

Book Review

Pertti Saariluoma, José J. Cañas, and Jaana Leikas

Designing for Life: A Human Perspective on Technology Development

—Reviewed by
DYLLAN SCOTT 

Index Terms—*Event-driven thinking, paradigm, technical artifact.*

Designing for Life offers a thorough background in advances in technology that have improved the human condition. The book details the history of technological development as well as recent advancements and their implications for the future. The authors want designers to think about human perception and experience as the foundation of design best practices, and they achieve this goal by including multiple citations to help designers and researchers follow up with additional reading.

The first three chapters provide essential ideas for the foundations of design thinking as it relates to advances in technology. Chapter 1 describes how these advancements have altered the course of human life throughout history, and how recent developments, such as social media, require the expertise not only of scientists and engineers but also additional disciplinary perspectives that help us understand how humans live and think.

Chapter 1 describes how scientific and design thinking are complementary and necessary to applications of modern technology. The authors insist that human–technology interaction or HTI currently aims to *achieve* (p. 1). Take, for example, modern day smart-phone applications. These applications were created to be used by groups, whereas the current forms of the apps exist for the consumer to modify as they see fit to achieve more individualistic goals. Modern technological advances tend to build on previous ones, and they

speed up as they evolve. Technology as simple as “[news]paper machines . . . can dry paper incredibly quickly” and has increased the productivity of the newspaper industry (p. 3). The role of the user (the human element) has shifted from human output to technology output. The user tells the technology what to do rather than the technology existing as a stand-alone component.

Technologies generate rapid advancement and lead to major changes in society on a political and social level. “Making something happen is a form of *emancipation*, which means expanding the possibilities of life” (p. 7). Access to new technologies can increase the consumer’s quality of life exponentially. In fact, advancements in social issues tend to happen during the flurry of activity following a major technological breakthrough (p. 7). This does not simply mean that a certain app will make your commute to work more efficient. It might mean that people who previously lacked access to a certain idea can now be included in a larger way in society. The authors give the examples of the African-American civil rights and women’s liberation movements as benefiting from these rapid increases in technology.

Chapter 2 posits that designing is *human* thinking, and that thinking “creates new pieces of information” (p. 25) that are then applied to the design process and a circular pattern of cycles of innovation. Paradigms—or “ideals and models” (p. 25)—serve as a foundation for further innovation. Although paradigms serve as a roadmap of sorts, helping researchers to generate ideas, it is important to note that paradigms are not meant to be followed so closely that ideas outside of the scope of that paradigm are not explored. Chapter 2 discusses the multiple approaches, methods, and perspectives that

Manuscript received September 20, 2019. Date of publication November 1, 2019; date of current version November 22, 2019. The reviewer is with Texas Division of Worker’s Compensation, Austin, TX 78666 USA (email: dyllan.scott@outlook.com).

IEEE 10.1109/TPC.2019.2946941

Book Publisher: London, UK: Palgrave Macmillan, 2016, 267 pp., including index.

comprise the field of HTI. The chapter outlines basic questions of the field, including functionalities, ease of use, users' experience and liking, and impact on human actions.

Chapter 3 explains that the logic of user-interface design must give users the ability to control technology, which exists for people to use and make something happen. The user of the technology *feeds* information into the technical artifact to accomplish the task at hand (p. 50). An important way of looking at technical artifacts is that they have an unlimited number of *expected goal states*. Depending on the technical artifact's location in relation to the users' needs, the artifact serves multiple purposes. A cargo ship has an expected goal state of unloading its cargo at a dock, for example. The ship takes on process forms as it sails to reach its destination (p. 51). Event-driven thinking is the physical interaction of an event—for example, “pressing a lever or turning a steering wheel” (p. 54). The *triggering response* is the action itself, and the *respective response* is the result of that action. This is an essential concept when applying design thinking to user interaction with the interface. The functionality of technology can facilitate or hinder the basic abilities of users. Technologies should naturally fit into actions and work processes. Therefore, designers must know the users' goals, environment, tasks, and actions or behaviors.

The rest of the book provides advanced ideas about how the user and technology interact with each other. Specifically, Chapter 4 delves into the psychology of the user interacting with the

interface. It describes problems with design that hinder users' ability to use technology involving how users perceive (discriminating between objects), attend (discriminating relevant targets), respond, act, learn, remember, decide, and think. Chapter 5 introduces *dynamic psychology*, consisting of emotions, motives, personality, and intercultural issues (p. 139). Emotions are constantly a part of the human experience, so they influence HTI constantly (p. 147). Chapter 6 describes life-based design in four phases in which designers ask questions about users' forms of life, such as their regular actions; analyze the implicit and explicit rules that users follow; factor in other characteristics actions that emerge; and define design goals accordingly.

Chapter 7 stresses that research and innovation are important to the human mind generally, and to scientific and design communities specifically. Constructive thinking and new perspectives informed by user feedback can help promote asking new types of questions about the design and the user, and improve the thought processes behind product design. Combining user interaction with the relevant scientific knowledge is important for explanatory design, as is answering questions about the technology's purpose, its intended behavior, the users' skills and capabilities, and the experience that the technology creates. Finally, Chapter 8 reiterates the human questions beneath HTI design, including the ways that technology can improve quality of life, the functionality that it provides users, the ease with which it fits into users' lives, and its ability to stoke users' motivations and liking.