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Power Under Pressure: Digital Capitalism In Crisis

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Massive and sustained corporate investment around ICTs developed in response to the economic downturn of the 1970s, within a multifaceted attempt to renew profitable growth. Five core components of this encompassing response were financialization, militarization, wage repression, transnationalization, and accelerated commodification. Yet these axes of a developing digital capitalism eventually converged on a new and deeper financial-economic crisis. May we expect this sector to reprise its earlier role in renewing the accumulation process? How may geopolitical-economic forces be rebalanced?

Introduction

The past year has been one of great accomplishment in the economic field," wrote the Secretary of Commerce four years into the slump:

> We find almost every major indicator of business conditions moderately above the level of a year ago . . . There is much evidence that the Recovery program will proceed progressively, that our remaining problems will be slowly but surely surmounted. ("Roper Projects," 1934)

That calming message came on New Year's Day—1934. What we now call the Great Depression still had years left to run.

Today, the predicate of booming corporate profits has been millions of layoffs, with no end in sight for high unemployment (Harding, 2011; Powell, 2011; Sum & McGlaughlin, 2010). Housing prices continue to stagger; commercial real estate is stressed (Kapner, 2010). Consumer demand remains iffy, with record–setting inequality adding to the burden (Clifford, 2011). The U.S. Federal Reserve Chairman (Bernanke) noted in November 2010 that the level of output in the advanced economies overall was about 8% below its long–term trend. European sovereign debt crises, rocketing grain prices (Cookson, 2011), and the outbreak of what the Brazilian finance minister called (Jacque, 2010) a "currency war," engendered other reverberating instabilities. The director of the International Monetary Fund (IMF) allows (Strauss–Kahn, 2011) that "It is a recovery beset by tensions and strains—which could even sow the seeds of the next crisis." *Financial Times* journalist Martin Wolf (2010a) was more forthright: "This crisis is far from over," he wrote six months ago. How long the crisis may last is an open question.

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The concept of digital capitalism offers a way of clarifying the profoundly important role of communications and information in this global slump (Schiller, 1999). I developed this concept at a sharply different moment, during the late 1990s, as a corrective to the triumphalism then circulating around the so–called "New Economy." Capital, I argued, remained at the center of the political economy even as the market system was restructured to accept a profitable information–intensive orientation.

This remains true today. But circumstances have altered decisively. For the first time in 75 years, the world is mired in a downturn that originated in the developed market economies—the slump's epicenter is the historical hub of information and communications technology (ICT) innovation (McNally, 2011; Walker, 2010). The theory of digital capitalism now must ask: How is the political economy's escalating reliance on communications and information linked to today's crisis? And, moving from there: How may communications and information figure in its eventual resolution, as the global market system reorganizes?

Information and Communications in Capital's Spatial–Temporal Fix

Our starting point is the 1970s. Responding to what was then the most severe downturn of the postwar era, U.S. elites sought to restore profitable market growth by developing what David Harvey (2003, pp. 87–88) calls a "spatio–temporal fix." Within the many–sided and contingent process of reconstruction that followed, information and communications played an axial role.

Consider first the 40–year flood of capital into finance. The roots of this financialization encompass more than bankers' avarice. The crumbling of the postwar international financial order supplied the enabling context. Judith Stein (2010, p. 296) explains how, after the United States abandoned the fixed peg of the Gold Standard, transnational corporations doing business in multiple national markets and currencies sought means of hedging risks arising from newly volatile exchange rates. Meanwhile, overcapacity and growing competition in the manufacturing industry placed pressure on corporations' existing accumulation strategies, motivating a flight into financial vehicles. Stagnating wages, finally, stimulated household demand for credit and a willingness to take on debt (Harvey, 2010; Reich, 2010). Financialization emerged as an overarching economic syndrome (Brenner, 2009; Foster & Magdoff, 2009).

Finance, in turn, became a site of massive ICT investment, to support both networked services and mathematically complex product innovations. From the late 1960s' remake of *Wall Street* around computerized trading, and Citibank CEO's Walter Wriston's (1979) subsequent encomiums to the "information standard," we may trace an unbroken line to the present. Financial services companies constitute the second largest sectoral source of demand for ICTs, following the communications industry (U.S. Census Bureau, 2010). And big banks may lavish greater resources on technology than tech companies themselves. In 2008, Citigroup employed 25,000 software developers and spent an estimated $4.9 billion on ICT (Guerrera, 2009).

With the deregulation and increasing inter–linkage of global finance, the new tools and products allowed risk to be repackaged and spread across the world. This dispersal of individual risk turned out,

however, to spread systemic risk: When the crisis erupted in an obscure corner of the U.S. market for mortgage–backed securities, networked cross–border financial chains circulated its lethal impulse outward instantaneously (IMF, 2009; Tett, 2011).

A second crucial means of restoring profitable growth stemmed from the federal government and, in particular, from the U.S. Department of Defense. Coming out of World War II, corporate capital had allied with military agencies to launch what became a sustained technological revolution in information processing and communications. Project SAGE and the DEW–line were formative examples. A decade or so later, the Vietnam War engendered new visions around the so–called "electronic battlefield" (Klare, 1972); visions of "net–centric warfare" became successively more grandiose. President Reagan's Star Wars, or Strategic Defense Initiative (Mosco, 1989), of course catapulted weapons spending into the Internet era.

ICTs have become intrinsic elements in the machinery of war (Schiller, 2008). Here is the Deputy Secretary of Defense (Lynn, 2010, p. 98), writing in a recent issue of *Foreign Affairs*:

> Information technology enables almost everything the U.S. military does: logistical support and global command and control of forces, real–time provision of intelligence, and remote operations. Every one of these functions depends heavily on the military's global communications backbone, which consists of 15,000 networks and seven million computing devices across hundreds of installations in dozens of countries. More than 90,000 people work full time to maintain it.

In one estimate, the defense department's 2011 information technology (IT) budget exceeds $36 billion, approaching half of the federal government's overall spending on IT (IT Dashboard, 2010). The contradiction between this lethal high–tech apparatus and humanity's need for peaceable reconstruction remains acute.

The third and fourth vectors of ICT growth ran together as, in the wake of the 1970s' profit squeeze, capital also broadly reorganized the system of production. One was directed at cutting labor costs. Crucial here was the innovation of "lean production" practices, in which IT–heavy but employee–light systems were introduced in an expanding series of work settings (Moody, 1997). Real wages in the United States dropped by 10% between 1978 and 1983, and, beginning in 1979, the value of U.S. labor power fell for the remainder of the century (McNally, 2011, pp. 36, 48). Contributing to the decline were concurrent attacks on unions, reduced government support for social services, downsizing, outsourcing—and rapidly growing foreign direct investment (FDI).

Attempts to reduce labor costs succeeded beyond the imagination of corporate leaders during the Nixon era. The flooding of the global market for labor power with a couple of billion people—throughout China, the old Soviet Bloc, and other parts of what was once a more independent Third World (Prashad, 2007)—marks an outstanding feature of our times. Harvey (2010) underlines the profoundly contradictory result: Its success in pursuing wage repression means that capital must now contend with flagging consumer demand. Like financialization, however, newly accelerated FDI came about not only because of

capital's power but also because of its vulnerability. Renewed inter–capitalist competition and deepening excess capacity *drove* capital to seek out new investment outlets for the surplus that was the crushing result of its own prior successes.

Big companies had long been purchasing factories, offices, mines and plantations outside the U.S. domestic market (Appel, 2007). The motivations varied case by case: cheapened labor power, enhanced market access, new sources of natural resources. The near–instant doubling of the world's wage labor supply, however, gave strong new priority to corporate efforts to reorganize their production systems.

Transnational corporations (TNCs) began to set up integrated cross–border supply chains to sell into multiple national markets—including the United States. "As recently as 30 years ago," writes the director–general of the WTO (Lamy, 2011), "products were assembled in one country, using inputs from that same country." No longer. "Today the concept of country of origin is obsolete . . . No car or commercial jet could now be built with inputs from just one country." Manufacturing of the iPhone, which has been well–documented, links nine companies in seven countries (Asian Development Bank, 2010). In March 2011, Japan's triple–catastrophe—earthquake, tsunami, and nuclear reactor meltdown—swiftly engendered knock–on effects as it began to interfere with "just–in–time" global supply chains in automobile and electronics production (Tett, 2011).

Corporate information systems were repeatedly re–engineered, in light of shifts in strategy, public policy, and networking technology. This internationalization of production (UNCTAD, 2010, p. xviii), however, remained hinged to information and communications technology. Corporate or enterprise networks indeed account for the lion's share of all network–related spending (Parker & Taylor, 2010). A trade association reports (WITSA, 2010, p. 15) that consumer spending on ICTs comprises merely one–third of the total market—business and government accounted for more than two–thirds.

The consumer market, however, was and remains vital as a springboard into new territories of profit, in Gary Fields' (2004) term. It accordingly constituted a fifth key site of change in response to the crisis of the 1970s. What I have called "accelerated commodification" (Schiller, 2007, pp. 34–57) propelled a series of changes in and around communications, starting from a spectacular buildup of investment to upgrade and extend liberalized network infrastructures.

Communications and the Enlargement of Commodity Culture

Liberalization began in the giant U.S. domestic market but quickly moved beyond it. What had been a welfarist, typically government–operated, service was reorganized into a corporate–commercial function. Between 1988, when Chile privatized its incumbent telecommunications operator, and 2005, more than 80 less developed countries underwent privatization (World Bank, 2006, p. 7). Enormous system build–outs followed as surplus investment funds surged into the sector.

Within countries where it had been prohibited or substantially restricted by the state, a major new outlet for transnational capital was secured. FDI flowing into the less developed countries' telecommunications systems increased tenfold during the decade after 1990 (World Bank, 2006, p. 7).

Networks drew more investment in developing countries—hundreds of billions of dollars—than any other industry (Verizon, 2010, p. 8). Foreign direct investment became a major—perhaps the major—driver of system development, and this tendency persisted after 2000, as greenfield projects replaced privatizations as the major growth nexus (World Bank, 2006, p. 17; World Bank, 2010).

The Internet, as it became popular, both built on and further stimulated this investment. A continuing cascade of new Internet–enabled services and distribution channels has generated unprecedentedly wide–ranging market destabilization. One notable example is voice–over Internet protocol (VOIP). In a mere five years, Skype has become the world's largest supplier of cross–border voice communications. "Cross–border traffic routed by Skype . . . is projected to grow by an astonishing 45 billion minutes in 2010—more than twice the volume added by all of the world's phone companies, combined" (TeleGeography, 2011). Another is the market shocks around wireless applications, as subscriptions approach 4.5 billion (Pignal, 2010), so that mobiles can function as a strategic platform—a third screen—alongside televisions and computers.

The mythology of creative destruction overshadows a more fundamental feature: the unleashing of a rampant impulse to commodification. Consider fee–based cultural commodities. Here a small group of companies, led by Apple, Amazon, Google, and Facebook has muscled in on long–entrenched oligopolies over musical recording, books, games, and film (Naughton, 2011; Tabuchi, 2009; Waters, 2011). The interlopers have built new distribution systems around new software platforms and often proprietary equipment—iPhones, iPads, Kindles, XBoxes. As compact disc markets collapse, the handful of conglomerates whose music subsidiaries channel the lion's share of global recording have had to cede profits to Apple. These conglomerates' film subsidiaries still control traditional movie distribution, but now they must contend not only with dwindling DVD sales and illegal file sharing, but also Netflix's streaming service. These conglomerates' publishing subsidiaries dominate the U.S. book trade; but this staid industry is now witnessing especially vicious struggles. Traditional publishers and bookstores must try to contend not only with Walmart, but also with Amazon's killingly low retail prices and bullying tactics. Google's cutthroat strategy (now facing an unexpected judicial reverse and a counter–offensive by way of a proposed digital public library of America) has been predicated on the plunder of millions of volumes tended on behalf of the public by academic libraries and librarians (Auletta, 2009; Darnton, 2009a, 2009b, 2011; Helft, 2011; Vaidhyanathan, 2011). Fee–based cultural commodities are recomposing as new products, sold via new distribution systems, as a new set of big owners emerges.

A similar phenomenon is evident around advertiser–dependent media services. YouTube, Google's TV unit purchased five years ago for $1.65 billion, may be leading a transition away from conventional television, but it is distinctly not transcending advertiser patronage; indeed, YouTube has undergone an obsequious redesign in order to bring it more fully in line with advertisers' expectations (Schiller & Sandvig, 2010a; Stross, 2010). Facebook, too, is hard at work rebuilding its hugely popular service around the sales function. Facebook, noted the *Financial Times* just last year, "is desperate to attract . . . brand advertisers" (Bradshaw, 2010a, 2010b). That was then. Although uncertainties remain as to whether deeply engaged users will break the magic spell in order to absorb advertisements, marketers are stampeding onto Facebook (Bradshaw, 2011). ComScore (2011) reported in January that

"Social networking sites, which now account for more than one–third of all display ad impressions, were a significant driver of growth in the display ad market in 2010."

Market news fixes on these corporate struggles to master the commodity logic of a turbulent communications industry. The juggling of business models is intense as companies scurry to reorder and stabilize their revenue sources—a trend aggravated by the slump.[2] The churn of new product announcements, and the endless effort to calculate how market changes will impact on share prices, crowd out other considerations. Will Amazon's Kindle keep pace with Apple's iPad? Will an iPhone–enabled Verizon overpower AT&T? Is Facebook led by a nice man?

We may take better measure of this recomposition process by remembering that there are essentially three private options for launching and financing communications products and services: investment capital, advertising, and direct fees—whether they be subscriptions, licenses or rental charges. The rebuilding of the communications system around new technologies is overwhelmingly a story of how different enterprises and whole industries are casting about between these three models. Commodification—often, recommodification—is, in one form or another, the common denominator.

There are casualties. The travails of print journalism, which have been building for decades, supply an instructive point of reference. Print ad revenue decreased by nearly half between 2000 and 2009, while newspapers' online revenue makes up for just a fraction of the shortfall (Li, 2010; Peers, 2010). As online competition intensified, the downturn hit; strategic planning then gave way to emergency measures (Bradshaw, 2009). Journalists were laid off in droves, and the overall investment in newsgathering was radically cut. A grave threat is posed to original reporting.[3] During 2010, for example, a few dozen full–time U.S. foreign correspondents attempted to cover all of China (Bollinger, 2010). I dare not even ask how many of them speak Mandarin.

This is where we might remember that a fourth possible revenue model—government support—has been ubiquitously deployed throughout the crisis. The United States has thrown trillions of dollars at banks, insurance companies and auto makers; and it will spend billions more to underwrite broadband service nationwide. Yet it has spent nothing at all to try to ensure the functioning of effective journalism.

Why should it be a heresy to suggest that journalism merits public funding? An instinctual answer is that government financial support threatens press freedom. One must always take seriously the threat posed by executive power to civil liberties. But whose freedom of expression is endangered by

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[2] During the worst period to date—the first half of 2009—ad spending, a half–trillion dollar global outlay, fell by more than 10% in many developed countries (Pfanner, 2009). Sales of books by members of the Association of American Publishers dropped beneath their long–term sales trend line (Association of American Publishers, 2009).

[3] Newspapers consumed 8% of Americans' collective media time in 2008, but received 20% of total advertising; the Internet garnered 29% of our media time, but attracted only 8% of advertising. Commercial air is being let out of one section of the apparatus of selling, and pumped into another (Auletta, 2009, p. 261). Newspaper executives' decisions to rely ever more on advertising support looks, in this context, to have been a fundamental error.

government support? The majoritarian right of the public to access wide–ranging news and opinion? Or the property right of media owners to pursue commodification as they may choose? Accountability will attach to federal funding, and accountability in turn will encroach on the sanctity of proprietary accumulation by media conglomerates. In the historical source and current center of digital capitalism, such a transgression is deemed unacceptable.

As this discussion suggests, the commodity logic of a restructured communications industry ramifies far beyond the cut–and–thrust of clashing business strategies. There are also other ramifications. Notably, does the crisis signify that the dynamism of digital capitalism is now exhausted?

Renewed Growth Around Information and Communications?

David Harvey (2010) makes an essential point:

> Crises are, as it were, the irrational rationalisers of an always unstable capitalism. . . . We have always to ask: What is it that is being rationalized here and what directions are the rationalizations taking, since these are what will define not only our manner of exit from the crisis but the future character of capitalism? (p. 71)

In this connection it is again crucial, though Harvey doesn't do so, to revisit the role of communications and information. As it took shape, digital capitalism gave a fresh impulse to accumulation, and—especially during the 1990s—encouraged a fetishistic belief in information as a growth zone and detoxifying agent (Mosco, 2004). This enthusiasm, to be sure, did not resolve capitalism's crisis tendencies—as has now been amply demonstrated. Yet perhaps the sector continues to harbor a rejuvenating potential. May information and communications still act as a pole of growth, in a reprise of their role a generation ago? Will the crisis develop, or be managed, in such a way as to unleash this value–creating potential?

In the U.S., declining annual per capita expenditures on home video, music, newspaper and magazines have been more than compensated for by increased spending on cable TV and new media, so that overall consumer media spending increased from $740 in 2003 to $901 in 2009 (U.S. Census Bureau, 2011, Table 1130, p. 711). Similarly, while residential telephone service expenditures dropped sharply between 2001 and 2008, cell phone service outlays more than tripled—so that total household telephone service expenditures still grew, from $914 to $1,127 (U.S. Census Bureau, 2011, Table 1147, p. 720). One admittedly self–interested market actor (ComScore, 2011) has called 2010 "a very positive year" for consumer Internet services.

At the bottom of the downturn, Cisco held a stash approximating $20 billion; Microsoft, $19 billion; Google, $16 billion; Intel, $10 billion; and Apple, $26 billion (Vance, 2008; Waters, 2009). These hoards, which have since grown much larger, afford a measure of liquidity—of maneuverability—that eludes capital based in less fortunate economic segments and geographic regions. Undoubtedly, "some of these funds will go toward acquiring struggling competitors" (Vance, 2008). Might the growth of these

gigantic hoards, however, also signify a lack of profitable investment opportunities even in the information sector?

Blockages assuredly exist, but, as I argued (Schiller, 1999; Schiller, 2007) in *Digital Capitalism*, radical political–economic change may yet transform activities historically provided mostly as social services into profitable commodities. This sector's prospective investment and profit potentials indeed have not been fully tapped.

One helpful indicator pertains to the continuing modernization of network systems. Capital expenditures on information processing equipment and software have been on an upward course for decades (Bureau of Economic Analysis, 2011),[4] growing impressively as a proportion of all nonresidential fixed investment in equipment (as opposed to structures) between 1970 and 1990. During the 1990s, information technology investment increased by an "astounding" 18% per year, before falling after the Internet bubble popped (Council of Economic Advisors, 2010, p. 127). U.S. annual private investment in information processing equipment and software reportedly doubled between 1995 and 2009, growing 2.5 times faster than other U.S. private fixed investment (Council of Economic Advisors, 2011, p. 65). At $296 billion, according to the Census Bureau's 2008 Information Communication and Technology Survey (the latest year for which reliable data are available), capital investment in information and communications technology including commercial software accounted for some 36% of overall corporate spending on equipment (U.S. Census Bureau, 2010).[5]

The crisis has not eliminated the need by all industry segments, from manufacturing to finance to communications, for a continually modernized information infrastructure; and investment in information–processing equipment and software remains a driver of overall economic growth, especially as capital investment has been diverted into finance (Council of Economic Advisors, 2011, pp. 21, 37). "Communication infrastructure investment," the Organization for Economic Cooperation and Development (OECD) (2009, p. 13) tells us, "plays an increasingly important role in total investment within a country."

Network investment not only undergirds surging international Internet traffic—by 55% in 2008, 60%, in 2009, and a projected 56% in 2010—significantly ahead of the trend prior to the downturn

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[4] Grateful thanks to Valerie Strang, Chief of the Business Investment Branch, Company Statistics Division, U.S. Census Bureau, and David Wasshausen Chief, Capital Stock Branch, Bureau of Economic Analysis, both of the U.S. Department of Commerce, for assistance in helping me to use these statistics. Neither of these individuals bears any responsibility for the uses to which I put their comments.

[5] The statistics supplied by a different agency of the Commerce Department are even larger, chiefly because they include inhouse production of software for inhouse use (Bureau of Economic Analysis, 2011). Bureau of Economic Analysis, U.S. Department of Commerce, National Economic Accounts, National Income and Product Accounts Table, Table 5.3.5. Private Fixed Investment by Type, Last Revised January 28, 2011. Retrieved February 4, 2011, from http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=145&ViewSeries=NO&Java=no&Request3Place=N&3Place=N&FromView=YES&Freq=Year&FirstYear=2008&LastYear=2010&3Place=N&AllYearsChk=YES&Update=Update&JavaBox=no#Mid

(TeleGeography, 2009; TeleGeography 2010a, 2010b). In a less exact but more encompassing sense, network systems and applications also permit powerful corporate and state actors to prepare great tracts of sociocultural practice—notably, education—for private investment; and to remake other sectors, such as medicine and agricultural biotechnology and energy distribution and road transport (Cookson, 2010; Council of Economic Advisors, 2011, pp. 66–69), around a comparable profit impulse. In principle, fresh cycles of accumulation are feasible within this still expansionary zone. We must therefore look for signs, within the evolving crisis, of efforts to hasten and secure these extensions of the accumulation process.

But how may this "rationalization" take shape? One thing is certain: it will be no mere mechanical exercise. International developments underline that communications are becoming an arena of intensifying struggle to reshape the world political economy.

The Geopolitics of Information

The collapse of Soviet socialism, China's embrace of capitalism, and a concurrent acquiescence to U.S.–originated neoliberal policies by elites throughout the least developed countries. The scale of capital's search for profitable sites of surplus absorption is now planetary: The universal market discussed 40 years ago by Harry Braverman (1974) has been actualized.

The dominance of U.S. capital throughout the process merits emphasis. The transnational supply of corporate routing equipment is led by Cisco, search engines and online video by Google, social networking by Facebook, and totemic smartphones and other consumer appliances by Apple. Intel dominates semiconductors; Oracle, business software; Microsoft, desktop operating systems. U.S.–based companies are not only the leaders in supply, but also in demand and use: From Walmart to General Electric, U.S. corporations' integration of Internet–based systems and applications set a global standard (Council of Economic Advisors, 2011, p. 65; Mann, 2006, p. 1).

U.S.–based new media have defined and occupied much of the newly global capitalist political–economy, quickly attaining a scale that begs comparison. While there exist problems of measurement and valid comparison, consider that Skype's free Internet phone service claimed 560 million users in the year to June 30, 2010 (Gelles, 2010; TeleGeography, 2009). Midway through 2010, Facebook drew 500 million users; Microsoft, 789 million; Yahoo, 633 million (Waters, 2010). Google obtained more than a billion searches each day by 2009 (Kuhn, 2009). There is pronounced unevenness, requiring careful elaboration. But Facebook is visited by 92% of the Internet population in Turkey, 87% in Indonesia, and (merely) 67% in the United States (Waters, 2010). This goes far to explain how the company could be valued in January 2011 at $50 billion (Sorkin & Rush, 2011). These numbers compare favorably with those garnered by the very largest global television networks and, in addition, web services gain a competitive advantage through their unrivaled capacities for audience measurement and tracking (Chester, 2007). U.S.–based companies have built up transnational media platforms that aspiring rivals will find difficult to dislodge.[6]

[6] Communications and media thereby exemplify a larger trend. Between the 1970s and the 2000s, Nolan and Zhang (2010, pp. 98, 107) show, across a wide range of industries "the 'commanding heights' of the world economy became occupied chiefly by large companies from the advanced economies," the most

United States–based capital and the U.S. state have mounted an offensive to retain dominance over this strategic pole of profitable growth (Schiller & Sandvig, 2011). But this is a struggle. New sites of economic dynamism and market strength have emerged. Geopolitical power is less concentrated than it was in the aftermath of the Soviet Union's collapse. There is fresh maneuvering room, because the United States, already overextended, has been additionally weakened by the crisis. Disagreements are intensifying over how the world political economy should be overhauled to resolve today's crisis. This lends a keen edge to the competition for mastery of the coveted sources of above–average profitability, notably, communications and information.

Developments in the Peoples Republic of China possess exceptional interest in this respect. Chinese leaders have succeeded in reserving their own national market in communications for homegrown, often state–affiliated, companies (Han, 2011; Hong, 2011; Zhao, 2008; Zhao, 2010). Domestic suppliers and service providers are market leaders: from gaming site 4399 and game publisher Shanda to CCTV and Shanghai Media Group, from e–commerce giant Alibaba to social network sites Renren and Kaixin, to microblogger site Weibo, to online video site Youku, to network operators China Mobile and China Telecom, to news agency Xinhua, to PC manufacturer Lenovo and search engine Baidu. It is symptomatic that the top four web portals—Sohu, Sina, Tencent, Netease—claimed nearly three-quarters of the sector's revenue in 2009 (Deibert et. al., 2010, p. 453). Although it would be profoundly mistaken to view China as an autarky, and although advertising in particular exhibits substantial outside investment and influence, U.S. transnationals have been kept at arm's length from service provision and many applications.

The nature of this achievement should be specified. Chinese capital is not on a par with the U.S., European, and Japanese–based companies that in many markets have already built up transnational production and distribution chains (Nolan & Zhang, 2010).[7] Only exceptionally have Chinese extraterritorial groups such as the network equipment vendor Huawei become global leaders (O'Brien, 2009). Yet China's success in reserving its own national market in communications is remarkable in its own right. It constitutes a pronounced exception to the post-World War II historical pattern, in which national communications markets and audiovisual spaces—even in such countries as Brazil and France—came to be dominated by TNCs. As well, it is occurring in the world's second largest economy. China, furthermore, continues to enjoy high growth, even as stagnation and fiscal crisis persists throughout Europe, North America and Japan; and, finally, China may be poised to use economic policy to spur domestic consumption. China's sizzling communications market only adds to the allure; at latest count, the country boasted 450 million broadband users and 584 million wireless subscribers (TeleGeography

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successful of which "vastly expanded their international investment, building production networks across the globe" and attaining unprecedented scale and market power. Peter Nolan and Jin Zhang, "Global Competition After the Financial Crisis," NLR 64, July–August 2010, pages 97–108.

[7] Growing Chinese foreign direct investment is occurring from a very modest base and, as Nolan and Zhang (2010) have underlined, these efforts to transnationalize are taking place in a field crowded with formidably entrenched corporate behemoths.

CommsUpdate, 2011a, 2011b). For this reason, developments in China's domestic market command outsized extraterritorial importance.

Conflict over access to Chinese markets has therefore duly escalated (Schiller & Sandvig, 2010b). On one side, we see a major executive branch initiative to push forward the longstanding U.S. policy of free flow of information (Schiller & Sandvig, 2011). On the other side, we see newly assertive efforts by Chinese party-state leaders to build a transnational communications industry, and impressive (though so far unsuccessful) attempts by network vendor Huawei to gain entry into the U.S. market for advanced communications systems and service (Kirchgaessner & Hille, 2011).

Giuseppe di Lampedusa's (2007, p. 18) fictional formulation, in *The Leopard*, famously captured the kind of dominative logic that applies today: "If we want things to stay as they are, things will have to change." Still, this is not a sufficient end–point. Movement within the political economy encompasses more than a mechanistic capital logic, however much of this logic may be revised to foreground digital sites of accumulation. We are living through a process of change whose character is both contingent and contested, and whose outcomes will be determined by the balance of social forces within particular societies and across the world.

In order for digital capitalism to be reconstituted there will, as David Harvey (2010) concludes,

> . . . have to be wrenching and painful shifts in the geographical and sectoral locus of capitalist class power. The capitalist class cannot, if history is any guide, maintain its power without changing its character and moving accumulation on to a different trajectory and into new spaces (such as east Asia). (pp. 215–216)

Efforts will be made to impose additional concessions on already hard-pressed populations in lower-growth regions such as the United States and Western Europe—in living standards and in democratic liberties. Today, the offloading of debt from private financial institutions to government is being used as a basis for inflicting "austerity" budgets in Western Europe and the United States. As these exactions bite more deeply into social experience, there is every reason to forecast that popular opposition to capital's class project may intensify as indeed we have seen recently in Wisconsin and other Midwest states.

That communications and information remain a pole of growth in itself gives little cause for celebration. Digital bits do not break free of social pathways, and, digital capitalism thus develops as its forbear did—through episodes of crisis and boom—and, as the people of the Middle East have been attempting to remind us, of opportunities for reconstruction along different lines.

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