Beyond Engineering

Software Design as Bridge over the Culture/Technology Dichotomy

Bernhard Rieder and Mirko Tobias Schäfer

Abstract In this chapter, we first consider the growing cultural significance of software as a motive for having a closer look at software production. We then show how networked computing has stimulated new practices of technical creation that question the traditional logic of engineering; *open source* software development serves as an example. Consequently, it is no longer feasible to separate the technological dimension from its cultural context. An integrated perspective could lead both humanities scholars and technologists to revaluate established dichotomies and refocus the debate on technological policies.

1 Introduction

In his book "*Le Geste et la Parole*", the paleontologist André Leroi-Gourhan sketched the evolution of Homo sapiens as leaving the domain of biological advancement to continue, with an accelerated pace, in the field of language and technology. While many of Leroi-Gourhan's proposals have not aged well, his concept of humanity being shaped by a man-made web of objects and symbols – of machinery and discourse one might say – has been a powerful image in a time when the idea of the tool as neutral artifact is still an important paradigm. In the last decade there has been a resurgence of academic interest in technology, not purely as a means to an end but as a cultural force. Together with this shift in perspective on the role of technical artifacts in our high-tech collectives, we see, more specifically, an increased awareness of the "toolmaker" as the assumed *locus* of technical progress. Every age seems to have an epitomical figure of technical creation: the craftsman for the Middle Ages, the inventor in the Industrial Revolution, and the engineer in the 20th century. Late capitalism has introduced a new figure for the beginning of the 21st century: the *designer* as the toolmaker of the information age.

B. Rieder, Paris 8 University

M. T. Schäfer, Utrecht University

P. E. Vermaas et al. (eds.), *Philosophy and Design*.

The last two decades have produced a plethora of literature on the new mode of creating technical objects: from product design to Web design, from industrial design to experience design, design is everywhere but no two definitions are the same. As a consequence, the term refers less to a clear-cut concept or methodology; rather it functions as a means of differentiation. Software design[1] for example is not a well-defined practice: it is a way of saying that what is being done is somehow going beyond the well-defined practice of software engineering. Behind the term "design" actually lurks a multiplicity of quite different ways of creating, shaping, and maybe even using.

2 Hybrid Practices

In industrial societies there remain few tasks that are not in one way or another dependent on computers. Our communication and information routines have shifted in a large part to a computer-based network infrastructure of globally connected computers, the *metamedia* (Kay and Goldberg, 1977) of our time. Classic electronic media like television and telephony are currently passing onto the universal protocol of TCP/IP,[2] becoming yet another piece of software that runs on the Internet. Creative work, game play, social intercourse, information search and management, so many of the things we do in our everyday lives have become directly connected to digital tools and networks (Castells, 2000). We are steering towards a unified digital environment in which computer hardware and software define possibilities for action and conditions of expression.

Interest in technology within the humanities has historically been limited. When considered, technical artifacts have been assimilated into the industrial complex and treated as producers of *capital* rather than of *meaning*. But the dense entanglement between human and non-human we witness today increasingly calls for perspectives that zoom in at the micro-level and theorize not only the general aspects of how "society and culture" relate to "technology," but first and foremost the increasingly hybrid everyday practices that are the content of human affairs.

In reference to de Certeau (1980), we can describe these practices as ways of doing that embed actions in a dense network of meaning, provide a rationale for why something is done, and sketch a proper way of doing it. There is a non-discursive dimension to such an *art de faire*, e.g., motor movement, objects, and spatial settings, and a strong discursive element, e.g., morals, laws, rules, and narratives. These two aspects are woven together by continuous action. Collins and Kusch (1998) have detailed how the atomic particles of practices, actions, can themselves be theorized as series or trees of micro-acts, coalescing motor movement

[1] The term was first coined in Kapor (1986).

[2] Transmission Control Protocol / Internet Protocol are the communication protocols that unite all the different networks that make up the Internet.