Chapter 10
Application—Mitigating Outsourcing-Related Risks

Abstract While outsourcing part of the companys manufacturing can appear attractive owing to reduced assets and headcount, many firms continue to be disappointed with their outsourcing experience. In this chapter, we identify the underlying causes of outsourcing failures and discuss ways to avoid these underlying causes. Specifically, we use real examples to describe eight different outsourcing-related risks and ways to avoid or mitigate them so as to improve the chances of outsourcing success.

10.1 Introduction

In Chapter 7, we mentioned outsourcing as part of a "make-and-buy" robust strategy. In this chapter, we describe some risks of outsourcing, and present ways to avoid eight common pitfalls so that firms can increase the chance of realizing the true value of outsourcing.

Outsourcing is an increasingly important part of supply chain management, and therefore provides an increasingly important context for supply chain risk. Since the 1990s, more firms have been improving the way they select and manage suppliers, and suppliers have become more sophisticated in managing customer relationship. Despite these improvements, disappointing results and failed relationships between firms and their suppliers persisted. As outsourcing is quite common for most firms, it is critical to develop successful outsourcing strategies.

To compete for market share and to improve financial performance such as return on assets quickly, manufacturers often outsource labor- and capital- intensive operations so that they can transform themselves as product designers (e.g., Nike), supply chain integrators (e.g., Boeing's 787), or business solution providers (e.g., IBM). With improved information technologies, tax benefits, and lower labor cost, outsourcing enables firms to exploit suppliers' capabilities and skills. (For IT projects or call centers, firms can take advantage of the time difference between US and Asia to operate around the clock at low cost.) By 2006, the manufacturing sector accounted for less than 13% of the jobs in the United States. Consequently, there is

M.S. Sodhi, C.S. Tang, *Managing Supply Chain Risk*,
International Series in Operations Research & Management Science 172,
DOI 10.1007/978-1-4614-3238-8_10,

no surprise that 80% of the toys sold in the US were made in China, and 97% of the HP notebook computers were manufactured by contract manufacturers such as Taiwan-based Quanta and Compal. Another telling statistic is that worldwide spending on business process outsourcing (BPO) projects, whether onshore or offshore, has exceeded $302 billion in 2004, according to a study conducted by the Gartner group.

Manufacturers are under tremendous competitive pressure to develop new products frequently and quickly. To reduce product development time and cost, many manufacturer outsource the product development tasks to external suppliers. Outsourced efforts for new product development include Apple's decision to outsource its IC chip development for iPods to Pinexe Systems in India and its operating system development to Pixo Inc. in California. Besides electronics companies, Boeing outsourced 70% of the development tasks of the Boeing 787 to external suppliers. We shall use the case of Boeing 787 development in Chapter 11 to illustrate different supply chain risks arising from new product development and discuss various strategies to mitigate these risks. In the pharmaceuticals industry, there is an emerging market of a $30 billion contract drug-development with annual growth rates of 20% (c.f., Perry, 2001).

While outsourcing can be beneficial, many firms are disappointed with their outsourcing experience. First, in 2000, Dun & Bradstreet reported that 20 to 25 percent of all outsourcing relationships (manufacturing, finance, information technology, etc.) fail within two years and 50% fail within five years. Then, in 2005, Deloitte Consulting surveyed 25 world-class organizations and found that a quarter of these companies brought business functions back in-house after realizing that they could do the work themselves better and cheaper; 44% of the companies reported that outsourcing did not save any money; and half of the companies found 'hidden' costs to be unexpectedly high. Similar responses were reported in a recent survey study conducted by Bain & Company. Bhalla, Sodhi and Son (2008) looked at Fortune Global 500 companies and did not find any evidence that IT offshoring, including outsourcing, was linked to any of the different performance metrics over five year. These discouraging results raise the following questions:

1. What are the underlying causes of outsourcing failures (or at least lack of success)? Are there ways to avoid these underlying causes?
2. Why was it the case that some companies did not realize that they could perform tasks under consideration for outsourcing better and cheaper in-house?
3. What are the hidden costs associated with outsourcing? Is there a way to get a better handle on these costs to avoid unpleasant surprises down the road?

The answers to the above questions are caused by risks that can be avoided or mitigated. We describe eight such outsourcing-related risks and ways to avoid or mitigate them so as to improve the chances of outsourcing success.

10.2 Risk 1: Underestimating the Strategic Value of Procurement

By and large, the procurement function is undervalued in most companies because it is commonly viewed as an operational level function. However, in many instances, the procurement decisions (make or buy, outsourcing, off-shoring, supplier selection, contract negotiation, supplier relationship) and many strategic level decisions are inter-twined. Without recognizing the strategic importance of the procurement function, the procurement department would focus on transaction cost and not so much on strategic factors when recommending a sourcing arrangement (c.f., Butter and Linse, 2008). In general, the transaction cost of outsourcing that include search cost, unit cost, transportation cost, quality assurance, technology transfer cost, and restructuring cost are relative objective and easy to evaluate. However, without a clear communication and coordination, the procurement division may not fully incorporate strategic factors when making procurement recommendations. These strategic factors include the impact of outsourcing on internal operations, reputation and brand value, legal issues, political and economical issues when dealing with foreign suppliers. Without a strong coordination among a cross-functional group that includes the procurement department, it is difficult for a company to realize the full potential of outsourcing.

Consider Chrysler's turnaround in the mid-90s. In the 80s, Chrysler viewed suppliers as parts producers. As they discovered the potential value of suppliers, Chrysler reduced the supply base by forming long-term partnerships with certain strategic suppliers who perform design, engineering and manufacturing functions. To capture the value of this special partnership with these strategic suppliers, Chrysler changed its procurement function from managing standard transactions to developing and managing collaborative sourcing relationships with key suppliers.

In 1993, Chrysler launched a program called SCORE (Supplier COst Reduction Effort) that involved early supplier involvement during the design phase, solicit suggestions from suppliers, sharing cost savings with suppliers, etc. The collaborative sourcing relationships helped Chrysler to reduce the new product development time from 234 weeks to 160 weeks, and reduce the new product develop cost by 30%. More importantly, this strategic partnership has generated 875 ideas from suppliers worth $170 million in annual savings. By the end of 1995, Chrysler implemented 5300 ideas that have generated more than $1.7 billion in annual savings. To capture the value of strategic sourcing, Chrysler created and developed a different kind of procurement function that was aligned with the company's strategic direction (c.f., Dyer (1996) and Tang (1999)).

Mitigating these risks. Executives at global companies need to recognize that the role of procurement professionals goes beyond basic purchasing transactions. These professionals need to identify and select suppliers, undertake contract negotiation, and monitor supplier performance. In today's market, procurement function intertwines with strategic decision-making at the executive level. Therefore, to capture strategic value of outsourcing, firms need to develop and train procurement professionals with the requisite skills so that they can assume the role as the liaison

between the executives of the firm and the suppliers' representative. According to a recent survey study conducted by Capgemini in 2008 reported that more firms are creating Chief Procurement Officers (CPO) positions to oversee the strategic procurement issues of the firm. Because CPOs do not belong to any business units, they can conduct objective evaluation of different sourcing options by incorporating different strategic issues. As firms developed these CPOs, they can get them involved earlier so that they can help the executives to make informed decisions. By improving the communication and coordination among different parties internally and externally, these CPOs can create and capture value of outsourcing through the procurement function (c.f., Abery and Stark (2008)).

10.3 Risk 2: Underestimating the Strategic Value of Outsourcing

Lowering the operating cost is usually the primary reason for companies to outsource certain functions. With this mindset, manufacturers can obtain short-term benefits and the limited value of outsourcing. However, the same mindset could hinder the capability of the manufacturers to identify, create and capture the strategic value of outsourcing.

In a market that is changing rapidly, Gottfredson et al. (2005) has argued that it is no longer a company's ownership of capabilities that matters but rather its ability to manage the critical capabilities. In some cases, owning the capabilities to perform certain important functions can impede a company to transform itself. For example, 7-Eleven (formerly known as the Southland Corporation) operated successfully as a vertically integrated convenient chain store since 1961. However, as more gas stations added more mini-marts, 7-Eleven was unable to change its mode of operations to compete on quality (product freshness and product assortments) and price. Consequently, it suffered from profit loss and declining market share in the 80s and filed for bankruptcy in 1990. The turning point began when Ito-Yokado Group of Japan bought 70% of its common stock and transformed the business model of 7-Eleven in 1991.

Under the new business models, 7-Eleven focused on merchandising—product assortment planning and pricing—by tracking customer purchasing behavior, and outsourced all non-core functions (HR, finance, IT management, data processing, distribution, food processing, delivery). More importantly, to induce full cooperation from its vendors, 7-Eleven shared its financial and productivity gains with strategic suppliers. For example, 7-Eleven formed a joint venture partnership with a prepared-foods distributor Sween for in-store delivery of sandwiches and other fresh prepared food items. Because of its skills and scale, Sween can make and deliver freshly prepared items multiple times per day under this partnership in contrast to the once-a-day delivery under 7-Eleven's in-house operation. Under this partnership, 7-Eleven experienced higher revenue (due to fresher products) and lower cost (fewer leftovers). Based on this new business model by outsourcing almost everything, 7-Eleven has created and captured the value of outsourcing and has enjoyed

sustainable profitable growth ever since (c.f., Gottfredson et al. (2005), Lee and Whang (2006)).

Outsourcing has enabled other firms to transform themselves. For example, after suffering from a 3-year loss of $16 billion from 1991 to 1993, IBM CEO Lou Gerstner and a management team developed a turnaround plan that entailed outsourcing manufacturing of personal computers, divesting under-performing business units (which included the divesture of IBM notebook computer to Lenovo in 2004), and transforming IBM from a computer company to an integrated business solution provider. As a result, IBM generated a net income of $7.7 billion in 1999 and resumed the leadership in the business computing industry (c.f., Austin and Nolan (2000)).

Besides outsourcing various manufacturing and service operations, companies are beginning to outsource their research and development efforts to suppliers, partners and third-party design/engineering houses. The reason for this trend is because large companies that are strong in commercialization of products for mass markets are often weak in developing innovative products for new markets. As articulated by Kandybin et al. (2004), Coca-Cola would never be able to discover a new market for the Red Bull energy drink by conducting focus group interviews and surveys. (The concept of taurine based energy drink was discovered by an Austrian Dietrich Mateschitz during his international travel, not through focus group interviews or blind tasting experiments.) Similarly, Pfizer's Listerine PocketPaks—the portable strips of breath freshener—did not originate in-house. In truth, it was based on a confection technology developed in Japan. In 2008, Procter & Gamble attributed its double-digit profit growth to its external innovation network through its "Connect & Develop" program. Under this program, P&G has adopted innovative ideas and solutions provided by external partners to develop innovative products such as printable Pringle's chips, Mr. Clean Magic Eraser, and Crest Spin Brush. The idea of "open innovation" is catching on, and more web-based idea exchanges such as InnoCentive.com and NineSigma.com are enabling companies to solicit innovative ideas and solutions from an external network (c.f., Chesbrough (2003)).

Mitigating these risks. While inventing new technologies and developing new products in-house have worked well for decades at powerhouses such as AT&T Bell Labs, GE, IBM, and DuPont, many firms are now getting innovative ideas and solution from external parties. Kandybin et al. (2004) reported a study conducted by Delphi Pharma in 2002, which suggests that firms can increase their return on investment (ROI) by outsourcing innovations in the pharmaceutical industry. In addition, as articulated by Chesborough (2003), the shift toward an open model was in part inspired by information technology and social networks as we witness from the success of Linux and Wikipedia. Besides P&G, global giants such as Eli Lilly and Avery-Dennison are soliciting ideas and solutions using open exchange network InnoCentive.com. Generating new ideas for new products is ripe for outsourcing; however, one key challenge is for the firm to develop mechanism to solicit, capture, and evaluate different ideas generated from external communities.

10.4 Risk 3: Poor Understanding of Internal Capability and Cost Structure

In many instances, companies outsource certain operations (manufacturing, technical support, after sales services) to external suppliers because outsourcing is more cost effective than keeping the operation in-house. However, even when the cost comparison is accurate, the cost benefit of outsourcing can diminish over time for two key reasons: (1) The manufacturer did not take into account that the cost of outsourcing can increase over time; for example, due to demand exceeding supply, the cost of recruiting and retaining skilled labors in China and India is on the rise. (2) The manufacturer overestimated the benefit of outsourcing. This occurs when the manufacturer measures the quality and cost of the current performance of their internal operations without taking the future performance after some improvements and the changing business environment into consideration.

Consider the outsourcing of IT projects at Sainsbury's supermarket in the United Kingdom. In 2000, Sainsbury's signed a 10-year outsourcing contract with Accenture with the intent to save an estimated £35m per year from its £200m annual IT budget. Later on, after a series of mishaps during the early phase of the project, Sainsbury's decided to revaluate its internal capability and discovered that they could save £40m per year if IT projects were conducted in-house. In 2005, Sainsbury's terminated the contract with Accenture by bringing 470 IT staff from Accenture back in-house along with all of its IT assets. Although there was a one-off cost of around £65m for cancelling the contract with Accenture, Sainsbury's commented that they could recover the development cost faster than expected (c.f., McCue (2006)).

After acquiring Bank One Corporation for $58 billion in 2004, JP Morgan Chase decided to terminate its $5 billion IT project contract with IBM that the two companies had signed in 2002. As a result of a series of mergers and acquisitions, JP Morgan Chase believed that it was important for them to conduct the IT project in-house so as to gain better control in terms of scope and cost. To ensure a smooth transition from outsourced to in-house development, JP Morgan Chase brought 4,000 IBM employees in-house.

Mitigating these risks. To avoid this kind of abrupt change of heart about outsourcing, the company needs to do due diligence by looking beyond the common cost factors such as production, labor, transportation, training, etc. Specifically, the firm needs to consider such factors as currency exchange, geopolitical factors, import/export quotas, internal labor issues, compatibility between the manufacturer and the supplier in terms of value and culture. By noting that keeping the operations in-house is always an option, a firm should consider outsourcing certain operation only when the firm can obtain significant improvements in operational measures or capture strategic value beyond in-house capabilities. To make an informed decision whether to outsource, the firm should be in a position to benchmark its internal operations against external suppliers.

10.5 Risk 4: Outsourcing the Wrong Thing

Even when a manufacturer uses the following "Make or Buy" framework (Figure 10.1) to determine if certain operations should be outsourced, it could still end up outsourcing the wrong thing especially because "strategic value" can be misjudged easily. This is because the strategic value of a function depends on how a firm competes in the market place. For example, in the automotive industry, most car makers would consider stamping, welding, and injection molding as low value-added processes that could be outsourced to external suppliers. However, Toyota recognized the strategic value of these basic functions that affect the consumer's perceived quality due to the visible "fit and finish" of its cars. For this reason, Toyota is one of few car manufacturers who chose to retain ownership of these seemingly simple processes in-house (Doig et al., 2001).

It is interesting to compare Nokia's and Ericsson's outsourcing strategies of the telecommunication equipment such as radio base stations and network systems products. In 2000, Nokia adopted modular design of its telecom equipment, outsourced the manufacturing operations of certain non-critical modules, and kept the production of certain "strategic" modules in-house. Because of this sourcing arrangement, Nokia managed to develop close relationship with its suppliers so that they can coordinate their plan for new product development. On the contrary, Ericsson viewed itself as a "knowledge" company and decided to outsource the entire production of its telecom equipment. Without close relationship with its suppliers, Ericsson was slow in developing new telecom equipment. Consequently, Ericsson's sales of telecom equipment declined and the cost of obsolescence increased with the company experiencing financial loss for 11 consecutive quarters (c.f., Bengtsson and Berggren (2004)).

Because the strategic value of apparel manufacturing appears to be low and because there are many capable contract manufacturers in Asia, the above "Make or Buy" framework suggests that apparel companies should outsource their manufacturing operations—indeed, this is the norm for many apparel makers competing on cost. However, if an apparel maker decides to compete on speed, then outsourcing the manufacturing function can become a disadvantage. Consider the success story of Zara that is known for its "fast fashion." Zara is one of the few clothing companies that use its in-house manufacturing operations and, as a result, can design, manufacture and ship a new line of clothing to its stores within two weeks. By recognizing the manufacturing operations is a critical part of the supply chain operations, Zara's in-house manufacturing operations enables Zara to respond to market dynamics quickly and to become the most profitable European fashion retailer with sales and net incoming growing at an annual rate of over 20% (c.f., Ferdows et al., 2004). Successful companies such as Zara, Procter & Gamble, and Intel keep their manufacturing operations in-house mainly because they understand the strategic value of their in-house operations.

Mitigating this risk. To avoid misjudging the strategic value of certain operations, a firm needs to establish a clear strategic direction before making the "make or

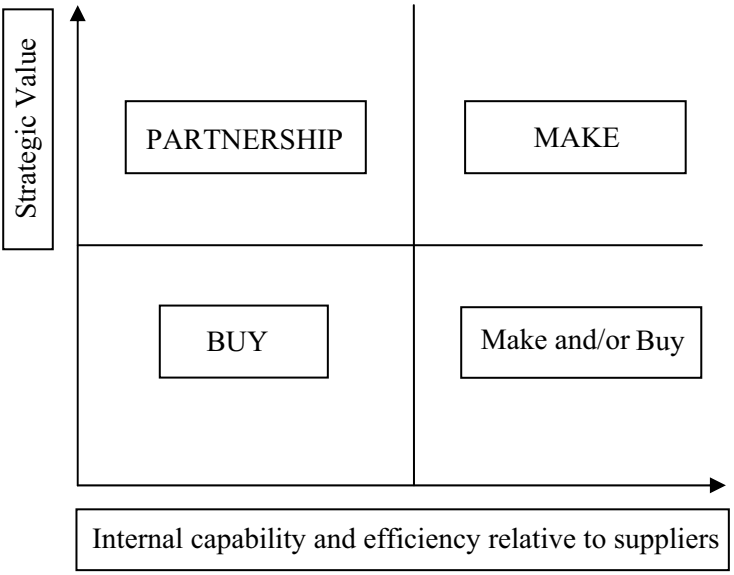

Fig. 10.1 The make or buy framework

buy" decision. For example, many companies view after-sales services ranging from product repair to call center support as low value-added activities. Also, because the requests for this kind of services are sporadic, it is definitely more efficient to outsource to external suppliers who can generate the scale by "pooling" the requests from multiple companies. However, Best Buy, the largest retailer of consumer electronics in the U.S., recognized the strategic value of after sales service operations. This is because, from the customers' perspective, after sales support is very critical mainly because they need these services when they are facing some problems and need help. Hence, a firm can improve customer relationship management, customer satisfaction and customer loyalty by keeping this operation in-house. Best Buy found a new subsidiary called Geek Squad in 1994 that specialized in computer and consumer electronics technical support such as in-home installation and repair of home theatre and computer network systems. Although Geek Squad made up 4% of Best Buy's revenue in 2007, it helped to boost Best Buy's profit because of its operating margin (10-20%) is much higher than that of retailing (5%). By recognizing the strategic value of after sales service and keeping it in-house, Best Buy improved customer satisfaction and increased profit.

10.6 Risk 5: Underestimating the Importance of Incentive Alignment

When establishing an outsourcing arrangement with a supplier, manufacturers often focus on maximizing their own benefits such as cost, quality, and delivery, without thinking about how their action would affect the behavior of their suppliers. There is an inherent conflict of interest that is present in any outsourcing relationship: the buyer wants to squeeze the supplier as much as possible, and the supplier wants to make as much of a profit as possible.

Without a careful process to manage these conflicts carefully and sharing risks, there could be long-term problems down the road for one or even both parties. For example, Cisco outsourced the manufacturing function to Solectron—the largest contract manufacturer in the 90s. As the demand of Cisco's product was growing rapidly in the 90s, Solectron stockpiled work-in-process and finished goods inventories to meet Cisco's growing demand. Also, to boost profit margins, Solectron purchased large volumes of components from suppliers at lower prices than Cisco had negotiated. Unfortunately, as the demand for Cisco's product dropped in 2000 and as the ownership of those work-in-process and finished goods inventories was not clearly defined in the contract, Cisco and Solectron ended up writing off $2.5 billion and $1.5 billion of inventories, respectively. Partly because of this fiasco, Solectron was acquired by Flextronics in 2007 (c.f., Narayanan and Raman (2004)).

The notion of self-interest can hinder R&D effort as well. In the late 90s, GM and Ford spun off their parts manufacturing operations to Delphi and Visteon. However, as GM and Ford decided to compete on price, they continued to pressure the suppliers to reduce their cost. To stay in business, there is very little incentive for these suppliers to make long term R&D investments.

Besides R&D, cost cutting pressure can cause some suppliers to cut corners by lowering their internal product safety standards (Roth et al., 2007). For example, in 2007, Mattel had to recall over 10 million toys tainted with lead paint produced by a Chinese contract manufacturer Lee Der. Upon investigation, there were two underlying causes for these unsafe toys. First, the owner of Lee Der purchased cheaper paint from a supplier owned by his close friend. This sourcing practice actually violated the sourcing process stipulated by Mattel that required contract manufacturers to purchase paint from a list of certified suppliers. Second, Lee Der did not perform mandated tests on the incoming paint and the finished toys. Clearly, the contract manufacturer has violated the agreement; however, the risk could have been mitigated had Mattel conducted the safety tests in-house or through a third-party (c.f., Pyke and Tang (2008)).

Mitigating this risk. To align incentives of the firm and its suppliers, Narayanan and Raman (2004) suggested three ideas: win-win contracts, information sharing, and trust building. When each party behaves in ways that maximizes its own interests, developing the right incentive to align the interests of both parties is critical to ensure outsourcing success. For example, after the Santa Monica freeway in Los Angeles was damaged after the Northridge earthquake in 1994, LA residents wanted

the government to repair the freeway quickly to get their daily life back to normal; the city government wanted to repair the freeway quickly without overpaying the contractor; and the contractor wanted to maximize its profit. To align the interest of all parties, the City of Los Angeles (the project manager) offered the following time-based contract for open bidding. Specifically, the contractor would receive an extra reward of $200,000 per day if the project is completed before 6 months (180 days); however, the contractor would pay a penalty of $200,000 per day if the project were completed after 6 months (c.f., Kwon et al., 2010). The time-based contract was awarded to Clint Meyers (the contractor), and it provided the right incentive for Clint Meyers to complete the repair 74 days ahead of schedule. In this particular case, the time-based contract aligned the interests of all three parties and the outcome was appreciated by all three parties.

10.7 Risk 6: Outsourcing Operations without Considering the Supply Chain

In many instances, companies examine the efficiency of different operations in isolation. Without a clear understanding of the value of an operation in the context of the entire supply chain, companies can outsource the wrong operation.

For example, in early 1990, IBM San Jose, California (sold to Hitachi in 2002) was an integrated manufacturing facility that produced hard disks for IBM mainframe computers. The manufacturing operations consist of three basic steps: fabrication of disk head (a process similar to the fabrication of integrated circuits), assembly operation (an assembly process of the head and various electro-mechanical parts), and final inspection and repair (c.f., Demeester and Tang (1996)). To compete on price, IBM evaluated the strategic value and the operating cost of each step of the process. Due to the proprietary technology of its fabrication process and inspection process, it became clear that IBM could reduce labor cost by outsourcing the relatively simple but tedious assembly operations to Mexico.

As IBM outsourced its assembly operation (an intermediate step of the manufacturing process), they discovered the cost of outsourcing was much higher than expected for two key reasons: (1) IBM needed to manage the outbound logistics of the heads and the mechanical parts to Mexico, and the inbound logistics of the assembled disks for in-house inspection and repair. These two additional logistics operations was costly, not to mention the additional cost of training and technology transfer. (2) The total lead time resulting from the outsourced assembly operation was much longer than expected because of the roundtrip transportation time, the time to clear customs, and the longer lead time of the assembly operations in Mexico. As the lead time increased, the work-in-process and finished goods inventories increased as well. As computer technology changed rapidly, the obsolescence cost of those inventories increased significantly. In hindsight, the underlying cause of this outsourcing failure was due to the fact that IBM San Jose did not take the sup-

ply chain operations into consideration when deciding to outsource the assembly operation to Mexico.

Mitigating this risk. The manufacturer should first map out the entire supply chain operations so as to obtain a clearer understanding about the impact of different outsourcing options on different supply chain partners. Then the manufacturer should form a cross-functional team to evaluate different options: (1) keep production in-house, (2) outsource specific components, (3) outsource specific modules, or (4) outsource the entire production operation. Once an outsourcing option is decided, the manufacturer should communicate and coordinate its outsourcing plan with the supply chain partners to ensure efficient outsourced operations.

10.8 Risk 7: Outsourcing without the Right Contracts

When the intent of outsourcing is operational improvement, the manufacturer can specify various operational performance measures in the supply contracts. However, if the intent is to gain strategic advantage, then the relationship between the manufacturer and the supplier is no longer simple and requires careful planning. This is mainly because the performance measures are difficult to define, measure, and verify.

For example, as Laura Ashley, a global clothing and furnishings retailer founded in the UK, expanded its product offerings and its stores globally, the company realized it was not equipped to handle the global distribution logistics operations efficiently and effectively. In 1992, Laura Ashley decided to outsource its entire worldwide distribution (inbound and outbound logistics, warehouse operations, and inventory management) to FedEx. The strategic alliance between Laura Ashley and FedEx was a 10-year partnership that was relatively open-ended and based on trust. The objective was to be able to supply 99 percent of Laura Ashley's merchandise to customers anywhere in the world within 48 hours. By 1993, this strategic partnership helped Laura Ashley to reduce out of stock of desirable items and reduce leftover inventory (c.f., Anthony and Loveman (1996)). Despite this success, the alliance came to an end in 1994 when Laura Ashley's new CEO raised suspicions about frequent air shipment of its products instead of ground shipment. Essentially, without a contract with pre-specified expectations, it is very difficult to maintain a stable supplier relationship especially when there is a sudden change in the top management.

Mitigating this risk. When outsourcing certain innovative processes such as design, it is difficult to establish well defined expectations, responsibilities and activities on both sides up front. In this case, both sides should not focus on the outcome of the process, but measures should be based on the process itself. By defining the process steps up front, both parties can define the scope of each step, the expected outcome of each step, the review process, and the process to resolve any conflicts or mismatched expectations. More importantly, doing so would allow both parties

to set expectations for contract negotiation and exit options. In terms of contract, Auguste et al. (2002) argued that the cost plus contracts do not provide incentive for the suppliers to reduce cost; however, suppliers do get to keep the rewards from process innovation under fixed-price contracts.

10.9 Risk 8: Not Being Prepared for Supply Disruptions

Many companies underestimate the risks of outsourcing. Many companies have developed mechanisms to handle regular supply risks that happen on a regular basis. For example, to mitigate the risk associated with cost fluctuations due to currency exchange rates or raw materials, many firms usually established various hedging mechanisms to reduce the risk exposure. Also, to mitigate the risk associated with rising labor and operating costs in major cities in China and India, some companies are considering diversifying their sourcing locations to other countries such as Vietnam and Thailand. Moreover, to reduce the risk associated with potential delay in delivery of parts from the suppliers, many firms have established some build-in safety stocks to handle delays.

While companies are doing reasonably well in managing supply risks that occurred regularly, they are vulnerable to supply disruptions that occurred rarely but with major consequences. Despite the detrimental effect of major supply disruptions, most companies invested little time or resources in managing supply chain risks even though they conducted supply chain risk assessment exercises. Two surveys confirm this perplexing dichotomy. First, according to a study conducted by Computer Sciences Corporation in 2003, 43% of 142 companies, ranging from consumer goods to healthcare, reported that their supply chains are vulnerable to disruptions, and 55% of these companies have no documented contingency plans (c.f., Poireir and Quinn (2003)). Next, according to another survey conducted by CFO Research Services, 38% of 247 companies acknowledged that they have too much unmanaged supply chain risk (c.f., Eskew (2004)).

For example, recall the Ericsson and the Apple vs. Dell examples we mentioned in Chapter 7, Ericsson was facing supply shortage of a critical cellular phone component (radio frequency chips) after its key supplier, Philip's Electronics semiconductor plant in New Mexico, caught on fire in March of 2000. After Ericsson failed to recovery the shortage quickly, Ericsson lost 400 million Euros in sales in 2000. Along the same vein, Apple faced component shortages for its iBook and G4 computers after an earthquake hit the suppliers' plants in Taiwan in 1999. Instead of finding ways to recover, Apple tried to convince their customers to accept a slower version of G4 computers and suffered a major decline in sales. Besides the disruptions in the delivery of parts, there are other types of outsourcing risks including intellectual property risks, geopolitical risks, and behavioural risks (Sodhi and Tang, 2009).

Mitigating this risk. To mitigate the consequence of a potential supply disruption, consider the following options: safety stock can reduce potential shortage, backup suppliers can ensure supply availability, and responsive pricing can entice consumers to switch their demand from products in short supply to products with ample supply. To develop a process for managing supply risks, we advocate the following steps stemming from enterprise risk management: (1) identifying risk, (2) assessing risk, (3) mitigating risk, and (4) responding to risk (Chapter 1). The first three entail activities that take place *before* the occurrence of an incident that generates negative (and mostly) unanticipated consequences while the last one applies to actions taken *during* and *after* the occurrence of an incident—the focus here is on time, which is also called *time-based risk management* (Chapter 5) about ways to respond to risk events proactively.

10.10 Conclusion

Given the increasing importance of outsourcing in today's supply chains, we described eight risks pertaining to outsourcing: (1) underestimating the strategic value of procurement; (2) underestimating the strategic value of outsourcing; (3) poor understanding of internal capability and cost structure; (4) outsourcing the wrong thing; (5) underestimating the importance of incentive alignment; (6) outsourcing operations without considering considering the supply chain operations; (7) outsourcing without the right contracts; and (8) not being prepared for supply disruptions. We also presented ways to mitigate the risks associated with these pitfalls.