Walking down the Democratization Boulevard in STS: A Critical Reflection on Studying Biomedical Engineering Practice and Policy

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Key words: engineering practice; engineering knowledge; relationship between engineering and policy

Inspired by Bijker(2003)'s plea for a new generation of public intellectuals coming from STS this essay reflects upon my personal experience of what he called the 'democratization boulevard' route of doing STS. He describes this route as combining long-term academic agendas with clear political and societal engagement. In a nutshell I will articulate my contribution to our understanding of engineering knowledge and practice, and the relationship between engineering and policy from the point of view of a STS engineer studying engineering practice.

Since studying engineering I thought that there is more to technology than just machines. To learn how to study the people-side of technology I have retrained myself as an organizational sociologist and in the last few years I have been involved in teaching and academic policy research. My work is mainly on the co-evolution of technological and organizational change in health and medicine with a focus on implantable medical devices or spare parts of the body, but also on the evolution of academic and technological communities (e.g. Morlacchi and Martin, 2009).

The field of engineering that I know better is the one of biomedical engineering, which I have studied in relation to its co-evolution with the medical device industry. My research combines historical work and ethnographic work or fieldwork 'sur le terrain' (Nersessian, 2009). I study practices and processes 'in the wild' at multiple levels of analysis to understand new ways of thinking, interacting and working in biomedical engineering, starting from the individual level – what biomedical engineers do and how they do it, how they think – to the field level – the process of professionalization of biomedical engineering and the role of biomedical engineering in society.

Biomedical engineering is an excellent site to explore the relationship between technological culture, democracy, STS and policy. I think that my reflexive discussion of the evolution of biomedical engineering practice presented in this paper can contribute to the discussion in this track for two sets of reasons. On the one hand is the inherent significance of biomedical engineering, in terms of work and knowledge practices, as interdisciplinary field at the cross-roads of engineering and medicine. Biomedical engineering knowledge and 'what [biomedical] engineers know and how they know it' are different when compared to the ones in other areas of engineering (Vincenti, 1990; Nersessian, 2009). Bioengineers are key actors in development and evaluation of new medical technologies, which can present significant ethical and policy problems (Morlacchi and Nelson, 2010).
On the other hand is the significance of the study of biomedical engineering for the understanding of the democratization of technological culture in general. Bijker (2003) proposed that as academic scholars working with politicians, engineers, scientists and the public in general our intervention via a case study 'could be the 'STS mirror': STS studies present mirrors in which actors see their cultures and actions in new ways. And again seeing themselves in new ways may lead to self-conscious change of behaviour' (Bijker, 2003: 4).

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