# Subject of innovation or : how to redevelop 'the patient' with technology

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# 7 Democratisation as self-constitution
## *Influencing technological development*[14]

I use this last chapter to discuss the theme of democratisation, which is relevant for both the legacy of Foucault's work and for the theme of innovation. Let me start with the practical lens. In the field of innovation, there has been renewed interest in citizen participation. I do not intend to develop the question of whether this is a 'bottom-up' or 'top-down' development. Probably it is both. In any case, the current situation is that participatory innovation is high on the agenda of the private and the public sector alike. This shift in attention is often discussed in relation to a wider change in focus: from emphasising the supply-side of innovation to emphasising the demand-side. In reference to the two traditions of thinking about innovation that I presented in chapter one, I now shift to the second tradition. This focuses on innovation as the output of new products, rather than on innovation as input to a production process. As I said before, this also brings me into the domain of 'general' innovation policy, rather than in the domain of innovation in healthcare policy. This general policy has an impact on healthcare nonetheless.

Also governments seem to go through a development to focus more on 'users' than on 'producers' (for an example at the level of the European Union, see: Commission of the European Communities, 2009). This is often shared under the heading of 'democratising innovation'. Against the background of what I discussed in Parts 2 and 3, such developments seem to imply a move away from large infrastructural projects, in which there is no chance for societal participation. People won't 'see' the electronic health record before it is implemented, assuming that it will. Efforts to arrange end-user involvement are positioned as a way out of this approach to innovation. However, on the basis of the previous chapters, it seems justified to question whether such involvement, participation or even democratisation will in fact offer people a chance to escape being constituted as subjects. Does end user involvement imply a chance to develop 'technologies of the self', or is it a way of extending governmentality by managing when and how people are involved? Particularly considering the stress that is placed on demand, parallels with the constitution of a 'neoliberal subject' are evoked. The question for

[14] This chapter draws on earlier work (Dutilleul et al., 2010)

this chapter is to what extent people have the chance to do self-development in innovation projects in which they are asked to *participate.*

Nevertheless, there is certainly an argument for looking at participation and democratisation from the point of view of self-development. The influence that people exert in innovation projects is sometimes related to matters of identity formation (Dinka & Lundberg, 2006). This invites a comparison of the premises of self-constitution and democratisation in theory and in practice.

Turning to the theoretical lens, it becomes apparent that many have made a connection between Foucault's notion of self-constitution and exerting democratic influence (Pickett, 1997; Gabardi, 2001; Parchev, 2008; Walter, 2008; Shinko, 2008). If Foucault's work is brought into this context, it is often under the heading of 'radical' (Parchev, 2008; Walter, 2008) or 'agonistic' (Gabardi, 2001; Shinko, 2008) democracy. The emphasis is on direct forms of influence, which often take the form of resistance. Others, however, have a less political reading of Foucault in which the aesthetic dimension of self-constitution is emphasised over the democratic project. In such a view, the subject constitutes the self purely for the sake of the self, and for nothing more than that. Close readings of his work have been performed to assess which interpretation is 'correct' (e.g. Pickett, 1997). We have to admit that Foucault was often ambiguous. I would not like to attempt to read Foucault's mind posthumously. For me, it seems reasonable to assume a connection between the idea of self-fashioning and the inclination to exert political influence in certain situations. Our political acts might well accord with the way we attempt to shape ourselves. Resistance or other forms of political influence could be a manifestation of self-constitution.

This does not imply, however, that there has to be an essential agonistic relation between the self and government. A good deal depends on the definition of resistance. If we think about examples in popular culture: should we consider only Bob Dylan's agonistic lyrics – think of *Masters of War* (1963) – as an example of resistance, or also the self-fashioning of gays in the subculture that arose around 1970s disco music?[15] If the latter is also an example of resistance, then the perceived opposition between the 'agonistic' and 'aesthetic' reading of Foucault's work is perhaps less of a divide.

Another major question in democracy-oriented discussions of Foucault's work is whether or not he defied liberal democracy and its institutions (see, e.g., Flyvbjerg, 1998). Clearly, there are arguments in favour and against such explanations. Pickett (1997) shows that Foucault often contradicted himself

[15] Thanks to Darryl Cressman for bringing the example to my attention

on this issue. Without claiming to have the correct reading, his later work makes more sense to me if self-constitution and political influence are imagined to be entangled with technologies of government and other power relations. Resistance does not necessarily mean to 'fuck the system', even though resistance is often aimed at system-level. Barry comments that '[i]n investigating opposition and protest it is important neither to romanticise protest nor to view it simply as an expression of a pre-existing antagonism or a manifestation of an underlying historical logic' (2001, p. 6). I believe that such a point of view is in line with Foucault's argument. Flyvbjerg argues that, for Foucault,

> ''the political task' is to criticise the working of institutions which appear to be both neutral and independent; to criticise them in such a manner that the political violence which has always exercised itself obscurely through them will be unmasked, so that one can fight them' (1998, p. 223).

As I said before, Foucault thought that the idea of a power-free sphere was an illusion. Nevertheless, practices of domination ought to be resisted. As Gabardi puts it:

> 'Democracy today comes more to mean the struggles of ordinary people to create a free way of life in a world of complex and productive power networks. In short, democracy is about local and micro level struggles and strategies operating within an inescapably technologized world of disciplinary governance' (2001, p. 564).

In this quotation, however, I would replace 'disciplinary governance' by 'governance by freedom', in keeping with the postpanoptical focus of this study. It explicitly states that democracy 'comes *more* to mean', implying that this way of thinking is not a negation of other forms of democratic process. I agree with Foucault that 'the laws of the state are needed, first and foremost, to ensure the realization of personal wills' (Parchev, 2008, p. 846). The question whether laws are problematic or not 'depends on ''whether the system of constraints in which a society functions leaves Subjects the liberty to transform the system'' (Foucault quoted in Parchev, 2008, p. 843). Gabardi claims that Foucault's contribution to this field is his study of particular strategic practices: 'transgressive negation, self care, performative action, agonistic praxis, parrhesia, and local resistance' (2001, p. 565).

The aim of this last chapter is to explore the interconnectedness of self-constitution and democratic action in relation to the development of technology. Studies of technology and innovation have their own approaches to democracy. In this context, self-constitution needs to be conceptualised somewhat differently here than in the previous chapter. The development of technology is not likely to provide the type of setting in which one would unfold ascetic practices – writing, reading, speaking, listening – that have the sole aim of developing the self. Nevertheless, it could be argued that relating yourself to the design of a technology provides grounds for reflecting on the type of person that you want to be. For example, the much-praised example of domotics – 'smart' houses, or household automation – evokes questions about the subjectivity of elderly people. Do seniors indeed value self-sufficiency, and how does this relate to the loss of their social interactions that often comes with it?

Since the 1960s, there has been an active discussion regarding the need to give people more influence on the technologies with which they interact in their daily lives. This type of democratisation is to be regarded as a form of direct influence on particular issues, rather than as political representation. Many proponents of democratisation have advocated a conflict-model for citizen participation. The emphasis is often put on the question of 'who participates?' (Gomart & Hajer, 2002). The different perspective at democratisation that I discuss in this chapter relate to a particular conception of the participant. What is often ignored by authors in this tradition, however, is how the setting in which this participation occurs has an impact on the democratisation process. Referring to work by Annemarie Mol, Gomart and Hajer 'emphasize the importance of forms of participation that do no just allow access but also fabricate the very capacities of participants', focusing on 'processes through which 'the public' is constructed and transformed' (2002, p. 37). Such a point of view is much in line with the Foucauldian approach that I have outlined in this study. This implies that I scrutinise a number of approaches to democratisation that focus on the question 'who participates?'

Many of the attempts that stem from such efforts are heavily institutionalised. They are more easily described in a framework of governmentality, than in a framework of self-development. This is not necessarily problematic from the Foucauldian framework that I have tried to unfold. It is an illusion that self-development occurs in a state of autonomy anyway. Nevertheless, if the exertion of democratic influence is turned into a technology of government, self-constitution is less likely to develop as a freedom practice. In addition to this, there are also situations in which questions of the 'setting of de-

mocratisation' are rather irrelevant. If relevant groups of people are fundamentally excluded from participation, the focus on 'who participates?' seems to make full sense.

This chapter has a two-fold approach. I discuss both institutionalised and less institutionalised approaches to participation in innovation and technology-development, and analyse them from the points of view of self-constitution and democratic agency. The question is less which participants are imagined, but *how they are constituted*. As an example of the institutionalised form, I choose the contemporary case of 'Living Labs'. Living Labs are local environments in which citizens are involved in innovation. The main premise is to include them in local R&D and product-development projects. After it was launched, the idea was adopted by industrialists, multinational corporations and some academics. It is endorsed by the European commission to foster participatory or user-centred innovation. The Living Lab 'movement' now involves a network of 212 local or regional partners[16]. I discuss three 'functions' of Living Labs, which relate to a particular participant-subject.

I continue the discussion by investigating less institutionalised, and more 'bottom-up' types of participation in innovation. To connect to the discussion of Living Labs, I review the conceptions of participant-subjects that underlie three influential approaches. First, I examine Eric Von Hippel's *lead user*. Even though Von Hippel's work is an important theoretical basis for Living Labs (Følstad, 2008), it is surprising to note that lead users have hardly been involved so far (Schuurman & De Marez, 2009). The logic for discussing them here is to understand the reasons for this discrepancy. I then consider what I call the Scandinavian *emancipating worker*, because it is from this tradition that alternative angles for Living Labs are suggested (Thiesen Winthereik et al., 2009; Molin-Juustila et al., 2008; Budweg et al., 2008; Ståhlbröst, 2006). Finally, I include Andrew Feenberg's *subjugated activist*, because Feenberg claims that democratisation cannot occur without certain types of 'counter-tendencies'.

A few more comments on the approach of my discussion. Living Labs and the approaches to democratisation generally take place at the level of concrete technology projects. Nevertheless, there tend to be ideas of the impact of democratisation beyond the project level. This recalls a discussion that I started in the previous chapter. Just like the appeal of the care for the self might not be 'heard' by everyone, it is clear that these views of democratisation do not necessarily aim at including all humans. By discussing the

[16] For the European Network of Living Labs (ENoLL), see: http://www.openlivinglabs.eu/

democratic ambitions beyond the project-level, I continue the discussion of self-constitution from the minority-majority point of view. I argue that the constitution of a participant subject also tends to imply the constitution of a non-participant.

## Three types of Living Lab participants

Living Labs are particularly relevant in the context of this study, considering that healthcare technology is a focal area of the movement (Katzy et al., 2007; e.g. Almirall, 2008; Kanstrup, 2008; Pitse-Boshomane et al., 2008; Mulder et al., 2008). Some regional Living Labs even explicitly focus on electronic health records and on the EN13606 standard (Jara et al., 2009), which I discussed extensively in earlier chapters. Standardisation is earmarked as a potential output of the movement. The outcome of a Living Lab process is regarded as a user-tested 'pre-standard' (Kipp & Schellhammer, 2008).

There are a number of reasons for examining this movement in the context of democratisation. Even though Living Labs are not solely dedicated to this purpose, many authors argue that it does, or at least, it may operate as such. Different reasons are provided. For instance, Living Lab governance structures are considered democratic (Romero et al., 2009), participants perceive a sense of democratic influence (Pallot et al., 2008; Ståhlbröst & Bergvall-Kåreborn, 2008), and, perhaps most directly, democratisation is simply regarded as a main feature of a Living Lab by some (Wolkerstorfer et al., 2009; Lepik et al., 2010; Dlodlo et al., 2008). Also conceptually, there is a connection to democracy: authors generally point at Von Hippel's work on lead user innovation, as articulated in his book *Democratising Innovation* (2005), (Schaffers et al., 2007).

On the other hand, those who particularly stress the democratisation angle often point at the deficit of Living Labs in this respect. Such authors are typically associated with what is often called the Scandinavian tradition of participatory design (Thiesen Winthereik et al., 2009; Molin-Juustila et al., 2008). Interestingly, in 2007, the European Commission also financed a project (TELL ME), which particularly targeted 'Democratising Living Labs Innovation in Europe'[17]. This suggests that they are considered to be insufficiently democratic now. Others do not explicitly refer to democratic deficits, but do

[17] see: http://ec.europa.eu/information_society/activities/eten/library/news_release/doc/tell_me.pdf

note a surprising lack of methods for user involvement (Følstad, 2008). This is curious, considering that it is one of the core features that the movement stresses. This democratic gap, contrasted with the sheer volume and the extent of political support it receives, also give such an analysis of Living Labs significant practical relevance. In this chapter, I provide a closer examination of this democratic deficit.

This deficit is mainly due to the manner in which the participant is constituted in the discourse that was crafted by Living Lab theorists, practitioners and supporters in publications. Building on earlier work (Dutilleul et al., 2010), I discuss three subjectivations of the participant that may be identified in the Living Lab discourse. These roles are connected to three functions that a Living Lab may take. First, Living Labs may function as a governance unit of (cross-) regional innovation systems. Second, they may enable *in vivo* experiments. Finally, they may operate as product development platforms. These functional roles are analytical, rather than empirical categories. In practice, Living Labs may combine several of such functions. These functions are supported by networks and methods that are particularly crafted for this purpose. From a Foucauldian point of view, these Living Lab functions may be regarded as apparatuses that comprise interconnected power relations. I analyse how the participant is constituted within these relations.

*Participants as members of innovation system governance*

I will be relatively short about citizen-participation in the first function of Living Labs: sustaining a European Living Lab movement and the 212 regional innovations systems of which it consists. The reason for this is that, on the basis of articles and policy documents, citizens have hardly been given any role. It seems that no participation was imagined in this Living Lab function.

At the regional level, Living Labs are often considered as innovation systems, involving a broad variety of stakeholders, including businesses, public sector organisations and researchers (see e.g. Følstad, 2008). Democratisation, if any, would thereby take place at the level of managing regional activities. Even though user involvement is generally labelled as a defining characteristic of Living Labs, only one mention of citizen-participation in the governance of these regional innovation systems could be found (Santoro & Conte, 2009).

At the level of the European network, no involvement or representation of citizens is mentioned whatsoever. Instead, large companies are mentioned as influential players in terms of governance (European Commission, 2009). It is hard to decide whether to consider the international network as a movement with broad societal impact, or simply as a project with a larger scale than the local activities. This different understanding also has an impact on the way we think about democratisation. On the one hand, any participation of citizens in governance mechanisms would be restricted to the confined scope of Living Lab activities. This would plead for the 'project view'. On the other hand, it may be argued that democratising the governance of an international movement with 212 local partners has major potential in terms of general societal impact, which extends way beyond the level of any project. Obviously, this also depends on the influence of the international association, the European Network of Living Labs (ENoLL), over its members. I have not found any studies that comment on this.

Hypothetically, if participation *did* take place in such a setup, how could we regard it from the points of view of self-constitution and exerting democratic influence? Clearly, such a role would be characterised by a rather high degree of professionalism. The governance of a regional or even cross-regional innovation system is necessarily a complex affair. Citizens would need to acquire expert knowledge, to a certain degree, to be able to communicate with other stakeholders. People are often ready to do this, but usually when they are inspired by a particular topic that holds great importance to them (Hager, 1992; Doppelt, 2001). It is questionable whether participation in *general* governance discussions provides such a motivation. From the point of view of self-constitution it is likely that the abstraction of governance matters would not invite for contemplation on the self. Obviously, it may be imagined that citizens could attempt to address or resist a particular subjectivation of seniors, for instance. In the current setup, however, political advocacy is hard to imagine, let alone agonistic forms of democratic influence.

*Participants as objects of study*

Citizens may also participate in Living Labs by taking part in experiments in real life situations. Their interaction with new technologies is recorded by a dedicated technological infrastructure. Even though such studies are often labelled as user research, it should be clear that citizens that participate in this setup are not in fact the actual future users of the technology that is be-

ing experimented with (Jensen, 2010). Applying the user concept is rather awkward way of framing a particular sample of people. This is a prime example of using categorisation as a technology of government.

Living Lab research chiefly provides data for designers (Intille et al., 2005) or researchers. This type of participation is also primarily located within concrete projects. Different settings have been mentioned, including apartments (Intille, 2002), digital workspaces (Schaffers et al., 2009), or any setting that may be monitored by a portable device (de Leon et al., 2006). Such set-ups evoke a fairly panoptical image, if we regard it from a Foucauldian perspective (Foucault, 1977). Foucault has often stressed the power that the human sciences exert in our societies. Experimental Living Labs may well be a further step in securing this position. Research opportunities are said to be unprecedented (Eriksson et al., 2005). The possibilities of technology-enabled data-gathering within large user populations over extended periods of time are considered less obviously obtrusive and more cost-effective and reliable than other methods (Markopoulos, 2001; Intille, 2002; Mulder & Velthausz, 2006). The main idea is that the raw reality of a citizen's lives may be monitored and translated into hard data by means of technology (Mulder & Velthausz, 2006). This would avoid biases both on the side of the researcher and of the participant. Finally, it allows for repeating the observations in others settings, for sharing research data with other researchers and for *ex post* evaluation with participants.

Within this Living Lab type too, there are ambitions that stretch out beyond the level of local projects. In line with my earlier comments on the European association, it is good to note here that international networking also enables large multi-contextual and multi-cultural data collection campaigns suitable for extensive and rapid scaling (European Commission, 2009) and contextualised mass deployment of products (Eriksson et al., 2006; Eriksson et al., 2005; Schumacher & Feurstein, 2007). Even though this might suggest a widespread societal impact, it is hard to frame such notions as a case of global democratisation. While participation in the governance of the European movement may have actual democratic effects, the impact that citizens may have through international industry studies is minimal. Articles about Living Labs also provide little information on such issues. Therefore, the analysis of barriers that citizens may encounter also applies to the level of concrete projects. These may operate internationally as well.

In contrast to the previous Living Lab type, there is more to say about the participant in this setting, who is constituted as an object of study. Even though it is stressed that '[t]he basic idea is not about using the users as

'ginny pigs' for experiments', it is stated that 'it's about getting access to their ideas and knowledge' (Eriksson et al., 2005, p. 3). This role certainly does not invite self-constitution and exerting democratic influence. As I said before, it has been noted that only few methods are available for user-involvement in Living Labs (Følstad, 2008). One example is to pay people for participating (Schaffers, 2009). Other than that, we may assume that similar motivations apply as in other types of research projects. On the basis of this, it may be wondered whether it is feasible to attract '[h]undreds of thousands of final users' (Santoro & Conte, 2009, p. 2).

Living Labs are supposed to meet the same ethical principles as other research methods. The notion of informed consent is an important guideline. Neuman defines this as follows: '[n]ever coerce anyone into participating; participation *must* be voluntary. It is not enough to get permission from people; they need to know what they are being asked to participate in so that they can make an informed decision' (2005, p. 135). It is acknowledged by some that user involvement in Living Lab research entails ethical issues (Eriksson et al., 2005). This particularly applies to home environments where 'informed consent is trickier [..] because of the presence of children and the centrality of children to home life' (Hindus, 1999, p. 202). There are also types of Living Labs in which informed consent is nearly or completely impossible, for example in public spaces: '[i]n theory it might be possible to opt out of the experiment [...] in practice it is unlikely that you would be able or willing to do so' (Sarewitz, 2005, p. 14). However, most Living Lab studies that are published do not mention such ethical concerns.

In addition to this, the possibility of exerting effective influence is limited by the adoption of particular research methods. Considering that most technology-enabled methods for data-gathering are automated processes, 'communication' between researcher and the object of study (the participant) is typically a one-way process. Particularly considering that there is a natural knowledge asymmetry between participants and researchers, such methods make it harder to exert democratic influence.

*Participants as partners in product development*

Within the Living Lab movement, there is a strong expectation that citizens have an intrinsic motivation for participating in product development: '[f]or users the main motivation to be active partners is a passion to develop the products and the services they use' (Helsinki Living Lab, 2010, p. 4). Just like

in research-oriented Living Labs, the 'users' that are involved are typically not the actual persons that will user the actual product that is being developed. Again, the term user is an analytical category.

The way in which the participant's 'needs' are presented is an important element in the construction of a particular subjectivity. From a Foucauldian point of view, the notion of *real needs* is rather problematic as it evokes an understanding of a free and autonomous subject. Similar to Foucault, various scholars acknowledge that needs may be *constructed*, for instance by marketing (Buttle, 1989). Living Labs are said to foster both 'the co-production of technologies between developers and users, and the production of users by technologies' (Tan et al., 2006, p. 13). In terms of the former, some Living Labs proponents expect to be able to serve real needs (European Commission, 2009; Mulder & Stappers, 2009; Santoro & Conte, 2009) by meetings users' expectations (European Commission, 2009; Kolaczek et al., 2008). The opposite may be true as well, however. Referring to conflicting interests between users and public/business stakeholders in the case of innovation for improving the quality of life of seniors, Thiesen Winthereik and others indicate that

> 'the wish and hope that follow, by which some Living Lab managers believe to be able to find answers about the 'real needs', are to ignore the complex realities influencing the practical set up of the Living Lab, its innovation methods and its outcome' (2009, p. 180).

Other authors too have pointed at Living Labs as instruments for the construction of needs (Lindgaard & Dudek, 2003), or for 'managing adoption' (Sung et al., 2009). The latter may be described as the attempt to construct positive perceptions of an existing innovation.

The earlier-mentioned focus on *involving* users in Living Lab is echoed in the opposition between the concepts 'user-centred' and 'user-driven' innovation. Even though the European Commission proposes Living Labs to 'put the user in the driver's seat' (2009, p. 8), many Labs take a user-centric approach (Følstad, 2008). This term suggests that the user's interests are at the centre of the innovation process. The notion that these interests may be constructed within the framework of a particular lab setup makes this idea ambiguous. From this point of view, it may also be questioned to what extent user-driven innovation is in fact what it suggests to be. Let's not forget that the notion of framing a person as a user already places him/her in a rather particular role.

A final point that I want to make in this respect is that product development Living Labs may be considered as part of the broader business trend to shift work to consumers (Dujarier, 2008). We might say that Living Labs externalise innovation efforts to users. In such setups, however, there is usually no financial reimbursement to citizens for their contribution. This issue is also noted in the Living Lab community:

> '[a]n area of importance when bringing the citizens/consumers into the Living Lab innovation system described is how to handle the ethical and IPR issues. As private persons become a source of ideas and innovations, there should be an appropriate rewarding and incentive system in place that secures pay-back to all the actors involved' (Eriksson et al., 2005, p. 9).

Such a reimbursement system might make users part of the profit schemes that the innovation may generate. However, from the point of view of democratisation, this is hardly a step in the right direction. If users turn into 'paid product developers', their subjectivity is likely to shift to such an extent that the original situation changes completely.

Even though it could be imagined that we could shape or transform ourselves to some extent by reflecting on the types of technologies that we use and want to use, the product-development Living Lab seems to operate as an apparatus that does not necessarily bring this quality forward. People tend to be drawn into a product development process with its own dynamic and methods, which is geared toward the aims of a company or a group of companies.

## Three types of 'democratic' participants

I have tried to indicate, using the example of the massive Living Lab movement, that institutionalised forms of democratisation tend to involve a set of practice that do not invite self-constitution or a critical attitude. Other approaches to democratisation of technology do tend to be more in line with such a conception. Some focus more on self-constitution and others more on the resistance aspect. As in the previous section, I focus on the way in which people are constituted in the context of democratisation. Similar to Living Labs, most of the approaches below apply to the level of concrete projects. On top of that, however, I do indicate the expectations that different authors

have of broader impacts. Often it is questionable whether these expectations are realistic.

*Von Hippel's lead user*

I start with Von Hippel's approach, because it is closest to the Living Lab conception of democratisation. He talks about democratising 'the opportunity to create' (2005, p. 123), the notion 'that users of products and services—both firms and individual consumers—are increasingly able to innovate for themselves' (2005, p. 1). The focus on creativity makes it relatively easy to draw a parallel with the aesthetic dimension of Foucault's work. Nevertheless, Von Hippel's work does not so much discuss creating the self, as creating products that one would like to use. The participants in his conception of the democratisation process are 'lead users'. They may either be individuals or companies, who are 'at the leading edge of an important market trend(s), and so are currently experiencing needs that will later be experienced by many users in that market'. They are expected to 'anticipate relatively high benefits from obtaining a solution to their needs, and so may innovate' (2005, p. 22). Another aspect that sets lead users apart from others, even though it is not explicitly included in Von Hippel definition, is what economists refer to as 'willingness to pay'. Lead users have the resources for innovation, and are willing to apply them. The underlying assumption is that people have a need for uniqueness. Even if his constitution of the lead user as chief participant is relevant, what can we say about his implicit constitution of the non-participant? This relates to the discussion of the minority issue in Foucault's work: just like the care of the self might be reserved for a minority only, the same is likely to apply being a lead user. On top of that, it has been noted by others that 'it is not obvious that all users share the same interests: specialised groups of enthusiasts are rather different from users of more mundane consumer products' (Heiskanen et al., 2007, p. 498).

Von Hippel points out that users and manufacturers may have different interests and that information asymmetries may apply. Nevertheless, his approach basically seems to imply what is sometimes called a 'harmony perspective' (Gregory, 2003). At many intervals throughout the book, Von Hippel argues that, in spite of differing interests, paths of users and manufacturers converge. Heiskanen and others argue, albeit not in direct reference to Von Hippel, that it is often 'assumed that harnessing the creative potential of users through user-inclusive innovation is a win–win proposal: users gain

solutions to their problems, producers gain new commercial opportunities, and all gain the intrinsic pleasure of participating in creative work' (2007, p. 497). The example of what is called 'free revealing' is telling here. Even though one might be inclined to think that it is not in the interest of users to reveal their innovations to manufacturers, Von Hippel argues that this is often not the case. He gives a number of arguments that sound reasonable on some level. First, users may gain reputation in their communities if the news of their innovation comes out. Second, adoption of the outcome may increase to the advantage of the user-innovator. Finally, further innovation in the field may be spurred. The manufacturer, by contrast, has the benefit of additional profit. Other arguments are more questionable. Von Hippel also argues that users may freely reveal their innovations because patents are too costly. One might wonder whether a change in patent regulations would not be a better solution to this problem. Such an institutional support system may be compared to the notion of financial reimbursements that certain authors suggested for Living Lab product development (Eriksson et al., 2005). A second example is that innovations are often so specific that they only suit the interest of a single user. In such cases, manufacturers do not have an interest. Converging interests are certainly not self-evident. Heiskanen and others argue the same:

> 'Studies show that there is no pre-existing alignment between users' and producers' interests. Companies may have strategic interests that do not coincide with users' needs (Namioka and Schuler 1993; Ivory 2004). Working with nonexpert users may challenge the professional authority of designers (Suchman 1994) or simply wreck tight schedules. Conversely, it is not obvious that the thrill of creativity and the possibility to gain better products will always motivate users to co-operate with producers (Brockhoff 2003). Users may be interested in innovating, but not exactly what, when and where producers desire them to innovate' (2007, p. 497-498).

Just like Von Hippel treats differing interests as unproblematic, the same applies to his brief investigation of information asymmetries. The only mentioned consequence of their different informational background is that users and manufacturers tend to come up with different types of designs, and tend to play a different role when working together. A final point regarding the user-manufacturer relation is, similarly to Living Labs, that Von Hippel's focus on users' *real needs* overlooks the notion that needs are often con-

structed (Buttle, 1989). Even though constructing needs may be more difficult in the case of lead users than in other cases, this issue cannot be ignored.

A modest way of formulating the 'horizon' of Von Hippel's project is to say that lead users engage in innovating products as to better suit their needs. The comments so far have applied exclusively to democratisation at project level. He is more ambitious than that, however. The stakes are raised in two respects. First, he argues that his 'findings offer the basis for user-centered *[sic]* innovation systems that can entirely supplant manufacturer-based innovation systems under some conditions and complement them under most' (2005, p. 121). Von Hippel suggests that his conception of democratisation has the potential to reshuffle industry structures. Such an expectation takes the influence of the participants far beyond the project level. His argument is that user involvement is already very common. Based on a survey of a 'wide range of industrial product types' (2005, p. 19), he shows that 'user engagement' levels range between 10-40%. Two critical comments may be made on this finding. First, engagement is conceptualised rather broadly in different studies that are surveyed. Exploitative forms of engagement may also be included. Second, even though he takes a cross-industry sample, most, if not all, products stem from niche markets. Von Hippel's most attractive examples are found in what may be called 'extreme sports', for which mountain bikers and wind surfers tweak the designs of their gear depending on personal experiences. An innovated gear may be a great achievement for sportsmen, even life-saving in some cases. It may be regarded from the point of view of self-constitution, even though it obviously does not meet Foucault's focus on ethics. However, is it reasonable to prophesise that 'the innovations that lead users develop should later be attractive to many' (2005, p. 23)?

Von Hippel is not satisfied with changing industry structures. Raising the stakes a second time, he points out that 'social welfare is likely to be higher in a world in which both users and manufacturers innovate than in a world in which only manufacturers innovate' (2005, p. 107). Particularly his explicit reference to the 'world' might be taken to suggest that this is another effect that is expected to occur beyond the project level. Welfare should be understood as an economic concept, not to be confused with wellbeing. What is striking, however, is that Von Hippel stresses the welfare benefits that manufacturers may experience. He argues, for instance, that '[r]esearch indicates that the major reason for the commercial failure of manufacturer-developed products is poor understanding of users' needs by manufacturer-innovators' (2005, p. 108). In this respect 'innovations by lead users can pro-

vide very useful information to manufacturers that they would not otherwise have' (2005, p. 109). Clearly, such a formulation is somewhat at odds with an advocacy model of democracy, such as Foucault's.

*The Scandinavian emancipating worker*

The Scandinavian tradition of participatory design offers a perspective that differs from Von Hippel's approach at many levels. As this 'tradition' spans the past five or so decades, I base this exposition on review articles (such as Bjerknes & Bratteteig, 1995; Gregory, 2003), rather than on original statements.

The democratic participant in the Scandinavian model is not as explicitly labelled as Von Hippel's lead user, but may be referred to as the 'emancipating worker'. Workers are considered as people with particular expert knowledge (Gregory, 2003). On top of that, they are traditionally constituted as part of a collective: the trade union that represents their interests (Bjerknes & Bratteteig, 1995).

While Von Hippel discussed power relations between users and manufacturers, the Scandinavian approach emphasises the employee-employer, or worker-manager relation. The tradition has brought forward a number of approaches, which may be categorised under the harmony-conflict divide. The 'Socio-Technical Approach' (Bjerknes & Bratteteig, 1995) stresses common interests of workers and managers. Here, however, I focus on the 'Collective Resource Approach' to emphasise the contrast with Von Hippel's views. Besides, it is this approach that is presented as the quintessential Scandinavian angle in international literature. It regards the worker-manager relation as essentially conflicting, framing it as the Marxist opposition between labour and capital. Particularly in the early days of the tradition, the strong and militant position of unions was a factor in this model. This influence has strongly diminished since the mid 1980s, to the verge of disappearing almost completely, according to some (Gregory, 2003).

Scandinavian democratisation at project level typically relates to the development of information systems. The ultimate goal is to improve the work situation. Similarly to Von Hippel, there is a general 'assumption that there is a connection between a democratic process and a democratic result' (Bjerknes & Bratteteig, 1995, p. 91). Nevertheless, it is acknowledged that it is not always true that 'computer systems developed in a cooperative manner have a liberating power' (Bjerknes & Bratteteig, 1995, p. 79). Motivations are to 'im-

prove the knowledge upon which the systems are built', 'enabling people to develop realistic expectations and reducing resistance to change' and 'increasing workplace democracy by giving the members of an organisation the right to participate in decisions that likely to affect their work' (Bjørn-Andersen & Hedberg in Bjerknes & Bratteteig, 1995, p. 74). Apart from mere engagement in decision-making, the Collective Resources approach also entails the creation of 'alternative technologies' and 'imagined futures'. This is a point where the notion of self-constitution and resistance seems to come in. Particularly given the emphasis on conflictual relations, the idea of ethical reflection seems more likely than in Von Hippel's setup. 'Post-design evaluation is not enough' as a study on Living Lab product development concludes (Thiesen Winthereik et al., 2009, p. 178). The concrete context of the Scandinavian tradition is not easily explained, as it has undergone a number of changes throughout its development. There has been a shift of focus from organisations and working life in general to specific workplaces, and a shift from a political to an ethical orientation. Rather than attempting to politically influence the preconditions for systems development, the purpose was to professionally apply ethical codes to particular situations. There is a taste of dissatisfaction in some of the review articles (e.g. Bjerknes & Bratteteig, 1995) regarding the decreased influence of unions and political aspects in general.

The sense of emancipation is strong in the tradition, which is based on a general appeal to democratic values, something that is not present in Von Hippel's work. These democratic values are also framed in a discourse of emancipation and (class) conflict:

> 'Democratic ideals emphasise the right to maintain a different opinion than those in power to forward opposing positions and to build knowledge on an alternative basis to support a different view. In a democracy those affected by a decision take part in the making of the decision. Historically this means giving equal rights for people with little or no power' (Bjerknes & Bratteteig, 1995, p. 74).

The 'horizon' of this democratisation approach is quite different from the previous one. The belief that working life as a whole ought to be democratised has remained a core belief all along. Therefore, apart from 'local' projects, global actions are considered as well (Gregory, 2003). This may either include influencing laws that impact working life in general, or actions that target concrete technologies that have a societal impact. Roads, railways,

telephone and mass media serve as examples (Bjerknes & Bratteteig, 1995). To some extent, such concrete actions may be considered as project-level democratisations again. Authors reporting on the tradition, however, deal with such topics under the heading of 'the social and working life level'. The Scandinavian approach started at a time when it was 'generally agreed that industry should level the general democratic principles in society' (Bjerknes & Bratteteig, 1995, p. 75). This commitment translates into a model in which roles are created to facilitate such a process. This suggests an impact beyond project level. System developers, for instance, were considered to have particular ethical tasks. In addition, it is argued that 'it is the researchers' duty to support the weaker party, i.e. the employees' (Sandberg in Bjerknes & Bratteteig, 1995, p. 83). This is an interesting move, considering that researchers are introduced as stakeholders with a strong value position. Clearly, this sets the approach apart from Von Hippel's work. A crucial question that is not particularly addressed, however, is whether such researchers have any stakes in the process.

*Feenberg's subjugated activist*

Critics hail Feenberg's work as 'a powerful contemporary exemplar of critical theory' (Doppelt, 2001, p. 157) and as 'one of the most sophisticated theories of the technology-society nexus' (Veak, 2000). In terms of the previous approaches, Feenberg is distinctively closer to the Scandinavian approach than to Von Hippel's. I will also try to show that his approach is closest to Foucault's, even though there are differences as well. His approach certainly has broader societal aspirations than the previous two. Nevertheless, it is grounded in local actions.

I have chosen to label the participant that Feenberg constitutes as the 'subjugated activist'. Despite being subjugated, Feenberg's participant is an active subject. He does not agree with dystopian views of 'total administration', in which citizens are left totally powerless. Instead, he uses the concept 'technological hegemony', which is defined as: 'domination so deeply rooted in social life that it seems natural to those it dominates' (1999, p. 86). Such a view seems to be in line with the Foucault's middle work (e.g. 1977). In fact, the notion of 'subjugated knowledge' stems from Foucault. It shows how measures of control are fundamentally internalised. Still, this does not imply that people are powerless.

The pivotal concept that underlies Feenberg's view on democratisation is what he calls 'participant interests'. Particularly in his examples of the activism of people with HIV, or a physical disability, it becomes clear to what an extent their democratic influence is entangled with the shaping of their selves. Advocating the accessibility of public buildings for wheel chairs is advocating for the scope within the self can operate. His view is that, '[i]nsofar as one is enrolled in a technical network, one has specific interests corresponding to the potential for good or harm that such participation entails. These interests are often served by the existing technical arrangements, but not always, not inevitably' (2001, p. 187). He argues that interests are expressed in protest groups or grassroots organisations that resist developments that conflict with their interests. He makes it quite clear that 'democratic reform from above is uncommon' (2001, p. 193). This focus on activism is found in other democratisation studies as well (e.g. Hager, 1992). Given the earlier discussion about the construction of interests, this appears to be a problematic starting-point for a theory of democratisation. A Foucauldian account of democratisation would, therefore, be based on the notion of self-constitution. The notion of interests might form a good starting-point for a description of democratisation processes, but maybe less for a normative theory. Later, I explore what Feenberg has to say on this.

In Feenberg's case, the 'adversary' is not easily framed in a straightforward dichotomy, as in Von Hippel's user-manufacturer relation or in the Scandinavian worker-manager opposition. We might use the term 'technocrat' to denote Feenberg's opponent. With respect to his focus on technocracy, Doppelt argues that Feenberg ignores 'Locke's moral code of private property' (Doppelt, 2001, p. 158), which he takes to structure our societies to a significant extent. It has been suggested that capitalism ought to be the adversary structure, rather than technocracy (Veak, 2000; Doppelt, 2001). Doppelt is probably right in arguing that:

> 'claims may be discredited or undermined not simply by experts' judgment concerning what is and isn't feasible, efficient, etc. but by owners' or top-managements' 'right' to reject such changes as unprofitable, unnecessary, or incompatible with company policy as they define it' (2001, p. 163).

Feenberg partly agrees with this, and stresses his notion of 'operational autonomy'. He defines this as 'the freedom of the owner or his or her representative to make independent decisions about how to carry on the business

of the organization, regardless of the views or interests of subordinate actors and the surrounding community' (2001, p. 186). Not only do certain actors have conflicting interests, they also have the power to ignore the interests of others. Nevertheless, Feenberg argues that 'today the bias against agency designed into technical arrangements is a more important issue than moral claims based on [property] rights' (Feenberg, 2001, p. 186). Apart from owners, also technical personnel, scientists, experts, mass media, the production system as a whole and technology-based organisations and their leaders may be considered as part of the technocracy. In this respect, all three Living Lab functions may be argued to contain technocratic elements. It seems reasonable to argue that both property-rights-based arguments and expert-knowledge-based arguments ought to be considered, rather than selecting one of them.

In their attempts to interact with experts, subjugated activists often have to become experts themselves. This has also been noted by others (Hager, 1992; Doppelt, 2001). The result of this is that they partly join the technocracy they originally opposed. This notion provides a critical reflection on another of Feenberg's core concepts: 'democratic rationalisation'. Feenberg's claim is that, contrary to the Weberian notion of expert rationality as a closed system, non-experts can join technical discussions in a rational sense, yet in an alternative manner. Similar to the Scandinavian model, the rationale seems to stem from the idea that alternative technologies and futures are proposed. Feenberg is quick to note that that '[l]ay initiatives usually influence technical rationality without destroying it' (1999, p. 89), even though there are cases in which this may apply. Nuclear energy in the US is used an example of this. In his work, however, Feenberg draws mainly on successful cases.

Largely in reaction to comments by Doppelt, Feenberg attempts to unfold a value position to ground his work. He attempts to justify which technologies require democratisation and which subjugated interests need to be defended. Here we return to the question I raised earlier with respect to the notion of interest as a basis for a normative theory of democratisation. According to Feenberg, participant interests ought to be regarded from the broader point of view of the 'intrinsic value of human capacities' (2001, p. 183). Referring to the humanistic tradition, Feenberg argues that 'our destiny as human beings is a progressive unfolding of capacities for free self-expression, the invention of the human' (2001, p. 183). He describe it as 'a third conception of liberty[, which] is distinct from the traditions emphasizing agency and equality privileged by political philosophy' (2001, p. 182). The issue is not that the humanistic tradition proposes different values than

liberal or socialist philosophies. The distinction is that values are related to the development of human capacities. Feenberg does not develop an account of how we may judge which capacities are to be favoured, or when capacities are repressed. This should probably be imagined in the interplay with the humanist values to which he refers. Feenberg acknowledges that his account 'does not directly address Doppelt's concern for justifying some claims over others' (2001, p. 191). He does argue that this is only possible within the context in which a dispute is set.

Also here, we see similarities and differences between Feenberg's work and Foucault's. The focus on self-expression and self-invention resonates quite strongly. However, even though Foucault discusses human development, his approach is more aimed at the individual than at the advancement of human capacities in general terms. The notion of a 'progressive unfolding of a human destiny' is foreign to Foucault's work. Nevertheless, in the previous chapter, I tried to explain that the referral to human nature as a basis for ethical conduct is also a problematic way of dealing with this problem. Feenberg's work raises the question how participant interests could be regarded in relation to technologies of the self, or freedom practices. Do we need to develop our interests reflexively, potentially in conflict with existing technologies of government?

The focus on the interests of the participant evokes the minority topic again, which figured both in Foucault's work and in the democratisation approaches that I discussed so far. If Feenberg's participant is constituted as a subjugated activist, how does that constitute non-participants? A first category of actors, whose participation is not very clearly delineated, is the group of nonhumans. Even though Feenberg discusses Latour's work at some length, and acknowledges that not only humans can 'do' things, he only discusses nonhumans as concrete technological artefacts with which human participants interact. Marc Berg offers a much more elaborate account. He goes as far as criticising the bulk of democratisation theories for their attempt to 'restore the human – both as designer and as user – in a position of 'control'' (1998, p. 479). There is a distinction that should be made here, however. There is a difference between the 'ontological' statement that nonhumans are actors (in democratisation processes) and the 'normative' statement that (particular) humans *should* have a certain amount of control. The extent to which this wish is realised in the actual process remains to be seen. I do not agree that such normative statements necessarily 'invoke the classical, autonomous, and free Subject whose existence is a chimera' (in reference to Gerard

de Vries: Berg, 1998, p. 479). The constituted subject is certainly 'made to act' by others (Latour, 2005b) to a certain extent.

Also with respect to the inclusion of humans certain limitations are noted. Veak, for instance, remarks sharply that 'many of the subjugated cannot even step up to the table and make their voices heard' (2000, p. 232). With respect to the internet, for instance, he points out that the digital divide still implies the exclusion of a large portion of the world. Referring to Albert Borgmann, Veak remarks that there are two other 'important hindrances to reform: (1) the fact that the majority of people choose affluence over autonomy, and (2) the enormous cost in terms of time and money that is required to effectively engage technology' (Veak, 2006, p. xix). Again, this provides a possibility to reflect on Living Labs. There too it is questionable whether citizens will take the effort to get involved, assuming that they *could* be involved. Feenberg admits that, indeed, his view of democratisation does not include all people, just like the appeal of the care of the self will not be heard by everyone. Perhaps because of that, he argues that 'we should not completely abandon concern for classical democratic controls in the technical sphere' (1999, p. 145). He suggests we look for alternative models. In Feenberg's work, however, it is questionable, whether 'collegial organisation' and the introduction of elections in major technical institutions are the most effective options. Another fundamental critique is provided by Doppelt. He points out that there are likely to be differences between participant interests and what we might call 'non-participant interests' (see also Berg, 1998). Doppelt notes that:

> '[t]he fact that one sub-group of users of technology gains some power [..] should not necessarily count as democratization, especially if the change comes at the price of dis-empowering or excluding other broader groups of users with basic rights, opportunities, or interests at stake' (Doppelt, 2001, p. 166).

Feenberg defends his position by arguing that the humanistic tradition provides 'criteria under which we can easily dismiss regressive attitudes and movements such as racism and Nazism as obstacles to the realizations of human capacities, while praising other attitudes and movements for their positive achievements' (2001, p. 184). This statement is too vague to assess its practical applicability. Besides, the question is probably not whether or not to dismiss extreme movements, such as Nazism, but rather developments with less clear premises. Certainly, Feenberg would agree that there is always an

element of debate in struggling over opposing ethical positions. Such a way of looking at interests draws out another question, however. Considering that interests are likely to be constituted in power relations, there is no way of examining if certain interests do not stem from internalised technologies of government. This again evokes the necessity of discussing the interrelation between interests and Foucault's ideas about self-constitution.

So far, I have discussed aspects of Feenberg's work that largely apply to local actions. The 'technical code' concept is crucial in understanding the role of such actions on the global horizon of Feenberg's project. He defines this as 'those aspects of technological regimes which can best be interpreted as direct reflections of significant social values' (1999, p. 88). His examples are clarifying. He discusses how there was a heated debate about regulating 'bursting boilers' on steamboats in the first half of the 19th century, which killed over 5000 people. While the debate was going on, there was an actual trade-off between saving human lives and cost efficiency. However, when a new standard, or technical code, was implemented in 1852, complaints against high costs of safe boilers were rarely heard. The technology had become a black-box, in which certain values that used to subject to a good deal of discussion were 'cast in iron'. Despite Feenberg's positive remarks about the Scandinavian tradition, he criticises it for having had 'little impact on any advanced society' (1999, p. 146). Participatory design projects often do not target the changing of technical codes. He does agree with the Scandinavians, and Foucault for that matter, that the only way to generate change is by looking at local sites. These may range from communities that are affected by plans to develop a polluting factory to disability activists that advocate for making the public space accessible for wheel chairs. Feenberg sees great potential in the internet, as a place where new networked localities may arise. Looking at it this way, the term 'local' is no longer limited by geographical boundaries. In a similar vein, others have indicated that resistance often takes place 'largely outside the established political institutions' (Hager, 1992, p. 47). As a result of that, legitimation is often an issue. Others have pointed at another disadvantage of Feenberg's focus on local resistance, which is in a sense comparable to his own critique of the Scandinavian tradition:

> 'Even if we grant that some of these movements have been successful, to whatever degree, is there a danger in celebrating these important but nevertheless local victories? [..] He seems to argue that if a particular design process is 'democratic,' then it is good' (Veak, 2000, p. 231-232).

Feenberg provides the resistance of technocracy as a more general frame in which local resistance should be regarded. His argument is as follows:

> 'We live in a society based on vast technical macro-systems and huge organizations, controlled ideologically by a highly concentrated media industry. Despite brave attempts to show that this system adequately represents a wide variety of needs and views, it seems fairly obvious that we are headed for a less democratic future under this dispensation [..]These are matters of concern not just for the oppressed minorities who occupy Doppelt's attention, but for everyone in technologically advanced societies' (2001, p. 194).

It is questionable, however, whether the connection between voluntary local resistance and such abstract counter-tendencies are clear enough to provide a general trend towards societal democratisation. Perhaps it was like this in the 1960s, to which Feenberg refers frequently, but it is probably less the case nowadays. Despite its shortcomings in terms of focusing almost exclusively on labour, perhaps the Scandinavian tradition of facilitated democratisation could provide the alternative model that Feenberg says to seek.

Feenberg's model provides an interesting reflection on the democratic deficit of Living Labs. He shows that a cry for democratisation can also stem from dissatisfaction. This angle is completely disregarded in Living Labs. This is not very surprising, considering the goals of the movement. However, given that different authors have noted that Living Labs are insufficiently democratic, this might be a point of view to take into consideration.

## Discussion and conclusions

In the larger framework of the study, the aim of this chapter was to assess to what extent participatory innovation projects allow 'citizen-participants' to develop themselves. On the basis of the discussion in previous chapters, it seems reasonable to question if business- and government-supported projects might have a tendency to imply technologies of government instead. After all, also in notions such as 'demand-driven' and 'user-driven' innovation, the neoliberal subject seems to be reflected. This shows that, also here, the context that is provided by postpanopticism is important. Given the no-

tion of governing-by-freedom, a focus on participation should be critically examined. To what extent is it a governance strategy? To what extent does it allow genuine degrees of freedom?

What is interesting in this respect is that the claim of 'placing the user in the driver's seat' tends to turn out differently in practice. Also here, 'immoderate expectations' seem to be an issue. It is questionable if users are willing and capable of taking up the task that is imagined for them. In this respect, the parallel with the neoliberal vs. the neoliberalised subject seems to be justified. We may wonder if there are cases in which the user is rather 'used'. Particularly in the example of Living Labs, possibilities to perform self-constitution seem to be considerably restrained by the way the different settings are conceived, to say the least.

In this respect, it seems relevant to continue a recent trend in SST scholarship to establish links between research on science & technology and political sciences. This approach to democratisation seeks to move away from proposing a particular participant type. Over the past decade, philosophers such as Bruno Latour (2007) and Gerard de Vries (2007) have proposed a merger between the notion of 'object-oriented politics' and the pragmatism of authors like John Dewey. Noortje Marres, who developed this relation, described the approach by saying that it deals with the 'practices of public involvement in politics as dedicated to the articulation of public issues' (2007, p. 761). The term 'public issue' is a reference to Dewey's notion of 'publics' (Dewey, 1954). His political work in the tradition of American pragmatism implies a focus on problems with consequences beyond the private sphere, i.e. for more than two people. A public is the set of people affected. Marres summarises this point as 'no issue, no public', and Latour expands by saying 'no issue, no politics'. Back in 1927, Dewey already paid serious attention to material artefacts, such as the emerging rail networks, as the source of such an issue. This fits well with the SST notion of object-oriented politics. The role of public involvement then, is to *articulate* such objects of politics, to define them, to turn them around, to demarcate them. Elsewhere, Bruno Latour has argued that politics is about 'making things public' (Latour, 2005a). 'Things' have to be turned into 'matters of concern' in order for them to gain political recognition (Latour, 2004). Marres shows, however, that SST studies tend to get cramped by focusing too much on pre-defined procedures. This is particularly what pragmatism set out to overcome. Public involvement was considered necessary, particularly because existing institutions failed to address issues in a satisfactory manner. Alternatively, research omits the material dimension that was such a distinguished quality of studies of science & tech-

nology in the first place. Finally, public involvement is often considered in other relations than in issue articulation. For proper SST work, the articulation of issues is regarded as a question of constructivist ontology. Interestingly, Marres argues that pragmatists like Dewey 'moved away from the modernist idea that public involvement in politics is dedicated to expressing popular will. They proposed a shift in the 'purpose of public involvement from will formation to issue formation' (Marres, 2007, p. 768). Pragmatism points at co-construction, in the sense that we ought to treat both the 'definition of public affairs and the organization of affected publics as practical *achievements* of issue articulation' (Marres, 2007, p. 771). Obviously, to connect this to the broader approach that was unfolded in this thesis, we would need to establish the links between Foucault's and Dewey's work. This, however, falls outside the scope of this study.

Nevertheless, it may be clear that there are approaches to the democratisation of technology and innovation that are much closer to the spirit of Foucault's ideas in this area than the way it is currently institutionalised in Living Labs. It seems fair to point out again that Living Labs are not necessarily dedicated to democratisation, however. In this sense, it would be awkward to blame them for not doing something that did not intend to do in the first place. Still, many proponents regard Living Labs as democratic and refer to Von Hippel's work *Democratizing Innovation* as a basis for their argument. Others advocate for more democracy. Because of this, I believe the discussion of Living Labs makes sense in this context.

Question is how to regard the perceived democratic deficit of Living Labs in the light of the other approaches that I have discussed, including Foucault's. One way of arguing would be to attempt to make Living Labs more democratic by discussing structural changes that would allow for the uptake of alternative participant-subjects. Authors such as Roberto Mangabeira Unger have proposed to create rule-free zones in which people could experiment with new democratic institutions (Dijstelbloem, 2008). However, fact of the matter is that Living Labs have often been described as such zones, of 'free havens'. So far, this has not led to very satisfactory results. It is tempting to imagine if the *lead user*, the *emancipating worker* and the *subjugated activist* could operate in a Living Lab context. Such an approach would not fit well with the Foucauldian approach that I have attempted to unfold, however. This might make sense from a Habermasian angle, for instance, where an attempt could be made to constrain the power that is exercised in order to get to a more ideal public sphere. From a Foucauldian point of view, another approach seems more likely. By exposing the way subject-roles are consti-

tuted in Living Labs, and making this analysis available to (potential) participants, they are given the opportunity to reflect on their involvement. Even though Living Labs have received broad attention from policy makers, entrepreneurs and corporations, they are still hardly known to the general public. As I said before, I could only find one case in which activists were involved.

We could wonder whether there might be a middle-ground between a Habermasian and a Foucauldian reading of this phenomenon. Without striving to dissolve power relations in Living Labs, we could perhaps claim that, as a minimum, it is demanded that participants be given space for self-constitution. At the same time, it is questionable to what extent such a measure would be effective.

The discussion of democratisation, in particular Feenberg's angle, allows for an interesting comparison with Foucault's work. All of the approaches that I have discussed were based on notions such as 'needs' or 'interests'. This turned out to be problematic in the case of Living Labs. Participant-subjects were deemed to be involved on the basis of what was allegedly their 'real' need or interest. Closer observation showed that these needs were in fact largely constituted by other stakeholders. The notion of interests also plays a role in the creativity of lead users, the representation of workers and the activism of those who are subjugated. How should this be regarded in such cases? Certainly, we cannot automatically assume their interests to be more 'real' than the interests of Living Lab participants. Lead users might be blinded by the fanaticism of their involvement in extreme sports, workers might be enticed by the revolutionary spirit of Marxist trade unions, and activists might be (rightfully) infuriated by being maltreated. Therefore, it seems that the use of interests requires a notion of self-constitution like Foucault's. Perhaps, the reverse applies as well: Foucault has never dealt with interests much. Even if they are constituted in power relations or in discourse, it seems a pity to ignore them. The authors that I have discussed here are probably right in saying that democratisation often starts from a perception that one's interests are misrepresented. On top of that, there are certainly 'real' interests as well, and violations of these. Even cynics like Diogenes found certain phenomena to be 'basic' (Geuss, 2001). It would be arrogant to discuss primary needs from a discursive point of view. By making interests and needs a surface of applications for the care of the self, like health, their nature could potentially be assessed.

The last thing I want to note here is the complicated issue of who is imagined to take part in democratisation. Just like Foucault's acknowledge-

ment that the appeal of the care of the self will never be heard by everyone, neither will all humans be involved in democratization in the sense as I have described here. Nevertheless, all the approaches discussed have the ambition of extending democratic effects beyond the project level. Two ways of reasoning may be distinguished. On the one hand, the number of participants could increase, and on the other hand, the effects of the efforts of a minority could be beneficial for non-participants as well. In the previous chapter, I argued that technologies could be designed that would invite more people to take care of themselves properly. On the basis of the discussion of this chapter, however, we might also investigate to what extent the self-constitution of some can have beneficial outcomes for others as well.

Having reached end of Part 4, we may quickly peek through the theoretical lens again, looking back at the fourth mode of subjectivation that I promised to study, i.e. self-constitution. We might conclude that, it would be misleading to speak of a 'self-constituted subject'. This would give the suggestion that self-constitution occurs in isolation. In the previous chapter, I highlighted the importance of examining the background against which self-constitution is set. Both this chapter and the previous one suggest that we can at best speak of a 'subject of compromised self-constitution'. Fashioning the self remains a struggle, essentially.

These are also relevant insights for the practical lens of the study, i.e. the focus on technology and innovation. Not only is technology an important mediator for technologies of government, the same applies to technologies of the self. I have discussed two manners in which this applies. First of all, technologies may mediate ascetic practices, such as reading, writing, listening or speaking. Secondly, they may function as objects that stimulate reflection. On the basis of imaging a future technology, we could imagine people to reflect on their lives. In both these cases, however, we have to keep in mind that this can only be assessed to a particular background. Technologies are often produced to serve particular interests, such as making people more productive. In this sense, constructing technologies is a highly political affair.