

Chapter 22

Technology Studies and the Sociological Debate on Monitoring of Social Interactions

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ABSTRACT

The article reviews methodological perspectives adopted in the analysis of social implications of scientific and technical developments and in particular the current sociological debate involving monitoring technologies and social research. A particular attention is devoted to social network analysis, an emergent area of sociological research that focuses on the relational implications of technologies in organizations, small groups and other contexts of social participation. Using case studies and examples of technologies implementation, the article describes the advancements in this field of enquiry and highlights the main elements of the structure of interactions in virtual and technology mediated communications. It also pays attention to the implications of human interaction monitoring technologies such as video surveillance and GPS tracking, and the public role that sociological research can have in advancing ethical and organizational issues related with their adoption.

INTRODUCTION

Since its birth as a scientific discipline sociology has been dealing with human sociability: theories of social behaviour explain aspects of human life that pertain to a variety of life aspects such as groups organization, participation to collective events and structure of communication. Creation of knowledge and innovation creation and diffusion, in particular, attracted the attention of an emerging area of sociological research that committed itself to exploring social relations involved in the development of new technologies, from the diffusion of computers and ITC in manufacture to the progressive adoption of technological devices in health, educational settings and daily life.

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The aim of this article is to provide an introduction to this research perspective and, with the aid of pieces of empirical research to illustrate theoretical and methodological bases for the study of social behaviour and monitoring technologies. Therefore, in the selection of case studies and examples a special attention is given to the analysis of relations between humans and machines or artefacts inside complex or pervasive socio-technical systems.

The first two sections describe the principal elements of sociological perspective of technologies and how the enquiry of socio-technical systems involves also the study of social relations and technology mediated communication (Eason, 2014). The second section, in particular, describes social network analysis (SNA), a specific methodology formerly developed to study small groups interactions, and its progressive application to information technologies and virtual communication. Discussion about the prospective advances of Social Network Analysis are integrated with examples from the study of mobile interactions (inferring social relations from tracking and analysis of phone users log records), implementation of smart devices (connectivity of the users, environmental sensors) and other technologies supporting localization (haptics, GPS).

Third and fourth sections describe sociological concerns for the implementation of advanced monitoring technologies in contemporary society and their ethical and privacy implications, and put in evidence relational aspects relevant for understanding their social and policy impact. By means of examples these sections problematize the design and efficacy of surveillance technologies as organizational innovations that can influence social interactions and perceptions of groups and individuals. The final section reviews the recent sociological debate on monitoring technologies in public vs. private spaces using as metaphor the idea of technology as the saviour juxtaposed to the representation of technology as the intruder.

SOCIOLOGICAL STUDIES OF TECHNOLOGY

Technology is usually defined as artifacts, processes and machines and the knowledge – based on technical or engineering knowledge – used to design and operate them. Technology from the sociological perspective is always a relational object because its creation, use and diffusion is based on social processes relating things, signs and meaning, humans and institutions. The former social studies of technologies (Bijker, Hugues and Pinch, 1987) concentrated on scientific knowledge and historical cases of technical innovation (electricity, nuclear power, pasteurization). The field of empirical research moved then to the study of complex interactions between societal interests and design of various technologies from cars, bicycles and missiles to medical devices and plastic materials (Bijker and Law, 1992).

A technology scholar, Werner Rammert (2008), identifies among the rules that should guide social studies of technologies, the necessity to deconstruct technical developments into local projects, where different visions of technical practice (ex. the employ of personal computers, television sets, specific devices) are mixed with heterogeneous elements. According to this perspective the meaning of a piece of technology is socially constructed and negotiated inside specific groups or communities of users: social interpretation of technology may thus involve several years to complete, as well as modify the original intents of inventors and technology professionals (Latour, 1992). Furthermore, the fact that technologies are embedded in places and social contexts make them sensitive to interest groups and collective actors, influencing the development of complex socio-technical structure (see for example the cases of electric automobiles, missiles and satellite communications or medical devices).

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