Preface

Competing Flat Out

As Thomas Friedman points out in *The World Is Flat*, a convergence of technology, globalization, and other forces has transformed the way we work. India, China, and other countries are an increasingly significant part of the global supply chain for manufacturing and services.[1] Geography, while not irrelevant, is no longer the obstacle it once was, and companies can stretch their manufacturing, customer service, and other business processes around the globe. This dispersion of the supply chain creates tremendous opportunities to change the way we do business in this world, and how we design and run our companies—if we are prepared to rise to this challenge.

Li & Fung has been working in this flat world since the early 1980s, long before it had a name, and now produces more than two billion pieces of apparel, toys and other consumer items every year. Li & Fung now accounts for more than US$8 billion in garments and consumer goods for some of the best brands in the world. By the time of its one-hundredth anniversary in 2006, Li & Fung had become the world's largest sourcing company, growing at a compound annual rate of 23 percent for the last 14 years.

Yet Li & Fung does not own a single factory. It is a flat business for a flat world. The company started as a trading broker in Guangzhou (Canton) in 1906 during the Qing Dynasty and transformed itself into a Hong Kong–based exporter and then into a multinational corporation. Finally, the company reinvented itself for the flat world in a new role, as a "network orchestrator."[2] It is now the orchestrator of a network of more that 8,300 suppliers served by more than 70 sourcing offices in more than 40 countries and territories. The company indirectly provides employment for more than two million people in its network of suppliers, but only less than half a

percent of these are on Li & Fung's payroll.[3] With this lean structure, each of the company's own employees generates about US$1 million in sales, earning a return on equity of more than 38 percent per year. As a family firm at the intersection of the East and West, the company is both deeply traditional and thoroughly modern. Recognizing its creative thinking and use of technology, *Wired* magazine placed Li & Fung among young upstarts such as Google, Apple, and Amazon on its 2005 "Wired 40" list.

Over the years, Li & Fung's innovations have attracted attention, from business school case studies to magazine articles and books.[4] Now we are pleased to share more detailed insights from the transformations at the company and examine how they can help other enterprises to compete in a flat world. Victor and William Fung pioneered these transformations in the trading company founded by their grandfather, Mr. Fung Pak-liu. Wharton professor Jerry Wind has worked with them since 1998 on the company's triannual strategic review process and also offers broader perspectives from research and practice.

The flat world has ripped the lid off the corporation. It has broken through traditional national and organizational borders. It challenges the way we look at and run everything from enterprises to nations. Companies in manufacturing will find these innovations and shifts in thinking directly relevant. But the impact is not limited to manufacturing or to companies with offshore activities. The principles of network orchestration are relevant to any organization and industry (including services) that wants to take advantage of the opportunities presented by the forces flattening our world. The principles of network orchestration, discussed in this book, have applications in many areas, from managing strategic alliances (which have a poor track record of success) to services, to open innovation, to comarketing.[5]

As you read this, freighters and cargo planes are churning across the planet. High-speed information networks are whisking voice and information, and billions of dollars, instantaneously around the world. Looking down from the Li & Fung conference room on the thirty-fourth floor of Alexandra House, where we worked on the book, we could see the freighters steaming in and out of Hong Kong harbor. It

is a hive of activity, and the pace of commerce just keeps increasing and evolving in new ways. Every day the view changes. It has been a tremendous adventure and education to have such a ringside seat on the emergence of this flat world and to be an active participant in its development.

These freighters are connecting points of the globe that have never been connected, in new and changing configurations. The ships and planes streaming across the world are rewiring the neural networks of commerce. How does your own thinking need to change to keep pace? Have you understood the implications of the flat world for your own business?

The flat world is here. Organizations that can embrace it and understand how it works will find that it offers many new opportunities. Those that cannot adapt quickly enough to these new realities will fall behind or be bought out by those that have learned how to compete in a flat world. The opportunities are as broad as the world. How do you need to remake your organization, management, and mindset to seize these opportunities?

Victor K. Fung

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The Orchestration Imperative

In the 1970s, The Limited began working with Li & Fung to source its clothing. To tighten the cycle time of its supply chains, chairman and CEO Les Wexner set a time limit of 30 days for any order to be produced. This was absolute, whether the order was for 5,000 or 200,000 pieces; it had to be done in 30 days. This was one of the ways Wexner pioneered the concept of quick-response manufacturing. To meet the tight deadline, it became a normal practice for Li & Fung to sample many factories and to have these factories ready before The Limited decided on the size of the order. In this way, Li & Fung could reserve enough production capacity to respond quickly. If the order turned out to be a big one, Li & Fung would use several factories to manufacture the item in parallel. For the production to look as if it was all done in one factory, Li & Fung had to control the raw materials, trims, and patterns for all the factories used.

But when the garments arrived in The Limited's distribution center in Columbus, Ohio, each box contained a single size, color, and style of shirt or other product. Upon arrival, the boxes were first unpacked and the shirts were placed on a shelf by size. Then

warehouse staff picked them from the shelves, attached the right price tags and labels, and repacked the shirts into new boxes to provide the right assortments for each store. This was a process that sometimes took as long as two weeks, at U.S. wages. Manufacturers on the other side of the world were racing to get the products made in 30 days, but then the shirts spent as much time on the water and half as much time again waiting in the distribution center before they reached the stores and consumers.

The Limited and Li & Fung then worked out pioneering arrangements that changed the distribution chain. First, they frequently used airfreight. Second, and perhaps more important, instead of picking and packing the products for individual stores at the distribution center, they arranged for assortments to be created at the factory in Asia. As the shirts of different sizes and colors came off the line, they were packed into typical assortments and bar-coded (later the boxes used Radio Frequency Identification tags). The Limited also sent over its U.S. retail price tags, and factory workers put them on the garments before they left for the retailer's U.S. distribution center.

This meant that instead of taking two weeks to be picked and tagged in the distribution center, the boxes could go in one door and out another to smaller trucks headed to the stores. Cross-docking was born. The boxes from the factories arrived in stores, and the goods were put directly onto the racks. Shaving a few weeks off the process had huge implications in the time-sensitive fashion industry. Because of the bar-coding, the system even allowed for adjusting quantities on the fly. If there happened to be a particularly cold season in New England and a particularly hot one in Texas, more of the short-sleeve shirts could go south and fewer north. The cost of creating assortments and putting on price tags at the factory was much cheaper in Asia than in the U.S. distribution center because of both lower wages and a more streamlined process.

When Li & Fung originally proposed the idea of the factory putting on price tags, buyers at The Limited were concerned. How could a supplier be told the retail price (which was significantly higher than the manufacturing cost)? Wouldn't this lead to tougher bargaining and more demands from suppliers? This proved to be an unfounded

concern. The competitive process of bidding among vendors ensured that prices remained low. Besides, suppliers already had a pretty good idea of what retailers were charging, and this information was easy to find anyway.

The concern about giving away information on price tags reflects the old adversarial view of the supply chain. Every part of the supply chain was wrestling with the other members. Supply chain members were engaged in a great struggle to see who could extract greater value from the chain. The buyer squeezed suppliers on prices. The suppliers shaved costs to boost their own margins. It was a fight for a limited pie.

The genius of Wexner of The Limited was his ability to see the bigger picture. Giving Li & Fung the price tags created an opportunity to make the entire chain more efficient for everyone. Wexner realized he was not competing against his suppliers. He was competing against other retailers with their own networks. To optimize the chain required a level of trust that was not part of the old thinking about supply chains. The old mindset was that each stage was separate and adversarial. This resulted in packing shirts in boxes and then unpacking them in Ohio. The new mindset allowed all the players in the chain to work together to optimize the entire chain.

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"Network orchestration" takes a broader view of the entire supply chain. The network orchestrator designs the overall supply chain, drawing together multiple factories in different regions to collaborate on a single product. Without orchestration, many of the gains of networks and global collaboration are lost because the resulting supply chains are suboptimized. What the discipline of management was to the old vertically integrated, hierarchical firm, network orchestration is to the company working in the flat world. It is an essential capability for this world, from orchestrating virtual networks such as Wikipedia and open-source software to delivering hard goods through global manufacturing.

The Challenge of Globalization 3.0

Thomas Friedman identified three primary periods of globalization. Globalization 1.0 might be seen as the rounding of the old flat world, from the time of Christopher Columbus's journey to the New World until around 1800. This was the emergence of a global market, with countries using advances in transportation and other technologies to connect with different parts of the world. The second period, Globalization 2.0, was the age of the rise of the multinational company, extending from 1800 to 2000. Falling transportation and communications costs drew the world more closely together and facilitated the development of a global economy. This age was driven by hardware revolutions, from railroads and steamships to telegraphs and telephones.

Today we have arrived at the third era of globalization, Globalization 3.0, the emergence of the flat world. Friedman describes this as the shrinking of the planet from "a size small to a size tiny." The most visible drivers of this phase are the *rise of the personal computer* and *the development of the Internet,* connecting individuals anywhere with each other (through e-mail) and information (through the World Wide Web) along high-speed fiber-optic cables. Friedman identified a third, less visible, driver of the flattening world, *workflow software.* These software programs allow individuals to collaborate on projects anywhere in the world, regardless of their location. This, in fact, allows dispersed individuals to work together to create a product or service—developing a cartoon program for television, delivering customer service, or producing 100,000 shirts for a retailer in New York in China or Guatemala (or both).

Friedman identifies other flatteners as well. The rise of *outsourcing* allowed companies to move their business processes to partners overseas, while *offshoring* resulted in a similar migration of manufacturing. The phenomenon of *uploading* allowed communities to contribute online to a collective product such as Wikipedia or open-source software. With *supply-chaining,* companies such as Wal-Mart began working with suppliers to improve their overall supply chains, cutting costs, streamlining logistics, and forging better links between suppliers and their own information systems. The next flattener, *insourcing,* saw the emergence of integrated logistics, as companies such as UPS took over more company functions than just delivery,

from fixing laptops for Toshiba to delivering pizza dough for Papa John's. Similarly, the flattener *"in-forming"* put knowledge at the fingertips of everyone with access to Google—in other words, everyone. All of these forces have been accelerated by the *"steroids" of wireless, digital, and personal technologies.* These ten forces have leveled the playing field, connected the unconnected and flattened the world. This has opened up new markets for sourcing and selling, most notably in China and India.

This has led to what Friedman calls a "triple convergence": a critical mass of enabling technology, individuals, and organizations skilled enough to take advantage of these new platforms and the sudden arrival of more than three billion people from emerging economies onto this new, more level playing field. The world will never be the same again.[6]

Ripping the Roof Off the Factory

These forces have also ripped the roof off the factory. Since Henry Ford set up his famous assembly line near Detroit, the most efficient way to run a factory traditionally was to put everything under one roof. Then companies such as Toyota opened the front doors of the factory and put their suppliers just outside the gates. This created Toyota City. The suppliers were still geographically colocated on the same campus, but they were separate companies outside the factory. Companies such as Dell then engaged in global sourcing, purchasing computer chips and other technology from Asia.

As global logistics and coordination have improved, these suppliers can now be virtually anywhere. They do not have to be right outside the factory gates. In fact, "right outside" the factory gates now means anywhere on the planet. Boeing's 777 jet is assembled from three million parts from more than 900 suppliers in 17 countries around the world.[7] As Figure 1-1 shows, Boeing primarily produces the wings and fuselage, and assembles the aircraft (as shown in black in the figure). Most of the plane's components are outsourced around the globe. For its 787, the company is also outsourcing systems for collision avoidance and landing in zero visibility to Indian engineers at HCL Technologies outside New Delhi. This not only allows the

company to find best-in-class providers for each component, but it also gives each of these nations a vested interest in the success of the aircraft. This, of course, helps in spreading risk and making global sales.

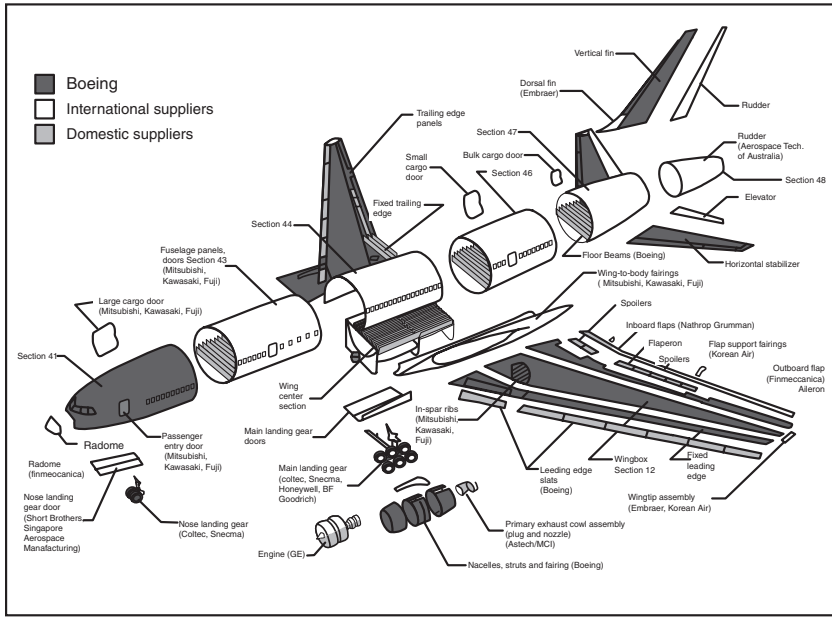

FIGURE 1-1 Boeing's global supply chain

Companies realized that the supply chain could be broken up and spread across the globe. They not only ripped the doors off the factory, but they ripped the roof off as well. They could do more than source *products or components* from other parts of the world. They could put stages of the supply chain in different parts of the world and coordinate them centrally. This meant breaking up the *processes* of the supply chain, farming them out to different companies in different locations, and then managing these dispersed processes. This is what John Hagel and John Seely Brown have referred to as "process orchestration."[8] A shirt could be designed in New York, be cut and assembled in Bangladesh with cotton woven in China, and be shipped to consumers in the United States. This was often the best way to optimize the overall supply chain to deliver the right product to the right place at the right time at the right price.

The modularization of the manufacturing process meant that different parts of the manufacturing process could be handled in pieces and coordinated across factories. Henry Ford's factory was built on the principle of division of labor. The new principle was *dispersion* of labor. Ford's factory was based on large operations that offered economies of scale, while orchestration was based on assembling armies of small and medium business that could act as one.

Dispersed manufacturing came to Hong Kong in the 1970s, when the rise of other Asian tigers made Hong Kong a less competitive location for manufacturing. For example, the transistor radio business migrated to Taiwan and Korea. At the same time, the reopening of China in 1979 after the death of Mao Zedong and the end of the "bamboo curtain" led to the creation of special economic zones in the south. Hong Kong companies could now send work to low-cost factories on the Chinese mainland for the labor-intensive parts of production. To compete with Taiwan, Hong Kong transistor radio manufacturers packed parts for radios into small kits, shipped them to the mainland for low-cost assembly, and returned the finished goods to Hong Kong for testing and inspection.

Similarly, 10-inch plastic molded dolls (such as Mattel's Barbie and Hasbro's GI Joe) became too expensive to make entirely in Hong Kong. The parts were molded in Hong Kong, whose factories had expertise in molding; shipped to the Chinese mainland, where they were assembled, painted, and clothed; and then were shipped back to Hong Kong for packaging. Eventually, as Chinese factories gained skills, the plastic molding and packaging were moved out of Hong Kong to the mainland.

Dispersed manufacturing is different from global sourcing. There have always been a set of suppliers that fed various inputs into the factory. Some of these suppliers, such as Johnson Controls, which makes entire interior assemblies for automobiles, have become very sophisticated and handle large pieces of the final assembly. But dispersed manufacturing is not just sourcing inputs, but rather spreading different parts of the manufacturing process around the world. For example, using global sourcing, doll clothing might have been bought from the Chinese mainland for dolls in Hong Kong. But the new model was not merely to import production inputs, but to

move stages of the manufacturing *process* to the mainland. In effect, the factory started in Hong Kong, where the molding was completed; went to the Chinese mainland for assembly, painting, and clothing in different factories there; and then returned to Hong Kong for final packaging and export. No single factory was used; all of these partners acting together added up to a factory. This dispersed manufacturing requires designing the overall supply chain, optimizing it, and managing the processes across the chain. The new dispersed enterprise required a new skill: network orchestration.

When the systems were in place to move parts of the process to China, the process could be moved to almost anywhere in the world. The old under-one-roof factory was broken wide open. The world was the factory.

Increasing Flexibility: Precipitating Supply Chains from the Network

This dispersion of manufacturing processes is just part of the story of network orchestration. The other part is the network itself and how it builds flexibility. The modularization and dispersion of the manufacturing process has created further opportunities. Instead of a fixed network of suppliers, as shown in the Boeing example, the possibility now exists to interchange different suppliers to increase flexibility and responsiveness.

In network orchestration, the network is the universe of suppliers from which a given supply chain is precipitated, as illustrated in Figure 1-2. If an order for 100,000 dress shirts comes into Li & Fung today for a delivery date four months from now, the best set of suppliers for filling this order with the right quality in the right time frame will be drawn from the broader network. But if the same order comes in a month from now for the same delivery date, it likely will be delivered by a different supply chain that can respond faster. The world changes a lot in a month. Customer expectations change. Supplier capacity changes. The best supply chain for each given order will be created individually based on the order itself. Li & Fung's

network of 8,300 suppliers stands ready like the famous Qin terra cotta soldiers that guard the emperor's grave in Xian. A specific supply chain is called forth in response to the demand of the customer. Henry Ford told his customers, "They can have any color they want as long as it is black," the modern network orchestrator can make a much simpler claim: "You can have almost anything you want. Just say the word, and the supply chain will be created. We will build you a virtual factory from a network of suppliers to meet your need."

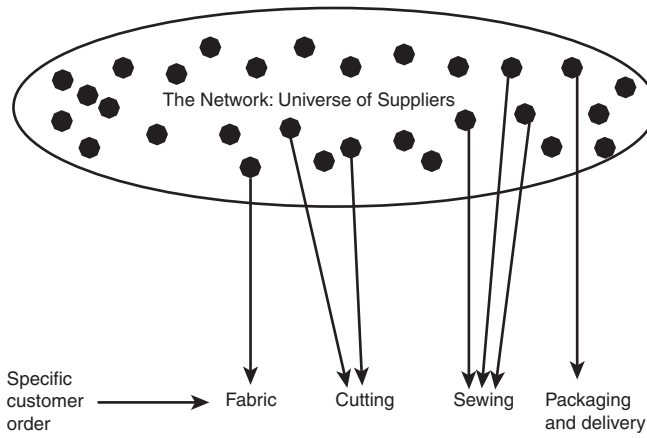

FIGURE 1-2 Networks and supply chains

The network orchestrator needs to think about building and managing this broader network, and also about designing the best supply chain from it to meet a specific customer need. In this sense, the network represents capacity, or potential energy. The supply chain harnesses that potential for a specific task. Network orchestration is concerned with both developing and managing the network, and designing and managing specific supply chains through this network. This is a new capacity that is essential for the dispersed enterprises of a flat world.

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Network Orchestration in Action

On May 30, a U.S. retailer places an order with Li & Fung for 300,000 pairs of men's twill cargo shorts. Li & Fung owns no factories, no weaving machines, no dye, no cloth, no zippers. It does not directly employ a single seamstress. Yet one month later, the order is shipped. In a flat world, the buttons come from China; the zippers come from Japan; the yarn is spun in Pakistan, and woven into fabric and dyed in China; and the garment is sewn together in Bangladesh. Because the customer needs quick delivery, the order is divided among three factories. Yet every pair of shorts has to look as if it were made in one factory.

If the order had come in two weeks later, it would have resulted in a completely different supply chain, using different partners drawn from a network of 8,300 suppliers around the globe. Like a message routed through the Internet, the project moves along the best specific path chosen from a broader network (see Figure 1-3). The supply chain is evoked by the order from the customer. This is the power of network orchestration.

FIGURE 1-3 Traveling cargo pants

Orchestration: Most Evident in Its Absence

The need for network orchestration can be seen most clearly in its absence, in the failures of offshoring, outsourcing, and strategic alliances. Several recent studies have concluded that half the organizations that shifted processes offshore failed to generate the financial returns they had anticipated.[9] A study by Deloitte Consulting found that major stumbling blocks include governance, management attention, and change management.[10] Companies have also turned to alliances, mergers, and acquisitions to achieve global reach and growth, with worldwide deal flow reaching $2.7 trillion in 2005. But studies have found that only about 40 percent of all mergers and acquisitions (M&A) deals are successful in achieving their goals. (Some estimates put the figure as low as 25 percent.) Strategic alliances are also fraught with risks, with almost half of them failing. Culture and integration issues are a big part of the problem, so success rates can be improved significantly by having a dedicated alliance function within the firm.[11]

The need for network orchestration can be seen most clearly in the failures of offshoring, outsourcing, and strategic alliances.

One of the primary reasons global outsourcing and offshoring, as well as acquisitions and alliances, often fall short of their potential is that managers have not recognized the importance of orchestration. This is the missing piece of the puzzle. It is different from managing a typical internal process. It requires a more fluid approach that empowers partners and employees, yet demands that control be maintained at the same time.

Networks need orchestration. In spite of the mythology, networked enterprises are not grassroots democracies, as they are sometimes portrayed. They are very different from the enterprises of the past, but when they work well, they have a structure and governance that, while distinctive, is rigorous. These networked enterprises do not just run themselves. They are designed and managed through network orchestration.

For example, although Wikipedia is democratic, it is not a completely open playing field. A network of some 13,000 writers and editors keep an eye on entries to ensure that they are kept current and accurate. Editors weed out nonsense pages, prevent the malicious rewriting of history, and ensure continued development. The architecture of the community, which often is forgotten in celebrating its populist origins, is largely responsible for ensuring that Wikipedia and other open-source projects don't disintegrate into chaos. Active orchestration of this network seeks to ensure that it produces something of value.

A core set of Wikipedia entries has been "protected" so they no longer follow the celebrated "anyone can edit" policy. These entries, such as "Albert Einstein," "George W. Bush," and "Adolph Hitler," were particularly susceptible to vandalism or "drive-by nonsense," in the words of founder Jimmy Wales. A 14-member arbitration committee also serves as the court of last resort for disputes about entries. Founder Jimmy Wales ultimately has the last word on difficult issues.[12] For open-source software collaborations such as Linux, a governing body ensures tight oversight and control of the work of the diffused community of programmers.

The success of the community depends upon its design, its governance, and the processes around which it is organized. Wikipedia has no autocratic CEO, but it has a system for generating and vetting entries that helps to improve the network and ensure that it operates according to a set of core principles. In a supply network, this role of governance and design is played by the network orchestrator. The orchestrator ensures that the collective wisdom of the crowd is tapped and that the network thinks and acts more wisely than any individual member.

Social networks such as MySpace and YouTube, on the other hand, which are less designed to produce a collective product, have less of a need for this governance and orchestration. They are channels and marketplaces, facilitating interactions or transactions. They are valuable in their own right, but because they are focused less on creating a collective deliverable from the network, they have less need for network orchestration. Manufacturing, on the other hand, is at the other extreme. Orchestration is essential. Otherwise, how can you be sure to turn out 100,000 perfect shirts at the end of the line?

Li & Fung is a network orchestrator in its purest form. The company owns no factories, no needles, and employs no factory workers. Other networked companies might modify this approach to their own needs. But where there is a network, there is a need for network orchestration. Someone has to play the role of orchestrator in the flat world. It could be the company itself, its partners, or an outside orchestrator. This role of designer and manager of the network is a new role and a new capability, which is often overlooked. But it is perhaps the most important capability for competing in a flat world.

The Broad Opportunities for Orchestration

Although this book focuses primarily on manufacturing networks, with which we have the most experience, the principles of network orchestration have broad applications across diverse industries and activities, from research and development to services. While Boeing was breaking up its manufacturing supply chain for building aircraft and dispersing it across the world, as previously discussed, innovative airline carriers were engaged in outsourcing processes and resources to transform their offerings. Before deregulation in the late 1980s, major airlines were asset-intensive. They owned their aircrafts, reservation systems, maintenance teams, baggage crews, and catering services. Upstarts such as Southwest, and later JetBlue and RyanAir, put most of their operations out to bid. They leased engines, leased aircraft, and contracted for baggage handling and maintenance crews. They retained the core of branding and the overall concept for the airline. This enabled them to cut costs and offer a very different positioning than the majors. But quality and safety still had to be maintained, and this required skill in orchestrating these networks to ensure the planes could fly on time and maintain their safety records even when the contributing business processes were not fully owned by the carrier. While the success of Southwest and other carriers is rightfully attributed to their distinctive strategic positioning, this positioning depended upon skills in network orchestration. The major airlines have now moved to more leasing and outsourcing as well. (For example, American spun off its Sabre reservation system and

Lufthansa spun off its maintenance operations as a separate firm.) Network orchestration is now a key capability for success in the airline industry.

We consider some other applications of network orchestration in Chapter 12, "Practice: A Lever to Move the World." These include the network Olam International built, working with small and mid-sized farmers in 40 countries to orchestrate a network for agricultural products and food ingredients. Other research networks, such as the Connect & Develop networks created by Procter & Gamble, have linked it with more than 1.5 million independent researchers around the globe; external networks have helped Canadian-based GoldCorp significantly improve the yield of its mining business by orchestrating an eclectic group of experts outside the firm.

Companies have created marketing networks to orchestrate hundreds of thousands of buzz agents to convey messages and promote products. Networks have been created for innovation, such as the system built around Nike and iPod to create an electronic personal trainer. Global sports leagues offer another example of the power of coordinated networks. Even the military is increasingly turning to networked models to meet the complex challenge of fighting modern wars and addressing global terrorist networks.

All these examples share one thing in common: They all are based on networks that come together to create a product or service. And they all require some form of orchestration to keep these networks from devolving into chaos. The principles of network orchestration can be applied to these networked enterprises in addition to supply chains and manufacturing.

Although Li & Fung is a large multinational, the opportunities for network orchestration are not limited to large global companies. These opportunities apply equally to companies large and small. In Hong Kong alone, at least 50,000 smaller trading companies manage global (or, at least, regional) supply chains. They all do network orchestration like Li & Fung. In fact, the new technologies and other shifts of the flat world lead to a leveling of the playing field that makes it easier for small firms to participate in networks or to engage in network orchestration.

The Three Roles of Network Orchestration

The dispersed factory is a different type of factory floor than the one Peter Drucker found himself on when he did his famous studies of management at General Motors. The management needed for these fixed factories is different from what is needed for these fluid, global networks. In the flat world, the traditional principles of management need to be augmented with skills in network orchestration.

What do network orchestrators do? The network orchestrator plays three primary roles related to the focus, management, and value creation of the firm or network, as Figure 1-4 shows. Each of these roles is the expansion of the role of a manager within a more limited fixed factory or traditional firm.

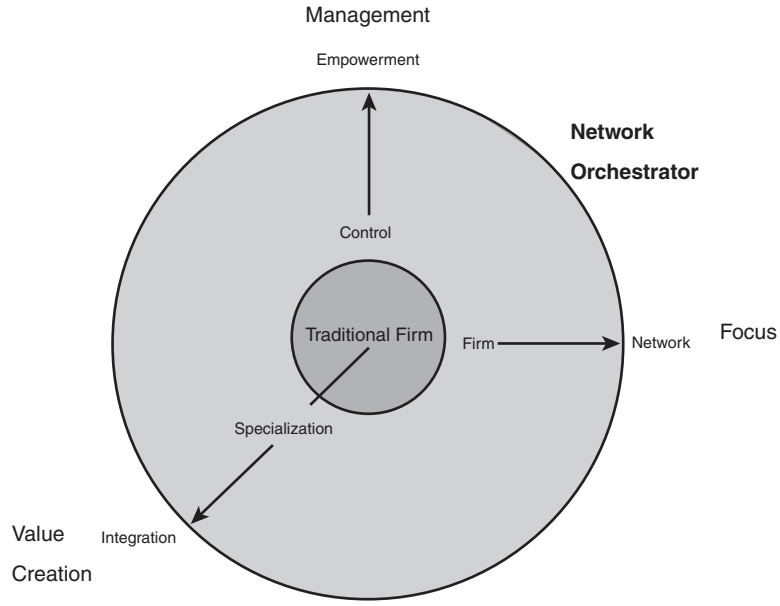

FIGURE 1-4 The movement from a traditional firm toward a network orchestrator requires a shift in focus from the firm to the network, a shift in management from control to empowerment, and a shift in value creation from specialization to integration. Because few companies are "pure" network orchestrators, and because the world is not completely flat, companies typically need to strike a balance somewhere between the inner circle and the outer one.

Role #1: Design and Manage Networks

First, the network orchestrator needs to shift from viewing the firm as the center of the universe to looking at the network. Companies don't compete against other companies. Networks compete against networks. Two retail stores on opposite corners in New York City might appear to be direct competitors, but this is an illusion. They are not competing against each other in isolation. Each store has a supply chain stretching from its shelves out to the world. The best supply chain will win. Before a customer walks into the store, often the game is over based on the superior supply chain. The best supply chain is drawn from a robust universe of suppliers. It is no longer possible to compete by looking at a company in isolation from the network. The network orchestrator also establishes the values and culture of the network, developing its guiding principles while absorbing the best wisdom and practices from the network itself. The orchestrator creates the broader network and then draws supply chains from it.

Role #2: Control through Empowerment

Second, in a world in which orchestrators do not own the means of production, they need a different form of leadership and control. A dispersed global network can devolve into chaos. What holds this network together? In contrast to rigid control systems used to manage factories, the network orchestrator relies not just on rewards, but also upon a combination of empowerment and trust, as well as training and certification, to manage a network that it does not own. In addition, it empowers its own managers and suppliers to act entrepreneurially. In contrast to command and control systems, the orchestrator works like a guest conductor in an orchestra. The conductor might not have the ability to hire or fire people, but he or she coordinates a highly skilled set of independent musicians.

Role #3: Create Value through Integration

Finally, orchestrators have a different way of creating value. Value in the traditional firm came from specialization, honing skills in specific areas, protecting trade secrets, and keeping out rivals and even partners. Value came from fighting for a piece of a limited pie and protecting specialized core competencies. Value in the flat world, in contrast, comes from

integration, bridging borders as well as leveraging the company's value and intellectual property across the network. This integration also means spanning borders between functions within the company, such as looking to manufacturing in developing markets to identify new opportunities for marketing and sales. Orchestrators need to know when to open the doors wide to create value as integrators and when to produce value by focusing on the specialized resources of the firm.

The three roles of orchestrators are interconnected and work together. The more dispersed networks become, the more there is a need for empowerment rather than direct control. The more empowerment is given to suppliers and customers, the more managers need to look across the network rather than focusing on their own firms. The more organizations move toward orchestration, the more they need to be able to build and capture value across the network rather than within the firm. Together, these three roles move companies from the center circle of the figure to the broader outer circle of the networked enterprise.

A Multiplier

Network orchestration is a multiplier that increases the reach and effectiveness of the organization. It is not a replacement for sound planning and control processes that multinational corporations currently use. These processes are still needed within the organization, and some of them do not have to be changed dramatically for a networked world. Network orchestration extends standard business processes to a broader network, but also requires skills that are distinctive to network orchestration. By doing so, it magnifies the reach and impact of the organization, and increases its flexibility.

This broader network allows the firm to connect to the capabilities it needs (or those its customers need), wherever they are in the world. Whereas competitive advantage once was defined largely by the capabilities the company directly developed and owned, now it depends on the capabilities inside as well as those capabilities outside that the company can connect to. But to connect to these outside resources and capabilities efficiently and effectively, the firm needs a new capability: network orchestration.

Bumps, Mountains, and Superhighways: The Need for Balance

The world is not completely flat. In our rush to understand and embrace this flat world, we need to recognize that we live in a world that is flat and round, modern and ancient. Global trade regulations, national laws, trading blocs, and other factors add to the lumpiness of the world. Although businesses operate as members of networks, they are incorporated as independent firms, so there is always a balance between the view of network orchestration in the outer circle and the firm view in the center. Sometimes it might make the most sense to take a firm-centric view; other times it is best to look at the network. Controls might be needed in some areas, while empowerment is needed in others. Value can be created through specialization as well as integration. The flat world creates opportunities for greater orchestration, yet there are still opportunities for more traditional approaches.

One of the most significant sources of lumpiness in the flat world is the result of national trade regulations. Different countries create regulations to gain advantage or protect local industries, goals that they feel cannot be achieved through open markets. They create restrictions and import barriers designed to slow the flattening of the world and position their countries to advantage. Favorable trade status is given to certain countries, creating expressways that ease the flow of goods. Others are punished with trade barriers. Some of these have nothing to do with trade, but are a byproduct of geopolitical objectives.

Decisions about the shape of the network change with each new ruling by the World Trade Organization (WTO), each new bilateral trade agreement, and each new protective regulation. Today the political geography can shift very quickly to protect domestic markets or reward allies. The contours of the world can change overnight. This makes markets less efficient, and it makes orchestration all the more important. Network orchestrators can monitor the bumps, look for the superhighways, recognize how they are changing, and find the most efficient way through these changes as early as possible.

Another set of lumps in this flat world has to do with the risks of interlinked systems, from currency to political risks. These risks need to be assessed and managed, and they can reshape the playing field for business, adding to the lumpiness of the terrain. Natural disasters, currency risks, political instability, terrorism, local wars, and environmental issues such as global warming also add to the risks and lumpiness of the world.

Other lumps in the flat world for business are a result of the relationships and trust that are necessary in doing business. Transactions can be digitized, but trust cannot. It can be useful to consider why an exchange such as Alibaba.com, the leading online marketplace in China, has not taken over the entire market, as had been predicted. Like the online bank Wingspan, business-to-business marketplace, VerticalNet, or the online shopping service WebVan, which rose and fell during the dot-com bubble in the United States, this type of efficient exchange would appear to be unstoppable. In a completely flat world, this might be true. These sites promise much more efficient transactions without the cost of a middleman. What they lack, however, is orchestration and a recognition of the diversity of customer segments. Not all customers are motivated only by one-off or short-term efficiency and cost. In a world of lumpy relationships and bumpy national regulations, there is a need for something more than a platform for transactions.

One of the roles of the network orchestrator is to balance the flat and round worlds. The orchestrator needs to come up with the best customer solution given the current terrain, and then adjust that solution when the landscape shifts tomorrow, as it will. The orchestrator needs to keep one eye on the possibilities of the flat world and one eye on the very textured realities of the unflat world.

Not Where, but How

In the round world, the most important question in developing a supply chain or process chain was to determine *where* it would be handled. As in real estate, the rule was "location, location, location." The costs of moving goods around and tracking information were so high that geography was the first concern. Then the concern was "where to

do." In the flat world, the first concern is "what to do." After the task is identified, companies can find the best place in the world to do it. This is a shift in thinking about business processes. By making this shift, managers can better leverage their own capabilities and tap into the global capabilities of partners wherever they are in the world.

A new concern arises: not just where and what, but also "how to do" something. How is the best possible way to get this particular job done? What is the best path through a network of global possibilities? The total quality movement within the factory focused not only on doing things right, but on doing the right thing. Similarly, the network orchestrator looks at more than cost and efficiency. The orchestrator focuses on designing the best possible processes across a global network for delivering the right product to the right place at the right time at the right price.

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Orchestrate or Be Orchestrated

Orchestration is not a choice. It is an imperative. To remain competitive with partners who are skilled in network orchestration, companies have to be able to orchestrate. To enter global markets demands collaborating with local partners and orchestrating the business through complex networks and diverse cultures. In the flat world, a single firm will have a difficult time standing against a well orchestrated network. Yet managers at many established companies face a dilemma in moving to networked models. Their businesses and thinking are organized around a single firm. They are just beginning to think about sourcing from low-cost countries. They see the risks of moving to networked models—losing control over core parts of the business or sharing profits with partners. But they may not see the benefits. They don't have "the will to network." We hope that this book offers a clearer understanding of some of the benefits of networked models and the strategies Li & Fung has used to transform itself for a networked world.

Although we developed these insights at Li &Fung, the principles of network orchestration that we have honed in this context can be applied in many different industries and networks. If your company is part of a network, the question to ask is: Who is orchestrating? If there is no orchestrator, should you create or play this role? How can the principles of network orchestration—focusing on networks, managing through empowerment, and creating value through integration—be tailored to your own situation? If you don't see your company as part of a network, are you viewing your world too narrowly? Have competitors already created networks that are competing against you? Will you be able to survive in this world?

The following chapters examine how to compete in the flat world. Part I, "Focus: Firm and Network," examines network orchestration and the shift in perspective from the firm view to the network view. Part II, "Management: Control and Empowerment," explores the management needed for this environment, managing a supply chain that is not wholly owned in a world of greater demands for corporate social responsibility, empowering executives to act as entrepreneurs, creating stretch goals, building companies around the customer, and forging loose/tight relationships with networks of suppliers. Part III, "Value Creation: Specialization and Integration," considers how companies can capture more value by taking a more integrative view of their networks, as well as explores the need to draw together marketing and manufacturing to "sell to the source" in emerging markets. Part IV, "Implications for Policy and Practice," explores how government regulations—particularly trade barriers—are limiting the ability of companies to orchestrate and optimize global supply chains, and considers some of the broader implications for managers.

As Les Wexner found at The Limited, diffused supply chains can be optimized only through orchestration, by looking across the chain and abandoning the mindset of absolute control. Competing in a flat world means more than contracting with a company in Bangalore or Shanghai. It requires a different approach to the business. There is a need for new skills and a new mindset. The purpose of our book is to offer managers lessons about how to succeed in this flat world—not just how to build better supply chains, but how to build competencies in network orchestration and *change the shape of your thinking, strategies, and organizations* to embrace this flatter world.

Are You Ready for the Flat World?

- What are the opportunities for network orchestration in your industry?
- What network or networks is your organization part of, and how is the network used to create specific customer solutions?
- Which companies are filling each of the three roles of network orchestrators in your industry?
- Given the orchestration imperative, what should you do next?