# 11

# Outsourcing and Offshoring Information System Projects

## Themes of Chapter 11

- What is offshore outsourcing of IS projects?
- What are the main differences between outsourcing and offshoring?
- What are the benefits of offshore outsourcing?
- What are the consequences of offshore outsourcing?
- Is information systems project offshoring different from other offshoring projects?
- Do all information systems projects benefit from offshore outsourcing?
- How can project managers plan offshore outsourcing?

Offshore outsourcing of information systems services has been growing rapidly in recent years and is likely to continue into the foreseeable future. The primary reason behind this trend is the apparent economic cost advantages gained by offshore service procurement. Offshoring is not unique to the information systems function. Manufacturing and online customer services, for example, have been outsourcing their work to Mexico, China, Ireland, and other countries for some time. Information systems *outsourcing* has been widely adopted for more than two decades, but *offshore* outsourcing of information systems services is a relatively recent phenomenon. The significant growth in communication technologies and the increased demand in recent

years for information systems professionals in the United States and Western Europe have made offshore outsourcing of the information systems function an attractive option. In addition, the availability of an educated workforce in other countries, such as India and China, has made the offshore outsourcing of information systems services a reality. The offshore outsourcing of information systems services has implications for IS management. Information systems project management, in particular, is influenced by this trend in a variety of ways, including human resource issues, scheduling, relationships management, communication, quality control, risk, and evaluation. Information systems graduates need to be prepared for the challenges and opportunities presented by offshore outsourcing of the information systems function. This chapter will describe the origin of outsourcing and the reasons behind the offshoring of information systems services. This chapter further describes the impacts of outsourcing on the individual and organization, and the skills that are necessary for the management of offshore projects. This chapter ends with discussion questions that highlight the multifaceted nature of the offshore outsourcing phenomenon in terms of culture, measurement, quality and the like. But first in Exhibit 11.1 we look at potential problems that might arise when offshoring.

## Exhibit 11.1 Managing Diversity

Diversity is the essence of reality. It exists in any group or team that we are associated with: the family, work place, society, and the like. Successful enterprises have greatly benefited from the diversity of workforce, culture, and talent. The critical success factor in dealing with diversity is to understand the strengths and weaknesses in any situation. This assessment is more critical when we deal with global entities.

Success of international business depends to a large extent on the management of diverse relationships. The trend to *offshore outsourcing* information systems services is a new development. In a short period of time we have learned a great deal about opportunities and challenges that come with offshore outsourcing decisions. There is still a great deal that we do not know. We need to learn more about the management of diversity and the new relationship in vendor–client situation.

Peggy Zhu is a database administrator with many years of experience. For the past several years, she has been responsible for the management of a large integrated database system in a multistate utility company in the Southwest region of the United States. The database system is critical to the operation of this company. This utility company, like others, has been under competitive pressure in recent years to curb developmental, maintenance, and other costs of information systems services.

### Background

In recent years, there has been a rapid increase in demand for information systems professionals throughout the industrialized world, and that in turn has resulted in the increased cost of procuring human expertise in this field. Following a preliminary analysis, the utility company

concluded that they must reduce their costs to remain competitive. It also became evident to them that a common practice for reducing costs was to seek talents internationally. In other words, outsource information systems services offshore.

The company carried out an investigation of how best to offshore their information systems services and decided to go with a large service provider in Bangalore, India. They decided to negotiate with the Indian company for maintaining a significant portion of their database services. Following a year of intense planning, communication, and transition, the bulk of database maintenance was contracted out to the service provider in India. Peggy Zhu was one of the people involved at different stages of this transition. As a result of this decision, her department and its resources were reduced by half. Several of the employees in her department decided to take an early retirement option that was offered by the company, and several others decided to relocate.

### Rationale

The logical deduction by Peggy Zhu was that the company will remain competitive and those employees that were retained will have more job security. Her job had become increasingly hectic in recent years due to frequent employee turnover and the difficulty of hiring experienced information systems professionals. She regularly put in extra time in order to maintain system up-time that the company needed for its routine functions. She realized she had been working 50 hours a week for several months. Given the situation, she did not mind the offshore outsourcing decision by the company. In a way she looked forward to a more normal pace of work and in being able to spend more time with her family.

After a long year of frantic arrangements with the offshore service provider, Peggy planned a 2-week vacation with her family in southern Nevada. She was looking forward to her vacation. She had accomplished what the company had planned to do and had successfully handed over to the new provider firm day-to-day responsibility of maintaining the database. She felt she really needed the time off.

### Panic Call

In her second day of vacationing, Peggy was having dinner with her family and a few friends when she received a panic phone call on her cell from one of her colleagues at work. The colleague apologized for calling her late in the evening and went on to explain that the system was down and that they had not been able to sort out things with the new provider as to what caused the problem and how they should respond to it. The colleague said that they recalled a similar problem a couple of years ago that Peggy had managed to diagnose and bring up the system quickly.

Peggy had feared that this would happen. She was afraid that even though they had outsourced responsibilities of maintaining their system, the company would find it easier to reach out to internal expertise. After all, she was the expert on troubleshooting. She was not happy about her intuition being so right so quickly. She expected something like a list of things that needed sorting out when she returned from her vacation but not a panic call from her colleagues.

Peggy apologized to friends and family and went to a quiet corner to deal with the problem. After a long conversation with the colleague over the phone, she realized that (a) it was difficult to clearly identify the source of the problem and (b) it was unclear which party, the provider or the client, was responsible for fixing the problem.

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### Questions

She returned to the table where her cold dinner was waiting for her. As she picked through her plate, a series of thoughts went through Peggy's mind. Did they not plan this right? Was the vendor the right choice? Was the communication a problem? Did they cover all issues in the contract, and did they cover them clearly? Are they protected by the terms of the contract? Should they expect more of this to come?

Peggy realized they were sailing on new waters and that they needed to know a lot more about how to map a new working relationship and how to manage that relationship. She also realized they needed to know more about the people they planned to work with, about their culture, their language, their habits, their values, and everything else. She thought about offshoring phenomenon as a whole and realized if they could not avoid it they should learn to gain from it.

## 11.1. Outsourcing IS Activities

Outsourcing may be viewed as a natural step in the evolution of a business. In the early days of computers large firms developed and maintained their information systems. Gradually, as hardware and software costs declined and as universities and colleges developed more programs and graduated more information systems professionals, companies of all sizes developed and maintained their information systems; they owned their systems. With the rapid growth of computer and communication technologies on the one hand and the increased innovation in technology use on the other, the need for information systems grew at a faster pace than ever before. As a result, the IT industry outran other industries and overexpanded itself to the point that it created a scarcity of talents. Hiring and retention of information systems professionals became a serious challenge for the management of technology. Outsourcing became an option.

***Outsourcing*** occurs when information systems activities are carried out by a provider outside the organization. Outsourcing is not unique to information systems services. Other industries such as manufacturing and services have outsourced their product and services to outside providers for some time. In the early part of the 20th century, car manufacturers made all parts for a car, assembled, and sold it. In other words, the manufacturer carried out all tasks, from design to production to sale of a car. Gradually, manufacturing of certain parts such as the windshield and seats were outsourced to other companies that could produce them more cost effectively. Parts produced by these outside providers were often of higher quality because they focused on the core competencies. With the positive returns in cost and quality, auto manufacturers increased their outsourcing to the point that the majority of parts for a car were produced by outside vendors. Today, the primary focus of car manufacturers is assembling cars for distribution.

The outsourcing trend continued and was expanded by others, such as the airline industry, finance companies, and online service providers. Kodak outsourced its

information systems services in 1989. Information systems outsourcing began with the hiring of external consultants to aid in areas where companies did not have sufficient internal expertise. Soon, every information systems task was a candidate for outsourcing, and vendors such as Electronic Data Systems (EDS) could provide information systems services of all types to companies of all sizes.

Information systems is going through similar sourcing phases as manufacturing did previously. The outsourcing of IS began with the hiring of external consultants to aid in areas where companies did not have sufficient skills to accomplish the range of necessary IS activities. As early as 1963, EDS contracted with Blue Cross of Pennsylvania to handle its data processing. In 1989, Kodak outsourced most of its IT to IBM and two other vendors. This was a large, prominent, and comprehensive outsourcing contract that involved the hiring of many of Kodak's IS personnel by IBM. From that point, IS/IT outsourcing became very visible, grew rapidly, and has evolved to include offshore outsourcing. Clearly, advances in communication and computer technologies in recent years have made this option more viable, and offshoring opportunities more feasible, particularly in the service domain.

Just as auto firms began outsourcing to achieve cost efficiencies only to find that quality, and eventually delivery time, also improved, some argue that the same scenario will be played out in offshoring IS. Already, some companies that have outsourced call-center operations to India report that customer satisfaction has increased. Overall, the quality gap appears to be closing rapidly. Many software development teams in India use Six Sigma approaches to quality management that are equivalent to those in use in world-class firms. This is a set of quality practices originally developed by Motorola but inspired by Edward Deming's methods (see Section 12.2) to systematically improve processes by eliminating defects. Given the abundance of skills at offshore sites as well as pressure on executives to drive down costs, there is little doubt that this trend to offshore will continue, and even increase, for some time, even if some firms have decided to return to home-based call centers as a result of some customer complaints.

While cost savings is often a primary reason for offshoring and the expectations are that significant savings will occur, the level and extent of these savings remains the subject of considerable debate. Quantifying costs and benefits may be complex even in the simplest case of manufacturing and assembling a physical product.

It is well recognized by academics and professionals that firms must focus their resources on their ***core competency***—that is, they must spend their resources promoting the major aspects of their business. For example, if a firm is a retail business, its core competency will be the procurement and sales of products that they want to be known for. A company that is in the business of manufacturing certain household goods must develop its core competency for producing and selling that product. A company in the music business must be competent in signing up artists and producing and distributing music. While these organizations need information systems for their operation, they do not need to be expert in developing and maintaining hardware and software. They can outsource these non-core services to outside providers.

The reasons organizations outsource their information systems services are varied. Some of the more important factors behind outsourcing information systems are shown in Exhibit 11.2.

**Exhibit 11.2 Outsourcing Factors**

- Cost economics
- Inadequate internal expertise and talent pool
- Rapid technology change
- Poor chargeback systems for information systems services
- Emphasis on core competency
- Top management discomfort with technology
- Management innovation
- Management imitation
- Changing goals and objectives

Today, almost all organizations outsource in one way or another to produce and provide services. Some companies are primarily responsible for "warehousing" their outsourcing decisions. These companies do not produce any product or provide any services themselves; they manage communications and relationships and outsource all other operations. For example, a book publisher may only agree to the contract with the author internally and outsource the rest—editing, printing, binding, distribution, organizing copyright protection, and reprint management—to outside providers. High bandwidth and sophisticated computing facilities have made virtual organizations a reality. We can accomplish more in less time, with less cost, and with better quality.

While many organizations outsource their information systems activities, there are many others that decide on the in-house development option. For example, Wal-Mart, the giant American retailer, develops and maintains all of its business information systems projects internally. They rely on internal expertise and management for the full range of information systems tasks, from coding to process reengineering to e-commerce applications. Every year, thousands of information systems projects are developed and maintained centrally by Wal-Mart employees. Wal-Mart's unprecedented success in the retail industry is credited to a large extent to their innovative and aggressive use of information technology. (A similar story is reflected by the Tesco retail chain in the UK.) The success of their supply-chain management processes is primarily due to state-of-the-art technology application. Clearly, Wal-Mart considers information systems function as a critical success factor, too important for their operations to be outsourced. Other firms are less convinced by the arguments for keeping the IT and IS provision internal to the organization.

Although outsourcing has been practiced for a long time, there is still an *emotional reaction* to the phenomenon within and outside organizations. This is partly due to the way that the popular press and public officials have treated the outsourcing phenomenon.

Reactions to information technology outsourcing have been extreme: Some have considered it to be a panacea, others a source of all ills. Neither position is correct. Many of the earlier predictions about outsourcing and its consequences turned out to be premature. The numbers of information systems jobs went through unprecedented growth and contributed significantly to the economies of the United States and Western Europe even during times of high outsourcing development.

There has been a great deal of interest on the part of academics and practitioners to understand issues of *whether* and *how* to outsource information systems services better. The sourcing issue is said to be among the top five agenda items for information systems executives. This is understandable, since more than 50% of American firms used outsourcing in 2006. We need to understand socioeconomic impacts of outsourcing better, on the individual and on organizations. The potential impacts are real, and organizations need to practice outsourcing with a clear understanding of what it implies to their short- and long-term objectives. As described in Chapter 2, the need for the project and its outcome must be continually reinforced in the context of organizational goals and objectives.

Information systems managers and professionals continue to have the highest opportunities and challenges in modern organizations. In the 1990s it seemed like information technology had provided us with all that was possible. Yet, technology has continued to surpass expectations, and users have continued to explore new potentials and frontiers not imagined before. Information systems executives and professionals are afforded unprecedented opportunities for value-added offerings. Organizations of all sizes can reach out and benefit from talents beyond national borders. The economic and business logic of outsourcing is extended to include offshore sourcing of information systems services. There are many information systems providers in many nations. In effect, information systems activities can be outsourced to providers outside the company and outside the country.

## 11.2. Offshoring IS Activities

While outsourcing was caused by the emphasis on organizations sticking to their core competencies, offshoring was caused by scarce resources. ***Offshore outsourcing*** occurs when products and services are procured from locations in other countries. Offshore outsourcing of information systems services is, arguably, the most significant phenomenon to occur in recent decades. American Express has been offshoring their back-office processing services in India since 1994. GE Capital opened its GE Capital International Services (GECIS) in India in 1997. Given the abundance of skilled professionals at offshore sites as well as pressure on executives to drive down costs, it is very likely that this trend will continue and even increase for some time, despite negative public reaction.

Many of these outsourcing vendors are "offshore" in large part because of the lower costs that can be attained outside of countries in the industrialized West. This exploitation of international cost differentials has been termed "global arbitrage," as it is an extension of the classic economic arbitrage strategy.

Factors influencing offshoring decisions are somewhat different from outsourcing, as a comparison of Exhibits 11.2 and 11.3 shows.

**Exhibit 11.3 Offshoring Factors**

- Bandwidth growth and telecommunication
- Scarce human expertise
- Increased demand
- Available global talents
- Routine tasks
- Changing goals and objectives
- Innovation
- Imitation

Offshore outsourcing of information systems activities is broadly accomplished in one of two ways. *First*, the client or offshoring organization sets up units in other countries and hires local talent to develop, maintain, and provide services. In this case, the company maintains responsibility for training, supervision, quality control, and the like. These responsibilities can be managed locally or remotely. *Second*, the client or offshoring organization contracts out services to providers in locations in other countries. In this case, responsibility for hiring, training, supervision, quality control, and the like rests with the provider.

An Association for Computing Machinery report (listed in the bibliography at the end of this chapter) describes six varieties of work related to information systems that are often offshored: (1) programming, software testing, and software maintenance; (2) information systems research and development; (3) high-end jobs such as software architecture, product design, project management, information systems consulting, and business strategy; (4) physical product manufacturing—semiconductors, computer components, computers; (5) business process outsourcing/IT enabled services—insurance claim processing, medical billing, accounting, bookkeeping, medical transcription, digitization of engineering drawings, desktop publishing, and high-end IT enabled services such as financial analysis and the reading of X-rays; and (6) call centers and telemarketing.

While information systems outsourcing took jobs outside the organization, offshoring transferred jobs and services to locations outside the country. In the outsourcing case, the talent pool was limited to national boundaries, whereas with offshoring that limitation is lifted. Both client and vendors of services have access to the greater pool of global talent. The range of information systems activities that are offshored has increased to the point that all activities that were traditionally outsourced can now be offshored. The cost of information systems products and services provided by offshore vendors can be significantly lower, and the quality of product and services in some case has been considerably higher than through in-shore provisions.

Controlling information systems development and maintenance costs is necessary for an organization in general and the information systems function in particular. In the early days of computers, investment in hardware, software, and IS products and personnel faced little scrutiny. Information systems services were considered special,

and organizations felt that they could not afford to fall behind in technology investment, even if they did not fully understand where the money went. Top management and senior executives readily provided and supported information systems investment. Today, information systems activities are still considered important to short- and long-term objectives of organizations, but their costs and investment proposals are more carefully scrutinized. At the same time, expectations of information systems continue to rise.

Information systems stakeholders often develop and hold expectations of technology deliverables that are not always realistic. For example, there is a common perception that computers can do anything and everything. There is also a common perception that computers are responsible for whatever goes wrong in a workplace or in serving customers. These unrealistic expectations present a challenge to information systems executives who need to continually seek funding support from top management. The extent and quality of systems use is influenced to a large extent by users' competency and self-efficacy.

Technology in and of itself does not create value. Technology users create value in the fusion of doing and learning. In other words, value is generated by human–computer interaction. These inherent characteristics of computer and information technologies have posed and continue to pose challenges and provide opportunities for management. The offshoring phenomenon expands the scope for interaction, and this adds new dimensions. Top management and information systems executives see in offshoring opportunities to reallocate resources and focus on innovative and new services that were not previously available or affordable. While many tasks are offshored, others are retained and expanded, and this may give firms a new edge.

## 11.3. Risks in Offshore Outsourcing IS Activities

Any business decision involves risks, and that risk is greater in situations when there is increased ***change*** or ***uncertainty***. The best option, however, is not to avoid decisions or to wait and see what might happen elsewhere. The pressure on CEOs and CIOs to reduce costs is real, and there is no sign that it will be lifted any time soon. Good management practice suggests careful assessment of potential risks for any decision. Although offshore outsourcing of information systems services has been going on for some time now, our understanding of its impact is still evolving. The trend in offshoring has been rapid, and there is little doubt that it will continue in the foreseeable future. It is critical that offshored projects are carefully studied and cost–benefit analyses are carried out to make sure benefits overweigh costs beyond a margin. Only significant cost benefits will warrant offshore outsourcing of information systems services. With only a marginal cost benefit of say 10–15%, most organizations are better off retaining their information systems activities in-house or in-shore.

The offshore outsourcing of information systems activities is primarily based on ***transaction cost economics***. That rationale is narrowed down to the ***cost of labor*** to a large extent. There is an extant discourse among academics, professionals, and business leaders as to the exact nature of this cost advantage. In many cases, this cost advantage is evident. However, there is a risk in (a) overestimating the cost saving,

(b) underestimating the overhead costs that are necessary to get to the cost saving stage, and (c) discounting non-cost factors that influence offshore outsourcing outcome. The *tangible* transaction-cost economics of offshore outsourcing is more readily measured by economics and cost accounting models. The *intangible* costs or benefits of offshore outsourcing include issues of organization, behavior, morale, social, strategy, and the like, and these require acute management skills and insight.

These issues, it can be argued, relate to most organizations, whether or not they practice offshore outsourcing. However, in the case of offshore outsourcing in general (and offshore outsourcing information systems activities in particular), these issues take new dimensions and importance. For example, ***organization intelligence*** is a critical and volatile asset, particularly as it relates to activities such as new ventures and research and development. Organizations are highly protective of such information. Organization design, intelligence, and decision making have been formed and influenced by such information content. It is inconceivable to think that a large multinational corporation can function without timely, accurate, and relevant information. Decisions to offshore outsourced information systems activities must be carefully deliberated for their potential impact on current and future operations of a firm. In this section we will review important potential risks associated with offshore outsourcing decisions.

A recent study at the Johns Hopkins University surveyed senior IT managers in North America and Western Europe to identify the benefits and risks associated with offshoring IT activities. Risks to offshoring, these managers believe, stem from "the political situation in a host country" (political unrest, wars, confiscations, nationalizations, terrorism); "enforcement of intellectual property rights" (legal processes, loss of intellectual property rights, propitiatory design features, piracy, trademark infringements); "information vulnerability and security" (lack of regulation, different work ethics); "immature business environments" (volatile exchange rate, weak national currency, high tax rate, high tariffs on imports and exports, rigid customs laws, technological infrastructure); and "sociocultural problems" (misinterpretations, population attitude toward entrepreneurship).

Bill King and Yogesh Malhotra also identified a number of generic risks associated with IT outsourcing as compared with performing IT activities within the firm. They indicate that there is a growing awareness of the difficulties that are inherent in offshoring, pointing out that hidden structural, cultural, legal, and financial risk and costs can easily be overlooked.

Offshore outsourcing risks of information systems activities stem from the factors shown in Exhibit 11.4.

One of the potential risks of offshore outsourcing information systems services relates to ***employee morale***. The reaction to information systems offshoring by individuals has been greater than that of outsourcing. This is despite our experience with outsourcing of information systems services that ultimately resulted in the increased application and use of computers. It is difficult to assess and measure the risk related to employee morale. The impact can broadly be grouped in terms of reduced employee *loyalty* and diminished *work quality*. Individuals tend to explore job opportunities elsewhere as soon as it is apparent that services might be offshored. Skilled and

**Exhibit 11.4 Risks of Offshore Outsourcing**

- Decline in employee morale
- Loss of innovation and know-how
- Public reaction to corporate citizenship
- Regional instability of host country
- Quality control and standards
- Communications and culture

valuable employees will find jobs more quickly, and their departure will affect the quality of work and services. This poses great challenges for the project manager.

Human expertise and innovation is the greatest asset that any organization can develop and retain. Thus, loss of ***innovation and know-how*** in applying technology due to offshore outsourcing of information systems services can pose the greatest risk to an organization. Many successful businesses, such as Federal Express, American Airlines, Wal-Mart, American Hospital Supplies, and United Parcel Services, owe their competitive advantage to the creative use of information technologies. It takes longer and costs more to develop savvy business employees who are technically competent. It is very expensive for a firm to build up its human expertise if it decides later to revert to in-house services; it is difficult to rehire skilled employees who have taken up positions with other firms, possibly with the competition. It is difficult to buy back lost loyalty.

Public loyalty to a firm and its goods and services is influenced by how people perceive the role of a firm as a corporate citizen. Corporate CEOs and other senior executives cannot ignore ***public reaction to corporate citizenship***. As mentioned earlier, there has been a greater reaction by the public to offshoring practice compared with outsourcing. This is partly because of the way that the popular press has treated offshore practices, as mentioned earlier, and partly because computer and information technologies have been considered one of the greatest innovations ever to affect U.S. and Western European economies. In other words, the offshoring of information technology activities is considered more than sending jobs abroad. Some of the big corporations, such as IBM and Oracle, have been secretive about their offshoring practice and have at the same time increased publicity about their community and society contribution.

All this suggests the potential risks of a negative public reaction to offshore outsourcing. ***Regional instability of the host country*** is another risk associated with offshore outsourcing practice. For example, the threat of major disruptions arising from political upheaval or war in an offshore host country could pose a major risk to service continuity. A politically stable region with higher wages is a better host site for business planning. It is difficult to evaluate labor economics when issues of potential instability are present. Businesses need to examine the long-term effect on their business plans from short term-gains in wages carefully. Backup sites outside the region and careful security checks on contractors are sometime necessary and are added costs of doing business in locations in other countries.

Inadequate ***quality control and standards*** is another potential risk associated with offshore outsourcing of information systems services. Reliability and quality of services are crucial to computer and information systems. System downtime affects all operations of a business and its competitive strength. Customer service and customer satisfaction are directly influenced by the reliability and timeliness of information systems services. At the end of the day it is the responsibility of the information systems function in a firm to ensure steady and reliable services in support of operations. Compliance with standards and enforcement of quality may reflect the vendor's goals rather than the client's needs. Project managers must ensure that provisions of quality and standards are clearly outlined in contracts with offshore vendors and that they align with the goals and objectives of the client.

The role of ***communication and culture*** in the successful delivery of information systems services through offshoring cannot be overstated. Success of information systems project development in remote sites is heavily influenced by effective communications and clear understanding of local culture. Information systems project failure has often been associated with inadequate needs analysis resulting from poor communications. This can be more of an issue in offshore outsourcing practices. Understanding organizational culture has also been a factor in the success of information systems projects. Communications are more complex and culture is more diverse for offshore development projects. There is a risk that project development teams may take these complexities too lightly in the interests of time and cost and as a result adversely affect the quality and timeliness of information systems services.

## 11.4. Opportunities and Challenges

Information systems is an evolving discipline with unique opportunities and challenges for the management of this function. These opportunities and challenges are closely linked with management strategies and responsibilities for the information systems function. Important responsibilities are listed in Exhibit 11.5. Information systems project management has also been evolving over time in response to the growing needs for enterprise-wide systems. Organizations invest in and expect from information systems a great deal, and that in turn brings about tremendous responsibilities. Contract management adds important new dimensions to project management. These include negotiation, monitoring, and communications infrastructure. Managing cultural diversity is another important dimension added to project management. These are discussed in Section 11.5.

The long-term view of economic theorists suggests greater returns for offshore practice. Several important factors affect offshore practice decisions, including where to offshore, infrastructure at vendor site, business conditions, and potential risks. However, *low-wage* and *skilled labor* have been the overriding factors influencing decisions to offshore information systems services. So far, offshoring white-collar jobs to low-wage regions of the globe provides significant cost advantage to firms in the United States and Western Europe. These gains may not be permanent.

The adverse effect of offshore outsourcing information systems services has been primarily on the current job market. However, this effect is more complex than

**Exhibit 11.5 Responsibilities**

- Develop a vision for the role and contribution of technology in the organization.
- Define an overall hardware and software architecture to include platforms and communications.
- Coordinate developmental activities across the organization.
- Develop and implement security plans.
- Develop and implement contingency plans.
- Manage technology transfer and infusion.
- Manage vendors.
- Rationalize funding and manage expectations.
- Manage turnover.
- Promote innovation.
- Support users.
- Provide guidelines for information systems use and application.
- Develop and mentor IS expertise.
- Ensure alignment with organizational goals and objectives.
- Ensure regulatory compliance.
- Ensure security and privacy of personal information.

simply jobs leaving the United States and Western Europe to other regions of the world. While some jobs currently held by information systems professionals will be lost to offshore destinations, new jobs that require different skills will be created in response to the increased demand for information systems services. Savings will enable firms to invest in newer technologies and innovative use of information services. This in turn will generate new higher level jobs and higher turnover. New jobs will require greater expertise in *business knowledge, systems analysis, communication, integration, team work, quality control, risk assessment, and contingency planning.* As described in various chapters of this book, effective project management requires these skills.

There has been a great deal of discourse about the short- and long-term effects of offshore outsourcing practice in academic and professional publications. Some of this discussion relates to the overall effects of offshoring, while others, more specifically, discuss these effects in terms of core competency, firm size, and organization culture. Yet, others discuss these effects relative to the information systems job market or national employment (see also Section 7.8). These future trends and consequences have been summed up by Stephanie Overby in an article that incorporates comments by several senior information systems executives, listed below in Exhibit 11.6.

There is little doubt that information technologies and those who know how to manage them will continue to play an important role in the success of modern organizations. The key is to retool and stay current in order to be able to respond to new and evolving business needs. In this chapter and throughout this book, we have tried to describe and provide the kind of skill sets that are needed to prepare our information system graduates for new and challenging jobs.

**Exhibit 11.6 Effects of Offshoring on U.S. Jobs (Stephanie Overby)**

1. IT jobs will be lost to offshore companies.
2. U.S. IT staffing levels will never return to their previous highs.
3. IT work that remains will be more important to the business.
4. Firms will continue to offshore application development, legacy maintenance, call-center operations, and the like.
5. American companies will keep work that requires close contact with the business, such as strategy development, business process improvement, and actual application of IT, in the business.
6. IT will become a core competency and economic engine in emerging economies, and these emerging economies will complement the U.S. IT industry.
7. American IT executives look beyond the possible short-term offshore savings to the long-term impact on the nation's ability to remain innovative.
8. The higher-level IT positions that remain will require new skills.
9. American IT degree programs should move more toward broader business education.
10. The IT cohort of the future has to be a good technologist but also be a savvy businessperson, a hybrid and versatile person.
11. Issues of infrastructure, security, communication, and project management are important to onshore jobs.
12. There is a need to protect intellectual capital, especially when IT is integrated in business processes.

Looking at the U.S. situation in particular, information systems is the third largest corporate expense category, and about 50% of U.S. capital expenditures by businesses are in IS/IT. This suggests that the potential for offshore outsourcing is huge. However, information system offshoring is only one small part of a much broader phenomenon that has enormous implications for Western industrialized countries (whose firms are typically the offshoring clients) and for developing nations (whose firms are typically the offshoring vendors).

In an article (*Foreign Affairs,* March/April 2006), Princeton University economist and former Federal Reserve Board vice chairman Alan Blinder identified the impact on the West by saying

> The world is now in the early stages of a third Industrial Revolution—the information age. The cheap and easy flow of information around the globe has vastly expanded the scope of tradable services, and there is much more to come. Industrial revolutions are big deals. And just like the previous two, the third Industrial Revolution will require vast and unsettling adjustments in the way Americans and residents of other developed countries work, live, and educate their children.

In saying this, Blinder suggested that we must understand the growing offshoring phenomenon better and develop management practices that are appropriate for this new environment. It will not be possible to manage IS as we have done in the past, and it will be necessary for information system professionals to develop their skill sets that are commensurate with managing in an offshoring-intensive context. Information systems offshoring is expected to expand the global use and application of information technologies. As described in this chapter, there are opportunities in this new era of global IT growth, and information systems professionals need to prepare in accordance with the new realities to better position themselves for the evolving job market.

Given this understanding, the nature and structure of information systems application and use in firms will change drastically in the future. The information systems function will shrink in many firms in the industrialized economies. The significance and the role of information systems in business will, however, remain strong. The type and level of information systems services will continue to proliferate and grow. Some information systems jobs will return onshore. Only a small fraction of total service jobs in the industrialized economies will go to offshore vendors. Information systems curricula will be revamped and information systems programs will produce necessary cohorts for the new challenges. The service industry in the United States and Western Europe will grow, and trade surpluses in services will increase.

Given this reality, information systems professionals need to learn to cope with the accelerated pace of job change and turnover. This also means that information systems jobs will remain competitive and out of the reach of non-skilled workers. The use of technology has increased over the years due to more user-friendly software tools and applications. The scope and nature of jobs for information systems professionals has also changed in spite of the increased role and responsibilities of the end-user. The changes created by the offshore outsourcing phenomenon will not diminish the role and significance of information systems services or of those with the know-how to manage it.

## 11.5. The Management of Offshore Information Systems Projects

The offshore outsourcing phenomenon has had a wide-ranging effect on the management of the information systems function. The first wave of offshore outsourcing practice reduced hardware costs and in turn increased demand for software. The new surge in offshore outsourcing has reduced software costs and in turn increased demand for information systems applications and services. The international value chain has made information technology more affordable to firms of all sizes and types. It has expanded the global application and use of information systems and created opportunities for information systems professionals to respond to the specific needs of businesses.

Offshore outsourcing of information systems services has added new dimensions to duties and responsibilities of project managers. Systems that are developed at remote sites in different countries are more difficult to manage due to differences in *culture, language, time zone, labor law, work habits*, and the like. These issues are relevant even to cases when a firm operates its own offshore practice. This section will describe

specific sets of skills required for the successful management of offshore projects. These skills are listed in Exhibit 11.7 and discussed below. It is important to realize that many of these project management responsibilities are not new, but that they assume increased importance in the era of offshore outsourcing.

**Exhibit 11.7 Skills Required for the Successful Management of Offshore Projects**

- Contract negotiation and management
- Relationship management
- Risk assessment and management
- Planning and integration
- Business process redesign
- Enterprise needs analysis and testing
- Security and privacy planning

Project managers are often involved with ***negotiation and management of contracts*** with international vendors for the delivery of information systems services. Many firms have their legal division draw and finalize these offshore contracts. However, project managers play a crucial role in identifying and outlining information needs for these offshore contracts. In this process, project managers often interact directly with offshore vendors to negotiate and clarify responsibilities. Communication skills and clear understanding of the culture and language of offshore vendors are essential to successful negotiation.

Project managers are responsible for the development and ***management of relationships*** between their team members and offshore service providers. Routine and effective collaboration and interaction between client and vendor teams is heavily influenced by relationship management. While it is necessary to have responsibilities outlined in a contract, it is essential to establish a good relationship to facilitate effective collaboration. Relationship management is influenced by a clear understanding of culture, language, and the habits of offshore providers.

Chapter 10 described the importance of risk assessment and management for information systems projects. Section 11.3 above outlines and discusses potential risks associated with offshore outsourcing of information systems activities. ***Risk assessment and risk management*** of offshore projects is especially difficult. For example, risks associated with local politics, natural disaster, and communication and network infrastructure in offshore locations are more difficult to assess and manage. Project managers must plan for disaster recovery and backup provisions in locations outside the vendor country.

Systems ***planning and integration*** also takes a new dimension in offshore outsourcing practice. This may turn out to be a critical problem if the outsourcing firm reduces internal expertise to the point that planning and integration of information systems services becomes dependent on outside vendors. Project managers must carefully assess

and retain internal expertise in order to plan and integrate information systems needs in alignment with organizational goals and objectives. This includes expertise to ***redesign business processes*** to reap the benefits of offshore provision. Information systems innovation inherently requires careful analysis of business processes and often leads to the redesign of these processes.

Chapter 2 describes how important it is for project managers to realize and understand business goals and objectives. As mentioned earlier, there is a need to retain, mentor, and manage employees that are business savvy and have technical competency. That skill set is always needed for ***enterprise needs analysis and testing*** of information systems that are developed by vendors outside the organization. Some information systems needs analysis requires intimate knowledge of business operations and intelligence. Firms are sensitive about their business knowledge and intelligence, and the cost of retaining internal expertise for needs analysis and testing is well justified in the long term.

***Security and privacy*** continues to be an important issue for the individual and organization. Issues of security and privacy have assumed greater importance in recent years on priority lists of information systems executives and project managers. These issues continue to pose challenges for management because the technology continues to grow and information systems applications continue to expand. That is true even in cases where a firm develops and maintains its entire information systems services. Offshore outsourcing of these activities will amplify challenges to secure the information systems and keep private personal information.

As mentioned earlier, the effect of offshore outsourcing information systems activities is wide ranging, for both the individual and the organization. The range of effects for the individual includes *career, skills, relationships, privacy*, and other considerations. The range of effects for the organization includes *intelligence, knowledge, human expertise, security*, and the like. A great deal of offshore outsourcing that has already taken place has been to English-speaking countries such as India. However, a common language does not mean common culture, habit, procedure, law, environment, and the like. Communications consist of a great deal more than language. Firms and organizations have begun to realize that a common language does not eliminate communication difficulties. That is why it is critical for management to develop and retain individuals who clearly understand the business and are competent in technology application.

In a recent article published in the *Journal of the Association for Information Systems* (cited in the bibliography at the end of this chapter), Gordon Davis and colleagues suggest that management must always retain the ability to anticipate and monitor technological change. These changes are because of technology growth or those that a vendor makes to the technology applications. Many organizations have realized after offshoring their information systems practices that they need to monitor changes in technology and to evaluate new developments in hardware and software independently. Appraising new developments becomes more difficult as a firm increases its offshore practice and salespersons redirect their marketing and promotional efforts toward outside vendors. Salespersons have traditionally been a useful outside source for providing information about new developments in hardware and software. These outside links will gradually disappear because the offshoring client is no longer a potential customer.

Many of the issues associated with offshore outsourcing were not initially apparent to the management of information systems services. The opening case in this chapter illustrates some of the nuances presented by offshore outsourcing practice. The offshoring phenomenon is still at its early stage. Management must continually monitor and observe experiences gained by the firm and by others outside. Information systems professionals have long realized the need for ongoing improvement and self-learning. Management must encourage and support self-learning by employees.

Information systems curricula at universities increasingly emphasize the need for "learning to learn." It is not possible to learn everything about technology and its management in the classroom or through a degree. Information systems graduates need to continue developing their technical and managerial skills after graduation. Continual improvement and self-learning provide opportunities for career enhancement. Information systems professionals must be able to retool quickly to take advantage of new developments and add value to their organization. Demand for skilled information systems people has been and continues to be strong. Exhibit 11.8 lists a few simple but practical hints in this respect.

**Exhibit 11.8 Hints for Career Enhancement**

- Make self-learning a hobby.
- Observe to learn.
- Listen to learn.
- Ask others for input.
- Learn from mistakes.
- Take time to review your work.
- Develop network.
- Learn about diversity.

### 11.6. Interview With a Project Manager

What specific factors in your opinion are important to offshore outsourcing of information systems activities?

"We need more time up front to study whether we want to go this route and then whom we might want to go with. If you end up outsourcing those applications that have taken your people a long time to get the kinks out and to get the users to be happy with, you may have a job on your hands. If you ask five different project managers about their experience with offshoring, you probably will get five different responses, and that is because not all applications that have been outsourced are the same and not all providers are the same. When we outsourced our computer applications it took us some time to get our communications straightened with the outside vendor. Now it will be a lot more complicated to outsource our applications to a vendor in another country. That is what I mean by putting time up front to make sure you know what you are doing."

What are the implications of offshoring for internal information systems skills and know-how?

"The first thing you will notice is that there are rumors among your staff that jobs are going to be lost and people are going to be let go, and that is a problem. Some of the people will start looking for other jobs. Your skilled and experienced people will find jobs quickly. You may end up with a serious problem when you lose your experienced and skilled people. For example, if you plan to keep 50% of your people, you may end up keeping the 50% you don't want."

What is in your opinion the best strategy to avoid that kind of personnel problem? What is the best strategy to avoid losing good people in a situation like that?

"I don't know about the best strategy. Your skilled people are the most valuable resource that you have, and you must do what you can to protect and keep them. Timely and truthful communication always helps. You need to let people know what decisions are being made and why those decisions are important to the long-term goals of the information systems division. You also want to let people that you want to keep know that in the event that some jobs are offshored, you intend to keep them. It all depends on how extensive your organization's offshore plans are."

What are the legal and procedural challenges posed by offshore outsourcing of information systems services?

"There are a lot of details in writing a contract with outside vendors, and it is best to leave that to legal people in the organization. As a project manager, you should be aware of the principles involved and you should be clear about responsibilities. You want to be clear about responsibilities of your team and those of the vendor. That should be clear in the contract. Once we had a contract with an outside vendor and every time we had an issue and needed clarification from the contract it was difficult. Our main problem was about user support responsibilities. We lived through the contract terms but revised it next time it was renewed. It is important to keep records of issues as they come up."

Do you think your users will blame offshore providers for information systems problems?

"That depends on how much the users think the outside provider is responsible for. That is why it is important to make things clear in the contract and also to let users know who is responsible for what. Ultimately, there are some responsibilities that you don't want to offshore. Whatever you pick up that others do not will gain you support among users."

What are those responsibilities that you do not want to offshore? Can you give an example?

"Those are the kind of responsibilities that involve intelligence and the internal workings of the organization. For example, if your internal communication and information sharing is primarily done by email, you may not want to offshore your email services. People tend to say a lot by email, and it accumulates."

What in your opinion are important differences in the evaluation of offshore versus in-house services?

"The evaluation of offshore services is linked to the terms of the contract. You want to make sure what is contracted is delivered in good time and with quality. There is also the quality of interaction with employees of the offshore service providers. Development and management of those relationships are important, and it is up to both sides to make it work."

## 11.7. Chapter Summary

Offshore outsourcing of information systems activities is based on transaction-cost economics. Firms have always looked for ways to reduce costs of producing goods and delivering services. Although some information systems costs such as hardware, software, and communications networks have steadily declined over the years, other costs such as human expertise, maintenance, and security have gradually increased. This has resulted in a net increase for the overall cost of information systems services. In response to cost pressure, firms have in recent years adopted two important strategies: (1) Outsource information systems activities or in some cases the entire function, to national vendors, and (2) offshore information systems services to global vendors.

The outsourcing and offshoring phenomena have had important effects on the management of technology in general and on project management in particular. Probably the most important impact of outsourcing and offshoring for information systems professionals has been on the job market and skills. The outsourcing trend resulted in significant employee turnover. In most cases, laid-off employees were hired by vendors in need of skilled workers. Ultimately, outsourcing increased the demand for information systems services and thus professionals. The need for information systems professionals grew to the point that there was a shortage of skilled workers in the United States and Western Europe.

The offshoring trend, on the other hand, has affected the job market and skills somewhat differently. Information systems jobs as well as services have been offshored to vendors in locations outside the United States and Western Europe. Many of the more routine information systems activities have been offshored, and the number of current jobs has been reduced. The jobs that remain in the United States and Western Europe require higher skills: increased business knowledge, systems analysis, project management, communication, and the like. As with outsourcing, offshoring has made information systems more affordable, once again increasing the overall demand for information systems services.

While outsourcing and offshoring have similar characteristics, they differ in several ways. Probably the most important distinction between outsourcing and offshoring stems from the role of culture in vendor nations. Understanding local culture as well as labor law, work environment, habits, and the like are important to the success of offshore projects. Negotiation and relationship management are important new responsibilities for information systems executives and project managers. Team development, communication, quality control, risk analysis, planning, and security and privacy assume a new emphasis in the project development process.

Offshoring has replaced many of the previous job and career opportunities with new ones, making it necessary for information systems professionals to retool in order to take advantage of new possibilities. Self-learning and ongoing improvement that have been important traits of information systems professionals assume even greater importance. Information systems professionals must quickly adapt to changing realities in order to add value to their organizations. The "learning to learn" idea has become more important than ever for information systems programs and students.

In summary: Efforts to reduce costs will continue; many current jobs will be lost to offshore locations; higher paying new jobs will be created that require higher skills; value-added principle continues to be the key; new realities require new thinking and new expertise; negotiation, innovation, business knowledge, communication, analysis, relationship, and diversity management assume greater importance. Global need for information systems services will continue to grow, creating opportunities and challenges for the information systems profession.

## DISCUSSION QUESTIONS

1. This chapter has argued that technology, in and of itself, does not provide value and that human–computer interaction generates value. What do you think of this assertion? Would offshore outsourcing of information systems services alter the effect of human–computer interaction as we know it?
2. Discuss the role and impact of offshore outsourcing on organization innovation and know-how. Take a long-term view of this issue and describe the role of management in the outcome.
3. The provision of information systems services continues to provide unique opportunities and challenges to the management of these technologies. Organization and user expectations are said to pose challenges and provide opportunities at the same time. Discuss how you would reconcile this apparent conflict. In what ways does offshore outsourcing of information systems services alter these challenges and opportunities?
4. Search the Web to find out more about some of the more successful offshore vendors such as Wipro, Infosys Technologies, and Tata Consultancy. Prepare a short summary of your findings for class discussion.
5. Assume you are the project manager responsible for the development of an integrated corporate-level database system. Top management in your company is concerned about your proposed costs to develop this system and has suggested that you consider offshore outsourcing some of the activities. Describe specifically what developmental activities you would offshore and what activities you would not.
6. Consider the opening case to this chapter. What specific suggestions would you offer Peggy Zhu in her current situation? What is the first thing she should do? What changes should she make in her daily work? How should she go about measuring the success of their offshore decision?
7. What risks other than the ones described in this chapter would you suggest might affect the offshore outsourcing of information systems projects? What methods would you use to assess those risks?
8. Is user involvement important to the success of offshore outsourcing information systems activities? How would you involve users in the design and development of offshored information systems projects?
9. Consider the following scenario. You are the project manager for the development of a corporate-level system such as the one mentioned above under Question 5. You were not

in favor of the decision to offshore those activities, and neither were your information systems personnel. The contract is final and you have been asked by the top management to facilitate user involvement with the development of this project. Describe your plans for doing that. With what activities, if any, would you involve the users and why?

10. This chapter suggests that common language does not mean common culture, habit, procedure, law, environment, and the like. It argues that communication is a great deal more than just the language and that common language does not eliminate communication difficulties. Discuss.

## EXERCISES

1. A widely used method of measuring information systems success is that of user satisfaction. You have recently contracted the development of one of your projects with an offshore provider in India. You need to identify factors that are important to users of that system. Identify critical success factors that you see as important to the users of that system. What is a good method to (a) identify those factors and (b) verify them to make sure they are important?

2. Schedule an interview with a project manager who has been involved with offshore outsourcing of information systems projects. Prepare a set of questions that include expected and unexpected difficulties, risks, personnel issues, quality control, and user response. Ask this project manager what is the one thing that he or she would do in any future offshore projects.

3. Search and find an article that argues in favor of offshore outsourcing information systems services and one article that argues against such decisions. Based on your reading of these two articles, prepare a table to compare and contrast the points in favor and against offshore outsourcing of information systems activities.

4. Refer to the interview with a project manager at the end of this chapter and list two points that you strongly agree with in the interview. Is there a point that you strongly disagree with in the interview?

5. As described in this chapter, Wal-Mart, the largest retailer in the world, runs its information systems operation entirely in-house. They also have an extensive training program that helps them develop and retain human expertise. Search and find information that describes Wal-Mart's information systems training strategy. What is unique about their training? How does it help them retain their information systems experts?

6. Offshore outsourcing of information systems services could potentially affect human expertise and organization know-how. To what extent can organizations afford to lower internal expertise? This chapter suggests that human expertise in planning and integrating information systems must be retained internally. Search and find articles that support or oppose that contention.

## APPENDIX TO CHAPTER 11: BELTECH INCORPORATED

### Background

Beltech Incorporated (BI) is a small firm that develops global positioning system (GPS) devices. BI's last year's sales were $3.1 million with a profit of $200,000. BI has a market share of 1% in a fiercely competitive market. BI's strategic goal is to gain an additional 2% in market share over the next 2 years. Like their competition, all of BI's products are proprietary in nature, using both proprietary software and hardware.

### Management

The firm has 18 employees with a small team of highly skilled engineers who develop the hardware and software for their products. Many of the functions of the firm such as payroll and marketing are outsourced to other firms who have the professional knowledge to support BI. BI is committed toward developing high-quality products. This is a necessary requirement due to strong competition from larger firms. BI promotes innovation and looks for ideas from all team members.

### Potential Opportunity

Recently, one of the employees presented an idea to management to use nonproprietary equipment for the basis of an innovative GPS product. The idea is to use common small, handheld computers as a medium for GPS hardware. This would provide an advantage because, for the most part, the software and hardware is already developed. This would also provide opportunities for a less expensive GPS and perhaps a quicker development cycle.

### PM Assignment

BI has assigned their project manager (PM) the responsibility to complete a feasibility study of the suggested product. The PM will need to perform research in order to complete the feasibility study. The PM will also need to coordinate within the company as well as their outsourcing partners to gain enough input for a comprehensive feasibility study. Additionally, some research will need to be performed to see how well the firm could utilize industry standard equipment and which firms would best welcome a partnership with BI.

### PM Research

The PM has found that there is a mature Personal Digital Assistant (PDA) market with a small computer that would be ideal for BI to base a hybrid device on. There are several good hardware manufacturers willing to partner with BI. There are two very good operating systems (OS) available for PDAs from which to choose. One OS is provided by Microsoft and is well supported. The second OS is just as robust and possibly the dominant PDA OS, which is provided by Palm. Both of the OSs are very mature with strong support from their prospective companies, who are both willing to partner with BI. The PM has also determined that the product can be developed in

*(Continued)*

(Continued)

about 20% of the time a usual product requires. This indicates significant development savings. The device's projected retail price will also be cost effective in comparison to current GPS products and will offer additional functionality above the standard GPS. An additional bonus has been found in the fact that there is strong potential for third-party programmers to develop applications for the new hybrid device, allowing unprecedented opportunities for software development and growth. The major obstacle is the potential that the new product may cause significant loss of sales to their current product line. To accomplish BI's strategic goal toward market share, BI will need to be willing to gamble away their current product line for the new hybrid product. There is also a concern that BI's competitors may be working on a similar product.

### Management Decision

The PM has identified several opportunities for a new product to facilitate strategic growth for BI. There is high risk involved. However, there is also good potential in exceptional success of the new product. The risk of erosion to the current product line is found to be acceptable. There is also the risk that BI's competitor may be working on a similar device. BI needs to be first on the market with a hybrid device or face the possibility of being forced out of business.

In summary, BI's management has decided to move forward with the project. Management is willing to support a new integrated PDA/GPS device, even at the risk of strong erosion of their current product line. It is anticipated that BI would gain strategic market share in the GPS market if they are first to market a quality hybrid device.

## APPENDIX TO CHAPTER 11: DISCUSSION QUESTIONS

1. Did the project manager perform sufficient research for the feasibility study to complete the assignment?
2. Should Beltech's management have used a larger project team and gather more information because of the impact the project could have on the company's core competency and products?
3. What do you think are the project manager's tools for conducting this important assignment?
4. Should the project manager have created and delivered more documents than the feasibility document mentioned?
5. Present cases for (a) in-house development, (b) outsourcing, and (c) offshoring some or all of the company's technology activities.
6. Role-play a discussion between the project manager with an outsourcing supplier and an offshoring supplier who both wish to "get the contract."
7. Search the Web for information about the Palm versus Microsoft operating system for the products mentioned. Provide a table of comparison.

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