

The Coming Age of Calm Technology

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Introduction

The important waves of technological change are those that fundamentally alter the place of technology in our lives. What matters is not technology itself, but its relationship to us.

In the past fifty years of computation there have been two great trends in this relationship: the mainframe relationship and the PC relationship. Today the Internet is carrying us through an era of widespread *distributed computing* towards the relationship of *ubiquitous computing*, characterized by deeply embedding computation in the world. Ubiquitous computing will require a new approach to fitting technology to our lives, an approach we call “calm technology.”

This article briefly describes the relationship trends and then expands on the challenges of designing for calm using both the center and the periphery of our perception and the world.

Table 6.1 The Major Trends in Computing.

Mainframe	many people share a computer
Personal Computer	one computer, one person
<i>Internet–Widespread Distributed Computing</i>	<i>... transition to ...</i>
Ubiquitous Computing	many computers share each of us

Phase I—The mainframe era

The first era we call “mainframe,” to recall the relationship people had with computers that were mostly run by experts behind closed doors. Anytime a computer is a scarce resource and must be negotiated and shared with others, our relationship is that of the mainframe era. There is mainframe computing today: a shared office PC; and the great physical simulations of everything from weather to virtual reality have in common the sharing of a scarce resource. If lots of people share a computer, it is mainframe computing.

Phase II—The PC era

The second great trend is that of the personal computer. In 1984 the number of people using personal computers surpassed the number of people using shared computers.⁷ The personal computing relationship is personal, even intimate. You have *your* computer, it contains your stuff, and you interact directly and deeply with it. When doing personal computing you are occupied, you are not doing something else. Some people name their PC—many people curse or complain to their PC.

The personal computer is most analogous to the automobile—a special, relatively expensive item, that while it may “take you where you want to go,” requires considerable attention to operate. And just as one can own several cars, one can own several personal computers: for home, for work, and for the road. Any computer with which you have a special relationship or that fully engages or occupies you when you use it is a personal computer. Most hand-held computers, such as the Zaurus, the Newton, or the Pilot, are today still used as personal computers. A \$500 network computer is still a personal computer.

Transition—The internet and distributed computing

A lot has been written about the Internet and where it is leading us. We will say only a little. The Internet is deeply influencing the business and practice of