Chapter XIV

How to Distribute a Cake
Before Cutting it into Pieces:
Alice in Wonderland or Radio Engineers' Gang
in the Nordic Countries?

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INTRODUCTION

This article analyses social networks by looking at the standard making processes. As a framework for analysis, actor network theory is chosen. Standards are of particular interest for actor network theory for they provide mechanisms to align interests of multiple social groups organized in networks that have a joint incentive in working with the standards and/or associated technologies. These social groups include scientific communities, government institutions and social movements (industrial groups, companies, and consumers) that are interested in regulating and innovating with new technologies. Standards provide the mechanisms to inscribe subsequent behaviors that are expected to become persistent over time.

Standard making process is a social process. Actors are involved in the process of continuous negotiation of their interests. Due to this fact, standards became an object of analysis for scholars within the social shaping of technology theory (SST). Though usually scholars of this school take standards as material objects, they interpret technology as such, e.g., a bicycle, or a steam machine. In Information Technology (IT), domain standards are intangible. Those are electronic data exchange formats, communications protocols, signalling protocols, etc. Wireless and mobile communications in particular, being a large field of IT, represent an interesting case for analysis. Present in mobile telephony’s domain are de jure (e.g., GSM) and de facto standards (e.g., NMT). Also the broad scope and large scale of

standardization processes suggests non-unified pattern of standard making and complex organizational structure. To make mobile telephony standards successful implies large networks and numerous mandatory passage points.

In this paper we apply actor network theory based analysis (ANT) to the development of NMT wireless standards. Researchers interested in IT standardization, except for a few studies on electronic data interchange (EDI) by Hanseth (1997), have overlooked this approach. The acronym NMT stands for Nordisk MobilTelefon (Nordic Mobile Telephone) and it can be historically regarded as one of the best examples of Nordic cooperation in technology as NMT systems have spread quite widely around the world and it also formed an important stepping stone for the evolution of GSM standards. We chose for ANT analysis of the NMT standard making process to learn of the usefulness of theoretical framework and to understand the standard making process of NMT as a social and institutional change. In our opinion, this more than anything else, explains the success of this interesting historical incident that changed the telecommunication industry radically and made Scandinavia a powerhouse of the wireless technologies. Our approach expected to bring more understanding on how the enthusiasm of a small number of actors fostered successful development of the NMT cellular telephony standard. At the same time the NMT standard was based on concepts and visions of its developers. Yet, it was these visions and engagements that lead to distributed the big cake of the cellular world even before cutting it into pieces.

The outline of the chapter is the following. In the next section, we discuss past theoretical analysis of the topic. Then we introduce new notions into ANT, such as a layer and a multilayered structure. Next we tell the story of the Nordic radio engineers’ gang. We then analyze the NMT standard’s development process as an instance of actor network mobilization. Some insights into future developments of cellular mobile communications, both from the technological and social perspectives are provided.

BACKGROUND

Technology is not a black box — this is not news to scholars of organizational processes (Callon, 1992; Lyytinen & Damsgaard, 1998; Pinch, 1988; Star, 1991; Williams, 1996). Any standard encompasses a body of knowledge and a social system (Pinch, 1988). Widely accepted Rogers’ (1995) theory on diffusion of innovation was criticized as being inappropriate to account for complex technological innovations for it treats a technology as a material object lacking a social part (Lyytinen & Damsgaard, 1998). Thus an understanding of standard from inside, both as a body of knowledge and as a social system (Pinch, 1988) is needed in order to explain a success or failure of particular standardization process.

Cellular telephony, and NMT in particular, is a good example of complex, non-unified technology or its interpretative flexibility (Lyytinen & Damsgaard, 1998). The meaning of cellular technology under development was not the same for those involved. Operators aimed at longtime operation, profits were seen only in a long run (Meurling & Jeans, 1994; Myhre, 1998). Producers aimed at immediate profits and high volumes of production. Users aimed at the availability of service, its quality, high network coverage and affordability of the service. Regulatory bodies
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