# Relocating Innovation: places and material practices of future-making

Lucy Suchman, Endre Danyi and Laura Watts
Centre for Science Studies, Lancaster University, UK

## *Introduction*

Few terms appear more frequently in contemporary public discourse than the trope of 'innovation.' Yet, somewhat ironically, most discussions of innovation are surprisingly repetitive in their assumptions and propositions. Popular representations tend to treat innovation as the result of universally relevant acts of individual genius, while paying little attention to particular places and culturally-specific practices of transformative change. At the same time, recent theorising in the social sciences and humanities suggests new directions for research.  In particular, the project proposed here contributes to critical studies of innovation, which take the latter as situated material practices enacted within distinctive sociocultural and geographical locations. It does so through comparative analysis of three diverse sites of future-making:

- an internationally recognised centre of technology research and development in Silicon Valley, United States;

- small-scale high-tech industry on the remote archipelago of Orkney, Scotland;

- spaces, materialities and modes of doing politics in Hungary.

In developing our analysis, we understand the future not as a temporal period existing somewhere beyond the present, but as an effect of imaginative, rhetorical and material practices – including memorialised pasts – enacted always at specific moments, and *in situ*.  Within that conceptual frame, we take *future-making* as comprising practices oriented to projections of transformative change.  In looking at such practices across these sites, our aim is to explore resemblances and differences between two initiatives that have not traditionally been considered together; that is, the design of new technologies and the creation of new political orderings. A further intersection is afforded by the place of information and communications technologies as both the objects of and the resources for action in these sites. Through a comparative study, we are interested in articulating more specifically the politics of technological innovation on one hand, and the technological infrastructures that enable the doing of innovative politics on the other.

## *Critical innovation studies: previous research*

Critical scholars of innovation share an interest in ways of theorising change and the 'new' that do not rely on premises of a linear trajectory of development or singular moments of innovation.  In response to discourses that centre innovation within select institutions and the agencies of individuals, researchers are increasingly reorienting their studies to highlight sociotechnical change as enacted always in multiple sites, and through dynamic reconfiguring of humans and nonhumans, persons and things (see for example Barry 2001; Berg 1998; Bijker 1997; Born 1995; Brown *et al* 2000; Knorr Cetina 1999; Law 2002; Suchman 2007). These approaches emphasize the entanglements of the social and technological in the politics of change.

With respect to technological innovation, it is by now well established that the cultural production of new artefacts is not limited to the domain of the research and development laboratory, but must be understood as also constituted in everyday practices of technology use (see for example de Laet and Mol 2000; Miller and Slater 2000; Oudshoorn and Pinch 2003; Shove et al 2007; Suchman 1999, 2002; Woolgar 1991). At the same time, we need to ask how projects to reclaim creativity and invention as always already there in everyday practice might themselves be reproductive of a very particular, cultural-historical preoccupation with the 'new': Must those not identified as inventors be shown in fact to be inventors in order to be fully recognised? We address this question not through its resolution, but through an attention to the tensions and contradictions that arise when we adopt a strategy that attempts to distribute practices previously identified exclusively with certain locales across a wider landscape. In distributing those practices more widely, they are given correspondingly greater presence.

In the realm of politics, Andrew Barry defines a technological society as one that conflates invention in general with technological innovation, then takes 'society' to be a source of resistance or inertia (1999, 2001). As a step towards thinking outside of this conventional box, Barry draws a distinction between 'novelty' and 'invention,' arguing that there is no simple relation between the speed with which new things are produced, and inventiveness (2001: 211-12; see also Serres 1995). In contrast to the premise that innovation can be measured in terms of the number of ideas that are locked in place through their materialisation as patented artefacts, Barry proposes a view of inventiveness as 'an index of the degree to which an object or practice is associated with *opening up* questions and possibilities' (ibid.: 211) What is inventive is not the novelty of things in themselves, on this view, but the transformative possibilities afforded by the arrangements within which they are located.

*Relocating Innovation: the research problem*

To bring these insights to the study of future-making across technological and political domains, our research starts from the proposition that 'the only way to find a larger vision is to be somewhere in particular' (Haraway 1991:196). The sites of our study are committed to the work of envisioning, understood as the enactment of futures in which imagined social and material transformations are realised. Desired transformations are articulated in terms as diverse as increased profits, technologically-augmented humans, sustainable industries, and new, more just political orders. Our aim is to explore more concretely the question of how the futures enacted in these sites are shaped by their location - by being 'somewhere in particular'. To pursue this we develop the ambiguous sense of 'location' as both place, and as sociohistorical and political circumstance.

*1. Location as place*

Our approach takes the *place* of technological and political future-making as consequential for its effects. The specific media and sites through which innovation practices are enacted – from brainstorming white boards to strategy documents, manifestos, research laboratories, design studios, and parliament offices – are often treated as a kind of taken-for-granted backdrop for the business at hand. Our approach, in contrast, is to take place and material artefacts not merely as technical

details, but as active participants in practices of future-making. In this we draw on a small but growing body of scholarship, oriented to the inseparability of activity and its locales. Tim Ingold, for example, has argued that knowing is an effect of ongoing sociomaterial practices as we move through the world; 'we know as we go, from place to place' (Ingold 2000: 229). A place in this sense is not simply landscape, nor unmarked space, nor purely natural; it is not fixed and 'out-there' but always dynamic and contestable, and therefore also always political (see also Bender 1998; Turnbull 2002; Verran 1998). This orientation stands in contrast with much political theory in which negotiating ideas of 'the good society' or 'a better future' are treated as rational and, as such inherently immaterial, deliberations.

Of further relevance for this project, Escobar (1994) suggests the term 'technoscape' to reference the ways in which discourses and practices generated by and around information and communications technologies comprise a kind of landscape to be inhabited. Appadurai (1997) introduces five 'scapes', or "global cultural flows" (which he designates as ethno, media, techno, finance, and ideo), meant to reference multiple worlds "constituted by the historically situated imaginations of persons and groups spread around the globe" (ibid.: 33). The value of the trope of 'scape' for Appadurai is its orientation to disjunctures as much as continuities within and among these mappings, so that they interact and intersect in multiple and specific ways (see also Barry 2001: 37). Like other maps, depictions of the technoscape are not simply aids to navigation through an already-existing terrain, but propositions for a future within which relevant subjects and objects can claim their place.

Attending to location as place leads us to ask:

- How are sites of future-making constructed as such? How do particular places become central to future making, and others peripheral or absent? How are locations for future-making stabilised over time, and how are they displaced?

- How do places configure practices of future-making? How do heterogeneous nonhuman actors (from strategic documents to mobile telephones) participate in, resist, or promote these practices and the futures they make?

- How do actors position themselves in place, and inhabit the futures imagined?

We are interested, in sum, in how places engage differently in practices of innovation, such that differently located practices create divergent futures (Watts 2007).

## 2. *Location as sociohistorical and political*

The past twenty years of scholarship in feminist research and in science and technology studies has persuasively demonstrated that the most far-seeing visions and the most widely accepted facts take form in specific sociocultural, historical and political-economic circumstances. This perspective challenges the premise of knowledge production as the generation of universal truth, asking instead how it is that particular artefacts, both conceptual and material, 'provide for ... local practices of transcendence' (Smith 1987: 108). At the same time, Appadurai (1997: 182) writes of 'techniques for the production of locality,' emphasising that the local is not the ground for cultural analysis but the figure, not already given but constituted in and through practices. Location in this sense involves orderings, of events and

experiences, as more and less proximate or distant, legitimate or illegitimate (Probyn 1990; see also Rich 1986).

The notion of *located accountability* (Suchman 1999; 2002) is an attempt to articulate this sense of the politics of location with specific reference to practices of design. Located accountability means ongoing engagement with the question of just how imagined futures are shaped by their particular circumstances, and how they work to reproduce and/or transform more extensive historical, cultural, political and economic arrangements. The concept of located accountability emphasises the particularities of innovation by drawing attention to the situatedness of knowledge production. It also opens up the possibility of identifying new sites of politics in the more conventional sense of the word. Bruno Latour (2005), for example, argues that dominant technologies of political representation in the West ever more often fail to keep up with the rapidly changing environments in which they are supposed to operate: There are many issues that cannot be adequately represented in town halls or national parliaments. It is important, therefore, to recognise alternative political sites, each of which 'has its own architecture, its own technology of speech, its complex set of procedures, its definition of freedom and domination' (Latour 2005: 31).

If we accept these premises, the questions that face us are:

- What are the consequences of specific sociohistorical and political locations for practices of future-making?

- How are some practices and artefacts constituted as 'newer', as more 'innovative,' than others?

- How is it, given the inescapable locality of their production, that certain practices and artefacts are able to endure, to travel over time and across space, and to become consequential for subsequent actions in other places?

Innovation in this sense is tied not only to the creation of novel devices or alternative ways of 'doing politics,' but also to different ways of making things political, and to the different futures configured through specifically located material practices (Latour and Weibel 2005; Law and Mol 2007).

*Methods*

The case studies that we undertake in this project will advance theorising and empirical analysis regarding sociotechnical change, by comparing a site commonly identified as a centre of innovation with sites not ordinarily figuring within the innovation literature. Our approach employs interdisciplinary methods involving a synthesis of anthropological, sociological and sociohistorical/political approaches. More specifically, our methods include:

Archival work:

Case Study 1 will draw largely on materials from the Principal Applicant's archive of personal papers assembled during the period 1980-2000 at Xerox PARC. These include a large corpus of email correspondence, corporate memoranda, reports and strategy documents, as well as media accounts of related events. Case Study 3 will

draw from a rich set of publicly available archives in Budapest and London, covering relevant events from the late 1970s through 2006. These materials will be contextualised through secondary sources and analysed in relation to contemporary writings on 'memory practices' (e.g. Bowker 2005). The latter encourage attention to the ways in which historically constituted conventions of remembering are tied to available media, as well as to 'the variety of ways in which we continually reconfigure, lose and regain the past' (ibid.: 2).

Fieldwork:

Case Studies 2 and 3 will involve ethnographic fieldwork among firms on the Orkney Islands, and in the Hungarian Parliament. In conducting Case Study 2, Watts will further develop an experimental interdisciplinary method drawing on fieldwork techniques from ethnography and archaeology (Ingold 2000; Latour 1996; Watts 2007). The method involves gathering heterogeneous evidence, including ethnographic notes, material fragments, and recording of landscape settings. The evidence is then analysed with attention to relations between naturalcultural place and technical practices of future-making. This approach will inform an orientation to evidence, landscape, architectures and future-making in Case Studies 1 and 3 as well.

Interviews:

Along with fieldwork, Case Studies 2 and 3 will incorporate interviews with relevant actors. Dányi's interviews with those involved in samizdat publishing during the late 1970s and 1980s, and in street protests of 2006, will again be informed by the question of 'how societies remember' their histories, including the ways in which memories are provoked by place and artefacts (see Urry 1996).

*Cases*

*Case Study 1: Technological innovation in the Silicon Valley*

The Principal Applicant is an anthropologist with longstanding experience of research and development in the area of information and communication technologies. After a twenty-year career as a researcher in a leading U.S. laboratory, the Xerox Palo Alto Research Center (PARC), she is currently engaged in a critical, theoretically informed analysis of the lived realities of 'high-tech innovation,' to be published under the provisional title *Reproducing the Centre: Performing Innovation at Xerox PARC*. The work to be done in the context of the present project will focus on material practices involved in the projection of futures in relation not only to new technologies, but to the Center itself.

The work of future-making at Xerox PARC includes the mapping of various 'technoscapes,' delineated in this case within an organisation dedicated to positioning itself as central to inventing technology futures within the global imaginaries of entrepreneurial capital. Understood as material practice, this work presumes facility with a body of conventions and artefacts-in-use. The latter include the materialisation of relevant futures in a plethora of forms (e.g. prototypes, strategic plans, annual reports, and other devices of identification, promotion and accountability). This study will explore the ways in which, in the research and development context, the purpose of such mapping exercises is less to prepare for actions to be taken than to perform

certain subject/object positionings within the technoscapes that the plans both presuppose and reiterate. More often than not these are plans for a future that never comes to pass: they do their work in the present. Questions of accuracy translate as questions of adequacy, or effectiveness *vis-à-vis* a course of ongoing or projected action (Turnbull 1993: 41-2).

Along with the efficacy of such projections, our interest is in the micropolitics of their genesis and use *in situ*, as an obligatory form of local self representation. Treating the mapping of technoscapes not as an academic exercise (however valuable that might be), but as part of the embodied practices of doing research and development, we are lead to questions like the following: What are the politics of presences and absences in mapping technoscapes in the context of a centre like Xerox PARC, and how are they enacted? What is involved in making futures that are at once discriminatory (among goals and plans, targets and objectives) and also inclusive (of actual ongoing activities)? How do participants project themselves into place within the futures that are envisioned, both in terms of the subject positions that are explicitly made available, and those that are lived but not represented?

Case Study 1 will ask the question: What could it mean to take Xerox PARC as a particular place, without presupposing it as a unique or exceptional one? At the same time, it will examine the effects of organization members' own preoccupations with the status of PARC as exceptional; a status seen variously as a birthright, as a history, and/or as a tenuous present/future. This work will be extended through its engagement with the multiple locales encompassed by Case Studies 2 and 3.

*Case Study 2: High-tech industry on Orkney, Scotland*

Laura Watts will act as lead researcher for an ethnography of high-tech innovation at the geographic periphery, on the remote archipelago of Orkney, Scotland. This case will investigate the effect that place might have on innovation, through an ethnographic study of technology research and development practices in a landscape radically different in topography and temporality to those that characterise sites more often considered central to high-tech industry, such as multinational corporations at international transport 'hubs'. This ethnography will address questions of location through its focus on islands often considered 'remote' from centres of high-tech industry, but which are an emerging site for sustainable high-tech industries of European significance (e.g. European Marine Energy Centre). It will also address questions of temporality in future-making through a consideration of the effects of the high density of extant prehistoric monuments on Orkney, which is one of the most important places for Neolithic archaeology in the world (e.g. Heart of Neolithic Orkney World Heritage Site). Orkney is therefore a site where enduring and durable technologies may powerfully influence the construction both of a prehistoric past and of technologies of the future.

Year 1
- Establish potential fieldwork sites on Orkney including high-tech business, heritage organisations, and archaeologists and anthropologists already working in the islands (this will involve a one-month visit).
- Formalise agreement for ethnographic access, negotiating legal/ethical concerns.

- Develop the theoretical and comparative basis of the ethnography and interdisciplinary method, with attention to archaeological and ethnographic research on Orkney.

Year 2
- Four months of participant-observation at high-tech companies on Orkney
- Interviews with freelance high-tech workers, representatives of strategic organisations, archaeologists, and heritage managers working on Orkney.
- Archival research through newspapers, internet, and local libraries, complemented by recording relevant stories from island residents.

Year 3
- Compare, contrast and analyze evidence alongside the two other ethnographic projects.
- Prepare journal articles and a book on the innovative research methods and findings of the project.

*Case Study 3: Alternative modes of doing politics in Hungary*

These studies of the location of technology research and development will be augmented, and challenged, by Endre Dányi's PhD research into the material practices of political future-making. In a critique of the rationalist deliberative model of democracy Chantal Mouffe (2005) observes that the 'we'/'they' opposition so central to democratic politics is ever more often constructed according to the moral categories of 'good'/'evil.' According to Mouffe, this indicates 'not that politics has become more moral but that nowadays political antagonisms are being formulated in terms of moral categories' (ibid.: 75) – such as 'friends vs. enemies of democracy.' The problem arising from this 'moral turn' is that it becomes increasingly difficult to find spaces where different visions of the political future could openly confront one another (see also Massey 2005). Endre Dányi's ethnography is an attempt to further this argument by identifying conventional and alternative locations of political innovation in the past 30 years of Hungary. The research will focus on three specific 'modes of doing politics,' namely:

- Parliamentary representation in the post-1989, liberal democratic setting, which is expected to operate as a complex yet transparent problem-solving mechanism based on pre-defined values and principles. Important material components of this mechanism, although meant to be mostly 'invisible,' include not only old and new media technologies, but also physical places, objects and bodies.
- Street protests of September and October 2006 in Budapest, when thousands of citizens – enraged by an informal speech of the Prime Minister – organised several violent attacks against public institutions, including the main building of the public service television. Similar to the Paris riots of 2005, mobile phones played an important role in not only the organisation, but also the documentation of these attacks.
- Low-tech clandestine – samizdat – publishing and related material practices in the late 1970s and 1980s, which allowed for the co-existence of a wide range of political visions without the urge to establish a coherent anti-Communist movement.

The aim of this material semiotic research (see Law 2004) is to look at the ways in which specific arrangements of subjects and objects in well-defined political spaces render certain futures realistic while keeping others invisible. By following a Member of the Hungarian Parliament for two weeks, Dányi will observe how political representation is done in practice. (Contact has been made with this MP, who has agreed that the research could take place in April-May 2008.) The case of the violent street protests in 2006 provides an opportunity to analyse political actions and visions that appear when parliamentary representation, as the default mode of doing politics in a democracy, is openly challenged by a group of citizens labelled as 'anti-democratic' by all mainstream political actors. The third case study concentrates on the non-coherent spaces of samizdat publishing of the late 1970s and 1980s, and examines the possibility of going beyond the 'friends vs. enemies of democracy' dualism by focusing on different ways of making things political.

### Year 1

- Samizdat networks: Archival research in Budapest (Open Society Archives; Art Research Centre Artpool; Historical Archives of the Hungarian State Security; Centre for Documentation and Contemporary Photo Arts) and London (Slavonic and East European Collections, British Library)
- Interviews with ex-samizdat authors, producers and readers
- Ethnography in the Hungarian Parliament, April-May 2008.

### Year 2

- Violent protests of 2006: Archival research in Budapest through newspapers, internet, and local audio-visual databases, complemented by interviews with the police, protesters and residents

### Year 3

- Compare, contrast and analyze evidence alongside the two other ethnographic projects.
- Prepare journal articles and a book on the innovative research methods and findings of the project

The integration of these Case Studies will comprise the focus of collaborative work at Lancaster University during Year 3 of the project. In addition, the Principal Applicant will make visits to each of the ethnographic sites in Year 2 to engage directly in guiding the course of the fieldwork in ways that facilitate the aims of the overall project.

*Significance*

This project will integrate these very different sites of social, material and political future-making in a comparative analysis that leverages their resonance and contrasts, in order to contribute to the re-examination of innovation discourses. Our strategy is to work at once critically, sociohistorically and ethnographically. Critically, in the sense of questioning basic assumptions about what it means to create something new, by locating the new in those particular places and those specific moments where it is conjured forth and does its work. Sociohistorically through an attention both to the

ways in which innovation stories are told, and to the memory practices through which they might be remembered differently. And ethnographically, insofar as the basis for our particular interrogations of the new is extended engagement with everyday practices of future-making, informed by interests and debates within science and technology studies. We are interested in the question of how discourses of innovation work their effects, in sum, and in the relation of those discourses and effects to everyday practices of technological and political figuration and reconfiguration.

Barry's observation that "*[a] technological society is one which takes technical change to be the model for political invention*" (2001: 2) suggests that in order to expand the possibilities for political invention we need simultaneously to transform our conceptions of the nature of technological change. The case studies to be undertaken here, and their generative comparison, will provide empirical grounds for re-imagining technological and political future-making as always already intertwined. In treating technology design as enacting a politics of social change, and political action as mobilising new material configurations, our project will work to open up alternative spaces for both. In this way we hope to help to loosen the grip of unquestioned assumptions regarding what innovation is and where and how it happens, to make room for more generative and sustainable forms of future-making.

*Publication and engagement*

Along with conference presentations and scholarly publications, we will organise ongoing forums and periodic workshops that directly engage study participants, as well as a broader network of scholars and practitioners.

- At the start of the project we will establish a website and mailing list for the dissemination of our activities and findings. This will be intended to establish a forum to bring together academic researchers and other interested practitioners. Laura Watts is a proficient web designer, and the site will conform to the latest accessibility legislation.

- We will regularly publish short 'briefings' on our work as ideas and activities progress. These will be distributed through our website and mailing list.

- To bring the case study sites together we will conduct a series of seminars (three in total), one at each ethnographic site, and a third at Lancaster University. These will bring the researchers, their evidence and findings together in each place. (We will seek additional funding to support this.)

- We will present papers based on the project at international conferences including the Society for Social Studies of Science (4S) and European Association for Science and Technology Studies (EASST); the British Sociological Association; the Association for Social Anthropology; and the American Anthropological Association.

- We will publish all of our work in internationally recognized peer-reviewed journals. These articles will be written with the potential to be drawn together into a book.

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