

Loosening up: How process networks unlock the **power** of specialization

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Cutting-edge companies are swapping their tightly coupled processes for loosely coupled ones—making themselves not only more flexible but also more profitable.

In the quest for higher performance, what company can ignore the benefits of partnering with business specialists and of outsourcing non-core activities to focused providers? The virtues of business collaboration are clear: innovation and efficiency. Most companies seem to think that the right way to structure outsourcing is equally clear: tightly managing, across corporate boundaries, the process of producing and delivering products or services. Yet most companies also admit that such arrangements involve trade-offs. Tightly coupled processes are often inflexible. Problems with key suppliers—for instance, a plant fire that forces unanticipated delays in the shipping of products—can be crippling.

We believe that executives settling for these trade-offs have made a mistake. Companies at the cutting edge of process management handle critical cross-company processes as though they were networks rather than production lines. For core operating processes such as the management of supply chains and customer relationships and the development and commercialization of products, these cutting-edge companies have swapped their tightly coupled processes for loosely coupled ones, thereby gaining much-needed flexibility and improving their performance in the bargain.

Companies have started to unbundle their corporate structures, but few of them have unbundled the processes that span disaggregated enterprises. Most companies cling to a managerial preference for controlling their activities tightly even if they now contract for—rather than directly own—those activities. But by tightly managing the work of specialists, such companies limit the value that innovative thinking might yield. Managing their processes more loosely would permit them to unlock the full value of specialization for themselves and their partners and to gain flexibility’s more strategic

value, including the ability not only to make operational changes quickly but also to sculpt customer offerings.

Most companies hold fast to a strong **managerial preference** for controlling their activities tightly

Consider how these goals are achieved at Li & Fung, a Hong Kong-based trading company.

Li & Fung makes no products of its own. Rather, it “orchestrates” the production of goods by others, drawing on a vast global network of highly focused providers to arrange for private-label manufacturing, primarily on behalf of US and European clothiers. For a specific product or client, Li & Fung assembles a customized set of specialized providers to handle everything from product development to the sourcing of raw materials, production planning and management, and, eventually, shipping. If glitches pop up at any stage of the intricate process along the network, the company can quickly shift an activity from one provider to another.

Such flexibility promotes high-output performance. Rather than squeeze supply chain costs by tightly integrating activities, Li & Fung gains efficiencies through the specialization of suppliers. The performance of the company has been extraordinary for its sector: Li & Fung’s return on equity has exceeded 30 percent a year since the mid-1990s; 2001 revenues amounted to just over \$1 million per employee.

Loosely coupled processes are the building blocks of networked companies.¹ We call businesses such as Li & Fung “process orchestrators” because we believe that the key to achievement in this field is the way companies manage processes, not how they structure and monitor outsourcing contracts or implement new Internet technologies in their supply chains.

Few companies will ever become pure orchestrators, for to do so they would have to change the nature of their businesses dramatically. Mind-sets must also shift dramatically if companies are to master process networks. None-

¹See Remo Häcki and Julian Lighton, “The future of the networked company,” *The McKinsey Quarterly*, 2001 Number 3, pp. 26–39.

theless, nearly every company can benefit from learning the skills of orchestrators or from converting one or two tightly coupled processes into loosely coupled ones.

A tale of two processes

Today's broad preference for the tight management of relations with partners carries an inevitable corollary: cutting the number of suppliers to a minimum. A narrow partner base makes sense given the effort involved in managing it tightly. The company specifies not only the parts it needs from its partners but also many of the activities required to produce those parts. It might spell out production steps or even get a partner to dedicate a production line, which the company would help design. To ensure that the suppliers' activities mesh tightly with its own, it might share its customer order and production data. The company's aim in taking all of these steps would be to cut costs, speed up cycles, and improve quality. But such tight integration requires resources, the attention of management, lengthy negotiations, detailed contracts, and the extensive monitoring of performance. In short, the coordination costs are steep.

By contrast, consider how a loosely coupled process operates. Li & Fung has relationships with more than 6,000 specialized companies, in 39 countries. To produce a line of garments for a customer, Li & Fung might purchase South Korean yarn that would be woven and dyed in Taiwan, send the fabric to be cut in Bangladesh, ship the pieces for final assembly to Thailand (where the garments would be matched with Japanese zippers), and, finally, deliver the finished product to geographically dispersed retailers in quantities and time frames specified well in advance.

Li & Fung could never manage this extensive array of suppliers if it had to negotiate well-defined activities with each of them. Instead, it manages the interfaces between each specialist's activity and orchestrates the entire process. By "interfaces," we mean the specifications the orchestrator defines for each milestone. Li & Fung gives the Taiwanese dyer specifications for the end product to be delivered—specifications such as the color, the conditions it must meet, and the date when the fabric must be shipped to the cutter in Bangladesh. But Li & Fung doesn't try to influence the way each specialist accomplishes its part of the process.

Having a wide network—and thus more options—provides for considerable flexibility. To meet the specific needs of a customer or even a product, Li & Fung can configure activities as though they were modules in a process. The South Korean yarn provider may be appropriate for one product line, but an

Indonesian supplier that uses different raw materials or a different production technology may be the better choice for another. A product may require three additional steps in the supply chain or two fewer steps. Li & Fung assembles the right modules for each job.

Such modular chains can be quickly reconfigured in response to unforeseen events. Following last September's terrorist attacks in New York and Washington, Li & Fung quickly shifted production from high-risk countries to lower-risk ones. Companies with tightly coupled processes can also re-source production, but not quickly—and only at considerable expense. Li & Fung, on the contrary, moved hundreds of millions of dollars in merchandise in just seven days.

Li & Fung, ensuring its bargaining power, takes 30 to 70 percent of each specialist factory's production. The company monitors quality by verifying that end-product specifications have been met at every milestone of the process. Thanks to the network's very wide span, Li & Fung can leverage global economies of scope to deliver high-quality, low-cost products to its customers reliably and quickly.

Not just for orchestrators

As a pure orchestrator, Li & Fung's only product is the process. Companies that make products or sell services can also use loosely coupled processes to enhance the economic performance of their offerings and to gain flexibility. Two companies that have done so are Nike and Cisco Systems.

Nike's focal point, like Li & Fung's, is the supply chain process. The athletic-shoe business is fraught with uncertainty. Rapid shifts in fashion and changes in tariffs and trade regulations can affect profits significantly. To manage

these risks more successfully, Nike developed a loosely coupled supply chain, based largely in Asia, comprising many specialists and logistics providers. These suppliers cover every stage of shoe production, from the sourcing of materials to the assembly of finished shoes and their delivery to retailers. Nike, broadly specifying outcomes for each milestone of the process, manages the interfaces between the suppliers' activities but doesn't attempt to micromanage the activities.



This approach lets Nike move quickly to meet business challenges. If consumers suddenly decide that they want more rubber in the soles of their shoes, for instance, Nike can quickly revamp production, steering activities toward specialists that are better at sourcing, producing, or cutting a particular kind of rubber for new designs. If tariffs on goods from one country rise, Nike shifts production to suppliers in another.

As for Cisco, it has taken a loosely coupled approach to managing a different process: customer relations. The company orchestrates thousands of specialized product and service partners that offer value-added services to its customers. The medium for these interactions is Cisco Connection Online (CCO), an Internet-based platform developed by Cisco to provide customers with detailed information about its products. The site also lets customers shop for related products and services offered by Cisco's outside partners. (A related offering might be software or specialized integration services that help a customer connect Cisco's products to its existing communications networks.)

Through certification and training, Cisco manages the interfaces of its partners to ensure that prospective ones meet its criteria for delivering value to customers.

The value of specialists

Cisco's specialist network provides customer support activities that extend across the full life cycle, from initial contact to product upgrades. Cisco couldn't provide this support effectively on its own, because it could never hope to develop offerings as innovative as many of those from its partners. In this context, Cisco too specializes—in orchestrating complex sequences of support activities.

The power of loosely coupled processes is their ability to optimize the value of specialization and to avoid the compromises inevitable with tightly coupled processes. Partners in tightly coupled processes may be very good at some activities but can't be best of breed at everything they are called on to do. Loosely coupled specialists can, and they are also more likely to innovate, because they focus on their distinctive capabilities and shed those activities that are better performed by others.

Specialists have greater freedom to innovate when their orchestrators focus on outcomes, not on the way the job gets done. Of course, orchestrators may define some of the specialists' activities—prohibiting the use of child labor, for instance, or specifying how the specialist should manage waste products. The essential point is that specialists have strong incentives to

innovate—and to perform well within the network. Both Li & Fung and Nike, for instance, reward high-performing specialists by giving them more business.

All of this suggests that process networks are playing a very different numbers game. Instead of limiting the number of partners, executives learn that the network's value to customers and participants increases as the number

of participants grows.² The more providers the network includes, the more opportunity each has to specialize.

Executives learn that the value of the network to its customers and participants **increases** in tandem with the number of participants

The value gained by unlocking the power of specialization outweighs the cost of coordination with part-

ners. Coordination costs per supplier are far lower when relationships are managed loosely. Orchestrators, however, may incur aggregate coordination costs as high as or higher than those of companies that manage suppliers tightly, because orchestrators work with so many more of them. Yet the costs of coordination for loosely coupled processes, unlike those for tightly coupled ones, don't rise exponentially as more providers join a network. Thus the benefits of expansion, to both customers and participants, far outweigh the additional coordination costs.

Still, such a network eventually faces a test: it must continue to grow so that service providers within it can continue to expand their own businesses. It will be easier for open process networks, such as the one orchestrated by Li & Fung, to meet this need, since they can potentially serve all customers in a particular industry. Nike and Cisco operate closed process networks focused on their own products. Ultimately, the networks of these companies will grow only as fast as they do.

For this reason, open process networks over time will probably tend to prevail against closed ones. Yet even Li & Fung will need to find new sources of growth. The company is now broadening its role as a supply chain orchestrator by embracing a broader range of high-volume, time-sensitive consumer goods, including fashion accessories, toys and games, sporting goods, home furnishings, handicrafts, shoes, travel goods, and tableware.

²This phenomenon is often referred to as the "network effect." The on-line auction site eBay, for instance, benefits from network effects that put it far ahead of rivals. Sellers of goods gravitate to sites that offer the largest number of buyers, and buyers flock to sites with the greatest number of choices. The value of the network for participants increases as it expands. Because participants can be added to the network at no (or very little) additional cost, eBay enjoys increasing rather than diminishing returns.

Orchestration skills

Orchestrators, like suppliers, specialize. Their role in the network requires distinct skills: they must be adroit at recruiting the right providers, configuring the right modules, and overseeing the performance of the network (Exhibit 1). Their ability to do so begins and ends with a deep knowledge of the network's operations.

Orchestrators must have “both an insider’s knowledge of problems [of a process] and the authority to develop appropriate solutions,” according to John Suh, the CEO of StudioDirect, Li & Fung’s US-based e-business subsidiary, which focuses on serving small and midsize retailers. “This requires mastering many details . . . in short, being a savvy operator. The smart novice can’t hope to succeed.” Suh says that Li & Fung has changed from a smart generalist into a highly specialized operator with deep expertise in its domain.

Experience has taught Li & Fung’s managers the strengths of each service provider. To improve the performance of the network continually, the company’s managers give detailed performance feedback to the specialists. Faltering providers may be dropped from a project or, over time, from the network. Li & Fung’s managers are constantly looking for new specialists and evaluating the experience and skills of each prospect to determine if it can meet its milestone in the process. The company’s managers have developed such thorough insights into the operations of their network that they can assess a prospective provider just by walking through its plant.

Nike learns about its providers’ capabilities by sending employees on three-year stints to work with selected providers. The Nike visitors don’t direct the partners’ activities; they learn how the partners operate so that Nike can make smart choices about which ones to use for particular tasks.

Loosely coupled technologies

A lot of executives believe that technology will make processes involving collaborators more flexible. Companies can communicate more information

EXHIBIT 1

What orchestrators do

- 1 Recruit participants into process network
 - 2 Structure appropriate incentives for participants; encourage increasing specialization over time
 - 3 Define standards for communication, coordination
 - 4 Dynamically create tailored business processes—involving multiple service providers—to meet customer needs
 - 5 Assume ultimate responsibility for end product
 - 6 Develop and manage performance feedback loops to facilitate learning
 - 7 Cultivate deep understanding of processes and practices to improve quality, speed, cost-competitiveness of network continually
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using Internet technologies, and this, many believe, will loosen up tightly coupled processes.

But fostering and capturing the value of specialization isn't a technology project. While Cisco uses its sophisticated Internet technology as a platform for its network of providers, Li & Fung uses telephones and fax machines to communicate with small enterprises in remote areas such as rural China. Management, not technology, is the key to unlocking the

value in processes.

Technology can improve communications among business partners but doesn't fundamentally change how they manage those processes.³

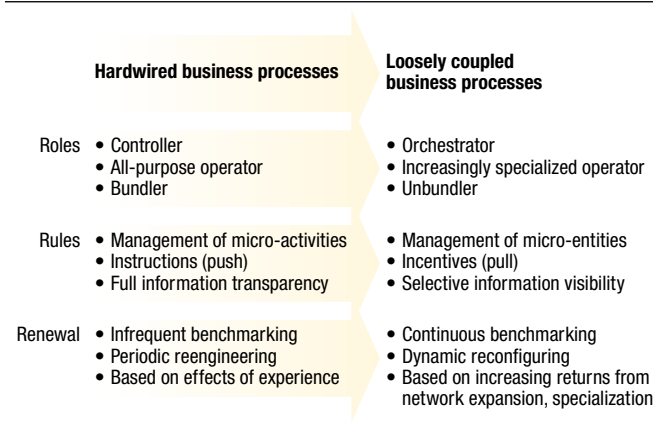
Nonetheless, a new technology called Web services (*see* "When computers learn to talk: A Web services primer," in the current issue) could increase the economic

value that can be generated from processes and accelerate the development of process networks. Web services are analogous to loosely coupled business processes: the technology is essentially a bridge, constructed with open standards, that permits businesses to connect their existing systems to other businesses' systems more flexibly and at lower cost.

Innovative market leaders already use Web services to connect partners or customers operating very different technology platforms. Both Robertson Stephens and Wachovia, for example, use Web services to gather investment-related information from Thomson Financial, enrich the information with their own analysis, and then distribute research reports to customers. It would be extraordinarily expensive to reformat incoming data by using conventional technology, which is also inflexible: if a vendor changed its under-

EXHIBIT 2

Cutting the wires



³For more evidence that management innovation—sometimes aided by technology, sometimes not—drives value, see William W. Lewis, Vincent Palmade, Baudouin Regout, and Allen P. Webb, "What's right with the US economy," *The McKinsey Quarterly*, 2002 Number 1, pp. 30–40, which highlights the findings of a comprehensive McKinsey Global Institute study of US labor productivity from 1995 to 2000. The study concluded that product, service, and process innovations accounted for the bulk of US productivity growth during those years and that more intense competition diffused such management innovations through the economy. IT, the study found, can often be a useful tool for reorganizing core processes, but IT investments alone don't move the needle on productivity.

lying systems, buyers using conventional technology would have to reengineer the software they used to access the vendor’s data. But many companies, as they gain experience with Web services, will realize that the technology can help them underwrite a very different approach to the management of business processes. These are the companies that will harness the real economic potential of loosely coupled business processes.

Managerial leaps

Executives must make tremendous managerial leaps to understand, implement, and master process networks (Exhibit 2). Consider the way these networks force executives to change their most fundamental views about process management.

Loosely coupled business architectures will likely emerge gradually, beginning with modest initiatives designed to reap near-term economic benefits. Cisco, for instance, launched CCO to market products to customers, not to manage third-party resellers. But over time, the channel to customers became a platform for orchestrating the partners’ value-added services.

While relatively few companies could or should aspire to turn themselves into full-fledged orchestrators (Exhibit 3), we believe that most of them can benefit by working with a handful of their current top-tier suppliers to develop one or more of three basic orchestration skills. The first is the ability to support business processes by aggregating and disseminating selected information across a number of enterprises. Financial-services companies seeking to give customers more information that is most effectively tapped from specialist providers may choose to develop this skill, as many of the early adopters of the Web services technology, such as Robertson Stephens and Wachovia, are trying to do.

Community building is the second skill. Companies may want to marshal their partner relationships as a way of adding value for their customer base. They must adroitly identify and bring together small communities of business partners with complementary skills and products, as Cisco did when it formed its network and as many other technology companies are

EXHIBIT 3

Could you become an orchestrator?

- ✓ Do you have close relationships with customers who honestly reveal their needs, how well their needs are being met, and how those needs are likely to change?
 - ✓ Does your organization have detailed knowledge of the broad set of practices and core processes being coordinated?
 - ✓ Do you have close, trusting relationships with partners that possess the specialized skills needed to deliver a product or service with a competitive advantage?
 - ✓ Do you understand the economics and profit-and-loss hurdles for all partners and customers?
 - ✓ Can you create incentives to expand dynamically and move the process network toward increased specialization and continuous improvement over time?
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doing. In financial services, Charles Schwab and Intuit are developing communities of specialized financial-information partners and other companies to provide investment services for customers.

Finally, companies may choose to focus on the third skill—the setting of business standards—by learning how to define standards for coordinating activities across a number of enterprises and how to get these standards accepted. Dell Computer, GM, and Merrill Lynch, for instance, are tailoring the broader Extensible Markup Language (XML) standard to address more specifically their business coordination needs. To give one example, the employees of business collaborators, translating on the fly, now usually define the shared meaning of business terms. In apparel, say, what does “red” mean? If a company specifies prices, does this mean prices per unit, per box, or per truckload? To automate these connections among companies, the shared meaning of such terms must be codified.

Companies that focus on setting standards, while not actually coordinating their business processes, are learning the capabilities and economics of specialist businesses. They are also beginning to understand the challenges involved in building and maintaining loose relationships based on trust and long-term incentives, not on the control of activities within a process.



Many companies also could gain the advantages of specialization by transforming tightly coupled customer-management or supply chain relationships—even those with only a top few tiers of suppliers—into loosely coupled ones. Cisco, which is now beginning to establish a number of loosely coupled relationships, in effect manages a hybrid “tight-loose” supply chain. Its relationships with contract manufacturers are integrated, well-defined, and hardwired with expensive technology links. But it has more loosely coupled relationships with many small second- and third-tier component suppliers that lack the ability and the incentive to adopt the expensive technology that would couple them tightly to Cisco.

Few companies will shed their traditional core businesses to become pure process network operators. Orchestrators are “learning organizations” with privileged relationships; their employees may never touch a product. Such organizations mobilize other companies’ assets and capabilities to deliver

value to customers. Their primary business focus will be identifying new arenas for them to target with their growing process networks. Most businesses can realize significant near-term savings by adopting the skills of orchestrators or transforming processes. Even greater value lies in unlocking the heightened potential from specialization by taking a new, looser approach to managing intercompany processes. *Q*

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