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Staging the Hack(athon), Imagining innovation: An ethnographic approach

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Abstract:

Hackathons, app-development workshops, creative labs are some of the terms used to describe a particular site of sociotechnical practices where ‘techniques from the Web make their way into “the real world”’ (Irani, 2015:1). As a model, they have spread well beyond Silicon Valley - into the third and public sectors, for example, where they are employed to problem solve and design for specific social or cultural issues. Drawing on ethnographic research, this article elucidates the ways innovation is normatively inscribed in the hack event – as structure, as organisation, but also as discourse and practice. In so doing, we argue that longstanding understandings for innovation or creativity that understand it as a negotiated sociotechnical and material process (Suchman 2011; Kember & Zylinska 2012; Balsamo 2011) are being overshadowed by an emphasis on process and infrastructure. We argue that, rather than understand such events as creative or innovative, we should instead see them as carefully staged processes that work to actively produce and support the politics of entrepreneurialism. The politics of the hackathon is, as we detail in this article, routinely subsumed into a sociotechnical discourse that attempts to evoke playfulness and creativity. A critical interrogation of this manoeuvre reveals not only that hackathons construct entrepreneurialism as a positive and agential force for *innovation* and entrepreneurialism as an agential force for *social change*.

Key Words: innovation, creativity, imaginary, hackathon, ethnography, entrepreneurialism

Word count: 7109

The event was due to start at 10am and we arrived 15 minutes early. We entered the room to see that everyone was already sat down, listening to the speaker who was talking about the need for the day to be ‘fun, creative and informal’. The room was an open space, part of the Leeds Open Data Institute, made to look like a warehouse or loft space, and the tables were full of toys, post-its, Lego pieces, crayons, stickers and colorful objects. The walls were covered with posters and slogans such as: ‘stop comparing opinions. Start testing prototypes’ and ‘stop describing, start building’. We took a seat and listened to the talk. We didn’t understand why they had started earlier than planned until one woman approached us with the program. We were in the wrong room - at a hackathon for Leeds City Council members about the use of digital resources for city initiatives. We were meant to be at a hackathon organized by the NHS, looking at the use of digital tools for tackling obesity. We left and went downstairs into a different space.

When we arrived, the speaker was telling the group to ‘have fun, be informal and creative’. The space was open, set up like a warehouse or loft space, and the tables had the same playful objects: Hackathon *déjà -vu*.

This article engages in what Lucy Suchman has called ‘this question of the situations that frame design, and the frames that condition professional practice’ (Suchman 2011: 6). We do so by studying hackathons ethnographically. Hackathons are growing as ‘spaces of innovation’ in all sorts of sectors. As our research details they are growing in the public and third sectors and are established within the corporate sector and industry (see also Irani 2015, Leckart 2012, Coleman 2010, Marlow 2013 for histories of the hackathons). We are interested in the conditions in which ‘innovation’ is claimed to happen – how it is constructed through place and space, discourse, and metaphors, and how this, in turn ‘conditions’ (not in a straightforward way, but in a framing sort of a way) the kinds of practices that occur there.

In thinking about the conditions or staging of a hack event, we are attempting, in a similar vein to other scholars (see for example, Banaji, Buckingham, Burn 2010, Balsamo 2011, Suchman 2007) to separate the concept of innovation from a Kantian notion of individual genius or intention, and instead explore the mundane and routinized, the laboured and designed processes in which innovation is said to occur. We are attempting to elucidate the ways innovation is normatively inscribed in a hack event – as structure, as organisation, but also as discourse and practice - in order to suggest that the emphasis on the ‘staging’ of the event should be seen as a wider manoeuvre – one that routinely values process and infrastructure and collapses improvisation and creativity with innovation in a self-fulfilling cycle (see also Leach & Wilson 2014: 13; Hallam & Ingold 2007: 3).

Set alongside these aims is a wider acknowledgement from our research findings that hackathons, as fieldwork sites, resonate the ‘laboratory ethnographies’ carried out by Latour and Woolgar (1979), not least because of the specific concentration, rather than distribution, of human and non-human resources in particular times and spaces with a clear goal: to innovate and to do it fast. Indeed, it seems that the notion of a laboratory setting as a privileged site of and for innovation has carried forward, so that while hack events are becoming more dispersed and heterogeneous as methods of creative thinking and practice, the organization of the event itself – and particularly this notion of a

contained physical space – remains pervasive. This has obvious repercussions for the broader conceptualization of innovation, not least because it works to promote the idea that innovation occurs through the specific combination of technologies, people and setting.

Our article is organised into the three main themes that we argue frame or ‘stage’ the hackathons through their sociomaterial relations: place and space, narratives of food and their impact on creativity, and the discourse of “cleanliness” and usability regarding data. It is clear to us that hack events, even as they are becoming increasingly appropriated into different sectors and used at a variety of scales, are staged events: they are modelled and designed (even if these models and designs are disrupted or negotiated). They engage in a number of methods that are supposed to lead to innovation. What they actually produce are mundane, ritualised, normative processes of interaction that contribute to a self-fulfilling cycle that is always constrained and limited but the very narratives that are supposed to enhance them.

Innovation from an ethnographic point of view

There is a wide corpus of research using ethnographic methods to research processes of innovation, not only in digital anthropology and ethnography, but also in digital humanities, design, business management, organizational studies and science and technology studies (see for example Vinck & Blanco, 2003; Beaulieu, 2010; Suchman, Trigg & Blomberg, 2002; Hoholm & Araujo, 2011; Simakova, 2013; Yaneva, 2009; Wilkie & Michael, 2009; Irani, 2015). Our research includes separate but interconnected ethnographic observations and interviews in different settings where innovation is not only expected but required: hackathons, app-development workshops and creative labs. These gatherings and spaces all locate the design and development of prototypes within specific frameworks with regard to motives, reward, time pressures, tools, and expertise: and the consequent claims made of them as sites for innovation, enterprise and creativity are familiar. These sites are an interesting place to observe what Suchman, Trigg & Blomberg (2002) call ‘technologies-in-the-making’, where the observation of these processes ‘afford an opportunity to investigate the imaginative and practical activities through which sociomaterial relations are reproduced and transformed.’ (2002:164)

In connection with this, we propose that these observed sites are better approached by what some authors call ‘Real-Time Ethnography’ (Hoholm and Araujo, 2011) or ‘Real-Time Research’ (Back, Lury & Zimmer, 2013), not only because of the temporal dimensions of hackathons (discussed below), but also because, ‘the ethnographic present is expanding, resulting in the proliferation of ethnographic accounts that destabilize the relationship between ‘the field’ and the time and place of ethnography’ (Back, Lury & Zimmer, 2013:7). This tactic also seems useful to address the tensions that are embedded in the ‘staging’ of the hackathon, not least because, as Hoholm and Araujo note, such approaches understand technologies-in-the-making as a process that is ‘messy, uncertain and prone to multiple and often conflicting influences’ (Hoholm and Araujo, 2011: 939).

For Hoholm and Araujo, the study of innovation is to ‘focus an emerging object or practice from the inception of an idea to its successful realization (or indeed failure)’ (2011, p. 936). In this sense, hackathons, app-development workshops and creative labs are privileged observational sites, since many of the common assumptions about innovation are ‘put into play’ in a concentrated space and time where a whole process, from idea to prototyping, can be followed. Indeed, our original intention in conducting ethnography of hack events was precisely to engage in what Hoholm and Araujo call ‘innovation in-the-making’ (2011: 936), that is ‘the opportunities to follow socio-technical practices as they evolve’ (ibid.: 937). What emerged from the ethnographic research, and we discuss in this article, however, are the staging, discourses and methods that underpin these events – and the extent to which, then, ‘innovation-in-the-making’ is, to draw on van House’s terms, ‘configured’ (2011: 424) through and within a specific discursive socio-technical and sociomaterial environment in which certain practices are encouraged, and others, less so.

Our ethnographic data is comprised of participant observation, visual and digital data and interviews with hackathon organisers and participants. Between 2013 and 2015, we attended eight different hackathons across the UK organized by a variety of sectors: Two hackathons were in Leeds, UK, organized by the NHS in 2014 and 2015 in conjunction with community arts organisations (Leeds, ODI, mHealthHabitat, NHS, Watch-It). Two were organized by city councils as part of wider city initiatives with very local topics (Hack the City, Sheffield and Leeds Hack in 2014). One hackathon

was organized by Imperial College London as part of the Urban Prototyping festival in London 2013 in conjunction with industry partners (Intel and GSMA). One was organized by USTWO, a digital products studio in 2013, in Shoreditch, London. Two were run by third sector creative organisations in 2015 with funding from the Arts Council, RCUK and local council (AccessSpace, Octopus, Digital Labs, FoAM).

Constructing the Challenge/ setting the ‘stage’

As suggested above, the first thing to note with regard to hackathons relates to their strong time constraint, which resonates in a number of ways for this article. Firstly, the temporality of the event is caught up in what Irani (2015) describes as the politics of speed and vision: ‘The hackathon’s proposition was that small groups could move fast and *possibly* accomplish great things’ (2015:19). Secondly, the temporal dimensions of the hackathons place increased emphasis on the ‘staging’ or ‘framing’ of the event in terms of the need to rapidly facilitate activities by the participants, but it also constructs the socio-material props of hackathons in particular ways – as supportive, as fuel, as enablers. Thirdly, it is the time constraint that characterises them firstly as ‘outside’ the workplace and therefore positioned as productive *play* rather than work for example, and secondly within a 24-36 hour period of intense practice. These two issues create an observable variable across events, but they also construct *failure* in particular ways (see also Leckart, 2012). Finally, it means that as ethnographers we observe a finite event, one that has an ending and a beginning. Although we follow the concepts of innovation and/or technologies in-the-making then, we recognize the importance and centrality of temporality and location for the hackathon through our investigation of what we call ‘*fast-innovation in-the making*’.

All the hackathons, and app-development workshops we attended started with ‘challenges’ that were designed to rapidly prompt response. The challenges were further elucidated through the powerful rhetoric of ‘scenarios’ that functioned as a means through which the participants were firstly invited to imagine based on their own normative stereotypes or experiences. Scenarios work by constructing an imagined individual [2] or community to whom needs or issues are attached in order to produce an overarching problem that is resolve-able through a technological solution (e.g. an App). It became apparent to us that their function within a hackathon was twofold: as a speedy and accessible route to a technological solution that participants could respond

to, and as what Irani has called a ‘media ecology’ that enable participants to imagine themselves as agential and instigators of futures (2015:17).

In all but one of the events, the first step in the hackathon was to describe this imaginary person: age, name, tastes, skills, everyday routines, even the things s/he enjoys and hates, as ‘real people with rich complicated lives’ where the idea is to ‘help people to manage this complexity’ (Leeds hackathon). The construction of this ‘future user’ (see Wilkie and Michael, 2009) with needs and issues notably works to produce an inherently gendered, raced and age-specific subject who is claimed as a representative norm to whom the technology speaks. Moreover, in the use of scenarios to frame the actual prototype, such signifiers become embedded in both the design and practice of technology – actively producing it as gendered, raced and age-related for two reasons. The first is that the innovation process becomes based on what participants can imagine about that persona – carrying the stereotypes and socio-political and normative assumptions unchallenged through and into the design process. Secondly, participants are actively encouraged to imagine users through exclusionary signifiers. Each decision (gender, age, ethnicity, geographic location) is an active exclusionary device that carries certain normative principles (these are active and essential signifiers), and this tends towards normative, stereotype, and conservative, what Suchman and Bishop call ‘Cultural Imaginary’ (2000: 327). The scenarios frame the ‘innovation’ exercises and, crucially, underpin and shape the objects or products that are then tangibly constructed. The finished prototypes are claimed as more ‘real’ or ‘authentic’ precisely because they have been designed to fit a specific scenario. In turn, the imagined scenario is claimed as a real-world event in an interesting convolution that denies and negates the imagined, fantasized and (gendered, raced, aged) constructions through the very act of material or technological production. Outputs are claimed, as one presenter stated, as ‘Real things in the Real World for Real Life. Real Solutions that we want to pilot’ (UP London Hackathon).

At the UP London hackathon, a group of firefighters presented a ‘challenge’: a current, real, everyday, life-threatening problem that needed a clear technological solution. They described the problem, the severity of it, and the issues they have faced when trying to design for it. In this case, then, the scenario was clearly articulated, but this had the opposite effect on the participants, who *wanted* to imagine the scenario themselves. For us, this raises interesting issues not only around the centrality of the *imagined* element

to scenario construction (and therefore prototype development *per se*); it also asks who benefits from the imagined scenario construction – who is it *for*? Indeed, in imagining the scenarios at UP London, other (personal) interests - such as specific interest in using a particular form of data or API, a particular methodological approach to design, the desire to construct a particular product (such as Apps or mapping software), or the close relation of the scenario to the everyday lives of the participants (such as commuting) – could be easily written into the scenario as a clear and evident solution to an identified (imagined) issue. This shifts the parameters somewhat from the centrality of the imagined scenario *per se*, to thinking about the imagined scenario specifically in relation to an individual and their more subjective desire, skill and motivation. For us, it covertly works to support the notion of innovation as individual authorship and desire, but actively works to disappear or negate this through the discourse of a ‘scenario’ with its ‘real’, public, community, civic facing elements.

A second issue to note is that the more detailed the scenarios are, the more ‘real’ they become and the bigger the sensation of achieving something *meaningful* (and profitable, if this is how the product is judged, ultimately). One facilitator commented that the personas of one group were incredible ‘rich’ for example, but that this ‘richness’ made a technological ‘solution’ more problematic (Leeds 2015). By producing these scenarios, or by inviting participants to construct them in detail, the participants imagine social, communal or personal problems that are technologically addressed. Therefore, not only are the users, communities and technologies prefigured in specific ways (see Callon, 2004); they are also valued differently, with technology having the transformative power to effect change. Interestingly, this was expressed in exactly the opposite way by one of the organizers, who claimed: ‘First we see what people want and then we realize how to solve it’. Technological determinism it seems, is both induced by, and constructed as the necessary and logical solution to this imaginative shift in a somewhat convoluted logic.

The scenario becomes a powerful imaginary and narrative artifact, then, that works to center (and disappear) the designer ‘at the heart’ of innovation. These scenarios shape the technologies to be built and the relationship between problem solving and innovation. More importantly, the scenario also shapes the future user as the recipient of a virtual problem that will be solved by the technology to be created. By doing this, these spaces of ‘innovation’ become, in fact, spaces of problems; test sites for the

construction of future users' needs. By enrolling as many actants as possible, these scenarios increase the potential to become self-fulfilled prophecies and 'actual' needs. Innovation is less about problem solving than creating and convincing the people that the problem exists. One of the participants of the hackathon said: 'I want solutions, give me problems'. In reality, it seems that the better framework would be: 'I want problems, give me scenarios'.

Finally, then, the scenarios are a powerful apparatus in and of themselves (see also Agamben, 2009) to develop ways of thinking about innovation. For example, in the app-development workshop, the facilitators were continually suggesting - based on their own practices - particular methods and approaches. This not only clearly framed and directed subsequent work, it also reproduced *their* method as both normative and natural. In this sense, we could argue that the workshop (and, indeed, the hackathon) was a scenario in and of itself where innovation is based on (1) 'best practices' (organizers imaginings and producing ideal designers), (2) scenario construction (designers imagine and produce themselves. methods and the technology in particular ways), and (3) constructing an imaginary *best possible user* who will ultimately and fully benefit from the design. In turn, the workshop or hackathon is itself, through the process of its own imaginary, produced as the ideal scenario in which innovation can happen. The final twist to this, of course, relates to Kera's (2012) work on hackspaces, where she defines hackspaces (drawing on Latour and Stenger) as 'cosmopolitical' laboratories within particular temporal frameworks (2012: 3). While the overt discursive and celebrated claim is that we 'can examine and evaluate various versions of how we want to live in the future with new technologies' (ibid.), these 'versions of the future' are always shaped by how participants are able to imagine it *in the present*, through (for example) the construction of a credible scenario, but the way to materialize it, to make this scenario alive is through a prototype. This also, of course, invests the 'version of the future' with a particular politics – an issue that we return to at the end.

In what follows, we elaborate on the notion of thinking of the future in the present through a deeper investigation of the lived and ritualized practices of the hackathon. These practices extend the discussion above; particularly in terms of the ways the hackathon is produced as a scenario in and of itself. They also offer an alternative approach to innovation that is embodied, corporeal, placed, mundane, lived, and - by

comparison with the future facing prototype design - firmly located and experienced in the present and immediate. Starting with a brief discussion of the place and space of the hackathon, we then discuss the importance of *food*¹ as it emerged in our research as both a corporeal necessity (provoking particular responses and framings) and a central metaphor as the 'fuel' for innovation.

'Fuel' for Innovation 1: Space, Place, objects and Food

The spaces and places of hackathons are notable both in terms of their design, and the related activities that are located there. Hackathons are always organized in open spaces without divisions and usually in 'creative spaces' with lots of fun, informal and colorful elements (posters, toys, structures, lighting, etc.) While many cultural geographers have warned against only reading place symbolically in relation to intended use (see Kraftl, 2010; Lees, 2001; Goss, 1993), it is clear that the meaning of the hackathon is derived, in part, from the specific temporal and spatial dimensions of the event. While we have discussed the former above in relation to '*fast-innovation in-the-making*', it is also important to discuss the spaces of the hackathon, not least because, regardless of actual use and inhabitation of the space (and consequent meanings actively generated here), these spaces are nevertheless clearly designed to mimic Silicon Valley's culture (Irani, 2015) and successful tech company spaces (and overtly valuing and attempting to produce certain practices and behaviors purporting to innovation). Therefore, while we do not claim that the design transparently or straightforwardly produces meaning, mediation or behavior, we do nevertheless want to interrogate it as an imagined, symbolic and idealized space of innovation. We should note that, in keeping with the theorists noted above, we conceive of the space of the hackathon in relation to the negotiated practices, performances, and mediations that occur here, in which the space plays a crucial, but not necessarily determining role (see also Jacobs 2006, p. 11; Rose, Degen & Basdas 2010, p. 346; Kraftl 2010, p. 329).

Although two of the hackathons were organized in a university building, where existing resources are rearranged to create a hackathon space, the rest of them along with the app-development workshop, were organized in commercial and/or creative spaces - where 'real innovation occurs' (e.g. ODI space, Duke Studios, Leeds Museum, USTWO

¹ Several ethnographic and media accounts of hackathons mention the importance of food. See for example Chang (2012) and Leckart, (2015, 2012)

Studio in Shoreditch). By comparison with the lecture theatre of the university hackathon, where the terraced seating was stacked up at one end, and the stage dominated, the other events were designed as ‘scenarios of innovation’ in and of themselves. Here, we suggest, hackathons also operate as a kind of prototype for how the spaces and resources could drive innovation through the construction of it as a more theatrical ‘scenario’. The App- development workshop, for example, was located in East London, in a growing area of creative industries (Shoreditch), and as a commercial company, the marketing, location and experience of the building and products were clearly important. The common space resembled a bar; music played constantly, and the bar itself included a kitchen, beers and hot drinks. The workspace was a big open room with tables forming a circle surrounded by walls full of photos, prints, dolls, and hundreds of post-its. Every desk was customized by the owners, as casual and personal spaces - all of them with ‘geek’ elements, all working to suggest a carefully (dis)organized sense of casualness, of ‘creative chaos’, of coolness.

In addition to the space ‘itself’, food also seems to be one of the key elements of the ‘scenario’ that hackathons want to stage as ideal spaces for innovation [3]. When asked about what could make a hackathon successful, one of the participants responded without hesitation: ‘good food’. Indeed, in both the app-development workshop and the hackathons, food arrived at regular intervals, although they were notably very different in terms of signification. The food at the hackathons consisted of buffet meals, served in a space away from the work space - downstairs cafeterias of the university building, adjacent rooms - although there was always snack food on hand in all the events: coffee, chocolate bars, pastries, fruit. The app-development workshop also served lunch downstairs, but they also had large bowls of fruit, pistachio nuts, individually wrapped chocolates, bottled beer and fruit juice that were constantly refilled. It was carried in large bowls by individuals, and accompanied by facilitator commentary that claimed it in particular ways, most notably as ‘fuel for creativity’.

In these discrete spaces, with specific temporalities and pressures, food is clearly on the one hand a means of increasing continuous productivity insofar as participants don’t have to leave the environment, or pay for food. We could also read the provision of food as recognition of the importance of embodied experience, duration and effort required for creative design. It could be interpreted as a clear acknowledgement of the embodied mediatory condition of (to use Kember and Zylinska’s words) ‘being-in and

becoming-with, the technological world' (2012:1). We could interpret the provision of food as a form of acknowledgement that innovation 'itself' is a negotiated, lived, embodied (gendered, raced, age-related etc.), corporeal and even mundane practice. But of course, in a convoluted twist, what happened in the hackathons and app-development workshop, as the facilitators comment above suggests, was that the embodied, corporal and mundane was routinely disappeared and negated, or at least subsumed into the creative process – which continued to be claimed in disembodied ways – as relating to the imaginary, to design, to the mind. Food 'fuels' innovation that happens elsewhere: it creates the possibilities for innovation but is not embedded in innovation *itself*. At the same time, the food took on a symbolic resonance of a particular (corporate, healthy, active, geek) lifestyle that was constructed as part of the 'scenario of innovation' in very particular ways. The significance of bottled beer, fruit, salads and pistachios (for example) became encapsulated in a desire for, and fantasy of, an 'othered' (Silicon Valley, tech company) imaginary that was far removed from the lived and immediate experience of eating, and located instead in the future orientated imaginings of innovation²

'Fuel' for Innovation II: Data, Cleanliness and Control

To complete the elements that shape and give meaning to hackathons, we need to finally also account for *data*. On the one hand the 'data' could be seen in a similar vein to the food discussed above, as the 'fuel' – the tools and resources, the raw ingredient – of the hackathon. Seen here, any possible scenarios that could be materialized through the construction of prototypes entirely depended on the availability and condition of data. Several statements and comments of participants acknowledged this, particularly in their responses to the challenges that were posed the first evening. One challenger, for example, who was offering an all-expenses paid trip to Mobile Expo Asia in Shanghai, was treated scornfully and dismissed by the participants with whom we were seated, because she offered no data for the challenge: 'this is just useless!' 'No API's?!' 'I want data!' This last comment, in particular could be taken as exemplary of the overall relationship of the participants to the technology: they wanted data, and to reiterate the metaphor above, they were *hungry* for it.

² There are multiple accounts in the popular press about the "perks" on working for tech companies. See for example <http://read.bi/TBkpMs>

At the same time, however, data is also, and crucially, part of the imaginary insofar as it is constructed, claimed and valued in particular ways. Indeed, the initial issue to note in relation to the way data is constructed is that available data constitutes innovation ‘itself’ in specific ways (for example, it is easier to ‘innovate’ for a ‘problem’ that has cleaner data). Indeed, by offering ‘clean’ data-sets, it is the *people* – the hackers - who become empowered because the assumption is that the cleaning process not only makes the data more malleable (and therefore it is up to the hacker to shape it), but also that it makes it more transparent or neutral (ready for further shaping). Both of these assumptions are tied to the discourse of cleanliness which we discuss below, but they ultimately work by shifting the power from the data to the hacker, who is empowered by clean data to mobilize, shape, and create a prototype that is only limited by the parameters of their own imagination, rather than, for example, the constraints of the data itself. Of course, in fact the inverse of this is true: cleaning data does strip away some of the contextual signifiers that give it meaning, but it also re-orientates data into a further set of relations and contexts that layer it in new ways. The second issue to note in relation to this, is that the hacker was not only empowered *per se* by comparison to the data, but also constructed within particular frameworks of the hackathon, which also framed both the data and the hacker in particular ways. At the UP London hackathon, the presenters who set the ‘challenges’ to construct the scenarios in the first evening, spent a noticeable amount of time constructing the available data in very particular ways:

I take horrible, horrible data sets and I make them clean enough to use...I have a lot of really, really clean data and let me tell you that for a hackathon, clean data is so much better and easier to use. (Bruce Darling, Hackathon London).

This is non-raw data. You can have access to all the datasets. And it’s *clean*. (Ian Holt, Ordnance Survey)

What [Bruce Darling] was talking about [cleaning data] – we *do*. And we’ve got a £10 million project with TSB to do it with. (Ian Short, Institute for Sustainability)

What is noticeable for us, then, is the language used to construct the data, which is far from neutral. The data is presented on a sliding scale from clean to ‘dirty’ – each, of course, complete with connotations that not only refer to hygiene, but also infection, disease, bias and complexity. In relation to the former, we see the resonance of

longstanding fears and concerns around technology found in science fiction and popular culture, which are also, of course, deeply and problematically gendered (see for example, Kuhn 1990; Featherstone & Burrows 1995; Kirkup et al. 2000). In relation to the latter, the language used works to undermine the power relations at work in the data itself and through the use of the data, by claiming it as transparent, ‘clean’, without bias, neutral. This in turn, as suggested, places autonomy and power with the hacker/user – who can manipulate the data to make it both meaningful and useful in particular ways. Here, we see resonances of the increasingly prolific, but longstanding, rhetoric around individualism, neoliberalism and technology - where the user/hacker is variously constructed as the powerful or omniscient agent who can build or navigate their way through the technologies and data on offer (see Rheingold, 1992; Turkle, 1997; Prensky, 2011; Castells, 2009). In turn, the technology, as the transparent, clean, unbiased and supportive facilitator of, or fuel for, the users’ needs (see for example Jenkins 2006, Rheingold 1992), is constructed in relation to the *possibilities* on offer through the technology (see for example Östman, 2012; O’Reilly, 2005) – here also framed by notions of market, size and profitability.[4]

The final issue to note in relation to data is the way it shapes the final prototype. This is an obvious point to make, but what was notable for us was that the data provided a normative comparison to the prototype – it was forged through and set against the conditions of its making. This located the prototype as firmly rooted in the present, but it also had a number of implications for the notion of innovation, which, seen here, was not only located in the present rather than future, but is also constructed as inherently relational – as perpetually contrasted with the functionality of existing data sets (‘it is like the *tripadvisor* of repairing’, ‘like the *skyscanner* of cities’, ‘It works very similar to *ebay*’). Indeed, if the best description of products by their designers locates them within a field of present-day sameness, it suggests there is either inadequate language, or imagination to conceive and describe something truly different (and therefore perhaps, truly innovative?). Indeed, as Callon argues, ‘Like humans, non-humans and especially technologies participate in their own right in the definition and course of action, and in the production of knowledge on which design is based.’ (2004: 4)

Prototypes: Innovating in the present, inventing the future:

The final stage and the ultimate goal in these ‘fast-innovation’ workshops is, of course, the development of a prototype. In our final section, we want to consider the implications of this for some of the central issues discussed in the article so far: innovation and the imaginary, the staging of the hackathon, and the notion of temporality.

Prototyping, as Suchman, Trigg & Blomberg (2002) suggest, ‘represents a strategy for ‘uncovering’ user needs, taken as already existing but somehow latent, unarticulated or even unrecognized by practitioners themselves’ (2002:166). This process whereby the designer speaks to these needs of the user through prototype development and in so doing reveals the need alongside the solution, is clearly also evident in the scenario constructions discussed above. As Suchman, Trigg & Blomberg argue, this practice ‘simultaneously recovers and invents work requirements and technological possibilities’ (2002: 166). The prototype itself is a material bearer of the relations that forged it, however, is also an object or tool – and its materiality becomes demonstrated in the testing and showcasing of it. This in and of itself creates certain requirements around the prototype as the materialization of an imaginary that is experienced in the present but also conceptually future-orientated. If a prototype is the materialization of the imagined scenario into a product, it is also (supposedly) the ‘embodiment of new technological possibilities not yet available in the market’ (Suchman, Trigg & Blomberg, 2002: 173).

To a certain extent, we could argue that these parameters are fundamentally irreconcilable and work to set the prototype up for implicit failure. This is an interesting concept in and of itself not least because of the way that failure, compromise, and negotiation are routinely written out of the various elements of the hackathon already discussed in the article. What became increasingly obvious to us, however, was that the important issue about a prototype was not the object or tool *itself*, but the pitching of it to the judging panel. Indeed, the least successful pitches were those where a device or tool had actually been created. The more successful pitches (in terms of what was awarded ‘incubation’ time or prizes by the judging panel) were those where one element of the prototype – such as the interface – may have been built, but the majority was a design brief rather than tangible product. These pitches seemed to navigate the (present) materialization of an imagined scenario into a tangible product *and* the future-orientated imagined possibilities with some success. Interestingly the one exception to this was the

firefighters challenge, where a tangible and demonstrable prototype was actually built and demonstrated exactly to the parameters and specifications set up by the scenario offered by the firefighters at the start of the hackathon. Here then, we could argue that the imagined or future-orientated dimensions of innovation were already negated from the start by the real-world, corporeal scenario that required a similar solution. We could also suggest that there was little innovation in this prototype precisely because the scenario was so specific. Regardless of whether we consider this prototype successful or not, then, there is an interesting tension here around what the actual building of a prototype does to concepts of innovation, the imaginary and issues of temporality as represented here.

The innovation trap (conclusions)

Hackathons are highly constructed and ritualized processes that make overt claims to and of innovation. They are purposeful laboratories that facilitate assumptions that innovation can be, and is, achievable through the replication of the correct ingredients in the correct quantities. These two elements work to construct hack events as a mimicable process or strategy that is conducive to the elements of innovation discussed at the start of this article – productivity and profit. Yet in so far as they also mimic but are always removed from their imagined ‘other’ of tech companies and Silicon Valley, they are simultaneously constructed as lacking, as inadequate and as inherently imaginary. They construct, and operate as, a scenario for imagined, ideal techno-social relations that in turn become increasingly problematic through the prototype development and its oscillation between material present and imaginary future. At the same time, it is these oscillations and contradictions that combine to construct the hackathon as incredibly powerful environments, that are compellingly located in a temporally specific ‘safe’ zone of creative exploration that seems entirely constructed around the playful irreconcilability of the imagined and material. Indeed, even as we critiqued the hackathons and app-development workshop, we felt the effects of the environment in our own desires to engage and ‘innovate’.

However, as this article demonstrates, the powerfulness of the hackathon as a space and place of innovation is contingent on many problematic conceptions of the ideal user that are simultaneously imagined and produced through the particular discourse of the ‘scenario’. The rhetoric that is employed here, in its constructions of data and food,

embodiment and disease/cleanliness frame the hackathon in ways that both uncritically resonate longstanding engagements with technology, and reframe them into a competitive and corporate imaginary. The mundane, lived and routinised body of the *participant* who expresses duration, effort and even a dogmatic resilience to the material conditions of the hackathon, is undermined, set aside or negated through the staging of the event. This is done through a series of enmeshed processes, such as the particular framing of food, the overarching conception of creativity and innovation as cognitive, and the emphasis on the imaginary at the potential expense of the tangible object. What this means, ultimately, is that innovation is able to become an abstract and abstracted (mimic-able) process or recipe, precisely because the embodied, corporeal, emplaced and lived mediations are routinely undermined. This in turn, also works to remove or negate the embodied and interventionist politics we find in the wider hacker legacies to which theorists like Nissenbaum (2004) and Schoonmaker (2012) refer, replacing them instead with a corporate discourse of individualism and competitiveness which is firstly claimed as normative, and secondly enmeshed within organizational principles of structure and management (see also Leach & Wilson 2014: 13).

Indeed, it seems to us, that one of the overarching issues that has been elucidated through our ethnography is around the embedded and pervasive *politics* of hackathon which are simultaneously etched into their structure and nuanced through the discourses discussed here. Our final point in relation to this, is to suggest that longstanding and complex understandings of creativity and design, innovation and imagining - that productively understand innovation as *process* or *mediation*, as *sociomaterial* and *sociotechnical* (Kember & Zylinska 2012, Balsamo 2011, Suchman, Trigg & Blomberg, 2002; Hoholm & Araujo, 2011; Simakova, 2013; Yaneva, 2009; Wilkie & Michael, 2009, Hallam and Ingold 2007) - are becoming increasingly overshadowed by cultures of entrepreneurialism (Irani 2015), management and organizational structures (Leach & Wilson 2014), and neoliberalism (Schleisinger 2007) where the most important thing is not technological innovation or prototype design, futures thinking or creativity, but the production and celebration of what Irani has termed an 'entrepreneurial subject' (2015: 2). Indeed, in keeping with Irani's argument, the hackathon is not an apolitical space (playful and creative), but one that enforces and celebrates a particular notion of entrepreneurialism – orientated, as Irani argues, towards and in keeping with an imagined ethos of Silicon Valley (ibid.). Furthermore, it is not only that entrepreneurial

citizenship is enforced; it is also that it is imagined and constructed as a positive and productive force for social change (Irani, 2015: 2-3). Innovation-in-the-making, it seems, is *politically* configured and to subsume this issue into a techno-social discourse that attempts to evoke playfulness and creativity, cleanliness and fuel is to misunderstand what is really at stake here. In the wholesale adoption of these methods into other sectors (the third sector, public sector), and in the positive and celebratory elision of innovation with a staging or organization, we are not only reproducing entrepreneurialism-as-innovation, we are actively endorsing it.

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Endnotes:

[1] For an introduction to the concept of hacker as a cultural figure see Levy (1994), Wark (2006) and Castells (2003). For an ethnographic account see Coleman (2012).

[2] In the case of one of the app-development workshop each team had to start by imagining the user of the app. The user was assigned a 'photo' (provided by the organizers) as a starting point – and the participants were encouraged to give each imagined user a photo, a name, a city, routines, needs. The facilitator of the workshop told us to 'imagine his real life' [sic].

[3] The relationship between innovation and food is interesting to explore. For example, it is well known and widely mentioned in the popular press, that in Google Campus the food is free (and healthy). Almost all of the accounts about hackathons include some comment about the (usually free) food and drink.

[4] Such approaches have also been critiqued, see for example Grosz, 2001; Fenton and Barassi, 2011; Thornham & McFarlane, 2011; Gillespie, 2010; Balsamo, 2011)