by
Dermot Shorten
dermot.shorten@booz.com
Michael Pfitzmann
michael.pfitzmann@booz.com
Arvind Kaushal
arvind.kaushal@booz.com

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Make Versus Buy

A Decision Framework

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CONTACT INFORMATION

Chicago

Arvind Kaushal
Principal
312-578-4737
arvind.kaushal@booz.com

Michael Pfitzmann
Principal
312-578-4606
michael.pfitzmann@booz.com

Florham Park

Dermot Shorten
Partner
973-410-7623
dermot.shorten@booz.com

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Make Versus Buy

A Decision Framework

Intense pressure on manufacturers to cut costs and improve return on assets, combined with heated competition from third-party suppliers that often have perceived advantaged footprints in Eastern Europe, China, or other low-cost countries, has put the "make versus buy" dilemma at center stage in many corporations.

Use of in-house capabilities to *make* a product is often desirable when an item is critical to a company's performance, time-sensitive, or prone to frequent design changes. In all of those cases, tight control over production and logistics is essential if the manufacturer must be certain that the product will always be available when and where it is needed and that it meets quality requirements.

Alternatively, companies opt to *buy* a product or a set of manufacturing processes for making a product — in this context, by outsourcing — usually because they view the item or production process as not strategic to the business. Companies hope to attain an assortment of benefits by outsourcing: Eliminate the burden that asset-intensive manufacturing processes put on the balance sheet, reduce unit costs, gain flexibility to increase or diminish output in response to changes in demand, minimize expenses driven by hard-to-move production sites and intractable union contracts, gain access to new and alternative process technologies, leverage others' innovation and design expertise, and alleviate the environmental and other regulatory risks that increasingly accompany manufacturing efforts.

Some companies choose an "all-buy" solution, outsourcing every aspect of the manufacturing process for a given product, product line, or business. Others prefer to outsource certain noncore elements of their manufacturing process while continuing to perform the final assembly or other processes they consider essential. Most companies realize that they cannot be world-class in all aspects of manufacturing, and that they must make some difficult decisions about investing resources and capital.

Too often, however, make-versus-buy choices are based on precedent and poor or incomplete analysis. Keeping the process in-house is often preferred only because the capability and capacity already exist internally, even when such vertical integration strategies are inconsistently applied throughout the organization. And outsourcing is frequently an emotional response, a way to avoid fixing manufacturing processes that have become inefficient and flabby but whose true potential is not completely understood. In other words, outsourcing may be a poor alternative to confronting internal manufacturing problems head-on and in the process improving the overall performance of the company.

The decision to outsource should not be made lightly. Before giving up on internal manufacturing, a company must conduct an objective evaluation of its core competencies measured against world-class standards. These questions should be asked: If our manufacturing capabilities are below global "benchmarks," can they be improved to reach a higher level of performance and efficiency, one that surpasses the benefits that we would obtain from outsourcing? If so, what resources are required, and how long would it take to reach noticeably improved manufacturing performance?

External suppliers — companies that may be chosen as outsourcing partners — must also be assessed rigorously. Companies should examine key indicators such as business strategies, manufacturing and engineering capabilities, design and innovation skills, labor costs, ability to scale, capacity utilization, and the social policies of the potential partner. In addition, the level of risk presented in the outsourcing scenario must be accurately gauged, whether it is supply chain risk or risk to proprietary technology and intellectual property.

Booz Allen Hamilton has developed a framework to simplify the make-versus-buy decision that is built upon three key pillars: business strategy, product supply chain risks, and economic factors. (See Exhibit 1.)

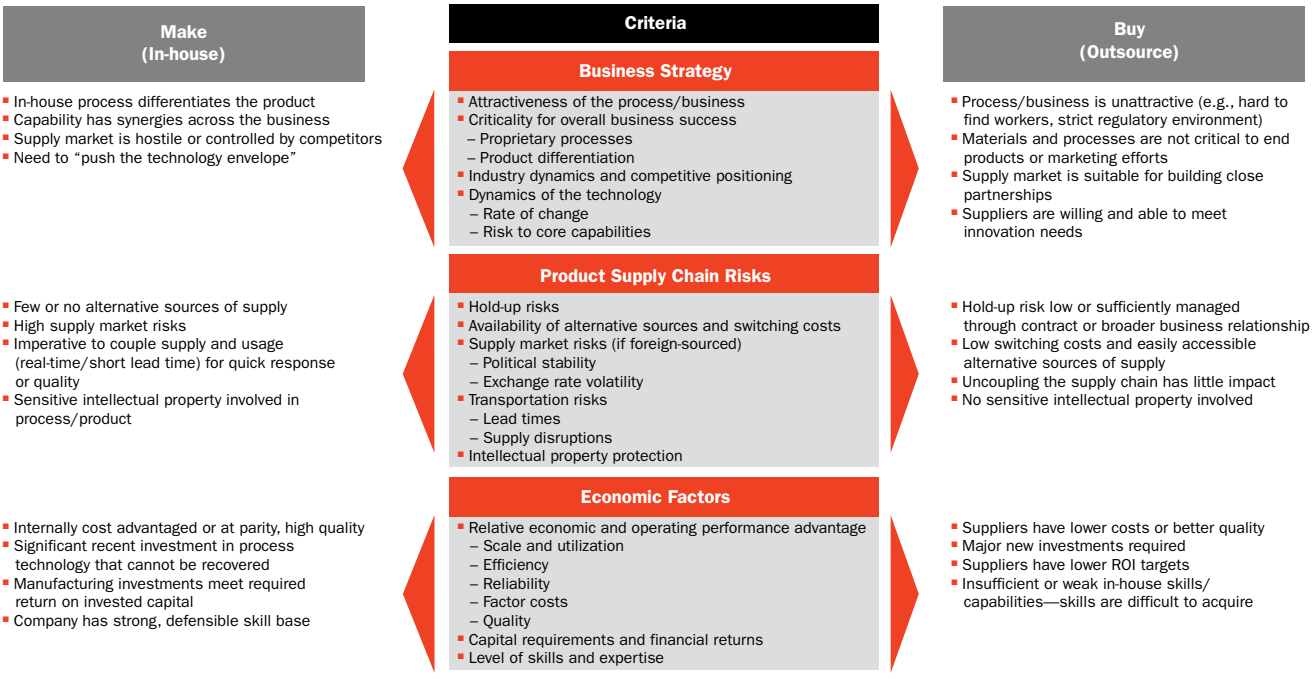
Pillar #1: Business Strategy

Business strategy includes the strategic importance to the company of both the product that's being considered for outsourcing and the process technologies required to make it, not just in light of the current competitive environment but also in anticipation of how that environment might change in the future.

Harley-Davidson illustrates the importance of business strategy in determining whether to make or buy. The motorcycle company continues to thrive in part because of its decision to manufacture mostly in-house in the United States. Harley-Davidson's "Made in America" brand image is so strong today that consumers don't care if the company's motorcycle accessories and ancillary merchandise such as clothing are produced overseas by outsourcers; those operations are peripheral to the brand image of Harley-Davidson's primary products. By contrast, when German beer maker Löwenbräu licensed North American production to U.S. rival Miller in the mid-1970s, Löwenbräu's attractiveness to U.S. customers fell because it was no longer considered a genuine German beer. A good rule in deciding whether to outsource is that if the product is core to the continued strategic success of the company, it may not be wise to outsource its manufacture.

Some complex or intricate manufacturing processes are critical elements of a company's profitability and, hence, would be the wrong candidates for outsourcing. For example, diesel fuel injection systems require carefully calibrated close tolerances to work properly. Companies in this field are pushing the state of the art in tolerance machining in order to improve engine performance, increase fuel efficiency, and minimize costs. Manufacturers that can make the greatest claims for

Exhibit 1
Weighing the Make-vs.-Buy Decision



Source: Booz Allen Hamilton analysis

their diesel fuel injection products are almost certain to dominate the market. Consequently, outsourcing this product, which demands continuous design and precision manufacturing improvements, would be a mistake. Such a move would, in short order, place the company in the position of playing catch-up to its rivals.

In addition, if a product is based on proprietary technology or hard-won and coveted intellectual property, outsourcing is probably not a good idea. Many low-cost nations, particularly China, are prone to piracy of ideas and products. Some Western companies with operations in these countries protect themselves by separating manufacturing operations into discrete pieces, with walls between them, so local production supervisors cannot ever view the entire process. This may cut down on some piracy, but it is not foolproof because these supervisors can still potentially piece together what they've learned in their individual sections of the operation.

Ethical concerns merit some thought as well. A company's reputation can be seriously harmed if it is connected to unsavory activities like sweatshop production, child labor, or environmentally damaging manufacturing techniques — all of which are routine at some outsourcers. For instance, during the past decade, such leading manufacturers and retailers as Nike, Gap, and Wal-Mart have faced consumer anger after accusations surfaced that the factories they used in low-cost nations employed abusive labor practices. In response, these companies have made efforts to improve their choice of overseas partners and to convince the public that these allegations have no merit now, if they ever did. Still, the injuries to their reputations have not completely healed.

Despite all these caveats, however, outsourcing is worth considering under certain conditions. If a product's value has dwindled to the point where it is essentially a commodity or it is derived from factors other than unique or differentiating manufacturing capabilities, and the possibility of moving production to a third-party supplier does not give rise to significant risk to the company's strategy, outsourcing could be the perfect solution.

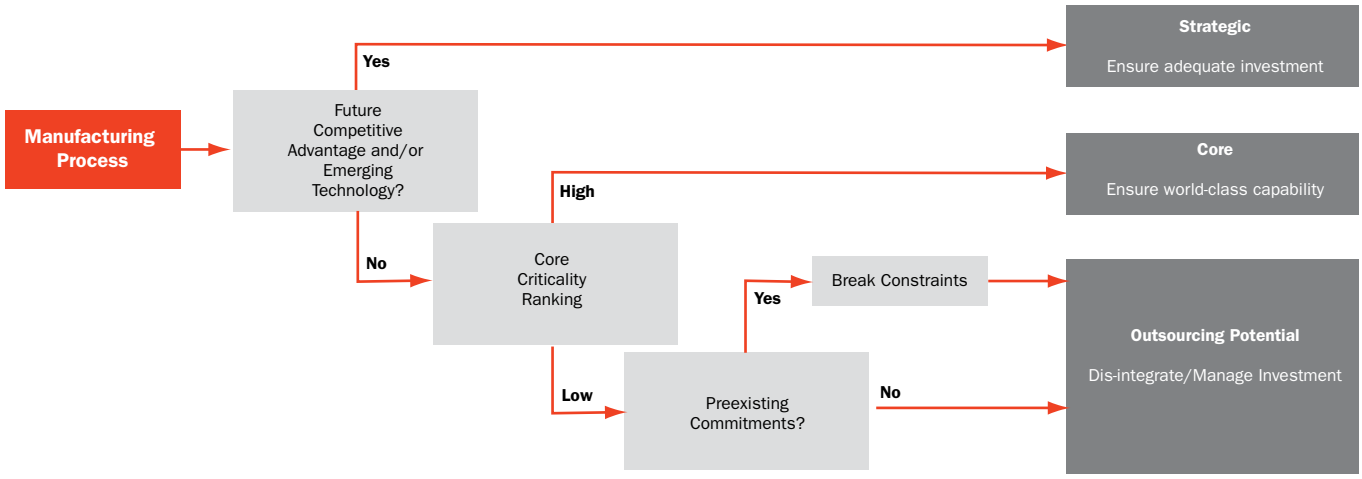
Exhibit 2 outlines the beginning of the process in which the strategic value of the products and manufacturing processes under consideration for outsourcing can be sorted into their respective categories: strategic, core, and outsourcing candidates.

Pillar #2: Product Supply Chain Risks

Risks include low quality, reliability, and predictability of outsourced solutions compared to in-house manufacturing, as well as risks inherent in the process of identifying and selecting the right supplier and structuring a workable ongoing relationship with that supplier.

As the business environment becomes increasingly global, and manufacturers take advantage of a greater number of options in where and how they manufacture both components and finished goods, the risks they run in maintaining far-flung supply chains increase

Exhibit 2
Value Can Influence Whether to Outsource



Source: Booz Allen Hamilton analysis

Exhibit 3
Potential Strategies to Address Hold-Up Risks

Option	Advantages	Disadvantages
Control production through direct ownership or joint venture	▪ Highest level of control over operations	▪ Capital requirements ▪ Management efforts
Have multiple suppliers for each product with significant hold-up potential	▪ Potential backup for any contingencies ▪ Strong competition ▪ Easy supplier assessment/comparison	▪ Higher product cost through redundant tooling, lower volume with each supplier ▪ Potential for inconsistent quality ▪ More supplier coordination/management required
Select only one supplier for each product — but split overall volume between suppliers to stimulate competition	▪ No capital requirements ▪ Competition through prospects of gaining future/additional business ▪ More consistent quality for each product ▪ Less coordination effort with fewer suppliers	▪ Need enough products with similar capability requirements to split total volume between suppliers ▪ Potential loss of economies of scale if volume is small and suppliers cannot leverage additional volume
Create situation with similar incentives for both customer/OEM and supplier	▪ No capital requirements ▪ Truly strategic partnership ▪ Partner's interest in long-term success keeps total costs low	▪ No alternatives/backup for contingencies ▪ May require close-to-exclusive relationship and thus loss of scale ▪ Supplier may charge premium for potential exclusivity agreement

Source: Booz Allen Hamilton analysis

enormously. The supply chain can be disrupted by events as varied as political instability, transportation delays, lack of available components and alternative components, and loss of intellectual property in countries with lax protection against piracy.

Crucial to the mitigation of supply chain risk is the supplier selection process itself. It must be based on a clear understanding of the supplier's strategy, operations, and cost structure. Simply getting quotes from suppliers and choosing the lowest bid is not sufficient. Only a supplier that has a compatible business strategy and an advantaged cost position can continue to offer competitive prices in the long term.

Once the outsourcing decision and supplier selection have been made, it is essential to agree up front on cost reduction, a fair and balanced pricing mechanism, productivity improvements, and the required degree of responsiveness to design or delivery changes. Expectations must be clearly articulated so the company can avoid unpleasant surprises once the supplier feels the business is locked in or that its current performance will be sufficient in the future.

A successful outsourcing relationship often includes the sharing of savings from productivity improvements; both parties thus have an incentive to collaborate. During the course of the relationship, it is also important to find the right balance between fully transparent supplier operations and the perception of micromanagement.

Understanding the risks associated with the location of an external supplier is equally important. Besides assessing the political stability of the source country, companies need to assess the safety and lead times of transportation arrangements. And they must identify and evaluate potential secondary carriers or routes, or backup suppliers that are located in a different region and can provide incremental volume during peaks in demand or disruptions of the primary source of supply.

Supply chain management is a highly complex function, especially when combined with the outsourced manufacture of products or processes that require unique capabilities or assets and thus are difficult or expensive to re-source. However, even these so-called hold-up risks — that is, risks that a supplier will exploit a customer's highly dependent relationship by raising prices or demanding better terms — can often be managed with external solutions, provided the right solution and risk-mitigating strategy is put in place. It is critical, however, to consider the options and determine the best alternatives before any commitments are made with a supplier, because such commitments can be very hard to reverse. (See Exhibit 3.)

Sometimes the risks are difficult to envision because they seem so trivial. That was the case recently with

Harrah's Entertainment. The casino operator hired an external supplier to print several thousand promotional coupons; most of them were to be of very low denominations, but about 15 were supposed to be worth $525 each. In the past, Harrah's, like most companies in its industry, had printed these coupons internally, fearful that a printer mistake could prove costly. Which, much to Harrah's dismay, is exactly what happened. The printer produced the entire run of 11,000 coupons with an indicated value of $525. After the error was discovered, the casino decided to honor all coupons at their face value, incurring a loss of almost $5.5 million.

Harrah's was remiss in two ways. Initially, the casino operator did not adequately assess the quality control procedures at its printing supplier, and then it failed to mitigate the risks of outsourcing by more diligently overseeing the job.

Pillar #3: Economic Factors

This pillar of the make-versus-buy decision includes considerations of the impact of outsourcing on capital expenditures, return on invested capital, and return on assets, as well as the possible savings achieved through outsourcing.

Until recently, the primary goal of most outsourcing efforts was to cut costs, but that has not proven to be a particularly forward-thinking process. Companies that rely on outsourcing chiefly as a way to trim expenses typically base their decision solely on estimates of the cost of in-house manufacturing versus the variable costs associated with outsourced manufacturing — that is, the price of each piece made — but not the total costs.

Important costs that are often ignored:

Shipping and handling: A common mistake is to underestimate the costs associated with units damaged during transportation.

Expanded inventories: Production in Chinese factories can increase manufacturing lead times by as much as three months for European and U.S. companies. As a result, when using outsourcers, these companies frequently have to widen their inventories substantially (which ties up working capital) to keep up with demand for their products.

Administrative: Administrative costs include supplier management and quality control.

Impact on lean flows: Outsourcing can add quite a bit of complexity to a manufacturing network and hinder a company's ability to maintain lean flows of material and information within a value chain. This is particularly evident in the added costs to adequately integrate product development between engineering units and outsourcers.

Lower return on invested capital: The make-versus-buy decision can significantly affect a company's requirements for capital expenditures and consequently its return on invested capital.

Production issues: Poor manufacturing quality or reliability, which are determined in part by the skills of the internal or external work forces, can add costs to the final product. An ancillary but significant cost frequently overlooked is the expense in time and travel of flying top management to distant places to fix these problems.

It is important to base the make-versus-buy decision on a solid understanding of the relevant underlying cost drivers and of the decision's sustainability over a period of time. Relying on a one-time quote to gauge the competitiveness of an external supplier is generally not sufficient. Among the economic factors that need to be balanced between in-house manufacturing and outsourcing are relative wage rates, labor productivity, equipment utilization, the leanness of both the labor base and manufacturing processes, the capacity for process and product innovation, and component and materials purchasing power.

In addition, possible top-line gains from keeping production in-house must be added to the equation. In choosing to not outsource, some companies have enjoyed significant revenue growth by taking advantage of the speed and quality of internal innovation cycles, the ability to deliver customized products to nearby consumers quickly and without a lot of advance planning, and the possibility of leveraging new lines of business from a favored supplier's proposal.

As the many factors and risks that need to be considered demonstrate, make-versus-buy decisions should not be made without careful analysis. The decision to outsource manufacturing often has complex implica-

tions, which is why we recommend that these decisions not be simply handed to a single function in the organization, such as manufacturing or purchasing. Rather, the perspectives of various functions need to be considered, ideally in the context of the product and business strategy definition.

In time, and with the confidence that should grow through an ongoing, successful outsourcing program, it may be that more and more make-versus-buy decisions are based on who is truly in the best position to perform a given manufacturing activity, after considering the three pillars above.

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