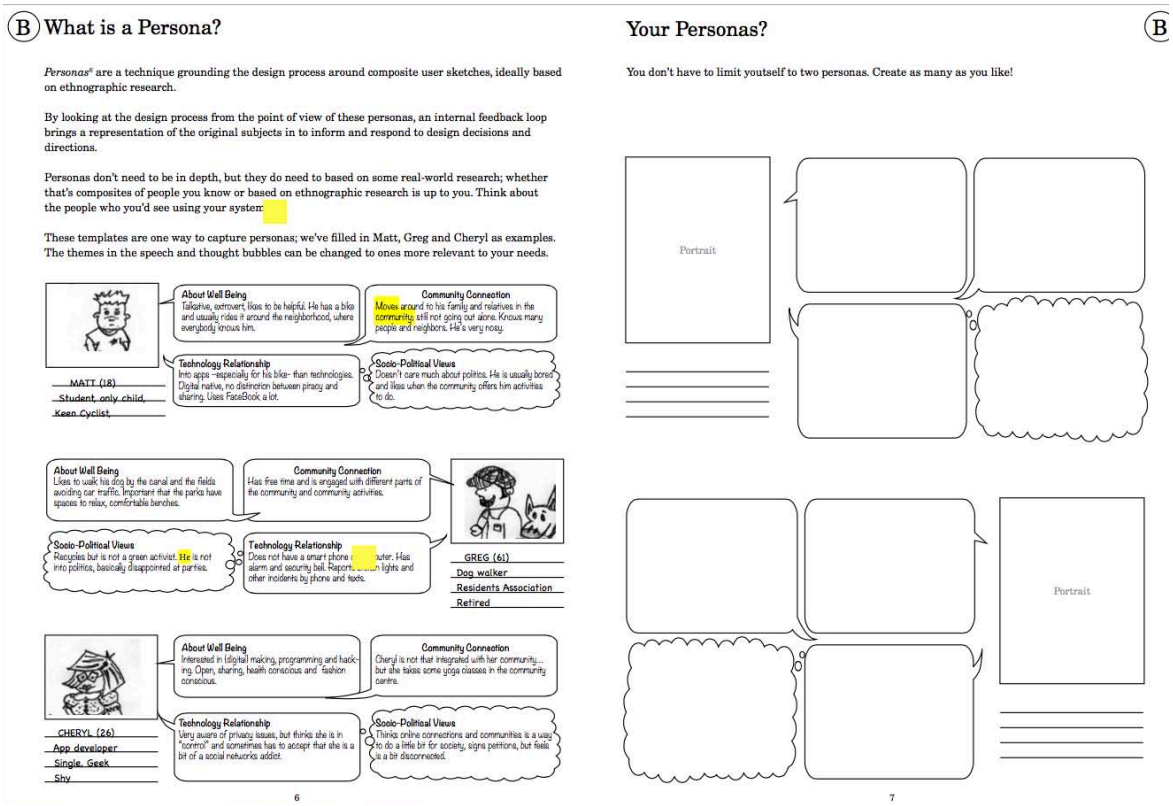

Figure 10. Beta version of toolkit in the making

One of the lessons learned from the project was that planning to work with people and data is a challenging task. In the process there were many hurdles and delays, especially at breaching the community: what is the best way to approach people? How to initiate conversations? How should we think together about needs, expectations, information and perceptions? How can we avoid prescriptive questions and answers? How can we get meaningful outcomes? How can we create data awareness and put that data to work for the community? How can we represent the ethnographic work? How can we communicate findings? How can we create encounters rather than divisions?

Conclusion

The digital-physical hybridity of *digital public spaces* as an emerging domain is proposing new relations of people, things, practices and narratives of reality. In this paper we identified three main principles of *digital public spaces* as socio-technological domain: 1) the coexistence of physical-digital; 2) the hybridity of private and public; and 3) digital public spaces as spaces of encounters of people, data and things.

These emerging, ontological choreographies of people, data and things require methodological responses in research. This paper used Karen Barad's agential realism as a useful framework to make sense of these emerging relations. Specifically, we used the ideas of agential material practices and *material-discursive performativity* of apparatuses to make sense of practices of thinking, designing, imagining and making wearable technologies. Considering technologies as agential and active actors at arranging social relations proposes certain response-ability and care, not just at designing but at designing research processes.

Numbers that Matter experimented with inventing and testing a participatory process in a short pilot project, using design as a catalyst for communities and open conversations about collective wellbeing, open data and wearables technologies. Digital public space should be not just about the potential of technology or the individual to access these technologies, but also about the potential of communities to gain agencies on their own wellbeing.

Numbers That Matter offered some tools to start exploring wearables as a medium for collective wellbeing in the digital public space. The next step would be to conduct more research and trial the methodology with other communities to see how collective wellbeing can be enhanced through open data and wearables. Perhaps a 'Super Forage' tool belt is the answer.

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ABOUT THE AUTHORS

Malé Luján Escalante is completing her PhD in The Creative Exchange at Lancaster University. She is exploring the idea of 'digital public spaces' through participatory design projects in collaboration with public and private sector. In the intersection of New Materialism and the Philosophy of Technology, her research explores how these rather theoretical ideas can inform collaborative practices and creative uses of digital technologies. Malé's interests are around Situatedness and Mobilities, Playfulness and Speculations, Wearables and Wellbeing.

Christopher Boyko is a 50th Anniversary Lecturer in Design at Lancaster University. He currently is examining the relationship between wellbeing and the built environment as part of the UK EPSRC-funded *Liveable Cities* project. This research builds on previous research about urban density within the planning process and mapping sustainable urban design decision-making processes for the EPSRC-funded *Urban Futures* and *VivaCity2020* projects, respectively. Christopher's general research interests include urban design, use of digital technology in cities, sustainability and wellbeing in urban environments.