GREAT TRANSITION INITIATIVE
TOWARD A TRANSFORMATIVE VISION AND PRAXIS

February 2022

Marx Was Right about Tech

Contribution to GTI Forum Technology and the Future

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Mainstream interpretations of the interplay between technology and society have revolved around three theoretical frameworks: technological determinism, social constructionism, and neoliberalism. Technological determinists center technology as the driving force of history. Social constructionists regard society as the shaper of technology's advance. Neoliberals prioritize multinational corporations and finance capital as the main drivers of technical innovation. All three agree on the progressive potentials of technology for social and economic development. However, each suffers from fundamental blind spots regarding the regressive logic of capitalist market competition, which constrains the possibility for technology-society synergy in service of human solidarity and a sustainable civilization.

An alternative perspective for a Great Transition should move beyond the stale debates on technology vs. society and state vs. market in innovation studies. Technology, society, state, and market are best understood as co-evolving and interrelated. In theory, the technologically feasible is greater than the socially necessary; in practice, society can direct the purpose and progression of technology. For example, the case for selective automation suggests that even if certain goods and services can be automated, there are techniques that should remain artisanal and traditional manual skills that are better conserved for meaningful reasons of the arts and cultural heritage. In critical political economy, the ideological opposition to market dominance over society is already exhaustive. In heterodox economics, the myth of market fundamentalism has been debunked with solid empirical research showing a positive-sum game of governments as proactive innovators and co-creators of innovative technologies with the private sector.[1]

What needs further critique, and should be altered, is the prevailing market-dependent, socially-disembedded, and anti-worker processes of technological innovation under capitalism.

Political Economy of Market Dependence

Global responses today to the twin crises of climate change and the COVID-19 pandemic, which threaten the survival of humanity and the natural life support system, signify how and why capitalist rationality for profits fail to maximize the liberating and democratizing potential of science and technology for universal benefit. This is despite the common sense that addressing these pressing development problems demands cooperation rather than competition. The science behind the technology (to produce green production systems and effective vaccines) may be considered neutral, but it is the overarching capitalistic economic structure that defines its potentialities and propensities. The supposed wonders of the current Information and Communications Technology (ICT) techno-economic paradigm, which began with the invention of the Intel microchip in the 1970s, have not been so wondrous at all especially if equitable distribution of the fruits of productivity explosion were the basis of developmental success. The Millennium and Sustainable Development Goals are clear articulations of persistent privation and intractable inequalities. The so-called digital divide is a manifestation of the combined yet uneven character of technology diffusion.

Importantly, technology policy also takes shape differently in particular political regimes and institutions. Recall that industrialization and mass production have taken different forms under Hitler's fascism, Soviet socialism, Chinese-type communism, US-style liberalism, and the Nordic model of social democracy. The politics of Big Data—their extraction, processing and management—is known by now to serve specific purposes for government agencies, social media companies, consulting firms, and other interest groups.

Under conditions of the capitalist system, there are tensions between forces and relations of production. The classic readings of both Marx and Schumpeter on the operations of capitalism argue that the causal force for social change is not technology per se, but the market imperatives of capitalist competition. Mature industrial capitalists do not lack knowledge of superior techniques or access to finance thanks to globalization and financialization. However, because technical change creates diversity in unit expenditure within economic sectors, capitalists calculate optimal trade-off

between operating costs and losses in capital value.[2] The business strategy of planned obsolescence manifests how the goal of profit maximization can delay the introduction of new, durable, and high-caliber technologies, to the detriment of our finite planet. The lack of profit opportunities in poorer countries is the major reason why they miss out on the investments in production technology needed for social progress and economic prosperity.[3]

Every techno-economic paradigm offers wide-ranging windows of opportunity for innovation to diversify productive capacity and unleash the benefits from the virtuous circles and multiplier effects of technology-based manufacturing activities.[4] However, the series and patterns of technological revolutions since the eighteenth century have not led to the reproduction of high-tech societies across the globe but of social antagonisms arising from class inequalities and insecurities. The real barrier to capitalist innovation is capital itself because the self-expansion of its own production is its primary limited purpose, extracting as much value as it can from the society of producers and the living world. This is recently exemplified by how rich countries and their pro-capital political forces have ignored legitimate moral appeals to waive or at least suspend patents of potent vaccines against the coronavirus disease to speed up the pandemic control. The Trade-Related Intellectual Property Rights (TRIPS) Agreement has proven once again to be a reflection of historical double standards and an instrument of the First World to maintain the unequal status quo.

The market dependence of innovation connotes that continuous development of technology depends on, and is mediated by, commercial relations and monetary exchange. Capitalism treats technology as the power of science commodified, whereas Marx postulates the general intellect about the social production process of technology as "products of human industry; natural material transformed into organs of the human will over nature…the power of knowledge, objectified."[5]

Workers

Theories on technological innovation usually account for the variables of technology, society, states, and market in their analyses but systematically neglect an indispensable set of actors: workers. Schumpeterian creative destruction, as well as some streams in orthodox and post-Keynesian economics, have theorized about how increased productivity resulting from the use of technology can lead to job losses and de-skilling. Oftentimes, discussions about novel technologies from artificial intelligence to digitalization and the platform economy assign the collective workers

as a mere reactive variable and factor of production in economic relations and the evolving development process. Indeed, understanding the evolution of technology in history and its role in past, present, and future society should never exclude the perspective, agency, and well-being of workers, without whom the socio-economic processes of production and innovation cannot be realized.

At this juncture, the long-term agenda of the international institutions of economic governance is to complement the existing world market of exchange of commodities and money with a genuinely globalized capitalist relations of production through the creation of fully proletarianized laborers.[6] Their global development project envisions the growth and accumulation of capital to result in greater division of labor and the application of technology. The dynamic of capitalist competition not only entails incessant technological revolution but also necessitates permanent proletarianization—in which flexible, mobile, fluid, and disposable workers are completely subsumed to capital. Therefore, the crux of the matter at the turning point of the ICT paradigm, the maturation of old machineries, and the installation of new technologies is not simply the economic impact of specific technology, but the consequences of contemporary global capitalism for society, particularly for the workers.

Endnotes

1. Mariana Mazzucato, *The Entrepreneurial State: Debunking Public vs. Private Sector Myths* (London: Anthem Press, 2013).

2. John Weeks, "The Expansion of Capital and Uneven Development on a World Scale," *Capital & Class* 25, no. 2 (2001): 9–30.

3. Erik Reinert, *How Rich Countries Got Rich… and Why Poor Countries Stay Poor* (London: Constable, 2007).

4. Carlota Perez, *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages* (London: Edward Elgar, 2002).

5. Bonn Juego, "Innovating 'Innovation', Competing 'Competitiveness': A Critical Political Economy Approach to Social Innovation System," Global Development Studies Research Series, Working Paper No. 3, 2009, Aalborg University, Denmark.

6. Paul Cammack, *The Politics of Global Competitiveness* (Oxford: Oxford University Press, 2022).

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Cite as Bonn Juego, "Marx Was Right about Tech," contribution to GTI Forum "Technology and the Future," *Great Transition Initiative* (February 2022), https://greattransition.org/gti-forum/tech-future-juego.

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