DIGITAL CAPITALISM IN THE 2020S: DIVIDING THE WORLD*

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Origins and Structure of Digital Capitalism

Digital capitalism developed in the United States in the crucible of World War II. Momentum came from high-tech weaponry, led by radar, early computing machines, and atomic bombs; and from the global war's acceleration of information-processing demands for logistics. With the erection of a permanent US war economy to support US global power during the battles against socialism and radical nationalism that followed,[1] a new political-economic formation began to emerge.

Digital capitalism's growth involved both evolution and discontinuity. The existing industrial structure became honeycombed with emerging digital systems and services. On the other hand, and I want to emphasize this, capital used digital technologies to break with prior constraints on its expansion. That is, commodity relations penetrated previously unexploited segments of social life.

Digital capitalism's commodification initiatives are typically presented as progressive and benevolent. In fact, by helping to enable a vast and still-ongoing privatization of public services – from libraries and museums to medicine and social welfare services to government functions themselves[2] – these privatization projects carry a punishing regressive impulse,[3] and strip away even a vestige of democratic accountability. Nevertheless, there are numerous new frontiers of commodification.[4] The transnational companies that control 30% of global production and 80% of world trade are rebuilding themselves

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around digital structures and dynamics; worldwide IT spending was forecast to increase to $4.6 trillion in 2023.[5] We are nowhere near the end of the line: unless it is halted as a result of political mobilization, an economic crash, nuclear war, or environmental collapse, digital capitalism still has plenty of room in which to expand.

For, let me be clear - this political economy remains capitalist: It is neither (techno-)feudal nor post-capitalist[6]; indeed, if anything it is more expansively capitalist than ever before. This is not to say that the political economy has not changed; far from it! Even by the 1970s it was evident that a massive phase-change was underway.[7] The form and location of production processes, the composition of capital investment, the commodities that generate high profits, the valued categories of labor, the profile of consumption: since the 1970s all have altered. At the same time, long-engraved imperatives of profit-maximization, cost efficiency, and labor control carry forward. It's still capitalism – with a digital character.[8]

During the 19th and early 20th centuries, capitalist industrialization reorganized *every* major sector while also establishing new industries; so too today, a digital growth pole has been activated *generally*. To understand digital capitalism therefore requires us to look beyond the familiar suppliers of consumer markets – *Google*, *Meta*, *Amazon*, *Microsoft*, *Apple* – to include both many diversified suppliers and, above all, corporate tech *users on the demand side*. Digital systems and services have reshaped *all* parts of the political economy. I'll provide three quick examples: Today's farm machinery manufacturers such as John Deere outfit tractors with software to collect micro-climate- and soil data as they plough fields - in order to sell these productivity-enhancing data back to farmers (who are often angered to lose ownership of what they regard as their own data).[9] Another example: in 2022-23 the biggest *US bank*, *JP Morgan Chase*, boasted an IT staff of 57,000[10] and a tech budget of $14 billion; it operated roughly 6,000 apps[11] and was incorporating AI throughout its operations.[12] Tesla is estimated to have made eight times more profit on each of its high-priced, software-saturated vehicles in late 2022 than *Toyota*.[13] With R&D budgets that rival those of many countries, the tech companies' significance stems from their role in leading the recomposition of the *overall* political economy, that is, from their innumerable applications of digital technology to wring additional profit out of existing businesses and to spearhead new commodification projects.

No less vital for understanding today's reality is that capitalism's multifaceted crisis tendencies persist; indeed, fifteen years after the crash of 2007-2008, it is arguable that the prolonged crisis is still with us.[14] Perhaps fifty poor countries are facing severe debt crises[15]; while inflation has reached calamitous levels in a number of nations. The Euro-American financial system is both febrile and fragile; in March 2023[16] it underwent the most severe panic since 2008 and, as of this writing, it has not stabilized.[17] Gigantic black holes of unregulated activity constitute a source of unabating financial peril. Meanwhile, local governments in China show extreme indebtedness, and insolvent property developers there have fallen into managed bankruptcy[18] - while China's party-state has just reworked its regulatory regime to try to steady things.[19] So the financial side of today's digital capitalism is hardly reassuring.

Geo-Political Economy

This unstable political economy is also marked by an increasingly severe horizontal cleavage. This split had not yet occurred in 1999, when I first framed an account of digital capitalism.[20]

At that time, the US enjoyed unchallenged primacy. Indeed, with the collapse of the Soviet Union; the decision by China's party-state to reinsert China into global capitalism; and the immobilization of the Non-Aligned Movement – the anti-imperialist bloc formed decades before by nations of the Global South - the United States seized the opportunity during the 1990s to reorder the world.

A 1992 Pentagon document declared the strategy of US primacy, asserting that the US's overarching mission must be "to insure that no rival superpower is allowed to emerge."[21] Meanwhile, buoyed by the longest economic expansion in its history, US pundits, politicians and corporate executives trumpeted a US-centric "globalization." As transnational investment flows surged, the US also promoted a new mode of computer networking. The internet functioned as a hegemonic popular force, a basis for additional cycles of commodification, and an infrastructure for coordinating the offshoring of manufacturing investment to low-wage regions – especially China.

A quarter-century later, things look starkly different. Free-market verities were mothballed during the crisis of 2008, when the US government stepped in to rescue the collapsing financial system.[22] The unipolar epoch ended when, despite US preferences, China grew into a first-rank power. Digital capitalism has matured - but on altered terms.

Because the profit potential of digital technology renders it a uniquely important growth-pole, US leaders are determined to maintain pre-eminence over this technology. (Again, it is not only that *Alphabet*, *Microsoft*, *Meta*, and *Apple* have been cited as perhaps the most profitable companies, ever[23]; but that the entire political economy is regenerating around digital systems and services.) In this respect, however, the US faces growing obstacles.

The chief threat to US dominance stems neither from Europe nor Japan. Despite rumblings of discontent and specialized industrial competition from these potential rivals, they remain broadly in thralldom to the United States.[24] The true challenge, again, comes from China. What are the US and Chinese positions with respect to the major growth pole of contemporary capitalism?

China

Just a few decades ago, China remained an impoverished country. Only after its leaders embraced state-controlled inward foreign investment, export-led industrialization, and massive domestic infrastructure investment did its fortunes change. China quickly became the center of world manufacturing; and, though US officialdom overlooked this at the time, it simultaneously developed a domestic internet industry.[25] Often financed through opaque offshore companies set up to gather funding from foreign as well as domestic investors (variable investment entities), beginning late in the 1990s China's internet industry burgeoned.[26] With government measures to protect the national market, Chinese internet capital dominated many of its segments; but Chinese tech companies also took hold in international markets for PCs, telecommunications infrastructure, mobiles phones, games, and internet apps.[27]

The financial crisis of 2008 revealed the full extent of US-China structural interdependence,[28] crashing both China's long export-led boom and inward foreign investment. Chinese leaders responded with a world-historic stimulus. Their debt-financed infrastructure investment programs targeted several areas, including high-speed rail, health care, education, and technology innovation. Attempts became increasingly concerted to increase autonomous development and self-reliance in internet industries.[29] These efforts intensified after Xi Jinping became President in 2012; just between 2016 and 2021, the digital sector of China's economy doubled, to $6.6 trillion.[30]

China was both reorganizing its national political economy and, concurrently, seeking to bring other countries into its digital orbit: in short, attempting to reconfigure the overall political economy of digital capitalism. As its sphere of endeavor enlarged, its initiatives spanned the gamut of digital innovation, from electronic and autonomous vehicles[31] to supercomputers, satellite navigation systems, quantum computing,[32] 5G and 6G wireless systems,[33] cloud computing services, and submarine cables. Xi Jinping even declared that China plans to dominate artificial intelligence by 2030.[34] The party-state also prioritized advanced semiconductors,[35] though in this field – critical to virtually all the others – China has not yet shown great success.[36] China is, however, the world's second largest spender on research and development and it is quickly closing the gap with the United States.[37]

China's party-state has recently strengthened its role in shaping and reshaping the country's internet industry. Most well-known, perhaps, have been the state's antitrust initiatives against major Chinese internet companies beginning around 2020, which notably restrained some of these companies' disruptive market forays into banking. More generally, these reforms pressured *Alibaba*, *Tencent* and other tech firms to reorient their profit strategies toward state-directed infrastructure, including smart cities, smart transport, and an industrial internet.[38] The companies' stocks took a beating, but their roles in China's development program were reinforced - with stepped-up supervision by the party-state.[39] In December 2022, 'after' this clampdown, *Alibaba*'s market capitalization still made it the 35th most valuable company in the world; *Tencent* was the eleventh most valuable – and (alongside three other Chinese tech corporations) both placed among the top ten global internet companies by revenue.[40]

China's party-state has also become much more assertive in the international context. Starting in 2013, its trillion-dollar Belt and Road initiative exported domestic industrial overcapacity to build infrastructure in countries in Southeast and Central Asia, the Middle East, South America, and Africa.[41] China has since established other multilateral organizations: the Global Security Initiative, the Global Development Initiative, the Global Civilization Initiative, and the *Asian Infrastructure Development Bank*. Alongside its continuing attempt to internationalize its currency, the renmimbi, these "seek to position China as a country with which nations that are wary of U.S. hegemony can do business."[42] Within this wider context, they create institutional bases for bringing countries into its burgeoning transborder digital infrastructure projects. Scores of nations, especially in the Global South, have joined up in one way or another.

If China has widening global interests, it also has been expanding its defense budget (currently estimated at about $300 billion). China's military possesses sophisticated weaponry across all the theaters of contemporary combat, including space, naval, and cyber. It possesses a "blue water" Navy, most active in the Taiwan Strait and the South China Sea, but now also in the Indian Ocean and likely beyond; and its military bases are beginning to extend beyond its borders.[43] China is planning a national constellation of almost 13,000 low-orbit satellites to compete against Elon Musk's *SpaceX* system, which has seen military use in Ukraine.[44] Like that of the United States, virtually all of this military activity is enabled by digital technology.

I will finish this sketch by providing a few admittedly selective indicators of China's robust and diversified presence within the global political economy of digital capitalism. *TikTok*, a short-form video social media app owned by the Chinese company *ByteDance* (itself originally funded in part by US venture capital and owned in significant part by US capital, though its revenues are derived principally from the Chinese market) is available in 155 countries and 75 languages, and claims over a billion monthly active users. This includes many users (150 million) in the United States; and *TikTok* also reaches 26.5 million people aged 18 and over - and an unknown number under 18 – in Türkiye.[45] The US is presently considering a ban on *TikTok* and, perhaps, other Chinese apps.[46]

Huawei developed as a Chinese national champion with close links to the state, beginning in the 1980s.[47] It grew into a major transnational company – a leader in telecommunications equipment, smartphones, cloud computing, and cybersecurity. As of 2019, *Huawei*'s submarine cable subsidiary had completed or initiated 104 cable-laying contracts serving South America, Europe, Africa, Russia, South-east and East Asia (nearly everywhere apart from North America) – about one-quarter of the global total.[48] Shortly after this, as a result of US sanctions, *Huawei* transferred majority ownership of its submarine cable unit to a company called *Hengtong Marine*. The US has gone to great lengths to hamper *Huawei*, barring it from the US national market, pressuring allies to do the same, and prohibiting US companies from selling it microprocessors and other equipment. *Huawei*'s growth slowed in 2020, as the US sanctions began to bite, and the company's sales dropped dramatically during the next two years.[49] However, *Huawei*'s R&D expenditures and patent holdings are very large, and it possesses a robust customer base throughout Russia, the Middle East, Africa and Asia.[50] Indeed, to the chagrin of US officials, in December 2022 it signed agreements with Saudi Arabia to provide cloud computing and high-tech urban infrastructure to this strategically crucial country.[51] The US in turn threatened a total ban on exports to *Huawei* in March 2023.[52]

China's *Beidou* satellite navigation system, finally, which became fully operational in 2020, exceeds in capability the US Global Positioning System, which dates back to 1978. The largest network of global positioning satellites ever built, *Beidou*'s 35 satellites observe capital cities in 165 countries more frequently than the 31 satellites used by the US's GPS.[53] The *Beidou* system is integrated into China's Belt and Road initiative, and provides navigational services to more than 30 (BRI) countries.[54]

Noam Chomsky sums up the general ramifications of all this: "China refuses to surrender its technological development. It cannot be intimidated, and it does not follow orders…That's the real problem for the United States."[55]

The 'specific' problem is that China is asserting a leadership role in the political economy of digital capitalism. How has the United States responded to China's strengthening presence?

United States

US counter-action against China was initially belated. During the early 2000s President George W. Bush fixated instead on a terrifically costly war on Iraq, among whose effects was to diminish US world power and influence.[56] Then came the global financial crisis (during which real cooperation between the US and China proved crucial); only after the worst of it had passed did President Obama and Secretary of State Clinton initiate a foreign policy "pivot to Asia." Forceful and wide-ranging tariffs were thereafter imposed by the Trump administration, though these were not focused on digital technology; both presidents did, however, apply US market restrictions specifically to *Huawei* and *ZTE*, another leading Chinese tech company. Only after Joe Biden was elected president in 2020 was US policy for digital technology systematically recast. Now it became viewed almost entirely through the prism of national security. With bipartisan support, Biden explicitly specified that the US objective was to hinder and slow China's forward motion in high technology.

Evident were six initiatives. One was to abandon a longstanding commitment to an 'American' system of 'worldwide' internet communications, in favor of a more limited digital trade bloc centered on the US. A second was to use US state power to deny China access to critical technology, in particular, to advanced semiconductors – over which the US and its allies continue to hold a lead. Third was again to deploy the power of the government to accelerate the US's own technology development in key fields. Fourth, and closely related, was to pressure US and allies' industry to reorganize supply chains, to relocate at least some critical manufacturing sites domestically or close by. Fifth was to step up executive branch policing of investment – both inward and, unprecedently, 'outward' - in fields deemed strategic for US interests. Sixth was to continue to use US military and intelligence assets to degrade competitors' abilities.

The US had been committed to a policy of global free flow of information for a century.[57] This policy had formed the basis of US global expansion in communications after the Second World War, and it underwrote the worldwide growth of the US internet during the 1990s and 2000s.[58]

As recently as 2013, the Council on Foreign Relations – the country's leading foreign policy thinktank - trumpeted the need to defend "an open, global internet."[59] Nevertheless, by 2022 the Council had become unequivocal about the necessity of change. Its new Report declared that this cornerstone of US international communications policy had crumbled, signaling an extraordinary strategic retreat.

"The era of the global internet is over," the Report stated. The US "has been unable to counter the persistent advance of the concept of cyber-sovereignty," advanced especially by China and Russia, but also endorsed by numerous other countries. In the face of spiraling fragmentation, the Report recommended that the US construct a "digital trade bloc" with like-minded countries, including the EU, Japan, and others.[60] The "strongest possible alliance" – really a protectionist wall - should be created first and foremost among the US's chief military allies. The US has been adopting this policy. It launched a "Declaration for the Future of the Internet" in April 2022 to great fanfare. The Declaration gained more than 60 "partners," Europe, Japan, South Korea, Argentina, Australia, New Zealand and the UK among them. Mexico, India, Brazil, Southeast Asia, and nearly all of Africa were, however, absent.[61] More important, the US effort to establish uniform and binding "free flow" policies among allies has not yet been notably successful.

The Report also embraced increased investment in digital infrastructure and in strategic fields including AI and quantum computing, to preserve technological superiority; and it recommends export controls. Export controls were indeed imposed on advanced semiconductors in October, 2022[62]; efforts then began to try to bring high-tech suppliers of microelectronics manufacturing technology in Japan and the Netherlands into line with US directives.[63] Passage of the CHIPS and Science Act in August 2022 provided multibillion dollar incentives for bringing back some semiconductor manufacturing to the United States,[64] and construction plans for fab facilities (as semiconductor manufacturing sites are called) were announced in Ohio, Texas and Arizona.

This is not to say that international politics has been cast aside. Far from it! An example came in autumn 2022 at the International Telecommunication Union, the UN affiliate agency which has long been a chief venue for seeking multilateral, rather than the US's favored corporate-led, internet policies. In this case, the US successfully lobbied to have its preferred candidate elected Secretary General.[65]

Organizational changes within the US state also have been made, to enable swift and concerted action around technology policy (as indeed they had been throughout earlier cycles of digital capitalist development[66]). The Committee on Foreign Investment in the United States (CFIUS), established in 1975 by Executive Order,[67] now routinely brings executive power to bear on policy-making,[68]including on the ostensibly independent Federal Communications Commission (FCC).[69] This includes intervening in FCC authorizations for submarine cable build-outs that may connect to or harbor investors connected to China - but also in authorizations for cables serving entirely different parts of the globe.[70]

CFIUS has previously compelled US companies not to cooperate with Chinese cable builders or telecom operators.[71] The recent exit by *China Mobile* and *China Telecom* from a consortium to build a transpacific internet cable to link Asia with Western Europe,[72] reported the *Financial Times*, accentuated the battle between China and the US "over who builds and owns the infrastructure underpinning the global internet." The consortium includes, among others, *Microsoft*, *Orange*, and *Telecom Egypt* (as well as a third state-owned Chinese telecom carrier, *China Unicom*); and the group opted to grant the contract for building the line to the US company *SubCom* rather than China's *Hengtong Marine*. A US Naval analyst asserted, perhaps with some hyperbole, that this action might presage "a decoupling of the internet's infrastructure, with US companies increasingly building the pipes connecting allied nations, while China invests in those connecting much of Asia and Africa."[73] (Vitally, though, these physical changes to network topography do not signify a reduction in network connectivity: communications between the United States and China, for example, are ongoing.[74])

The CFR Report also endorsed a mobilization of US state power, encompassing "diplomatic and economic pressure on adversaries, as well as more disruptive cyber operations."[75] And it bears emphasis that hard-power often overtly predominates throughout US policy-making.[76] The 2023 US military budget totals some $850 billion – about the size of Türkiye's GDP. Of the US's roughly 750 overseas military bases, spread out across some eighty countries, 313 are now located in East Asia.[77]

Within the U.S., boundaries between military and civilian domains have become increasingly porous: "We must complement the innovative power of the private sector," read the President's National Security Strategy, released in October 2022, "with a modern industrial strategy that makes strategic public investments in America's workforce, and in strategic sectors and supply chains, especially critical and emerging technologies, such as microelectronics, advanced computing…and advanced telecommunications."[78]

Protectionism backed by military power is supplanting open borders in today's digital capitalism.

An unresolved paradox

Yet a paradox underlies the US-China fight for supremacy over digital technology. Since Deng Xiaoping's reform and opening-up policy decision, the US and China have bound themselves together through a myriad of business and financial linkages. During more than thirty years, their economies have become systemically intertwined via massive US foreign direct investment, intra-corporate trade, and heavy financial flows. Giant volumes of US finance capital continue to flow into China, including into Chinese tech companies.[79] Reciprocally, a handful of Chinese companies are active in Silicon Valley. The full extent of these financial flows – venture capital, hedge funds, portfolio investment – is not publicly known; but it is enormous and fluid, denominated in both dollars and renmimbi. Though it has slumped, US foreign direct investment also still moves into China.[80] The largest and most valuable company in the world – *Apple* – is essentially dependent on its China-based manufacturing, where 95% of its *iPhones*, *iPads*, *Macs* and *AirPods* are made.[81] China is the US's third-largest trading partner; and the second-largest holder of US Treasury bonds (although it has been selling off its Treasury holdings, which declined to a 12-year low of $867 billion in December 2022).[82]

Can these gigantic, intricate, and profitable ties be unwound? Can China and the United States actually "decouple"?

Certainly, efforts to do so are strengthening. As I've mentioned, the US is considering a total ban on exports to *Huawei*; and a ban on *TikTok* and other Chinese apps in the United States; China, for its part, has never allowed *Facebook*, *Instagram*, or *Twitter* to operate inside its borders. However, decoupling is not a mechanical process – and the policy itself is not fully agreed on either side. On one hand, many big US companies derive only a small portion of their revenue from sales inside China; it may not be hard to persuade their executives to decouple.[83]

But this is not the only consideration. There are also the vital matters of financial investments, and of manufacturing production facilities in China and exports back to the US market. Many US CEOs thus are concerned that US policies against China strike against their particular business interests. The US, sums up former *Goldman Sachs* CEO and onetime US Treasury Secretary Hank Paulson, "faces the prospect of putting its companies at a disadvantage relative to its allies." He argues that "even Washington's closest strategic partners are not prepared to confront, attempt to contain, or economically deintegrate China as broadly as the United States is."[84] A prospective presidential order on screening US financial investment flows into strategic technology industries in China will do little to assuage such tensions.[85] A March 2023 *New York Times* editorial thus urges caution: although the *Times* concedes that "a growing portion of the business community" now sees China as a "threat to American interests," it goes on to declare that the US-China relationship "continues to deliver substantial economic benefits to the residents of both countries" and should be maintained.[86]CEO Tim Cook praises *Apple*'s "symbiotic relationship" with China.[87]

Nor, for its part, is China's leadership fully supportive of decoupling. Li Qiang, China's new premier, asserted in his first press conference in 2023 that China and the US are economically intertwined - to the benefit of both sides.[88]

There is, in any case, no guarantee that US measures to inhibit and retard China's innovation of digital technologies will succeed in containing its rival.[89] China has set a clear goal of becoming self-reliant in high-technology industries, and it continues to pour investment into them.[90] Its track record in moving toward technological independence has been impressive.[91]

Conclusion

What began as an expression of US supremacy has transformed, throughout the last two decades, into a conflict over nothing less than the shape of the global order. Amid innumerable pressures and uncertainties, the US-China rivalry over the political economy of digital capitalism has become a more general geopolitical contest.[92]

To this struggle, the US brings diminished ideological and political resources. The US has more or less abandoned international institutions such as the World Trade Organization, and participates only selectively in the United Nations. Its much-vaunted "rules-based order" thus may look to other countries like nothing more than arrangement in which the US makes the rules. Much, perhaps most, of the world now views the US-led West with open skepticism: as 21 African countries and other nations in Asia and Latin America refused to back the Euro-American war effort in Ukraine, French President Macron admitted in February that "we have lost the trust of the global south."[93] Nor, in any case, is current US policy toward Ukraine, Russia, NATO and Europe itself stable – it may not carry over through next year's US election.

On the other hand, for many states China's commitment to the UN system, its rhetoric of multilateralism, and its proclaimed policy of non-interference in the sovereign affairs of other countries[94] may offer an appealing alternative. For its part, China is becoming much more assertive. China's brokering of a renewal of diplomatic relations between Iran and Saudi Arabia boxed the United States out of a region it has long considered its own backyard. And China's proffered peace plan for Ukraine engenders derision from the US, because it cannot be ignored. China's strategy is to champion reform of today's deeply unbalanced international order - to push for adequate representation for the Global South.[95] Backed by China's ascending digital capitalism, this strategy will probably strengthen China's geopolitical standing.

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We are living through an epochal and unresolved historical transition. Akin to past transitions of this kind, digital capitalism in the 2020s is likely to be marked by violent contingency, perilous confrontation, and continued geopolitical reconfiguration.

Notes

[1] Melvyn P. Leffler, A Preponderance of Power: National Security, The Truman Administration, and the Cold War. Stanford: Stanford University Press, 1993.

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[3] Compare Cedric Durand, "Scouting Capital's Frontiers," New Left Review 136, July/August 2022: 34.

[4]Including around AI and intermediate commercial services. Martin Wolf, "Globalisation is not dying, it's changing," FT September 13, 2022; Dan Schiller, Digital Depression: Information Technology and Economic Crisis. Urbana: University of Illinois Press, 2014: 240-45; Dan Schiller and Shinjoung Yeo, "Powered By Google: Widening Access and Tightening Corporate Control," Leonardo Electronic Almanac 20(1), 2014: 44-57; Retrieved at http://www.leoalmanac.org/wp-content/uploads/2014/05/LEA_Vol20_No1_SchillerYeo.pdf/.

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[6] Evgeny Morozov, "Critique of Techno-Feudalism," New Left Review, 133/134, January April 2022: 89-126. A critic of Morozov who asserts that today's "cybernetic capitalism" possesses qualitatively new and different features nevertheless agrees with Morozov that "Contrary to the techno-feudal interpretation, the cyber-tech sector is unmistakably capitalist, driven by competition, investment and innovation, and subject to speculative bubbles and booms unheard of under feudalism – if also characterized by supposedly non-capitalist but thoroughly familiar practices like monopolization, market rigging, pref-

erential nationalism and proximity to the military-industrial complex." Timothy Strom, "Capital and Cybernetics," New Left Review 135, May June 2022: 32-33. Like Morozov and others, I will define capitalism so as to foreground property relations – relations of production – but without downgrading the persistent centrality of "extra-economic means of accumulation" – or "original expropriation." Cecilia Rikap, "Capitalism as Usual? Implications of Digital Intellectual Monopolies," New Left Review 139, January/February 2023: 145-60; Ian Angus, "The Meaning of 'So-Called Primitive Accumulation,'" Monthly Review Vol. 74 (11) April 2023: 54-58; also, Durand, "Scouting Capital's Frontiers": 32.

[7] Herbert I. Schiller, Information and the Crisis Economy. Norwood: Ablex, 1984; Dan Schiller, Digital Capitalism: Networking the Global Market System. Cambridge: MIT Press, 1999.

[8] There is debate about the extent to which digital capitalism rests upon capitalism's traditional basis - accumulation via productive investment – or, in addition or instead, intellectual monopoly rents and other forms of surplus appropriation and re-appropriation. Durand, "Scouting Capital's Frontiers":37-9; Rikap, "Capitalism as Usual?".

[9] Jacob Bunge and Bob Tita, "Monsanto, Deere Join Forces Over Data Services," *Wall Street Journal*, November 5, 2015, http://www.wsj.com/articles/monsanto-deere-join-forces-over-data-services-1446580917; Scott Carpenter, "Access To Big Data Turns Farm Machine Makers Into Tech Firms," Forbes, December 31, 2020 at https://www.forbes.com/sites/scottcarpenter/2021/12/31/access-to-big-data-turns-farm-machine-makers-into-tech-firms/?sh=a8acec97e473 ; Dan Schiller and ShinJoung Yeo, "Betting the Farm," Information Observatory, May 11, 2016 at https://informationobservatory.info/?s=Down+on+the+Farm.

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[19] Meijun Qian, "China's regulatory restructuring targets conflicting roles," Nikkei Asia March 17, 2023; Zhiwu Chen, "How China Keeps Putting Off Its 'Lehman Moment,'" NYT March 26, 2023.
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[22] Adam Tooze, Crashed: How a Decade of Financial Crises Changed the World. New York: Viking, 2018: especially 143-201.
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