

# The Political Economy of Computing: The Elephant in the HCI Room

## Insights

- The impositions and intrusions of the economic system in our sociotechnical arrangements are underemphasized.
- The intense media and academic focus on exciting, innovative cultural activities tends to divert our collective attention from less glamorous but crucial matters.
- System designs often benefit, de facto, the members of privileged socioeconomic classes.

Is there a relationship between computing and economy? Most of us, if asked, will answer this question in the affirmative, thinking probably of such things as jobs lost to automation, big money made with technological innovations, and smartphone apps that enable novel business transactions, communication, and entertainment. These are all good examples of the relationship, but they are merely small spots on the body of a huge elephant that we can call the political economy of computing. Computing and political economy are much more intertwined than current discourse in HCI admits.

Our contention is not that HCI researchers and practitioners are unaware of the relationship between economy and technology; rather, that this does not typically figure in any deep way into our theories, practices, and designs. We in HCI face the reality of the larger economic system and its impact on our daily life and work, but we do not incorporate these understandings into our research and practice to the extent that we perhaps should. Researchers tend to focus on the cultural aspects of technology at the expense of the more material and economic facets. The recent



turn to materiality might provide a useful opening in this regard, but its horizon needs to expand beyond the physical to thoroughgoing materiality. Practitioners, with their institutional ties to corporations, might feel constrained, directly and indirectly, in how far they can engage with issues of political economy. In this manner, the impositions and intrusions of the economic system in our sociotechnical arrangements are underemphasized. Due to the scant attention it receives, the elephant of the political economy turns into a topic not discussed. To improve

this situation, we need to take the measure of the elephant.

### KEY CONCEPTS OF POLITICAL ECONOMY

A good starting point would be to lay out the basic concepts of political economy so that we are informed enough to tackle the issues. Here we identify four such foundational elements: value, class, labor, and social control. These elements are all implicated in digital technology in one way or another.

**Value: The creation of wealth.**

Value has to do with the production of

wealth. Wealth creation is a constant requirement in our economy, and it's the basis upon which all capitalist activity rests—its bottom line, so to speak. To persist, contemporary capitalism must average 3 percent annual growth—a challenging and aggressive demand [1]. The notion of capital has been reified in most people's minds as money or as a tangible asset. David Harvey reminds us, however, that "capital is not a thing but a process in which money is perpetually in search of more money" [1]. One need only listen to capitalists themselves to understand

this. In 2013, for example, Mark Zuckerberg announced plans to equip five billion people with Internet access—an astounding ambition to turn nearly everyone on earth old enough to manage a digital device into a customer of digital services. Zuckerberg’s aspirations are but one example of capital’s appetite and drive for growth. Eternally saddled with the need to grow, capitalism constantly scrambles to move forward. While the specific means by which wealth is created change over time, capitalism’s non-negotiable demand for growth sparks a dynamic that affords processes of innovation the capacity to generate not only useful goods and services, but also system-wide instability and crises like those witnessed repeatedly in the past century, the most recent of which occurred in 2008.

In the past few decades, computing has been a major vehicle of innovation in capitalist economies, as well as a key source of wealth creation. A large portion of the economy’s growth in the past decade, for instance, belongs to IT-related sectors and culture industries such as social media, advertising, and video games. The intense media and academic focus on exciting, innovative cultural activities such as content production on platforms such as Facebook, YouTube, and Twitter tends to divert our collective attention from less glamorous but crucial matters of, for example, declining investment in physical and social infrastructures—roads, bridges, hospitals, public libraries, and community housing. In today’s world, such issues are inseparable from computing. Can we address them in HCI? The hashtag for CHI 2016 is #chiforgood—an expression of commitment to human well-being that should, in our view, more deeply consider computing and its relationship to the shaping power of the economy.

**Class: A persistent reality.** Class, to some people, has to do with lifestyle and taste or with social status and respect, while to others it relates to social conflict and political power; to still others, class is irrelevant. This latter view is often based on a neoliberal ideology that seeks to redraw social boundaries around notions other than class. We argue that class not only remains relevant to our understanding of contemporary social life but is also central to HCI theory and practice. Although class structure in current capitalist societies is different from that of previous centuries, classes have not disappeared. The shift in the mid-20th century from industrial to corporate capitalism, for instance, led to changes in the ownership and control of assets as former plutocrats such as the Carnegies, Rockefellers, and other heads of family-owned corporations hired managers with MBAs to run their businesses. This separation gave rise to highly paid and powerful executives of major corporations who do not own the means of production but attain enormous wealth and power through their jobs—a trend that, along with inherited assets, has concentrated wealth in fewer and fewer hands [2].

The emergence of this powerful group has changed class structure in capitalist economies, but these changes do not alter the fact that a certain social class maintains ownership and control of the means of production of goods and services (plants, factories, industrial farms, buildings, machinery). For this reason, it can hire those who do not have that kind of ownership [3]. Similarly, the shift in the past few decades toward a so-called information economy brought forth the role of knowledge workers—those involved in the collection, processing, and management of data and information. This circumstance did not, again, alter the fact that a certain

class owns and controls the means of production, whether the context is finance, media, engineering, scientific information, or artistic and literary creation. The new capitalist class, iconically embodied in the owners of Amazon, Facebook, Google, and media conglomerates such as Rupert Murdoch’s News Corp, is as real as the Rockefellers and Carnegies of old industrial capitalism.

In HCI, class has been erased as a concept. For example, the selection of representative user groups indicates that we collect demographic data on age, gender, ethnicity, and so forth—but not on class. We would scarcely know how to define the different classes that might be relevant because we have avoided thinking about them. System designs often benefit, de facto, the members of privileged socioeconomic classes. The fact that class is not explicitly incorporated into the design process does not eliminate this reality; it just hides it. Take the ubiquitous smartphone, and the huge number of apps that run on it. The majority are built to help people find good restaurants but not good jobs, connect with old high school classmates but not with the disenfranchised members of their community, organize flash mobs but not labor and trade unions, search for cute pet videos but not endangered species in their area, and so forth. The point is not that current apps are not important, rather that the balance has tilted too much in one direction. The fact that we operate within a capitalist economy explains these preferences but does not justify them. While designers and technologists might not have a lot of leeway in reshaping the broader socioeconomic environment, they should not close their eyes to the realities of a class-based society.

**Labor: Rewarded and unrewarded.** Capitalism depends on wage labor to create wealth. The arrangements by which work is regulated, however, are pliable, such that capitalism has the ability to respond to changing conditions and to impose new demands or seek new opportunities when, for example, the supply of the right kinds of labor falters or can be enhanced. The invisible and/or meagerly rewarded contribution of humans to many computational systems is an increasingly common labor relation, and takes different

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shapes, from the taxing and repetitive microtasks of Mechanical Turk, to user training and behavior regulation in video games, to the generation of content at sites such as Amazon.com and content issuing from the actions of users of social media, search engines, and other Web outlets [4].

Celebratory accounts of participatory culture, peer production, and the like valorize labor relations in which enterprises extract free or low-cost labor for their own benefit. Such accounts are perhaps too narrowly pointed at the short-term affective rewards of the labor on which peer production depends. Taking a wider, longer view, these economic arrangements reveal a trend toward diminishing returns on a person's own labor. Peer production also reduces returns to labor by displacing labor that was formerly paid, such as that of members of the creative class who have watched their worth decline through content delivered for free. While we may believe that peer production is a positive force in society, a political-economy perspective asks us to also consider wider impacts on social class and economic security, because these will inevitably be important to all of us in the future as the cumulative effects of new labor relations are felt [5].

**Social control: Commitment and coercion.** All societies ensure that people behave according to plans and expectations. Foucault revealed the post-medieval disciplinary society as a series of spatial enclosures (prisons, schools, hospitals, factories) with episodic examinations and certifications. Contemporary society adds a new layer of continuous control. The dispersal of small, ubiquitous moments of control is implemented through digital technologies, subtly affecting individuals through techniques of isolation. Although technologies such as the Internet are used for emancipatory purposes, they have also turned into instruments of surveillance, control, and coercion. Many technologies provide effective control and surveillance mechanisms for the organizations that employ or provide services to us. In the past, the loyal employee of a big bureaucracy was fully owned and controlled eight hours a day through hierarchical

mechanisms but was unsupervised after the workday. The employee of today's organizations is typically subject to less bureaucratic control (although bureaucratic control is far from dead) but is unofficially controlled and monitored on an ongoing 24/7 basis. Thanks to digital technologies, what is lost to reduced bureaucratic control is more than rebalanced in capital's favor by continuous access and surveillance.

While coercions like these are the cause of considerable consternation, the commitment of citizens of industrial societies to digital technology is unmistakable. Such commitment has a rational basis in that technology provides unprecedented capacity for information and communication. Yet technology also visibly isolates us. Public spaces, for example, are markedly altered. The everyday spectacle of people ensconced in their own worlds, earbuds in place, making eye contact only with their smartphones is scarcely remarked on. Yet it is a pattern unique to our place and era, and a relatively new pattern at that. One need only go to other cultures with less commitment to incessant use of technology (or spend time with the elderly) to be reminded that our commitments seem natural but are in fact outcomes of complex processes at work in the political economies of industrial societies. These are commitments we do not yet grasp and that require study.

## APPLICATION TO HCI

How can we incorporate concepts of political economy into HCI thinking and practice? We suggest the following as potential first steps:

**Economically informed design.** A promising development in HCI has focused on value-sensitive design, highlighting values such as privacy, trust, and informed consent [6]. These values are important from an ethical perspective, but there are economic values that need to be incorporated into our thinking about systems too. Along with their cultural, informative, and entertainment value, computer technologies are business tools that generate great economic value. HCI thinking cannot remain indifferent to this question: *What economic value is*

*generated by our ideas and systems?*

**Class-conscious design.** The economic value generated is not equitably distributed. It often favors a select group of actors, often at the expense of others. The growing income gap of the past few decades, deriving in part from computer innovations, is a vivid illustration of this fact. In designing systems, we should ask: *Who benefits most, and who is economically left behind by our designs?*

**Labor-friendly design.** Technologies reconfigure the division of labor between machines and humans but also, through that, among humans. Keeping in mind the principle that the ultimate goal of technology is to improve human welfare, we should ask: *What division of labor is created by our designs? Does this division of labor make life (work, family, health, education, entertainment) better for people?*

These questions indicate the need for metrics and analyses not yet part of current HCI research and practice. The aim of this article has been to suggest that we might begin to work toward their development, shedding light on the elephant in the HCI room.

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## ENDNOTES

1. Harvey, D. *The Enigma of Capital*. Oxford Univ. Press, 2007.
2. Piketty, T. *Capital in the Twenty-First Century*. Belknap Press, 2014.
3. Marx, K. *Capital*. Penguin Classics, London, 1867/1990.
4. Ekbia, H. and Nardi, B. Heteromation and its (dis)contents: The invisible division of labor between humans and machines. *First Monday*. June 2014.
5. Ekbia, H. and Nardi, B. *Heteromation and Other Stories of Computing and Capitalism*. (In press).
6. Friedman, B. Value-sensitive design. *Interactions* 3, 6 (1996), 16–20.

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