Limits and sustainable interaction design: Obsolescence in a future of collapse and resource scarcity

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by Christian Remy and Elaine M. Huang

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Electronic waste, caused by the advancements of technology and its rapidly increasing obsolescence, represents a major threat to environmental sustainability. Research in sustainable HCI has proposed a variety of solutions to tackle this issue, but has yet to create a major impact in product design. While currently industry's goals are opposed to research's concepts of addressing obsolescence, a future of collapse and resource scarcity requires a revisit of those contributions: changes in society at large, such as a decrease of resource availability, different needs, requirements, and desires of the consumer, but also new directions of industry and marketing might enable researchers to bring their old concepts into practice. We take a look at a variety of obsolescence-related research in sustainable HCI and foreshadow its potential for such a future of collapse and resource scarcity.

Contents

Obsolescence and sustainable HCI

Obsolescence, in particular the obsolescence of technology, has been an important topic of discussion in sustainable HCI (SHCI) and ubiquitous computing in recent years (*e.g.*, Cooper, 2010; Fairphone, n.d.; Gegenbauer and Huang, 2012a, 2012b; Huang and Truong, 2008; Huang, *et al.*, 2009; Odom, *et al.*, 2009; Woolley, 2003). While some form of obsolescence — namely planned obsolescence — is brought upon us by industry (*cf.*, Packard, 1960; Slade, 2006), the general term obsolescence encompasses a much larger meaning which does not necessarily imply bad intent. One origin for unintentional obsolescence stems from the very fields of HCI and ubiquitous computing themselves: the development and discovery of new technologies and opportunities for interaction enables and exacerbates obsolescence, since consumers aspire and acquire such new technology. The combination of those two field's goals — research's new discoveries in technology and industry's urge to sell more products — leads to a dreadful impact on environmental sustainability. According to the U.S. Environmental Protection Agency, in 2010 alone 374 million units of technology were disposed of, with only 19 percent of them going into recycling and 310 million units ending up as electronic waste.