partners"). Marquis (2006) argues that "what is not easily replicable, and thus is potentially strategic, is an organization's intelligence and capability. By combining skills and resources in unique and enduring ways to grow core competencies, firms may succeed in establishing competitive advantage."

Decision Criterion #3: Knowledge Enhancement

Behind many sourcing decisions is the need to either capture knowledge or retain it. One firm cited the example of developing a new business product. It "normally" would have been outsourced, but it was intentionally developed by in-house staff augmented by key contract personnel. The reason was to transfer knowledge of this new business product to internal IT personnel as well as to business personnel (who were also unfamiliar with this type of business offering). At another firm, the decision was made to insource key expertise "not to *do* the work, but to train internal staff *how* to do the work." The manager stated, "It would have been more logical and far cheaper to outsource the whole project." In another firm the support function for a key application was repatriated because the firm felt that it was losing an important learning opportunity that would keep staff abreast of developments in the market and develop new knowledge concerning a key line of business with growth potential. Furthermore, it is not just knowledge *development* that is the critical factor; knowledge *retention* is equally important. Whether implicitly or explicitly, knowledge enhancement appears to play a key role in most sourcing decisions.

Decision Criterion #4: Business Exigency

Unforeseen business opportunities arise periodically, and firms with the ability to respond do so. Because of the urgency and importance of these business opportunities, they are not governed by the standard planning/budgeting processes and, indeed, most do not appear on the annual IT plan. Instead, a decision is made to seize the opportunity, and normal decision criteria are jettisoned in order to be responsive to the business. In these cases, whichever sourcing option can produce results fastest is selected. The sourcing option could be any of the four but is less likely to be a partnership unless the urgent request can be accommodated within the structure of an existing arrangement. Seen in a resource-planning context, business exigency demands constitute the "peaks" or "spikes." As one manager stated, "We have peaks and valleys, and we outsource the peaks."

The discussion also revealed the existence of two distinct sets of decision criteria: "normal" versus "actual." Manager after manager explained their decisions with the following preface: "*Normally* we would make the decision this way, but in this case we *actually* made the decision differently." When the participants referred to the normal set, they primarily cited issues of flexibility, control, and knowledge enablement. But when they described the actual decision criteria used to select the sourcing option, a fourth factor emerged: "*business exigency*."

It is difficult to ascertain the full effect of this last decision criterion. Certainly business exigency is a dominant factor. In an urgent situation, the fastest sourcing option will take precedence. However, it is likely that the other three decision criteria play a significant role in the majority of sourcing decisions regarding IT functionality. We are left to conclude that business exigency plays a more dramatic but less frequent role.

A DECISION FRAMEWORK FOR SOURCING IT FUNCTIONS

Finally, the focus group was asked to outline a set of strategies for deciding how to source and deliver IT functions based on their collective experience and insights. The following step-by-step framework emerged.

Identify Your Core IT Functions

The identification of core functions is the first and most critical step in creating a decision framework for selecting sourcing options. One manager captured this as follows:

> *The days of IT being good at all things have long gone.... Today you have to pick your spots.... You have to decide where you need to excel to achieve competitive differentiation.... Being OK at most things is a recipe for failure sooner or later.*

It was argued that the IT organization should approach the exercise of identifying its core functions by taking a page from the business handbook—that is, decide where competitive advantage lies, buttress it with the best resources, and divest all ancillary activities. In the case of IT, "divestiture" translates into seeking external sourcing of functions because the responsibility and accountability for all IT functions will always remain with the IT organization.

Asked what constitutes a core function, the group suggested that it would depend entirely on where and how the IT organization decides it can leverage the business most effectively. Interestingly, what was considered *core* varied dramatically across the sample of organizations represented, spreading across the entire spectrum of IT functions, including legacy system enhancement, business process design, enterprise system implementation, project management, and even data center operations. The only conclusion that resonated with the entire group was that "it matters more that the IT organization has identified core functions than what those functions actually are."

The articulation of core functions has major implications. First, the selection of core functions lays the cornerstone for the decision framework for sourcing options. That is because, ideally, in-house functions reflect the organization's set of core functions. The assignment of permanent IT personnel to core IT functions, by default, assigns noncore activities to the remaining three IT sourcing options (as we will see in the next strategy). Second, the selection of core functions directly impacts the careers of IT personnel. For example, one manager explained that at her organization "project management, business process design, and relationship management are key skills, and we encourage development in these areas." The implications for IT staff currently fulfilling "noncore" roles can be threatening as these areas are key targets for external sourcing.

Create a "Function Sourcing" Profile

One participant introduced the concept of a "function sourcing" profile—a device that had been deployed successfully within his organization. It is reproduced in Table 8.3 and modified to accommodate the list of IT functions found in Table 8.1. This sample profile demonstrates (1) current core functions, (2) future core functions (additions and deletions), and (3) preferred sourcing options for each IT function. What is most important is that this profile is built on an internal assessment of core IT functions. Research

TABLE 8.3 Sample Function Delivery Profile

Core Function?	IT Function	In-house	Insource	Outsource	Partnership
Yes	Business analysis	✓			
	Systems analysis		✓		
In Future	Strategy and planning		✓	✓	
In Future	Data management		✓		
Yes	Project management	✓	✓		
Yes	Architecture	✓	✓		
	Application development		✓	✓	✓
	QA and testing		✓		
Now but not in future	Networking	✓			✓
	Operating systems and services		✓		
Yes	Application support	✓			
	Data center operations			✓	
	Application software			✓	✓
	Hardware			✓	

(Bullen et al. 2007) has shown that core functions tend to change over time suggesting that this analysis be conducted perhaps every few years. The justification provided by this particular organization for its specific sourcing profile follows:

- Project management, business analysis, and architecture (both system and enterprise) are primarily provided in-house but may be augmented with insourced resources as required. In-house sourcing is preferred for these functions for two reasons: First, project management and business analysis are recognized strengths within the organization, and second, this gives the organization more control over project direction.
- Because it is not recognized as a core function, development is primarily outsourced or insourced depending on the scope of the project.
- Quality assurance (QA) and testing are largely insourced as these are recognized as highly specialized skills, although not core functions. As a result, an entire division of IT is dedicated to these activities. Resources within this group are primarily contractors from a variety of vendors.

- Application support is a designated core function. Given the depth of business process knowledge needed as well as the in-depth knowledge of key applications required, this function is staffed entirely by internal IT personnel.
- Networking is currently provided by in-house staff augmented by insourced staff but is in transition. A recently formed partnership will eventually make this a noncore activity, and networking will eventually be provided entirely by the partner. This sourcing option allows cost sharing and accommodates future growth. The partnership does not provide competitive advantage; it just makes good business sense.
- The strategy and planning function as well as data management have been designated as future core functions. The firm is insourcing expertise from a top strategy consultancy to transition this skill to internal IT personnel. This explicitly recognizes the emerging importance of IT to the firm. Similarly, data management needs to become a key competitive strength in order to shorten product development cycles and time to market.

The sample profile depicted in Table 8.3 does not represent a "preferred" or even "typical" IT sourcing strategy. Instead, it simply demonstrates how the four sourcing options combine to satisfy the IT needs of a specific organization. Other organizations with a different mix of core functions (or even with the same mix) might well demonstrate a very different profile.

Evolve Full-Time IT Personnel

Because of the alignment between core IT functions and in-house delivery, it is evident that sourcing decisions should be based on leveraging an organization's full-time IT personnel. In fact, the focus group argued that this factor should be used to determine the majority of sourcing decisions. It is based on the realization that permanent IT personnel collectively represent a major investment by the organization and that this investment needs to be maximized (or at least optimized). This reinforces the previous discussion of "knowledge enhancement" as one of the key decision criteria in the selection of IT sourcing mechanisms. One manager said the following:

> *We choose a sourcing option based on how it can build strength in one of our designated core competency areas. This may involve insourcing, outsourcing, a partnership, or any combination of these [but] … we have never outsourced a core competency.*

The sample profile in Table 8.3 suggests how the three external sourcing options (i.e., insourcing, outsourcing, and partnerships) can be used to supplement permanent IT personnel. Furthermore, the group suggested that a precedence for ordering should exist among the sourcing options. Specifically, in-house and insourcing considerations should be resolved before outsourcing and partnerships are explored. The criteria to be used to decide between outsourcing and partnerships as sourcing options should be flexibility, control, and business exigency (given that knowledge enablement is used to decide between in-house and insourcing). Insourcing, in particular, can be used strategically to bring in expertise to backfill knowledge gaps in core IT functions, address business exigency needs, and take on new (or shed old) core functions. Furthermore,

insourcing represents variable costing, so there is usually maximal flexibility, which helps to smooth out resource "peaks and valleys."

The other method suggested to evolve internal IT staff, beyond supplementing them with the three external sourcing options, is to hire strategically.[8] In other words, the range of IT sourcing options permits "strategic" hiring as opposed to "replacement" hiring. In the past, IT organizations felt the need to "cover all the bases" with their hiring, and as individuals departed the organization, replacements were sought. Today, however, there is no such impetus. In fact, attrition in noncore areas is considered advantageous as it permits hiring in designated strategic areas. This approach extends to permanent staff as well—that is, existing staff are strongly encouraged to develop their skills and expertise in alignment with designated core IT functions.

Encourage Exploration of the Whole Range of Sourcing Options

Based on our sample of companies, it can be concluded that we are in the learning phase of IT function sourcing. Some firms are clearly taking advantage of this opportunity and exercising their options in many different, often creative, ways. Others, perhaps more reticent, are sampling less broadly—choosing to stay within their "comfort zone"—and sourcing IT functions predominantly with in-house resources. Most, however, are somewhere in the middle—that is, actively exploring different types of sourcing options mostly for the first time. In all cases, exploration appears to be taking place without any strategy or guidelines; hence, decisions are taken one at a time. As a result, learning has been piecemeal—a phenomenon that may partially explain the lack of established trends in Table 8.2.

Combine Sourcing Options Strategically

One of the key reasons for focusing on IT functions as opposed to another unit of analysis (e.g., projects, applications, or services) became clear by way of an example described by a manager. Satisfying her firm's data storage needs could involve using the provider's equipment, facilities, and staff. Or it could be the organization's hardware and staff in the provider's facilities, or basically any combination of the above. In each of these situations, the organization could justifiably claim that it had "outsourced" its data storage. Such a claim would be highly ambiguous. As a result, decisions need to be focused on the sourcing of *specific* IT functions—that is, a micro- versus a macroview.

Adopting a microview makes it possible to entertain the use of *combinations* of sourcing options for the provision of IT functions. Participants pointed out that multiple sourcing options are often used within a single project. In fact, they suggested that selecting a single sourcing option for a project in its entirety is fast becoming

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[8] Although organizations continuously search for top IT talent, there appears to be a general aversion to increasing permanent staff among the focus group's companies. The consensus in the focus group was that this hiring aversion is fueling the growth of sourcing options such as insourcing, outsourcing, and partnerships, but the group was reluctant to use this factor to explain IT sourcing behavior. Instead, they claimed that the real driver was the existence of many alternative sourcing options, which have demonstrated the capability of providing superior results.

nonstandard practice. The reality is that multiple providers are necessary to meet today's demands, particularly those of the business-exigency variety. This need for an amalgam of sourcing options is easily understood with functions such as application development. Here requirements and design may be done in-house, coding may be outsourced to a third party, testing and quality assurance may be done by insourced experts, and implementation and rollout might be in partnership. Combining separate sourcing options strategically can result in realizable benefits such as speed to market and quality of product or service. Speed to market results from parallel, synchronized development, and quality results from engaging sourcing options based on demonstrated expertise and best practice.

A MANAGEMENT FRAMEWORK FOR SUCCESSFUL SOURCING

As sourcing takes on a more central part of IT and organizational strategy, we are learning more about what it takes to manage sourcing successfully. Furthermore, these emergent management practices have a reciprocal impact on sourcing decisions. The focus group identified a number of key factors essential to effective management of sourcing options: develop a sourcing strategy, develop a risk mitigation strategy, develop a governance strategy, and understand the cost structures.

Develop a Sourcing Strategy

Whether a company uses sourcing strategically or not, every organization should have an overall sourcing strategy. Using a decision framework (such as that presented in this chapter), organizations need to determine what to source, where to source, and to whom to source. There are many different ways of determining what to source but, in practice, numerous approaches to "right-sourcing" are possible. What is right for one organization is not necessarily right for another. The point is that organizations must go through the exercise of determining for themselves what's core and what's not and this will pave the way for an effective sourcing strategy.

Develop a Risk Mitigation Strategy

"War stories" abound. Every firm can cite examples of activities that had to be resourced to a different vendor, tasks that needed to be reinsourced, or contracts that were renegotiated because of problems. The fact is sourcing introduces new levels of risk to the organization. Loss of control, security and privacy problems, poor-quality work, hidden costs, lack of standards, unmet expectations, and bad publicity are just some of the problems that have been experienced. When moving into new forms of sourcing, it is important to incorporate risk management and mitigation into every aspect of sourcing.

- Detailed planning is essential. Precise definitions of roles, responsibilities, and expectations must be developed. Specialists in outsourcing are now available to provide advice on how to select a vendor and plan the work involved. The specialists can assist—but not replace—the IT sourcing team in understanding how to assess and engage a vendor. This is especially important when considering offshore sourcing because of the additional complexities involved.

- Monitoring and an audit trail must be incorporated into the contract to both encourage self-correction and ensure all parties live up to their commitments.
- All potential risks should be rated as to both the likelihood of occurrence and their impact if they do occur. Appropriate steps should be explicitly taken to reduce and/or manage these risks.
- An exit strategy must be devised. "Any well-designed sourcing strategy must retain alternatives to pull activities back in-house," explained one manager.
- Finally, exercise caution when moving into new avenues of sourcing. The hype in the popular press, often originating from vendors, greatly inflates the benefits that can be achieved while minimizing the risks. It is recommended that managers experiment with a "simple, substantial pilot" before committing the company to a significant new outsourcing initiative.

Develop a Governance Strategy

"With any sourcing option, governance must be super-good," said a manager. Most IT organizations now recognize the importance of relationship management at all levels (i.e., the frontline, middle, and senior management) in delivering value. Nevertheless, it cannot be underestimated. "Layers of governance are critical to successful sourcing relationships," said one manager. Others also suggested retaining strong internal project management and ensuring that vendors also have these skills. "You can't outsource the relationship with the customer," they agreed. Governance problems are exacerbated when offshore sourcing is undertaken because of the difficulties of managing relationships at a distance. This is one reason the larger offshore vendors are setting up local development centers. At minimum, an offshore outsourcer should name an internal manager who will act as the organization's champion and be responsible for quality assurance. Ideally, an outsourcing relationship should be structured to ensure shared risk so both parties are incented to make it work.

Understand the Cost Structures

One of the most important elements of successful sourcing is a complete understanding of the cost structures involved. Previously, vendors have profited from their ability to squeeze value from outsourced activities because they had a better and more detailed appreciation of their costs. Furthermore, they were able to apply disciplines and service-level agreements to their work, which IT organizations were often prohibited from doing. Today this is changing. Companies are applying the same standards to their own work, enabling them to make more appropriate comparisons between the costs of doing an activity internally (i.e., in-house or insource) and outsourcing it. They also have a better understanding of the true costs of outsourcing, including relationship management and contract management, which have frequently been underestimated in the past. "We need to thoroughly understand our economic model," said one manager. "Vendors have the advantage of knowing best practices and economies of scale, but they are at a disadvantage from a profit and knowledge point of view. If we can't compete in-house, we should outsource." Ongoing cost comparisons are effective as they motivate both parties to do their best and most cost-effective work.

Conclusion

Despite a steadily growing industry of third-party providers, IT organizations to date have ventured rather cautiously into this new area of IT sourcing. This chapter attempts to explain why this is so by examining the decision behavior and practices of a number of leading-edge organizations. From this analysis, four key decision criteria were identified: (1) flexibility, (2) control, (3) knowledge enhancement, and (4) business exigency. Today IT managers have an incredible range of available options in terms of how they choose to source and deliver IT functions. Clearly, the mistake is not to investigate the full range of these options. What has been lacking is greater direction and guidance in selecting IT sourcing options. The concept of a maturity model for IT functions was introduced as was a function-sourcing profile to map sourcing options onto core and noncore IT functions. These elements form the basis of a decision framework to guide the selection of sourcing options. Based on this framework, organizations can develop more strategic, nuanced, and methodological approaches to IT function sourcing and management.

References

Bandula, J., and R. Hirschheim. "Changes in IT Sourcing Arrangements: An Interpretive Field study of Technical and Institutional Influences." *Strategic Outsourcing: An International Journal* 2, no. 2 (2009): 84–122.

Bullen, C., T. Abraham, K. Gallagher, K. Kaiser, and J. Simon. "Changing IT Skills: The Impact of Sourcing Strategies on In-House Capability Requirements." *Journal of Electronic Commerce in Organizations* 5, no. 2 (April–June 2007): 24–37, 39–46.

Carr, N. G. "The End of Corporate Computing." *MIT Sloan Management Review* 46, no. 3 (Spring 2005): 67–73.

Hagel, J., and J. S. Brown. "Your Next IT Strategy." *Harvard Business Review* 79, no. 9 (October 2001): 105–13.

Lacity, M., and L. Willcocks. "An Empirical Investigation of Information Technology Sourcing Practices: Lessons from Experience." *MIS Quarterly* 22, no. 3 (2000): 363–408.

Marquis, H. A. "Finishing Off IT." *MIT Sloan Management Review* 47, no. 4 (Summer 2006): 12–16.

Mola, L., and A. Carugati. "Escaping 'Localisms' in IT sourcing: Tracing Changes in Institutional Logics in an Italian Firm." *European Journal of Information Systems* 21, no. 4 (July 2012): 388–403.

Rappa, M. A. "The Utility Business Model and the Future of Computing Services." *IBM Systems Journal* 43, no. 1 (2004): 32–42.

Ross, J. W., and G. Westerman. "Preparing for Utility Computing: The Role of IT Architecture and Relationship Management." *MIT Sloan Management Review* 43, no. 1 (2004): 5–19.

Smith, H. A., and J. D. McKeen. "IT in 2015." Presentation to Center for Information Systems Research (CISR), Massachusetts Institute of Technology, April 2012.

Smith, H. A., and J. D. McKeen. "IT in 2010: The Next Frontier." *MIS Quarterly Executive* 5, no. 3 (September 2006): 125–36.

CHAPTER

9 The IT Budgeting Process

Don't ever try to contact an IT manager in September because you won't get very far. September is budget month for most companies, and *that* means that most managers are hunkered down over a spreadsheet or in all-day meetings trying to "make the numbers work." "Budgeting is a very negative process at our firm," one IT manager told us. "And it takes way too long." Asking many IT managers about budgeting elicits much caustic comment. Apparently, significant difficulties with IT budgeting lead to widespread disenchantment among IT leaders who feel much of the work involved is both artificial and overly time consuming.

Others agree. While there has been little research done on IT budgeting per se (Hu and Quan 2006; Kobelsky et al. 2006), there appears to be broad, general consensus that the budgeting processes of many corporations are broken and need to be fixed (Buytendijk 2004; Hope and Fraser 2003; Jensen 2001). There are many problems. First, budgeting takes too long and consumes too much managerial time. One study found that budgeting is a protracted process taking at least four months and consuming about 30 percent of management's time (Hope and Fraser 2003). Second, most budgeting processes are no longer effective or efficient. They have become disconnected from business objectives, slow, and expensive (Buytendijk 2004). Third, rigid adherence to these annual plans has been found to stifle innovation and discourage frontline staff from taking responsibility for performance (Hope and Fraser 2003; Norton 2006). And fourth, although many researchers have studied how organizations choose among strategic investment opportunities, studies show that the budgeting process frequently undercuts management's strategic intentions, causing significant frustration among managers at all levels (Norton 2006; Steele and Albright 2004).

Finally, the annual planning cycle can cast spending plans "in concrete" at a time when the business needs to be flexible and agile. This is particularly true in IT. "Over time…IT budgeting processes become institutionalized. As a result, IT investments become less about creating competitive advantages for firms [and] more about following organizational routine and creating legitimacy for management as well as organizations" (Hu and Quan 2006). Now that senior business leaders recognize the