Chapter 14

Globalization of Wireless Industry:The Race to the Top

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As the free-trade economist Jagdish Bhagwati has noted, much of the recent opposition to globalization seems to stem more from nostalgia and sterile theory than from economic reality.

> Globalization – a focal point of hostile passions and sometimes violent protests – has become a phenomenon doomed to unending controversy. Advocates cite its virtues and its inevitability. Opponents proclaim its supposed vices and vincibility. Central to many of the protests against it is a trilogy of discontents about the idea of capitalism, the process of globalization, and the behavior of corporations. And all three of these discontents have become interlinked in the minds of many protesters. Globalization's enemies see it as the worldwide extension of capitalism, with multinational corporations as its far-ranging B-52s.[1]

At the close of the 20th century, the disappearance of alternative models of development provoked anguished reactions from the anti-capitalists of the postwar era, who range from centrists to socialists and revolutionaries and have remained captive to a nostalgia for their vanished dreams. But, as Bhagwati notes, globalization has also fallen afoul of a younger group of

1 Bhagwati, J. (2002), "Coping With Antiglobalization: A Trilogy of Discontents," Foreign Affairs, January/February 2002.

E. M. Noam et al. (eds.), *Competition for the Mobile Internet*

critics, whose more activist passions have been so evident on the streets at world economic gatherings in Seattle, Washington, Prague, Quebec City, Genoa, and New York City, and who have made themselves heard on college campuses in movements such as the antisweatshop coalition.

In the past, vendors and operators competed through gradual globalization. Today, most players are forced to globalize in order to compete, except for the downstream end of the value chain. New "born global" strategies promise great opportunities. However, the dynamics of innovation and increasingly high entry barriers virtually ensure that most new startups and challengers will be absorbed by the industry leaders.

The wireless business provides lessons on the impact of globalization at a broader level as well – not just for the industry players, but for other technology-intensive industries. While these lessons support globalization, they do so in a manner that is problematic for the small-country leaders, in the short term, and for the large-country leaders, in the long term. Although both groups have great incentives to praise globalization, they have paid more attention to the social and environmental counter-reactions than to the competitive global backlash, which is ahead.

This trio of misapprehensions – the simplistic idea of monopoly capitalism, process of globalization, and corporate conduct –has contributed to the seemingly endless controversy over globalization. But why does it fail to capture the competitive realities in the wireless business? And how does this example reflect other comparable fast-cycle, technology-intensive industries? According to the antiglobalist tenets, the wireless business is populated by multinationals, which represent monopoly capitalism and steer profits to the geographic center, while engaging in irresponsible corporate conduct. While such concerns are understandable and may have been valid with regard to some previous forms of multinational corporations, they simplify dynamic realities today. If anything, a century of wireless business – particularly the last two decades of cellular platforms – demonstrate increasing specialization, globalization, and responsiveness.

1. CENTRALIZATION VERSUS RESPONSIVENESS

The first antiglobalist tenet involves the now-familiar idea of corporate misconduct. While globalization may be relatively benign economically to the extent that it increases overall wealth, it may be socially malign in terms of its impact on poverty, literacy, diversity, culture, and gender. Yet, corporate conduct in the wireless business has born little resemblance to the notorious sweatshops, or to Balzac's novels on the perils of industrialization. The very idea of capitalism with an unresponsive face seems out of place in

a business where a new generation of industry leaders has achieved scale primarily through scope. To these large companies in small countries, globalization is not a side-effect or an afterthought. It is a matter of survival. They have far too much to gain from global corporate citizenship and far too much to lose from its abuse.

In effect, many pioneering visions in the industry came about with individuals who not only sympathized with the plight of the working masses, but personified them. When Paul V. Galvin started his first business as a popcorn vendor at 13, the Irish-American youth cherished many populist values and was an ardent supporter of the Sherman Antitrust Act. Throughout his life, he translated the direct, no-nonsense philosophy of a small-town Midwestern heritage into Motorola's guidelines for practical ethical conduct. This pioneer of the U.S. technology sector flirted with socialism because he believed passionately that "the labor of a human being is not a commodity or article of commerce."[2] These were the values among many first- and second-generation immigrants in Chicago, who struggled to achieve the American dream through loyalty and hard work, while providing Motorola's early work force, just as they would later figure in Silicon Valley's meritocratic egalitarianism.[3] Competition mattered, and intellectual capital was critical. That was the credo of the postwar Motorola, which augmented the Bell Labs with rapidly-expanding R&D activities. As Motorola's reputation grew across the United States, it became known as a humane and democratic work environment that believed in people and, like Hewlett-Packard, promoted a competitive but open corporate culture that established profit-sharing programs for its employees well before others did. Even with increasing internationalization, Motorola seized "people values" that enabled the company to succeed in serving its customers, while promoting the loyalty of an increasingly diverse workforce in the United States and worldwide **(Figure 1)**. At the same time, these values became benchmarks for Motorola's Nordic rivals, including Ericsson and Nokia, as these firms engaged in internationalization efforts of their own.[4]

As Nokia became a global player, it began to pay increasing attention to local responsiveness. It conceded that "it's one thing being a successful company and another being a 'good corporate citizen.' We aim to combine both." It declared its commitment to health, safety, and social responsibility.

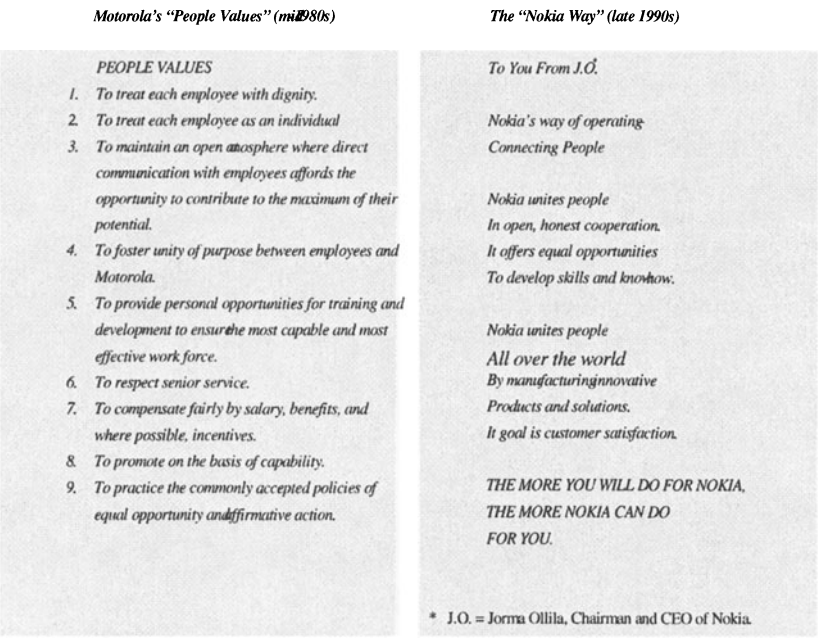
2 On Paul Galvin's views and biography, see Petrakis, H.M. , 1965, The Founder's Touch: The Life of Paul Galvin of Motorola (Motorola University Press/J.C. Ferguson Publishing Press, Chicago).

3 On Motorola's early human resources policies, see Affrunti, Sr., A. (1994) A Personal Journal: 50 Years at Motorola (Rolling Meadows: Motorola University Press).

4 On the globalization of wireless vendors, see Steinbock, D. (2002) Wireless Horizon (New York: Amacom Books).

Similarly, the Finnish vendor considered the values and principles incorporated in the Nokia Way (customer satisfaction, respect for the individual, achievement, continuous learning) the heart of its distinctive culture. These values were meant to unite the "whole company, across the world." The shared values and principles were thought to give the company a lasting foundation for "business success, sound environmental stewardship and good corporate citizenship." As the Nokians put it, "Our goal is to be a good corporate citizen wherever we operate, as a responsible and contributing member of society."[5]

Figure 1. Managing Globalizing Work Force: People Values from Motorola to Nokia



Were these "commitments" purely rhetoric for PR and corporate communications? Certainly, they served those purposes as well, but there was more to them. Prior to its corporate turnaround, Nokia signed ICC

5 See Nokia's social objectives in http://www.nokia.com/. See particularly, Profile, The Nokia Way, Corporate Citizenship, Ethical Conduct Commitment, Health and Safety, Employee Commitment.

Business Charter in 1991, demonstrating its commitment to sustainable development.[6] In November 2000, the Finnish vendor was selected as a part of the Dow Jones Sustainability Group Indexes (DJSGI), the world's first index family tracking the performance of the leading sustainability-driven companies worldwide.[7] The vendor recognized its role in developing technological solutions that supported sustainable development ecologically, economically, and socially. In July 2001, Nokia was also named among the top 10 European constituents of the new FTSE4Good index series, which benchmarked the performance of socially responsible companies in European, U.S., and global markets. In addition to financial performance, socially responsible investment (SRI) was an investment strategy that took into account a company's ethical, social, and environmental performance.[8]

In the pre-global world, these commitments, indexes, and campaigns would have been "much ado about nothing." In the contemporary era of transnational multinationals, they serve a function. Before World War II, the old European multinationals had essentially cloned their headquarters in overseas country markets. In the postwar era, American multinationals based their might on centralized innovation, which trickled from the corporate core to multiple country units across the globe. In the 1970s and 1980s, the Japanese challenge built upon multinationals, whose extraordinary efficiency permitted cost-driven attacks. At the end of the 20th century, the rules of the game changed drastically. With static competition, strategic advantages had been *uni*dimensional. With new public policies and rapid innovation, they became *multi*dimensional. The leading multinationals no longer concentrated on singular (cost *or* differentiation *or* innovation), but multiple strategic advantages (cost *and* differentiation *and* innovation). With reliance on new technology and an emphasis on individual autonomy, the shift from unidimensional to multidimensional strategies coincided with the high-volume requirements in the wireless business. Historically, it also emulated the Nordic model of telecommunications, which strove for high quality *and* cost effectiveness. Unlike the large-country leaders of the 1G era (Motorola,

6 The seven principles of eco-efficiency defined by World Business Council for Sustainable Development combined with life-cycle thinking are of primary concern in developing, producing, and marketing Nokia's products and solutions.

7 The DJSGI consist of 236 companies from 61 industries in 27 countries and represented the top 10 % sustainability companies worldwide. Other members of the communications technology component included Ericsson, Siemens, Plantronics, Toshiba, and Nortel. The operator component included Sonera, mmO2, Telecel Vodafone, and Vodafone Group, with China Wireless Ltd (Hong Kong) next in line for selection. The total market capitalization of these companies is approximately 5.5 trillion USD (August 31, 2000). See http://www.sustainability-index.com/.

8 See http://www.FTSE4Good.com

AT&T), the wireless leaders in small countries (Ericsson in Sweden, Nokia in Finland) and medium-size countries (Vodafone in the U.K.) achieved scale through scope. In the former case, the firms obtained almost all of their revenues outside the home base; in the latter case, they garnered more than half of these sales in overseas markets.

As long as the power of these leaders built on home country scale, they had to demonstrate corporate citizenship primarily in the home country. Corporate conduct in the host countries was not a primary consideration. But as their power evolved with host country scope, they had to show comparable citizenship in host countries across the globe. Conduct in host countries became a matter of primary concern. The indexes of corporate citizenship measure the success (or failure) of these companies in responsiveness worldwide. They provide benchmarks for the companies and their rivals. Just as the emphasis on corporate core proved to be the Achilles heel of the old multinationals, which relied on unidimensional strategies, the new multinationals were vulnerable in the periphery. The multidimensional strategies render them vulnerable in the host countries, where challengers can mount even more responsive attacks through highly focused strategies. In other words, the very characteristics (low responsiveness) that antiglobalists attributed to these new multinationals were precisely ones that the multinationals had already overcome. Conversely, those characteristics (high responsiveness) that antiglobalists disputed these multinationals had, these companies actually did have, as evidenced by a wide variety of measures that justified their inclusion in the "corporate citizenship" indexes.

Did responsiveness make these multinationals invincible? No. When everything is said and done, their home base is elsewhere. And even if they hire local workforce, they represent at best a benign foreign force. As a result, they will always remain vulnerable to focused attacks, especially in growing large-country markets, such as China. But it made perfect business sense to struggle for a high position in the corporate citizenship indexes because these served as barometers of the success or failure of the transnational multinationals to win local trust and respect.

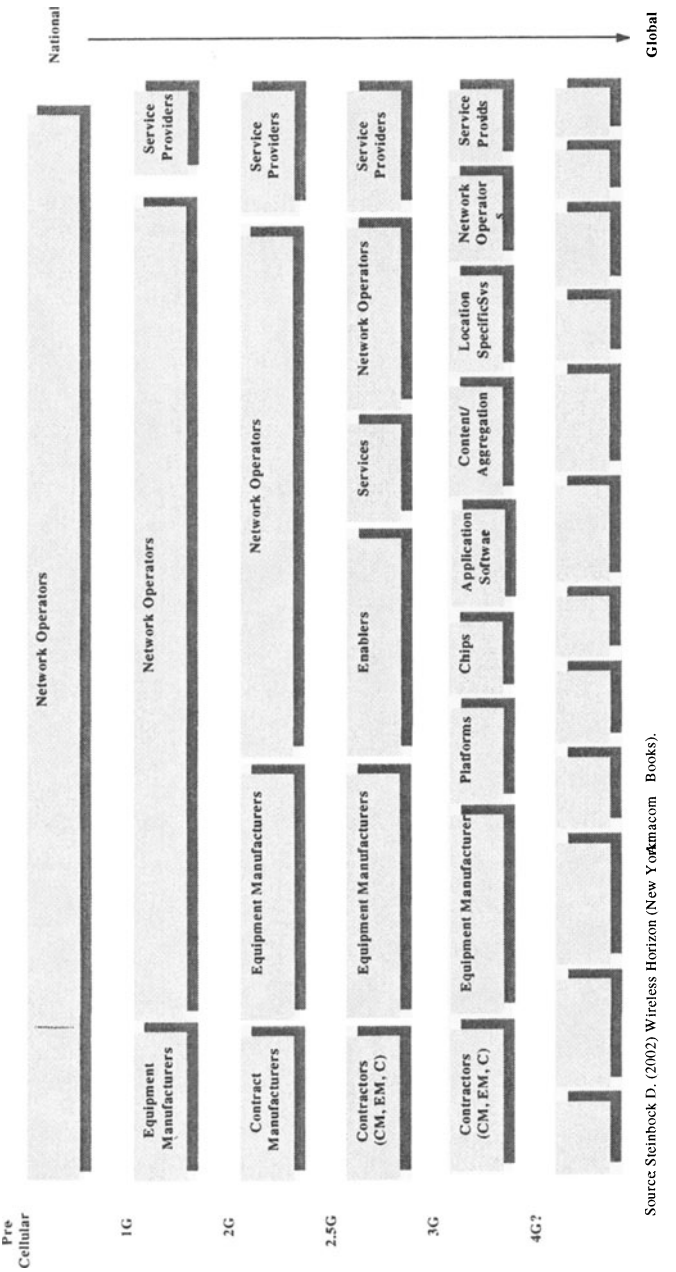
2. MONOPOLIZATION VERSUS SPECIALIZATION

The second leg of the misapprehensions considers globalization an external manifestation of the internal struggles that doom capitalism. Globalization, the argument goes, is rooted in the capitalist exploitation. As the inhuman capital seeks globalization to benefit itself, it harms others abroad. Central to this perspective is the notion that "monopolies" – the

fashionable term for multinational corporations – are at the core of the problem. It is considered a race to the bottom.

The thesis is about the monopolization of business and the concentration of geography. Let us start with the business case, while focusing on the past two decades. Outside the United States, viable business and consumer markets in the wireless business evolved only with the cellular platforms at the turn of the 1980s. In effect, AT&T *was* the wireless business until the 1970s. Only then did the Nordic countries launch their first small-scale wireless networks, which precipitated the NMT systems by a decade. In Japan, NTT initiated its own citywide tests in Tokyo toward the end of the 1970s. Foreign markets were not a priority to AT&T until the late 1980s, when it rushed overseas but was too late. Through most of the 20th century, ITT served as AT&T's overseas replica and did abuse corporate power; but it did not operate in wireless communications. In the wireless business, globalization shows few signs of rapid monopolization. In contrast, the wireless value system demonstrates rapid fragmentation of value activities and geography **(Figure 2)**.

Figure 2. Industry Value System: Evolution and Specialization



This specialization has been fastest in countries where the supply chain arrangements have been the most competitive. Typically, the winning clusters and markets have been early-movers that opted for the right standards and focused on appropriate technology development, industrial arrangements, market evolution, and organizational capabilities. In the earliest years of the 1G era, some industry leaders, such as Motorola in the United States, enjoyed extraordinary market power, but this dominance was relatively brief. Not only has specialization prevented the genesis of a single monopoly that could control the entire value chain, from contractors to end-customers. Coupled with industry dynamics (rapid succession of technology platforms), this specialization has also ensured that a single multinational would find it exceedingly difficult to control even a *single stage* of the value chain. Take, for instance, the vendors, which were the first to globalize their operations and today operate primarily in handsets and infrastructure. In the 1980s, Motorola was the industry leader in both of these areas; in the 1990s, Ericsson captured leadership in infrastructure and Nokia in handsets. Amidst the 3G transition, the Finnish vendor has been relatively strong, whereas the Swedish vendor has suffered from increasing turmoil, but, in certain markets, both companies have been threatened by old and new direct rivals (Siemens, Samsung), as well as new indirect rivals (NTT DoCoMo, Microsoft, Intel, AOL). In the long term, neither Nokia nor Ericsson had assurances against contractors' potential forward integration; nor could they deter the rapid rise of Chinese suppliers.

Instead of "gloom and doom" theories of monopoly capitalism, the value system demonstrates increasing signs of expansion and specialization. Despite a certain amount of concentration in the distinct stages of the value chain, new public policies have released an enormous amount of competitive energy that has not played out. Rather than monopolization, then, an increasingly competitive environment may be observed, in which fortunes can fluctuate dramatically, during sustaining periods of incremental growth, as well as during disruptive technology transitions. Take, for instance, the triumphant performance of Ericsson in the glory days of the 1990s and contrast it with late January 2002, when the vendor suffered the biggest loss in Swedish corporate history and scrapped its dividend for the first time since World War II. Even after recording a $2 billion loss for the year, Ericsson warned of continued big losses in the first quarter and said it had yet to see signs of a market recovery.

The monopolist scenario is not just invalid. It is, in many ways, the reverse of the competitive realities. What makes the wireless business distinctive and yet ensures that its lessons have significance far beyond a single industry is not just the disruptive change in public policies and the ensuing industry transformation. Since the days of Marconi, these

advancements have also been driven by technological novelty and systemic complexity, in the technology sector in general and in the wireless segment in particular. The more complicated the new technologies, the more refined the ensuing complexity, and the less even the greatest economic powers have managed to control industry developments *within* national boundaries. And conversely, the greater has been the quest for global leverage and the ensuing opportunities for startups and challengers across the globe.

3. CONCENTRATION VERSUS DISPERSION

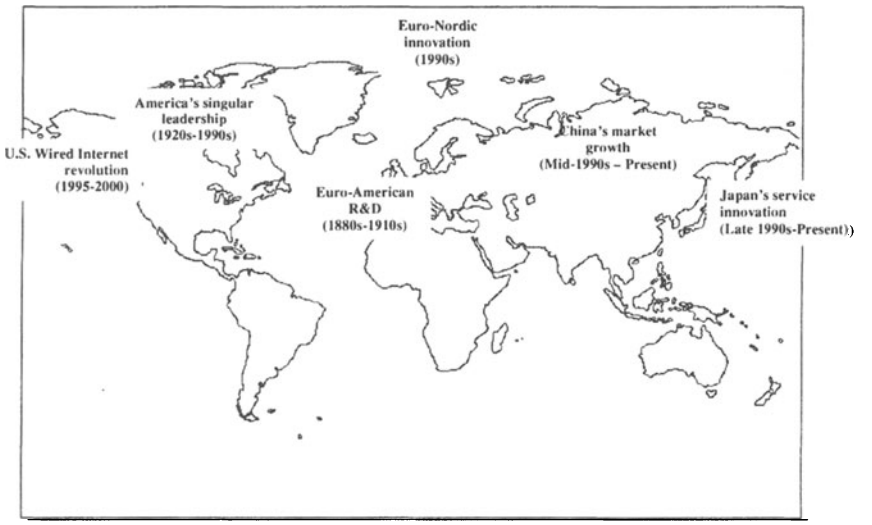
The third leg of the antiglobalist thesis couples the ideas of monopolization in business and concentration in geography, evoking the external side of gloom and doom. As the inhuman capital selfishly globalizes, it harms others abroad. In their thirst for ever-increasing profits, these monopolies hunt the world in their quest for low-cost locations to exploit workers and nations. This idea simply projects the "race to the bottom" thesis on the global chessboard. But how valid is it, really?

From the very beginning, the wireless business has been calibrated by the quest for global leverage. The early days of Marconi and wireless telegraphy witnessed a rush to develop the wireless productivity frontier which, historically, may have been comparable to the feverish 1990s, when new public policies resulted in global telecom reforms and a veritable wireless revolution. From the 1920s to the 1970s, the old public policies – particularly regulation, national PTTs, and inward-looking R&D – kept the industry domestic, by artificially suppressing competition. A new and more dynamic world would only ensue in the 1990s, with deregulation, privatization, and outward-looking R&D. Meanwhile, the core cluster of wireless competition has shifted in several phases due to value migrations **(Figure 3)**.

In the late 19th century, much of the basic wireless research was conducted in the scientific capitals of the era, primarily in Western Europe and the United States, but also in Russia, India, and elsewhere. Rejected by the Italian PTT, Marconi sought his fortune first in London and then in New York City. From the 1920s to the 1970s, the United States was the core cluster and lead market in mobility. Although American police departments pioneered the early use of wireless voice communications, they were soon followed by other central locations worldwide. What Detroit's cops achieved in the early 1920s, Gothenburg's Swedish policemen emulated barely a decade later. During World War II, the *Walkie-Talkies* and *Handie-Talkies* gave the U.S. military a distinct strategic advantage against the enemy. But, again, the genesis of the Cold War and new coalition alignments served as

catalysts for knowledge diffusion. Other nations soon embraced FM communications, as well. When the Bell Labs researchers came up with the cellular concept in 1947, the central ideas were communicated in corporate publications to deter potential entrants. The tactic worked domestically, but not internationally. By the late 1960s, the Nordic countries and Japan had caught up with the U.S. "best practices" and began to contribute to them.

Figure 3. Value Migration



Analog cellular was first launched in these countries, not in the United States. Rather, it was the lucrative American marketplace and a singular standard that made AMPS such a triumph in the United States. By the same token, this very success contributed to the failure of U.S. vendors and operators to digitize the cellular platform in a timely manner. In the United States, public policies stumbled, innovation suffered, cluster declined, and, despite substantial interdependencies, the three did not play together. In contrast, the EC's activist posture led to a single mandatory standard (GSM), which boosted to innovation. This, in turn, served as an equally powerful catalyst for cluster expansion, particularly in the Nordic countries. Despite the Euro-Nordic triumph in the 1990s, the onset of the 3G era did not translate to a cozy sequel for the GSM success. Qualcomm's CDMA evolved into the core of the new standard, which the European-based wireless leaders now had to embrace and producticize. In Japan, NTT DoCoMo developed a new and thriving service concept, which allowed the operator to dramatically expand its users, even as European operators

struggled with excessive debt. The convergence of mobility and the Internet expanded industry boundaries, while bringing in the U.S.-based IT leaders. New sub-clusters emerged worldwide, including in Korea where industrial policies had opted for CDMA in the early 1990s. Meanwhile, years of patient capital investments finally bore fruit in China, where the subscriber base exceeded that of the United States in July 2001.[9]

Considering a century of wireless communications, particularly the past two decades of wireless developments, the thesis of geographic concentration is simply invalid. In fact, it is the reverse of competitive realities. If wireless communications emerged like Lenin's socialism – one system in one country – it soon displayed little resemblance to Lenin's beliefs and more to Trotsky's anarchistic and global view of socialism – many systems in many countries, coupled with an incessant revolution. If anything, the value migrations demonstrate the difficulty of any one nation – even the "last remaining superpower" – to retain *and renew* national competitive advantage in wireless communications. Just as the idea of a singular multinational monopoly is a poor caricature of wireless evolution, the notion of a singular geographic concentration offers a reverse mirror image of true competitive realities. The wireless business is not characterized by such geographic concentration; rather, it is typified by the opposite – geographic dispersion.

Take still another look at the wireless value system. Instead of the concentration/specialization of the value activities, it is instructive to focus on the geographic concentration/dispersion of these activities (**compare Figure 2**). In the pre-cellular era, regulated competition maintained domestic markets, which explains the overwhelming reign of localization in the value system. However, regulation—not competition—created, maintained, and renewed this emphasis over decades. By the same token, competition was largely limited to national markets. The only exception was the supply chain arrangements, which were more competitive in the most advanced clusters and markets. *That* was the crack in the value system. As competitive pressures increased, the supply chain became the first to globalize, initially through the equipment manufacturers. In the 2G era, increasing specialization prompted the vendors to outsource more and more of their value activities, just as the PC manufacturers had done in the early 1990s. As the weaker players divested, joint ventured, or merged their manufacturing capabilities with the strongest contractors, many of the latter companies, which initially had been based in the United States, moved their core operations to Asia Pacific. In turn, the 2.5G and 3G transitions opened the

9 On the value migrations in the wireless industry, see Steinbock, D. (2002), Wireless Horizon (New York: Amacom Books).

doors for a variety of enablers (chips, software, location-specific services), which tend to provide mass-customized global products and services. Over two decades, globalization, at first a crack in the value system, had rapidly expanded. By the 3G transition, the proportionate roles of globalization and localization had been reversed. Now globalization ruled in the value system. Competition was no longer artificially limited to domestic markets; it had become global. As such, globalization also brought anticompetitive side effects because it served as an entry barrier. But there were countervailing forces, as well, particularly novelty and complexity. In the wireless industry, the era of a singular core cluster and lead market – i.e., the superiority of America's wireless industry – faded into history in the early 1990s. Today, there is no single cluster, but several networked and interlinked core clusters.

The problem with the antiglobalist thesis of concentration in geography is also the identification of inhuman capital with national capital. In reality, none of the wireless and IT leaders of the early 3G transition were controlled by "purely" national capital. Certainly, U.S.-based institutional investors played a critical role, but in time, so did such stakeholders in Europe and Asia-Pacific. Furthermore, the notion of the geographic race to the bottom had largely lost its relevance. Take, for example, those players in the value chain that, relatively speaking, engaged in the most cost-driven strategies: the contractors. At first, these companies were "board stuffers" that emerged in the United States to assist technology firms. At the end of the 1980s and in the 1990s, they raced to certain locations in Asia Pacific. Cheap labor was certainly a factor, but it was no longer the sole consideration. Human expertise, competence, and capabilities played increasing roles even for these companies that struggled for the slimmest of margins. In fact, some of the leading contractors no longer sought low-cost locations, but high-knowledge locations in Europe and elsewhere.

Let us turn the perspective around and, instead of the low-cost players, focus on their high-differentiation rivals. Why did the antiglobalist thesis fail to explain the fluctuation of their fortunes? In the regulated era, geographic anatomy was destiny; in the competitive era, business anatomy has become destiny. In the old domestic markets, wireless leaders achieved scope through scale. If they were major players in major countries, they were almost automatically world powers. Today, that is no longer the case. In the new world order, wireless leaders must achieve scale through scope. Even major players in major countries are not assured industry leadership. Certainly, they gain home base scale. But in an increasingly global industry, that is no longer enough. The United States remains the most lucrative wireless market worldwide, financially. But since July 2001, China's population base has been larger. In the long term, the financial future of the industry rests in China. Moreover, the geographic diversification of all major

wireless players tends to mimic Triad characteristics. If that is *not* the case, they are more vulnerable to a regional downturn, whether that pertains to U.S. delays in the launch of digital cellular, or the Asian financial crisis in the late 1990s, or the extraordinary debt burden of leading European operators from 2000 to 2002. In the past, a single big lagoon was enough to make fortunes. Today's leaders need multiple ponds. A single lucrative market is not sufficient; rather, as vendors such as Nokia and Ericsson and operators such as Vodafone have shown, a company must operate in all Triad regions, be strong in the core cluster and lead markets, and remain active in 100 to 140 country markets – if it is to count globally.

4. NEW GLOBALIZATION: RACE TO THE TOP

According to Bhagwati, "capitalism is a system that, paradoxically, can destroy privilege and open up economic opportunity to many – but this fact is lost on most of the system's vocal critics."[10] A century of wireless evolution, especially the last decades of this history, certainly lends abundant evidence to such statements. Far from being an external manifestation of internal struggles that doom capitalism, globalization has been boosted by an internal logic of competition occurring in geographies that vitalize capitalism. Hardly identical with capitalist exploitation of weak nations, globalization actually allows smaller nations to participate in the global chessboard through focus and scope.

Instead of exploiting people abroad, multinational corporations benefit overseas markets through consumer welfare (innovative, high-quality, low-cost technologies, products and services) and boost organizational capabilities in new and emerging core clusters (through know-how and FDI in managerial technological manufacturing and marketing). Such spillovers certainly have not been the primary objective of these corporations. But driven by the internal logic of globalization, they cannot afford to be unresponsive in host countries without risking scope – even if, concurrently, they end up strengthening the very forces that in the future, through Schumpeterian logic, end up challenging their might.

After all, it was Bell's expansion in the 1880s that prompted the growth of the Nordic cluster, just as U.S. efforts to clone NTT into a mirror image of AT&T contributed to NTT's early R&D in wireless. The EC decision to make GSM mandatory allowed Qualcomm to find trade-policy supporters in Capitol Hill. Conversely, Qualcomm's efforts to globalize export markets

10 Bhagwati (2002).

and manufacturing capabilities led to its cooperation with South Korean R&D centers and suppliers, which, at the end of the 1990s, reaped the benefits. And since the early 1980s, all wireless and IT leaders have patiently invested in China, in order to benefit from the massive market expansion. Concurrently, they have boosted China's wireless and IT infrastructure, as well as the organizational capabilities of Chinese vendors, operators, and suppliers, which are likely to challenge today's incumbents tomorrow.

As wireless leaders have captured substantial chunks of the market, they have become less and less reminiscent of the multinational monopolies that antiglobalists tend to portray in such simple terms. More often, the reality has been precisely the reverse. The domestic and centralized companies have often been less innovative, less cost-efficient, and less responsive. Such multinationals are often the first to fall under globalizing competition. Such inward-looking, hierarchical dinosaurs do not upgrade and innovate; they nurture excessive cost structures, and they lack responsiveness in host countries. These multinationals are not philanthropic. However, given the internal logic of globalizing competition, they are *forced* to be innovative, cost-efficient, and responsive. When wireless leaders have cut costs without appropriately innovating and differentiating, these actions have not been evidence of a generic strategy but the absence of strategy and a sign of desperation.

At the end of the 1G era, large-country PTTs in Europe tried to improve quality or costs without really innovating. Before the 2G era, AT&T tried to rush to foreign markets, while ignoring innovation. At the end of the 2G era, Motorola engaged in cost-cutting without boosting innovation or quality. At the beginning of the 3G era, Ericsson did the same. In the end, each of these companies lost. Conversely, at the end of the 1G era, a new generation of operators engaged in innovation, quality while keeping cost structure moderate and globalizing. They won in the 2G era. Before the 2G era, NTT claimed it was offering high innovation, quality, and cost, but it did not, whereas NTT DoCoMo, which emerged in 1992, did. With the 2G era, Nokia engaged in innovation and quality and kept cost structure low with IT. It, too, ended up a winner. At the beginning of the 3G era, NTT DoCoMo did the same, and managed to initiate internationalization.

How has capital harmed the new players that lack a large-scale home base? In 1992, when Finland was amidst its worst recession since the 1930s, it was Nokia's rise that provided the economic stimulus for renewed national growth, while offering a symbolic model and source of pride for the small Nordic country. At the end of the 19th century, Lars Magnus Ericsson, starting with a tiny repair shop in Stockholm, demonstrated the same with telecom products and services. In the late 20th century, the Swedish vendor

demonstrated its strength in wireless communications vis-à-vis its AXE system. In the 1970s and 1980s, U.S. and European vendors saw nightmares of a Japanese challenge in wireless communications. As long as regulators ruled in Japan, that attack did not materialize. Only after the incorporation of NTT DoCoMo in the early 1990s and Ohboshi's new managerial strategies did it became a real possibility, despite internationalization prohibitions that constrained DoCoMo's external growth. Until the massive FDIs of wireless leaders into China, the most populous nation on earth had a miserable telecom infrastructure and no competitive firms in the business. By 2001, it had become one of the largest wireless markets. Chinese suppliers had captured a healthy 10% of the marketplace, and no wireless leader could dream of a global strategy without a significant stake in the Chinese market—they were nurturing a sleeping giant.

Neither the Nordic countries nor Japan were exactly low-cost locations. By the 1990s, Japanese firms engaged in increasing outsourcing in neighboring countries because they could no longer compete in cost. With their high progressive taxation, the Nordic countries represented everything but low-cost workforce. These countries were hardly sweatshops, but each had entered the industry through imitation, which gradually turned into upgrading and finally evolved into innovation. Because of novelty and complexity, the industry value system was characterized by growing specialization of value activities and their geographic dispersion. That was not a source of gloom and doom, but a fountain of hope for countries that opted for advanced infrastructure, educated workforce, and openness in business and trade. Consequently, the idea that they would seek the most likely location to exploit workers and nations ignores the very drivers of success in this industry. Instead of being driven by a race to the bottom, these companies are driven by a *race to the top.*

5. COPING WITH ANTIGLOBALIZATION: MISERY AS PROGRESS?

Paradoxically, if the antiglobalist forces *had* triumphed and new public policies had been suppressed in the name of common good, , it is quite probable that the continued Balkanization of markets worldwide would have *prevented* the rise of these new global competitors. Large-country giants would have ruled; small-country attackers would have become insignificant. Lars Magnus Ericsson would have struggled in a tiny repair shop under the shadow of the Swedish PTT, whose monopoly was benign but allowed little competition. In Finland, the antiglobalist forces already sought to socialize telecommunications in the 1950s as well as nationalize the nascent

electronics and wireless interests in the 1970s. Had they succeeded, Nokia might still be alive and well, but its success would be primarily domestic and manifested in car tires, rubber boots, and toilet paper. As long as antiglobalist forces ruled in South Korea, the borders remained closed and the population presumably avoided exploitation. Of course, the country was also ranked behind Bangladesh in development indicators. Bold investments into education, higher learning, technology, and internationalization, including CDMA capabilities, allowed this country to enjoy the benefits of economic growth. Even with Ohboshi's maverick leadership, NTT DoCoMo has not been able to undo a history of regulatory confinement to the domestic marketplace. In that sense, the old NTT culture is perhaps the dream of the antiglobalist. However, it is precisely for that reason that this innovative operator has been willing but not *allowed* to internationalize appropriately. Finally, there is the example of China. Imagine that the doors had *not* opened in 1979 and that reform-minded leaders had been suppressed, as had been the case during Mao's "cultural revolution." Then China would have had to struggle with those social and economic hardships that now constrain all transitional economies, from Russia to its former satellites in Eastern Europe and Asia. Instead of an extraordinary future base for economic growth worldwide, this vast nation would have remained a tombstone of dreams gone astray, a primitive and inherently unstabilizing force of desperation amidst thriving Asian nations.

The trilogy of antiglobalist discontents is motivated by real and deeply human concerns; but intellectually, it is nonsense. Its idea of capitalism and multinationals is a caricature from the 19th century. Its depiction of the process of globalization is flawed. And its portrayal of multinationals' corporate conduct is skewed. It was the quest for global leverage by the small-country players that transformed the wireless industry, just as it was their ability to achieve scale through scope that mitigated the monopolistic benefits that would have been solidified had antiglobalists' objectives come true. And if those dreams were to come true one day, bold small-country entrepreneurs and their firms would be forced into parochial misery. Such a scenario would prohibit them from globalizing new and useful innovations, products, and services. And that would boost the unresponsive conduct of old-style multinationals. All these ends would have been achieved in the name of "progress and equality."

What a century of wireless evolution and its future prospects demonstrate is that capitalism is a system that, paradoxically, can destroy privilege and open up economic opportunity to many – but only as long as that system is open, accessible, as well as driven by dynamic innovation, local responsiveness and global integration.