Beyond the Producer-driven/ Buyer-driven Dichotomy

The Evolution of Global Value Chains in the Internet Era

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1 Shifting Forms of Value-chain Governance

Competition in the global economy is forged by the interaction between three broad sets of factors: technological, institutional, and organisational innovations; the enterprise networks that emerge out of and increasingly move beyond national business systems; and the regulatory powers vested in regional, national and local governments. These patterns of competition change over time and across industries, and they are embodied in the organisation of global value chains (Gereffi and Korzeniewicz 1994; Kaplinsky 2000).[1]

Of particular importance in global value chains is the issue of governance, which refers to the key actors in the chains that determine the inter-firm division of labour, and shape the capacities of participants to upgrade their activities. Initially, only two types of governance structures in global commodity chains were identified: producer-driven and buyer-driven chains (Gereffi 1994). A third form of governance began to emerge in the mid-1990s that is oriented around the Internet. The differences between these value chains reflect major changes in how international production and trade systems are organised over time, the emergence of new actors and economic roles in these value chains, and a continuing shift in the locus of power from producers to retailers to consumers. Thus, the concept of governance is neither static nor exclusive as a defining feature of global industries.

The governance structures in global value chains need to be understood in a historical perspective. Technological, institutional, and organisational innovations, as well as changes in regulatory environments, transform the structures of industries and the power of the leading firms within them. Governance structures in global value chains evolve in conjunction with the forces that shape industry structures. Thus, in any particular time period or within a given industry, new governance structures co-exist and interact with earlier forms of governance. The second section of this article highlights the origins of producer-driven and buyer-driven governance structures in global value chains, and the third section focuses on the current emergence of Internet-oriented value chains. The article concludes by outlining

several scenarios that explore the degree to which the Internet challenges or sustains existing governance structures in global value chains.

2 An Evolutionary Perspective on Global Value Chains

There are two fundamental changes in the international arena that profoundly shape our contemporary perspectives on global value chains. First, there has been a widespread shift in national development strategies from import-substituting industrialisation (ISI) to export-oriented industrialisation (EOI) throughout the developing world (Gereffi and Wyman 1990). Buttressed by the policy prescriptions of powerful international economic organisations like the World Bank and the International Monetary Fund, as well as the US government, this preference for EOI rests heavily on the experience of the East Asian 'miracle economies' from the 1960s to the mid-1990s. During this period, Japan and a handful of other high-performing Asian economies (most notably, the 'four tigers' of Hong Kong, Taiwan, South Korea and Singapore) attained booming exports and lofty per capita growth rates against the backdrop of relatively low income inequality, high educational attainment, and record levels of domestic saving and investment (World Bank 1993). Export-oriented industrialisation is still the development orthodoxy in much of the world despite the financial crisis that wracked Asia in the late 1990s, although criticisms of the Washington Consensus that favoured EOI are becoming increasingly strident among both academics and political activists (Gore 2000).

There is an affinity between the transition from ISI to EOI development strategies and the shift from producer-driven to buyer-driven global value chains. The ISI development strategy, which prevailed in Latin America for nearly five decades until the 1970s, was based on producer-driven value chains. Transnational corporations, which have actively tapped Latin America's oil, mineral, and agricultural resources since the 19th century, were invited to establish more advanced manufacturing industries in the region, beginning with automobile assembly plants in large countries like Mexico, Brazil, and Argentina in the 1920s. By the 1950s and 1960s, a range of advanced ISI factories were spread throughout the region in diverse industries such as petrochemicals, pharmaceuticals, automobiles, electrical and non-electrical machinery, and computers (Gereffi and Wyman 1990). Output was mainly destined for the domestic market, although beginning in the 1970s more attention was given to manufactured exports to offset the costly import bills associated with ISI deepening. Buyer-driven value chains, by contrast, were virtually ignored in most of Latin America until recently, since the transnational firms that established ISI were primarily interested in Latin America's domestic markets, not exports. This allowed the local exporters in the East Asian economies that pursued EOI to gain the lion's share of US and European markets for the profitable consumer goods that are only supplied via buyer-driven chains. With the onset of the Caribbean Basin Initiative in the mid-1980s and the North American Free Trade Agreement in 1994, Mexico, Central America and the Caribbean have become major players in US-oriented buyer-driven chains such as apparel (Gereffi 2000).

Second, there has been a major transformation in the organisation of the international economy in the latter half of the 20th century. In the period when ISI development strategies prevailed, transnational corporations were the dominant economic actors. They were vertically integrated and had a global reach through the operations of wholly owned subsidiaries that extracted natural resources for export or engaged in local production for sale in domestic markets around the world. The exchange between core and peripheral areas has become much more complex. The continued growth of imports in developed countries over the past two decades indicates that the centre of gravity for the production and export of many manufactures has moved to an ever-expanding array of newly industrialising economies in the Third World. As the relatively advanced East Asian and Latin American economies have moved toward more technology- and skill-intensive exports, it has become clear that 'cheap labour' alone is no longer an adequate explanation for Third World industrialisation.

Economic globalisation is a kaleidoscopic fragmentation of many production processes and their geographic relocation on a global scale in ways

that slice through national boundaries (Dicken 1998). Core corporations are shifting from high-volume to high-value production. Instead of a pyramid, where power is concentrated in the headquarters of transnational firms and there is a vertical chain of command, global production networks today are a web of independent yet interconnected enterprises. Core firms act as strategic brokers at the centre of the web, controlling critical information, skills and resources needed for the overall global network to function efficiently (Reich 1991). In order for countries and firms to succeed in today's international economy, they need to position themselves strategically within these global networks and develop strategies for gaining access to the lead firms in order to improve their position.

The emergence of new forms of value-chain governance is driven by the evolution of organisational capabilities by leading firms in the global economy. This organisational perspective is quite distinct from the neo-classical economics emphasis on pure markets as the key determinant of economic progress, and also the political science emphasis on the role of the state in shaping national competitive advantage. While competitive markets and effective states are clearly important institutional features of successful modern economies, the global value-chains perspective highlights a different dimension frequently ignored by these other approaches: namely, the shifting bases of power exercised by lead firms in global industries and the ways in which the governance structure of these industries shapes the creation of markets as well as national development outcomes.

2.1 Producer-driven chains

Direct foreign investment by transnational corporations was central to the evolution of producer-driven value chains, given that these companies usually established international production networks to access raw materials and new overseas markets. Extending the multi-divisional corporate structures pioneered by large US enterprises to tap the newly emerging American national market (Chandler 1962), transnational firms in natural resource sectors like oil, mining and agriculture set up international production networks throughout the world to gain access to vital and profitable raw materials. Breakthroughs in transportation and communication technologies (e.g., shipping, telegraph, and telephone) made integrated production networks possible (Vernon 1971), although their ultimate benefits for national development remain the subject of intense controversy (Barnet and Cavanaugh 1994).

In the 1950s and 1960s, transnational corporations in the consumer durable and capital goods manufacturing sectors began to set up their own international production networks in order to penetrate overseas markets, especially in Latin America and Asia, which were regulated by national ISI policies (Gereffi and Wyman 1990). These companies had access to the capital, technology and managerial resources that were essential for the development of new industries overseas, and because of their emphasis on locally owned subsidiaries, transnational firms had substantial control over the backward and forward linkages in the entire value chain of which they were a part.

2.2 Buyer-driven chains

Beginning in the late 1960s, direct foreign investment took a new tack: it supplemented its resource-seeking and market-seeking motives for globalisation with a global search for cheap labour. This 'new international division of labour' (Fröbel *et al.* 1981) relied on further improvements in transport and communication technologies to slice up the value chain so that the most labour-intensive stages of the production process could be relocated spatially to areas with the most abundant and productive low-cost labour. This strategy by transnational firms coincided with the shift of developing countries from ISI to EOI, which initially was facilitated by the growth of export-processing zones in many parts of the developing world (Grunwald and Flamm 1985).

Traditional accounts of the so-called new international division of labour do not go far enough, however. First of all, the transnational manufacturers involved in export-processing zones typically come from different industries than those involved in the producer-driven value chains associated with ISI. Export-processing zones tend to attract 'light industries' (e.g. apparel, footwear, consumer electronics, toys), where the barriers to

entry in production are relatively low. Second, the production-oriented frameworks – whether espoused by neo-classical economists, Marxist scholars, or the World Bank – miss the role of commercial capital in the globalisation process. This is the major contribution of the distinction between producer-driven and buyer-driven global commodity chains (Gereffi 1994, 1999). Third, global sourcing in buyer-driven chains is driven by intense competition among different types of developed-country retailers and marketers[2] who feel compelled to mimic each other's moves in two ways: (a) the growth of offshore sourcing networks; and (b) utilising brands as a source of market power.

Particularly noteworthy in the shift to both buyer-driven and Internet-oriented value chains is the growing importance of global brands, which can be created without proprietary links to specific manufacturers or distribution channels. 'Brands are the information – whether real or imagined, intellectual or emotional – that consumers associate with a product' (Evans and Wurster 2000:11). For consumers, brand knowledge is simply a high-richness/low-reach stock of information that comes from advertising, reputation and especially prior experience, in contrast to the high reach and low richness of classic markets. For companies, brands are a way to resist commodification when value chains deconstruct. Sellers use brands to lock in customer relationships[3] and to compete when reach (choice) goes up. Thus, building brand awareness is a fundamental challenge and a major source of market power for firms in both buyer-driven and Internet-oriented value chains.

One of the main sources of organisational innovation in the shift from producer-driven to buyer-driven value chains is that brands were disconnected from their organisational bases in production. Originally, leading manufacturers developed brands to differentiate their products from those made by competitors (e.g. General Electric light bulbs, Levi's jeans, Kodak film). Eventually both retailers and marketers decided to tap into the profitability enjoyed by branded manufacturers. In order to distinguish themselves from larger and more diversified department stores, speciality retailers emerged that sold only one kind of product under the store's own brand name (e.g. The Limited, Victoria's Secret, The Gap, Benetton). Marketers like Nike, Reebok, Liz Claiborne and Ralph Lauren took the branding concept one step further by eschewing both factories and actual stores; their profitability derived solely from elaborate promotional schemes based on carefully crafted 'lifestyle brands' associated with their products. Department stores fought back with the growth of private label merchandise – i.e., store brands that competed with the top national brands on price, but nonetheless had better quality and style than other products.[4] Today, brands are even dissociated from specific products and are linked to the Internet infomediaries that channel information to web-based consumers (e.g. America Online is one of the best known brands, even though it is only a web-based navigator).

Chart 1 summarises a number of the evolutionary shifts alluded to above. Whereas producer-driven global value chains are characterised by. vertical integration by transnational corporations based on ownership and control, buyer-driven chains highlight the global sourcing networks established by retailers and marketers that rely heavily on sophisticated logistics and performance trust among numerous contractors. Chart 1 uses the dates when leading US retailers and marketers were founded or went public to trace the sequential entry of large retailers, pure marketers, and speciality retailers in the 1970s, and private label (store brand) programmes in the 1980s, into the global sourcing game. In the 1990s, the information revolution is motivating the direction and pace of organisational innovation in the current shift to Internet-oriented value chains, which are based on virtual integration and an explosion in connectivity due to the open and almost cost-free exchange of a widening universe of rich information. The next section of the article examines more closely the impact of the Internet on global value chains.

3 Electronic Commerce and the Reorientation of Value Chains

The economic transformation at the turn of the 21st century, driven by the oft-times spectacular development and diffusion of modern electronics-based information technology, has been described by a variety of names, including an innovation economy, a knowledge economy, a network

Chart 1: The historical and institutional origins of changing governance structures in global value chains

Governance structure of global value chains	Leading industries and timing	Main drivers	Form and dominant principles of value chain integration	Institutional and organizational innovations	Corporate and national pioneers[1]
• Producer-driven chains	• Natural resources: late 19th and early 20th centuries • Capital goods & consumer durables: 1950s & 1960s	• Transnational manufacturers	• Vertical integration (ownership and control)	• Vertically integrated TNCs with international production networks • Mass production • Lean production	• Oil companies (1870s onward) • Mining (early 20th century) • Agribusiness (early 20th century) • Fordism (1920s onward) • Japanese TNCs (Toyota, early 1960s on)
• Buyer-driven chains	• Consumer non-durables: 1970s & 1980s	• Retailers and marketers	• Network integration (logistics and trust)	• Growth of export processing zones • Global sourcing by retailers • Rise of pure marketers • Rise of speciality retailers • Growth of private labels (store brands) • Lean retailing	• Mexico, the Philippines, Taiwan, South Korea, etc. (mid-1960s onward) • Sears, Kmart, Montgomery Ward, JC Penney (early 1970s onward) • Liz Claiborne (1976), Nike (1976), Reebok (1979) • The Limited (1969), Gap (1976) • JC Penney, Sears, Wal-Mart, Kmart (mid-1980s onward) • Wal-Mart, JC Penney, Dillard's, Federated (late 1980s onward)
• Internet-oriented chains (emerging)	• Services (B2C) – online retailing – online brokerage • Intermediates (B2B) – autos (Covisint) – computers 1990s & 2000s	• Internet infomediaries (B2C market) and some established manufacturers (B2B market)	• Virtual integration (information and access)	• Rise of e-commerce • Mass customisation • Disintermediation: – direct sales (skip retailers) – online services (e.g., brokerage) • New Internet navigators	• Amazon.com (1997) • Dell (1988), Gateway (1993) • E*Trade (1992), Schwab (1996) • AOL (1992), Yahoo! (1996), Excite@Home (1999)

[1]Specific dates indicate when companies were founded, went public (The Limited, The Gap, Dell, Gateway, Amazon, AOL, Yahoo!), or became established as US firms (Nike, Reebok). Decades are used for the onset of trends.

economy, a digital economy, and an e-conomy (Cohen *et al.* 2000). However, e-commerce is not simply about technology; it is also about profound changes in business organisation, market structures, government regulations and human experience. As a result, the Internet is already beginning to have a significant impact on the structure and competitive dynamics of global value chains.[5]

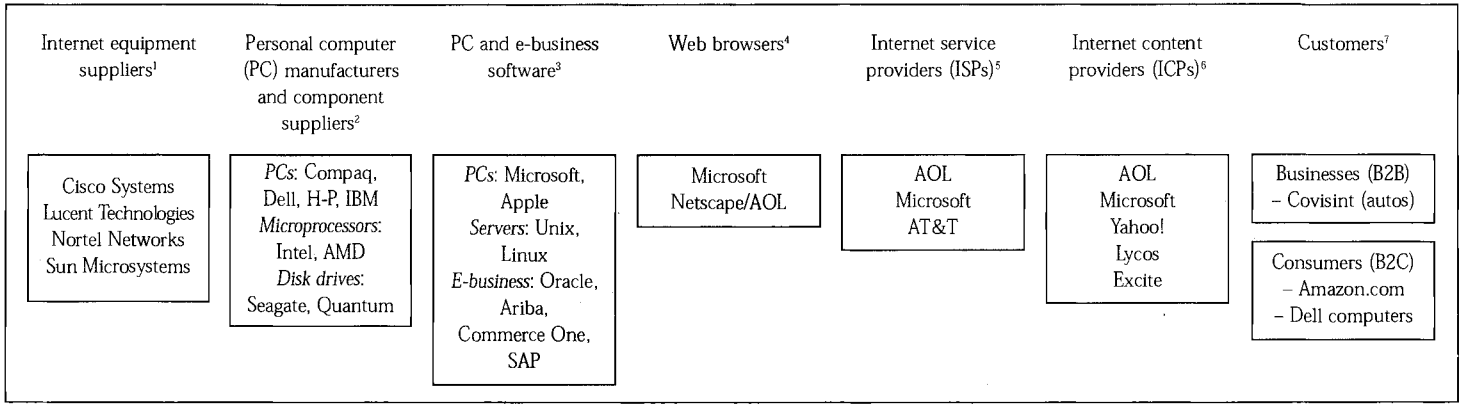
The two most important types of e-commerce are business-to-consumer (B2C) and business-to-business (B2B) markets.[6] The B2C market refers to the transfer of goods and/or services to individual consumers (a retail model), whereas B2B refers to procurement, logistics and administrative processes occurring between firms (a supply-chain model). E-commerce is growing so rapidly that estimates of the magnitude of these two markets vary widely. For example, the Boston Consulting Group estimates total on-line retail sales of $34.2 billion in 1999, while Forrester Research calculates on-line sales of $20 billion in the B2C market in 1999, but expects that figure to grow to $184 billion by 2004 (US Department of Commerce 2000:42–3; *The Economist* 2000a:9–10). On-line retail sales are dwarfed, however, by business-to-business transactions, which account for as much as 80 per cent of all e-commerce. According to the Gartner Group, a Connecticut-based market research firm, the B2B market will grow worldwide from $145 billion in 1999 to $401 billion in 2000, and to $7.3 trillion by 2004 (i.e. 7 per cent of the forecast $105 trillion in worldwide sales transactions) (Standard & Poor's 2001:2).

The Internet has the potential to transform both buyer-driven and producer-driven chains because of two fundamental factors: (1) its ability to create markets on a scale and with a level of efficiency not previously possible;[7] and (2) a radical 'pull' business strategy that substitutes information for inventory and ships products only when there is real demand from end customers. The shift from manufacturer 'push' to consumer 'pull' appears to be a long-term trend in many industries today. It places a premium on a 'build-to-order' business model and reflects a focus on consumer satisfaction and convenience (see the discussions of AOL, Amazon.com, and Dell in Gereffi 2001). The 'pull' strategy in supply-chain management is embodied in popular business-school concepts like mass customisation (Pine 1992), lean production (Womack *et al.* 1990) and lean retailing (Abernathy *et al.* 1999).

The B2C market. One of the early changes attributed to the Internet is the emergence of a new breed of 'infomediaries' – i.e. companies that turn on-line access to customers, and especially detailed information about their purchasing habits, into a highly valued asset. Although the majority of infomediaries in B2C transactions currently represents the interests of consumers trying to get the most out of the web, Internet navigators are also affiliated with producers, sellers and traditional value-chain intermediaries. This infomediary model is based on imperfect competition in which dominant infomediaries like AOL or Yahoo! control portals[8] and other strategic entry points to the Internet. These infomediaries are further leveraging their power by becoming more integrated across the Internet organisational chain through mergers, acquisitions, and strategic alliances.

Chart 2 shows the Internet's organisational chain, which is composed of the main firms that make Internet transactions possible. The Internet is a global network of smaller interconnected networks that link millions of computers through thousands of servers. It is built on a complex hardware infrastructure of Internet equipment providers, computer makers and component suppliers, integrated by software and services. Companies like Cisco Systems, Nortel Networks, and Lucent Technologies dominate the market for Internet equipment such as routers and remote access concentrators, while Sun Microsystems and Unix are leading manufacturers of servers. Computer makers are an integral part of the Internet chain because most businesses and individuals hook up to the Internet with personal computers. Corporate clients are looking for 'single solutions' to meet their increasingly complex computing needs, and thus the major computer companies have shifted their focus to three main areas of growth: servers, storage and services. The demand for global technology services, by far the largest of these three areas, is expected to nearly double in size from $359 billion in 1999 to over $700 billion by 2004 (Standard & Poor's 2000e:3–6). Firms like Oracle, Ariba, Commerce One, and i2 Technologies that develop software for on-line transactions are becoming key

Chart 2: The Internet's organisational chain



Notes

[1] Cisco controls more than 75% of the global market for Internet routers and switches (Hoover's *Company Profiles* 2000). Sun Microsystems is the main supplier of the Unix server market with a 28% market share in 1999, followed by Hewlett-Packard (23%) and IBM (18%) (Standard & Poor's 2000e: 4).

[2] Compaq had 13.1% of third-quarter 2000 worldwide PC shipments, followed by Dell (11.5%), Hewlett-Packard (7.8%) and IBM (7.4%). In the United States market, however, Dell (20.2%) has pulled ahead of Compaq (16.5%) as the leading PC vendor in third-quarter 2000 sales. More than 80% of the world's personal computers include an Intel microprocessor (Standard & Poor's, 2000e:2–3, 18).

[3] Microsoft's Windows operating system software is used in an estimated 85%–90% of PCs worldwide (Standard & Poor's 2000e: 12). Unix and Linux power most web servers with proprietary and open-source software, respectively, while Oracle, Ariba, Commerce One, and Germany's SAP are among the largest providers of software for e-business transactions.

[4] In June 2000, Microsoft's Internet Explorer had 86% of the web browser market and Netscape's Navigator (now a part of AOL) the remaining 14% (Standard & Poor's 2000d: 9).

[5] America Online had 43% of the ISP market in 1999, followed by Microsoft (6%), and AT&T WorldNet (5%) (Standard & Poor's, 2000c: 3). This was prior to the merger of AOL with the cable giant Time Warner Inc., which was announced in January 2000 and finally approved one year later.

[6] The most visited web properties in July 2000 (i.e. the percentage of web-active individuals who visited a site at least once during the month) were: the AOL network-worldwide web & proprietary (78%); Microsoft sites (63%); Yahoo sites (61%); Lycos (40%); and Excite (34%) (Standard & Poor's 2000d:4).

[7] Global B2B e-commerce is predicted to reach $4 trillion by 2003, a market ten times bigger than the $400 billion forecast for B2C online sales to consumers in 2003 (*The Economist* 2000b:11).

players in the rapidly emerging B2B marketplace. Other important links in the Internet organisational chain are: *browsers* (browser software permits on-line navigation by allowing users to view the text and graphics located on Internet websites); *internet service providers* (ISPs offer basic, flat-rate Internet access to customers); and *internet content providers* (ICPs use mostly original material to create Internet destinations where people go for information, entertainment, or commerce). The main customers for the Internet are businesses (B2B markets) and individual consumers (B2C markets), with the former currently being far larger than the latter.

In each segment of the Internet organisational chain, the leading companies have dominant market shares. Cisco controls more than three quarters of the global market for Internet routers and switches; the top four personal computer vendors (Compaq, Dell, IBM and Hewlett-Packard) account for nearly 40 per cent of unit shipments worldwide; Microsoft controls about 90 per cent of personal computer operating systems and two thirds of the web browser market; America Online (AOL) had 43 per cent of the Internet service provider market in 1999, and more subscribers than the next 20 ISPs combined; and AOL, Yahoo! and Microsoft sit atop the internet content provider market as well (see Chart 2 for references).

The B2B market. The automotive industry is the leader in B2B e-commerce, and it contains the world's largest on-line marketplace to date. Covisint is a newly formed joint venture that combines the purchasing activities of General Motors, Ford, Daimler/Chrysler, Renault, Nissan and their suppliers. Initially announced in February 2000 as a joint electronic supply agreement among General Motors, Ford, and Daimler/Chrysler, Covisint subsequently added Renault/Nissan, and in October 2000, following US Federal Trade Commission clearance, the first on-line auctions took place (Standard & Poor's 2000b:5). The scope of the venture is staggering. In 1999, General Motors' total automotive purchases were approximately $87 billion, Ford's were $85 billion, and Daimler/Chrysler's were $80 billion. Each of these automakers does business with about 30,000 suppliers. It is estimated that annual transactions on the exchange will exceed $240 billion, and the venture is expected to shave billions of dollars off procurement costs.[9] Commerce One and Oracle have been brought in as technology partners to help develop on-line software for the auto parts exchange.

Covisint promises lower prices, faster transaction turnarounds and other efficiencies, but many suppliers fear they could be losers in this deal because lower prices for buyers will mean lower margins for sellers. While Covisint is striving for an unprecedented degree of collaboration among the world's leading automakers, equally significant changes are a loosening of the tight vertical structures that used to bind the majority of parts suppliers to particular car manufacturers and the strengthening of large, technologically sophisticated global suppliers (such as Bosch, Denso, Johnson Controls, Lear Corporation, TRW and Magna) who become preferred partners in all the major automakers' supply chains (Sturgeon and Florida 1999). These developments, together with the megadealers that are emerging in automotive retailing,[10] could lead to substantial realignments in the relative power and profitability of major segments in the automotive value chain.

4 Three Scenarios of the Internet's Impact on Global Value Chains

The Internet is still in the early stages of its development, but its impact on global value chains is already evident. While it may be premature to try to identify lasting changes on producer-driven and buyer-driven chains, several possible scenarios are emerging and they are not mutually exclusive. The first scenario is that the Internet will lead to the formation of infomediary-based value chains, which implies a different set of organisational drivers. Although there have been some spectacularly successful e-commerce ventures in the late 1990s, the B2C market is still too small and volatile to establish a radically distinct and durable governance structure.

A second scenario is that the Internet is really just extending the logic of buyer-driven chains as both information and power continue to shift inexorably from producers and retailers to consumers. Rather than being an alternative to buyer-driven chains, the Internet intensifies a shift that is making all industries more buyer-driven in the sense that new

consumer-oriented competitors are undermining the power of those manufacturers, retailers and marketers that do not take advantage of the Internet's ability to facilitate mass customisation.

A third scenario is that the impact of the Internet in both B2B and B2C transactions will be captured and integrated into the business practices of the dominant manufacturers, retailers, and marketers that already exist in diverse industries. Pitting the so-called new economy against the old economy completely misses the point because the Internet's major impact will be to improve the productivity of all parts of the economy, especially the old-economy firms. Established leaders in both producer-driven and buyer-driven chains are proving surprisingly adept at incorporating e-commerce in their business strategies (in popular jargon, these companies are moving from 'bricks and mortar' to 'clicks and mortar'). Thus, the biggest and most powerful companies co-opt and internalise the Internet, and they force their rivals and suppliers alike to bear the costs of adapting to new information technologies.

While there is evidence to support all three scenarios, the third model currently seems to be dominant. Nonetheless, lead firms in major industries are adopting quite different strategies with regard to key supply chain issues, such as vertical integration, outsourcing, and globalisation, and the impact of the Internet on these business structures remains an open question.

Notes

1. Although the concepts of global value chains, global commodity chains and global supply chains are closely related, the term 'global value chains' will be used in this article to emphasise the flow of information, resources, goods and services along the full range of activities and organisations in the supply chain. For a more detailed discussion of the origins and use of these concepts, see Gereffi (1994), Kaplinsky (2000) and Raikes *et al.* (2000).
2. In the original distinction between producer-driven and buyer-driven commodity chains (Gereffi 1994), the term 'buyer' was used in an organisational sense to refer to retailers and marketers (in their pure form, marketers build and commercialise their own brand-names but own neither factories nor stores). These organisational buyers are to be distinguished from the actual individual consumers who are the targets of much contemporary e-commerce.
3. Brand affiliation is surprisingly stable. Of the 25 top-selling consumer goods brands in 1960, 16 of them are still among the top 25 today (Evans and Wurster 2000:150).
4. This trend is most visible in apparel products. In blue jeans, for example, J.C. Penney's Arizona jeans and Sears' Canyon River Blues go head-to-head with upscale jeans sold by Tommy Hilfiger, Calvin Klein and Donna Karan.
5. The material in the remainder of the article is summarised from the more detailed discussion in Gereffi (2001).
6. If we were to complete the e-commerce matrix, the consumer-to-business (C2B) market would be represented by Priceline.com, the most popular of several reverse auction sites, while the consumer-to-consumer (C2C) segment includes consumers' auctions, epitomised by the auction site eBay.com. See *The Economist* (2000a) for a fuller analysis of the e-commerce matrix.
7. A couple of familiar companies provide good illustrations of the extensive reach provided by the Internet. Amazon.com, one of the first electronic retailers on the Web, has no physical stores but offers an electronic list of three million books, 20 times larger than the holdings of Barnes & Noble, the largest chain bookstore. Dell's Internet site offers over ten million computer configurations (Evans and Wurster 2000:61–2, 111).
8. Portals are websites designed to be an Internet user's initial entry point for exploring the web. Portals typically generate revenues by renting out advertising space.
9. The on-line exchange is expected to yield a savings of $2,000–$3,000 on a $19,000 vehicle (Covisint 2001).
10. AutoNation is the largest car dealer in the United States, and it had car sales of approximately $1 billion (about 46,000 vehicles) via the Internet in 1999 (Standard & Poor's 2000b:5).

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