

Both the covers and the content of these publications make it clear that the discourse of inevitability is first and foremost a marketing strategy, a way of selling what is “new and next,” along with promises and visions of the future. To the extent that the theme of choice is raised at all in these discussions, the choices to be made are typically between various versions of a particular technology, for example, digital cameras, flat screen televisions, personal computers, or software packages, rather than about whether particular technologies should be used at all.

The discourse of inevitability is associated with several metaphors in which technology is conceptualized as a force of nature or an autonomous agent making demands and producing “powerful and inevitable change” (Sasseville, 2004, n.p.). It implies that technology is the primary or sole driver of social evolution and that control over designs and outcomes is either difficult or impossible. The current popular and engineering discourses using the vocabulary of technological development thus reflect a perspective that has been analyzed and critiqued by a number of recent commentators on technology such as Jacques Ellul (1964), Martin Heidegger (1977), Langdon Winner (1977), Arnold Pacey (1983), Thomas Hughes (1987), and Rosalind Williams (2002). Winner begins his discussion by writing: “One symptom of a profound stress that affects modern thought is the prevalence of the idea of autonomous technology – the belief that somehow technology has gotten out of control and follows its own course, independent of human direction. That this notion is (at least on the surface) patently bizarre has not prevented it from becoming a central obsession in nineteenth- and twentieth-century literature.” (Winner, 1977, 13) Given the central role of the requirement to make choices in ethics, it is thus not surprising that popular discourse discourages both ethical reflection and individual ethical responsibility by promoting the view that there is nothing an individual can do to affect the course of technological development meaningfully.

Challenging the discourse of inevitability has been one of the major projects of the STS community, an effort that most scholarly analysts see as both successful and largely complete. Having dismissed inevitability within our own professional communities, it is tempting to overlook the extent to which the concept of inevitability still resonates in popular and engineering discourse.

### **3 Understanding the Robustness of the Discourse of Inevitability**

The robustness of the discourse of inevitability derives from many sources, including its simplicity and familiarity and the way in which it resonates with lived experience. Where the more complex narratives of professional historians may more fully capture the subtleties and intricacies of the processes by which technology and society shape each other, the discourse of inevitability appears to provide “an easy and uncomplicated explanation” (Selwyn and Gorard, 2003, 80). There is also a host of assumptions, myths, and predispositions that make people inclined to accept the narrative of inevitability (Pacey, 1983; Martin and Schinzinger, 1989; Frost, 1996).

Perhaps more importantly and persuasively, the discourse of inevitability resonates with lived experience. This point has been developed by several analysts of technology, including Arnold Pacey (1983) and Eric Schlosser (2002), but it is perhaps most clearly delineated by Rosalind Williams in *Retooling: A Historian Confronts Technological Change* (2002). Williams, herself a historian of technology, analyzes her experience as a university administrator involved in a “Reengineering Project” designed to improve management of her institution’s existing resources.

Drawing on Thomas Hughes’ concept of technological momentum, Williams concludes that “It is easy to refute the logic of technological determinism, but the everyday experience of having to conform to ‘the technology,’ ‘the software,’ or ‘the computer’ cannot be refuted by logic” (2002, 117). The process, Williams argues, begins with what she terms “technological drift,” the tendency to address the aspects of a problem that are most susceptible to a technological solution and where visible results can be accomplished quickly. Once this happens, “The rules that govern the technology start to govern everything else. Technological drift becomes technological momentum, which begins to *feel* [emphasis added] very much like technological determinism” (2002, 116). What starts out as choice comes to be experienced as inevitability. This resonance with lived experience is one of many reasons why the narratives produced by historians and philosophers of technology and other professional analysts cannot compete with or dominate simpler narratives of inevitability. We believe that the community of professional analysts of technology-society interactions is not likely to disrupt the discourse of inevitability unless we can connect with broad social discourses about technology. We argue that the discourse of design and intention has the potential to make that connection and to elucidate the ethical dimensions of the development of technological systems more fully.

#### **4 Contrasting the Language of Design with the Language of Technological Development**

Given that we are locating much of the lack of ethical responsibility in the language that is often applied to technology, it is worthwhile to contrast the discourse tendencies that differentiate design and technological development. Table 1 gives a brief catalogue of terms associated with these perspectives.

Here we have space only to highlight several of these contrasting terms and how they influence the subjective feeling of choice. For example, as the word “design” is typically used in engineering, it is focused on something *specific*, either an individual project or part of a larger scale project, but still with a specific outcome. The terminology “technological development” usually refers to a *general* trend. Any specific development thus becomes part of a larger process. The notion of design thus makes it easier to think in terms of originality, whereas the notion of technological development shifts the question to how the new technology fits into a larger totality. Underlying technological development is therefore the idea of progress, the issue of building on something prior, which will be better than or