



B O O K S

Hits and misses in “human-tech” approach

The Human Factor: Revolutionizing the Way People Live with Technology

Kim Vicente, \$36.95 hardcover, ISBN: 0676974899, 368 pages, Knopf Canada

Why, in today’s world, are we plagued with such inferior design? Kim Vicente claims that it is because a humanistic perspective (a focus on people and society) developed separately from a mechanistic perspective (a focus on technical matters).

Since neither addresses the relationship between the two, we find ourselves cursed with a technology that can be annoying or, at worst, downright dangerous. Vicente suggests we consider a “human-tech” approach.

As a teacher who has been challenging engineering students to grapple with the technology-society relationship for over 20 years, I search continually for alternative ways of approach and, while *The Human Factor* contains valuable insights, it also exhibits significant shortcomings.

Vicente’s case studies are engaging and accessible. Some examples demonstrate design deficiencies—cases related to preventable deaths in the healthcare system are particularly chilling—and others illustrate how a conscious effort to include the human factor results in a much-improved system—the enviable safety record of the aviation industry, for example. The use of current events, such as the Walkerton water disaster, reinforces the timeliness and gravity of these issues, and his analysis of the human factor, at different levels, illustrates the relevance of everything from physical size and shape to policy agendas, budget allocations, and laws and regulations at the political level. Vicente also challenges the tendency to blame the user. His call for a more preventive approach—one that pays attention to the human and social context—is commendable.

On the other hand, I find Vicente’s insistence that technology is value-free surprising. Surely the values of efficiency and cost-effectiveness play a dominant role in guiding the design process; the resulting technologies reflect these values. Criteria that honour community, the biosphere, and the well-being of future generations are often ignored. Examining how values are expressed in design might help us to discover why many of the dangerous and unsustainable technologies of our day have resulted from a cultural obsession with finding the “one best way.”

Vicente accepts the current range of technologies and focuses on improvement; no consideration is given to abandonment or to the need for radical alternatives, even when it comes to the development of safety-critical systems. In contrast, Charles Perrow claims in *Normal Accidents* that it is “normal” for systems to fail, and if that failure has catastrophic potential, human nature is such that no matter how small the risk, the technology is unacceptable to many.

While Vicente’s introduction to the technology-society relationship would be particularly useful in undergraduate engineering design courses, it would also be greatly enhanced by a more thorough incorporation of the extensive literature available in this area. [Editor’s note: Kim Vicente recently received the National Business Book Award for the book reviewed here].

Reviewed by Bob Hudspith, P.Eng., who recently retired from the faculty at McMaster University in Hamilton, where he was the director of the Engineering and Society Program for the last seven years.

