The journey to new lands: Utilizing the global IT workforce through offshore-insourcing

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Chapter XII

The Journey to New Lands:
Utilizing the Global IT Workforce through Offshore-Insourcing

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Abstract

This chapter introduces a prescriptive conceptual framework from the practitioner's perspective for the "offshore-insourcing" journey. In the decision phase of offshore-insourcing, we answer the questions "Why to insource from offshore?" "What to insource from offshore?," and "Where to offshore?" In the implementation phase we answer the question "How to insource from offshore?" and describe the importance of evaluating outcomes. In the process of answering these questions, we discuss insourcing vs. outsourcing and the possible need for offshoring. We think of ways to select the IT functions that can be insourced from offshore, and also look at the popular offshore destinations. We discuss process of managing change, setting up the offshore center, recruiting IT professionals at offshore, and managing the IT professionals at onshore and offshore within the ambit of the global delivery model. Throughout the decision and implementation phases of offshore-insourcing, the focus is on the challenges related to managing IT personnel.

Introduction

The pressure to lower information technology (IT) costs is high on companies worldwide. The cost of IT, *a major component of which is the cost of IT professionals,* is sometimes a stumbling block in the decision to upgrade to newer and better technology alternatives. The internet provides new opportunities for offshoring of IT or IT enabled work. When a service is made available on-line, all the user knows is what they see on the screen. If they type in an internet address and access a service, they do not need to know about the nationality or race of the IT professionals that have actually developed the Web site. Companies in advanced economies are being driven to look across the horizon by the lure of low costs of IT professionals in other countries and the desire for high software quality. Dibbern, Goles, Hirschheim, and Jayatilaka (2004) note the following:

*Even the popular press (*Business Week*, 2003;* USA Today*, 2003) have reported on this issue noting that as much as 50% of IT jobs will be offshored to India and other off- and near-shore destinations in the next 10 years. Such change it is argued is nothing more than the natural progression of first moving blue-collar work (manufacturing, textile production, etc.) overseas followed by white-collar work.*

By *offshore-insourcing* of IT work, a company sets up its own IT department or subsidiary in another country (that is, it *insources* IT work from its own IT department or subsidiary located in an *offshore* country). However, there are also some concerns regarding the larger impacts of *offshoring* by a nation on its job market and its knowledge centric competitiveness. Process and operations knowledge may get leaked to local entrepreneurs and competing companies at *offshore* locations (Karamouzis et al., 2004). The other major concern that is often highlighted by the popular media is that of job losses. *Offshoring* is sometimes regarded as a reason for the slackness in growth of employment opportunities in developed economies. However, Karamouzis et al. (2004) of Gartner Research interestingly note the following about job losses:

According to U.S. labor statistics and several academic studies, less than 5% of jobs lost in the United States are attributed to offshoring IT services. A study commissioned by the Information Technology Association of America and developed by Global Insight put the estimate at 2.8%. U.S. government statistics for the last 15 years show that most job losses have occurred due to automation, changes in industry dynamics and process re-engineering.

Many proponents of the above logic face criticism that job growth at onshore may be slower due to offshoring of new projects. Karamouzis et al. (2004) however state that *"new job creation has decelerated in the past three years, perhaps due to greater efficiencies, automation, the economic downturn or pressure on companies to improve productivity without new hires."* Karamouzis et al. (2004) go on to state that concern should not be the number of jobs displaced which is a cyclical trend, but rather the *"potential loss of critical competencies and knowledge-centric roles."* Hence, *offshore-insourcing* is an option to gain access to low-cost & high-quality skills of offshore IT professionals, and also to retain critical competencies and knowledge centric roles within the company, but not necessarily within a nation.

This chapter will explore the *offshore-insourcing* process by asking the questions "Why?," "What?," "Where?," and "How?" in a prescriptive conceptual framework. It will analyze the forces that are driving offshoring in the internet age, and how various organizations can respond to this demand. The process of implementing a decision to insource from offshore is studied by discussing the process of recruiting IT professionals at offshore, understanding the need for change management, and discussing the management of IT professionals at onshore and offshore within the ambit of the *global delivery model*.
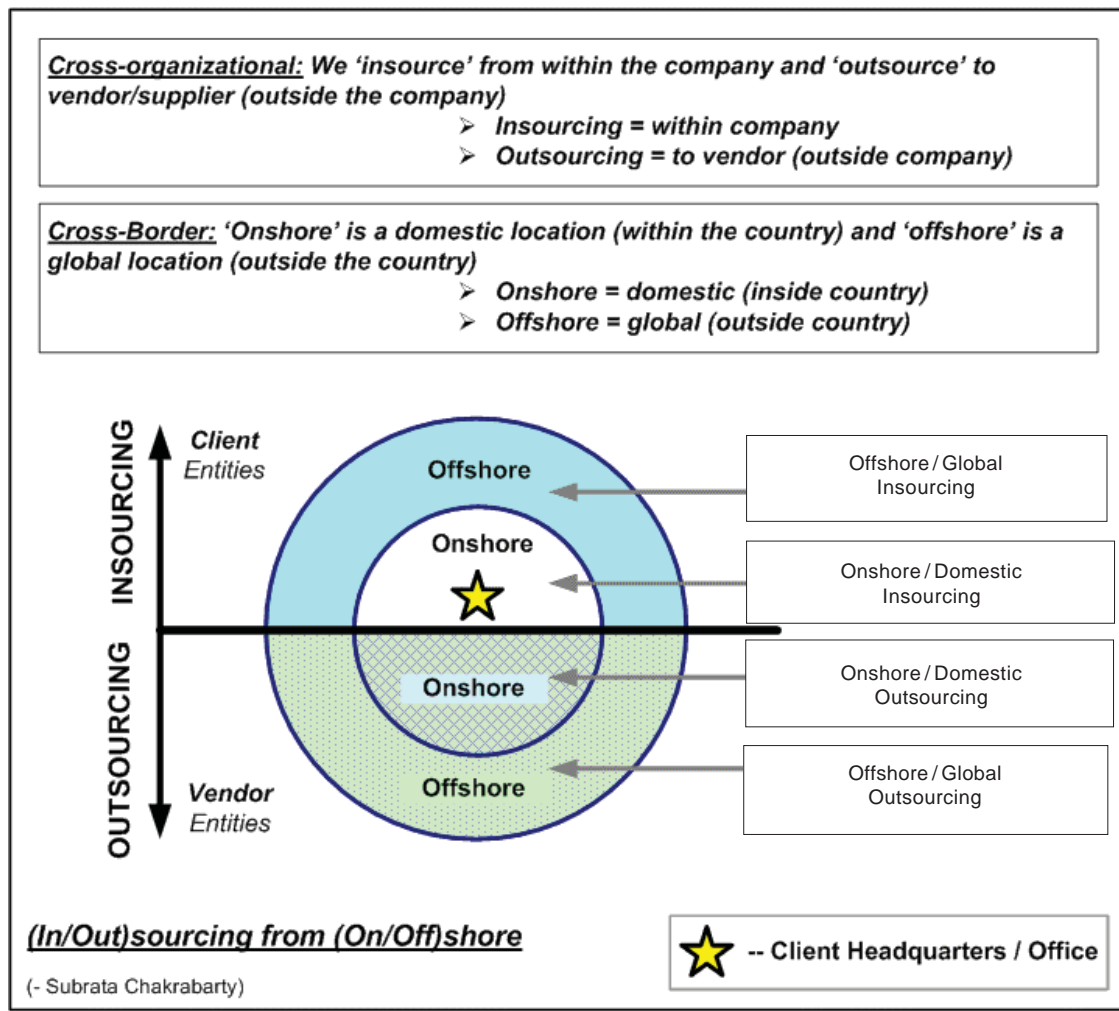
The Terminologies

Before we delve deep into this chapter, a quick brush up on the basic terminologies will help. We broadly define a *"client"* as anyone in need of services. The terms *"client"* *"customer,"* and *"buyer"* imply a firm (or even an individual) that is seeking services, from either *internal service providers* (like the client's own internal IT department, or its subsidiary) or from *external service providers* (a vendor/supplier). The term *"client-entity"* implies any entity that is owned by the client, such as the client's internal IT department or its subsidiary. In the same vein, the terms *"vendor,"* *"supplier,"* *"third party"*, and external *"consultant"* imply an *"external service provider"* or a *"non-client entity"* whose business is to provide services to the client.

The two *cross-organizational* terminologies that deal with transfer of work within or across organizations are *"insourcing"* and *"outsourcing."* A company *"insources"* work from its own IT personnel and *"outsources"* work to the IT personnel in an external company (vendor). In other words, *insourcing* implies that the service providers are client employees (who work for its subsidiary or internal IT department); whereas *outsourcing* implies that the service providers are external IT personnel (such as employees of vendor/ supplier firms or external consultants).

Figure 1. (In/out) sourcing from (on/off) shore

Cross-organizational: We 'insource' from within the company and 'outsource' to vendor/supplier (outside the company)
  ➢ Insourcing = within company
  ➢ Outsourcing = to vendor (outside company)

Cross-Border: 'Onshore' is a domestic location (within the country) and 'offshore' is a global location (outside the country)
  ➢ Onshore = domestic (inside country)
  ➢ Offshore = global (outside country)

INSOURCING — OUTSOURCING

Client Entities — Vendor Entities

Offshore / Onshore / Onshore / Offshore

Offshore / Global Insourcing
Onshore / Domestic Insourcing
Onshore / Domestic Outsourcing
Offshore / Global Outsourcing

(In/Out)sourcing from (On/Off)shore
(- Subrata Chakrabarty)

⭐ -- Client Headquarters / Office

The two *cross-border* terminologies that deal with transfer of work within or across countries (or geographical borders) are "*onshoring*" and "*offshoring*." A company "*onshores*" work to IT personnel residing in its own country, and "*offshores*" work to IT personnel some other country. In other words, *onshoring* implies that the service providers are IT personnel located in the same country as the client; this is also known as *domestic-sourcing* or *onshore-sourcing*. On the other hand, *offshoring* implies that the service providers are IT personnel located in a country, which is different from the client's country; this is also known as *global-sourcing* or *offshore-sourcing*. For example, both China and India may be considered as "offshore" countries with respect to the United Kingdom or USA.

As shown in Figure 1, these basic cross organizational and cross border terminologies can lead to four combinations: (1) *onshore-insourcing* (or *domestic-insourcing*) implies that both the client and its internal IT department (or subsidiary) that provides IT services is located in the same country, (2)

offshore-insourcing (or *global-insourcing*) implies that the its IT department (or subsidiary) that provides IT services is located in a country that is different from the client's country, (3) *onshore-outsourcing* (or *domestic-outsourcing*) implies that both the client and the vendor personnel are located in the same country, and (4) *offshore-outsourcing* (or *global-outsourcing*) implies that the vendor personnel are located in a country that is different from the client's country. In this chapter, we will be discussing about *offshore-insourcing* or (*global-insourcing*).

The Conceptual Framework/Model for Offshore-Insourcing

Figure 2 gives the proposed conceptual framework/model for offshore-insourcing that will be used in this chapter. Simon (1960, as cited in Dibbern et al., 2004, pp. 14-17) had proposed a four-stage model for decision making that comprised of the stages (1) intelligence, (2) design, (3) choice, and (4) implementation. Dibbern et al. (2004) had adapted Simon's model in their literature survey of information systems *outsourcing*. Similarly, Simon's model is adapted here for *offshore-insourcing,* by modifying Simon's intelligence, design and choice stages into the *why*, *what,* and *where* stages respectively and clubbing these three stages into the *decision phase*. Furthermore, we break down the final *implementation* phase into the two stages of "*how*" and "*outcomes*."

Hence, the offshore-insourcing process has been assumed to have two distinct phases, namely the *decision phase* and the *implementation phase*. In the *decision phase* a company asks the following three questions:

- *Why* to insource from offshore
- *What* to insource from offshore
- *Where* to offshore

These three decision-phase questions (or stages) can be combined into the single decision question, that is: "'*Why' to insource 'what' from 'where' in off-shore?*" Furthermore, the *implementation* phase comprises of two stages that asks the "how" question and finally evaluates the outcomes:

- *How* to insource from offshore
- Evaluate *outcomes*

In the "*Why to insource from offshore?*" stage we ask the question of whether a company needs to *insource* from within or *outsource* to a vendor, and whether the company needs to go *offshore* to another country? If the company does decide go *offshore* to another country, then, should it look at an offshore-based vendor (for *offshore-outsourcing*) or should it set up its own offshore subsidiary (for *offshore-insourcing*)? Moreover, given that there are so many concerns about offshoring in the media and in the public, how should the company filter out the realities from the myths and make a knowledgeable decision?

In the "*What to insource from offshore?*" stage we ask the question on how a company can select the IT functions that it should *insource* from *offshore*? In the "*Where to offshore?*" stage we look at the criteria for choosing an offshore destination, and also survey some of the popular offshore countries and cities (see Appendix I of this chapter).

Figure 2. Conceptual framework/model for offshore-insourcing

Offshore-Insourcing: conceptual framework/model
(- Subrata Chakrabarty)
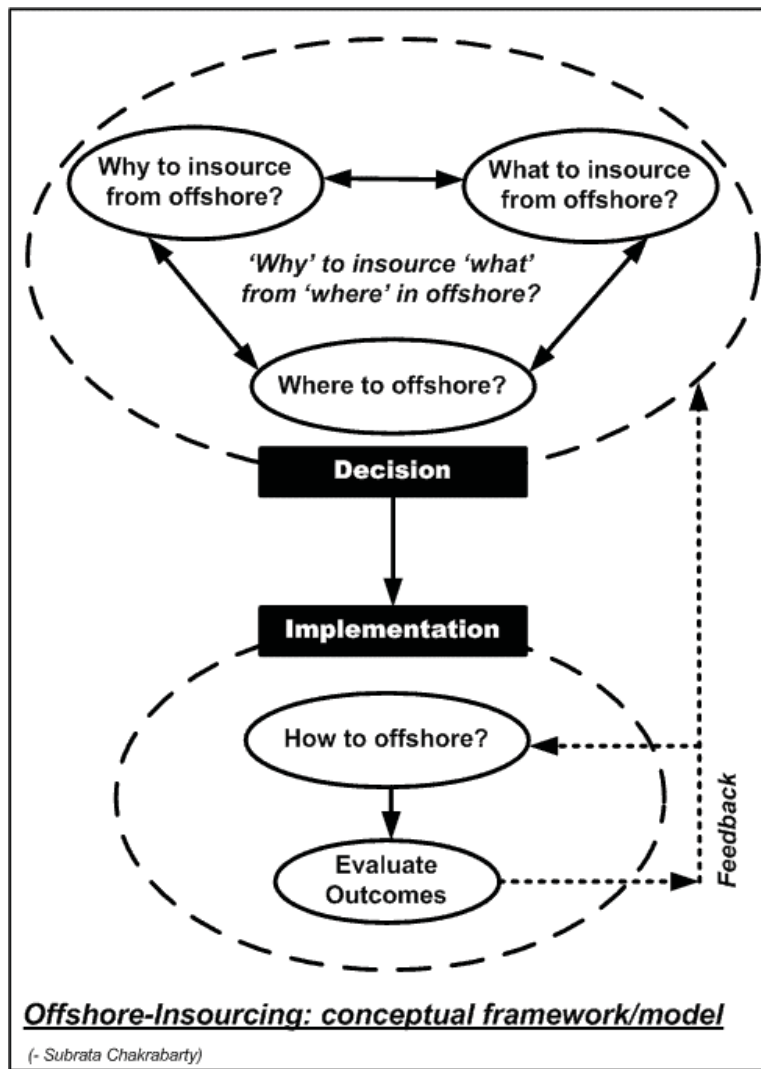
In the "*How to insource from offshore?*" stage we discuss and prescribe the processes for creating the team that will be implementing the decision to offshore, managing change, getting the offshore office ready, analyzing options for recruiting at offshore, and the setting up onshore-offshore coordination for recruitment and induction training. We also discuss the *global delivery model* and the management of the IT professionals at onshore and offshore. Finally, we *evaluate the outcome* of the entire offshore-insourcing process, and use the feedback to further improve the decision making and implementation phases.

Decision:
Why to Insource from Offshore?

The decision question "why to insource from offshore?" can be broken down into the questions "why to insource?" and "why to offshore?"

Why to Insource?

Hirschheim and Lacity (2000) conducted fourteen case studies that assess the experiences of companies with outsourcing. They provide evidence that companies need not necessarily turn to outsourcing to improve IT performance, and

Table 1. Insourcing vs. outsourcing

Insourcing	Outsourcing
✓ More suitable when it is difficult to define requirements (**uncertainty**)	✓ Enables organization's personnel to focus on its **core business**, by outsourcing the non-core activities
✓ More **control** over strategic **assets, resources** and IT **personnel**	✓ Assists in major **reorganizations** by making transitions smoother & quicker
✓ In the **absence of** competent **vendor** personnel in the market, insourcing is the only option	✓ **Frees up** in-house resources and IT personnel for **new and innovative** business/technology development, by turning over legacy systems to vendors
✓ Lower risk of intellectual property rights violation by internal IT personnel (in comparison to difficulty in negotiating **IP rights** with external vendors)	✓ **Quality** and service improvements from established service providers
	✓ Access to technical **expertise of external IT personnel**, when the same is not available internally.
✓ Better when a very high degree of firm specific **business knowledge** is required by IT personnel (since knowledge transfer to external vendor personnel would be difficult)	✓ Financial advantages: o**Cost** reduction (possible reduction in IT personnel costs) o**Costs are predictable** (determined while negotiating outsourcing deal) oReduction in **Capital expenditure** (for IT infrastructure)
✓ No threat of **opportunistic behavior** by external vendor personnel	✓ **Flexibility** and control in increase/decrease of IT manpower as needed

believe that IT managers can often times replicate a vendor's cost reduction tactics, provided they get the much needed support from their upper management. In many of the case studies it was found that large scale outsourcing, often led to lower than expected flexibility and lower than expected service levels from the vendor's IT personnel. Furthermore, a number of contracts are either being renegotiated or being terminated; and some companies are considering pulling their IT functions back in-house once an outsourcing contract is terminated.

Outsourcing is not the panacea for all ills. At shown in Table 1, both insourcing and outsourcing have their pros and cons (Ang & Straub, 1998; Aubert, Rivard, & Patry, 1996; Currie & Willcocks, 1998; Earl, 1996; Jurison, 1995; Loh & Venkatraman, 1992, 1995; Nam, Rajagopalan, Rao, & Chaudhury, 1996; Nelson, Richmond, & Seidmann, 1996; Poppo & Zenger, 1998).

Why to Offshore?

Why is there such great excitement about offshoring work to IT personnel in the other countries? Is offshoring sustainable over the long-term or is it just a passing fancy? Literature suggests that offshoring of IT work will continue to grow for the following reasons:

- **Access to large markets with high growth potential:** The favorite locations for offshoring like China and India (see Appendix I) are also large and growing markets. It is strategically important to establish an early presence in such developing countries which have a higher growth potential than the relatively mature developed countries (Apte & Mason, 1995, p. 1252).

- **Cost savings:** The offshoring option offers lower cost advantages (primarily due to lower salary levels of offshore IT personnel) and is probably biggest driver behind the offshoring trend (Apte & Mason, 1995, p. 1252; Carmel & Agarwal, 2002; Sinha & Terdiman, 2002; Sobol & Apte, 1995).

- **Fastest time to market by working round the clock:** Potentially all 24 hours of the day can be devoted to any task by globally distributing the work to IT personnel across multiple time zones. This for example can lead to a faster cycle time for software production (Apte & Mason, 1995, p. 1252; Sinha & Terdiman, 2002), and allow continuous 24x7 operations and monitoring of critical IT functions and infrastructure by IT personnel (needed for customer service, network management, production support, etc.).

- **Latest technologies and the Internet:** The latest technologies allow collaboration among globally distributed IT professionals (Carmel & Agarwal,

2002, p. 66). The internet has greatly helped the phenomenon of IT sourcing by allowing personnel across the work to easily share information. Communication technologies such as e-mailing, teleconferencing, videoconferencing, and instant-messaging allow for better coordination in spite of the geographic distances.

- **Modular design of IT tasks:** Certain IT tasks (for e.g., in IT production or support) can be designed in a modular fashion (i.e., they can be broken down into smaller and relatively independent modules) that makes it easier to distribute the work globally among IT personnel with reduced transactions costs (cost of coordinating work activities among the personnel), and allows for easier synchronization, communication, supervision, and feedback mechanisms among the IT personnel (Carmel & Agarwal, 2002, p. 66).

- **Skilled pool of IT professionals:** There is large supply of qualified IT professionals in many offshore destinations like India (Apte & Mason, 1995, p. 1252; Carmel & Agarwal, 2002; Sinha & Terdiman, 2002).

- **Scalability and bench-strength:** The sizable supplies of qualified low-cost IT personnel at offshore allows companies to have a certain number of IT personnel in the "waiting mode" i.e. waiting to be assigned to projects, and are used to quickly ramp-up projects with IT personnel when the need arises. Having a small number of low-cost but highly skilled personnel in the "*waiting mode*" for being assigned to projects is also known as "*bench strength*," and allows the firm to respond rapidly to sudden requirements. Alternatively, companies can also hire IT personnel rapidly from the job market, thanks to the huge availability of qualified low-cost IT professionals in many of the offshore destinations (like China and India).

Concerns About Offshoring

However there are some valid concerns about offshoring work to IT personnel in other countries, which include: (1) problems of communication and coordination, (2) cultural differences, (3) lack of trust, (4) difficulties in arranging visas/work-permits, (5) offshore unit's lack of company/industry specific domain knowledge (both business & technical), (6) lack of control over quality and schedule, (7) possible violation of intellectual property rights, (8) unclear government attitude towards cross border data flow and trade-in services, (7) unsatisfactory infrastructure in the offshore destination, (8) possibility of an unstable economic, political, or social environment, (9) security of physical assets and intellectual capital, and privacy, (10) knowledge transfer, and (11) managing uncertainty in IT requirements and unanticipated changes in scope of

offshored work (Apte & Mason, 1995, pp. 1252-1253; Carmel & Agarwal, 2002, p. 68; Sinha & Terdiman, 2002; Sobol & Apte, 1995, p. 271).

Some of the reasons that motivate companies to insource their IT needs from their offshore subsidiary (or offshore IT department) rather than to outsource them to an offshore (external) vendor are: (1) greater information & data security, and intellectual property (IP) protection, (2) absence of some specific expertise in the offshore vendors, and (3) possibility of gaining greater low-cost benefits by running one's own subsidiary, rather than pay high margins to vendors (Karamouzis et al., 2004). However, some of these offshore subsidiaries may be short-lived due to several factors that make it challenging to sustain it as a competitive option. We categorize the contributing factors as follows:

- **Difficulty in achieving economies of scale:** "Economies of scale" will be difficult to achieve since a company has a finite limit to its internal needs. An alternative is to convert the internal IT department (or subsidiary) to a "spin-off." A *spin-off* is a company, which was originally an internal IT department (or subsidiary) of its parent company, but is now independently selling its services to the market. This would help in expanding the spin-off's revenue base and number of IT personnel, and thereby achieve greater *economies of scale,* but this will also involve additional investments/costs. (Karamouzis et al., 2004; Willcocks and Lacity, 1998, p. 26, pp. 31-32)

- **Costs of technology infrastructure and human resource management:** The recurring investment costs required for staying updated with the latest technology and infrastructure can cause the offshore subsidiaries to be less cost-efficient. Also, costs for recruiting and managing IT personnel in a new and increasingly competitive labor market can grow. Additionally, management time and effort spent to manage one's own offshore subsidiary or IT department would be higher than when the IT work is outsourced to vendor personnel (Karamouzis et al., 2004)

Decision:
What to Insource from Offshore?

A two step approach might be helpful to answer the question "What to insource from offshore?" The first step would be to "*look inside*" and select the IT functions can be insourced from offshore IT personnel, starting with the "easiest first". The second step would be to "*look outside*" and find out about the skills of the IT personnel available at offshore.

Step 1: Look Inside – Select the IT Functions that can be Insourced from Offshore, Starting with the "Easiest First"

How does a company decide what IT functions are suitable for insourcing from offshore? IT functions are easiest to offshore when a company is confident about the following (Apte et al., 1997; Hotle & Iyengar, 2003; Iyengar & Terdiman, 2003; Sobol & Apte, 1995):

1. **Maturity** of associated **processes** is high; processes are well defined and documented

    o   For example, a company with a higher CMM rating will be better at insourcing of software development from offshore, since its processes are of the higher quality and its IT personnel are educated about the best quality processes

2. **Project management skills** of IT managers and professionals are good at both and onshore and offshore

3. Requires lesser **degree of interaction (communication and coordination)** with onshore management or onshore users, and face-to-face interaction between onshore and offshore IT personnel is not necessary

    o   Activities that require higher degree of user interaction should not be carried out at offshore. The extent of user interaction is inversely proportional to possibility of carrying out an activity remotely. Hence, initial requirements gathering, analysis and design phases are generally conducted at onshore by IT professionals

4. High **availability of offshore IT professionals** who have high levels of skills required for the IT function

5. **Ease of knowledge transfer** of both business domain knowledge and special technology skills to IT personnel at offshore

6. **Requirements** can be well defined and documented by IT personnel, and there is less uncertainty

    o   **Documentation & prioritization:** Requirements-gathering and management is best handled face-to-face. The gathered requirements must be well documented and prioritized by IT personnel at onshore, before sending them to offshore IT personnel

    o   **Requirements change management:** Often users of IT systems don't know what they want, or are unable to define them satisfactorily. Hence changes to requirements over time are common. If the

frequency of these changes can be controlled, and brought down then the IT function can be more comfortably offshored

Based on the above considerations suitable IT functions should be chosen for insourcing from offshore IT personnel.

Step 2: Look Outside – Find Out About the Skills Available at Offshore

A suitable investigation would be required to find out more about the skills of IT professionals at the prospective offshore destination. But how does one find out the skills of the IT professionals in a prospective offshore destination? One option may be to survey "*what services the offshore based software service providers (vendors) have to offer*?" For example, if India is a prospective offshore destination, and if some large India based software service providers can provide certain IT services for certain industries, then, there is a good probability that skilled IT professionals are available in India for those IT functions (Marriott & Wiggins, 2002). *Though a company that is attempting offshore-insourcing of IT will not actually outsource to any of these vendors, these kinds of surveys can provide valuable information about the skills available in the offshore destination.* As an example, we have listed the services offered and the industries targeted by a large India based software services provider named "Infosys" (http://www.infosys.com) in Appendix II at the end of this chapter, which would give an idea about the capabilities of the IT personnel at the respective offshore location (Infosys, 2005b, 2005c).

Decision: Where to Offshore?

Kempf, Scholl, and Sinha (2001) reported the evaluation of competitiveness of various countries as preferred destinations of offshoring, based on studying factors like infrastructure, IT personnel availability, capital and entrepreneurship. The characteristic of the labor pool of IT professionals was used to filter an initial list of 33 countries to a short list of 17 countries, namely: *China, India, South Korea, Malaysia, Philippines, the three Baltic States, the Czech Republic, Hungary, Poland, Russia, South Africa, Argentina, Brazil, Chile,* and *Mexico*. For further short listing, infrastructure, capital, and risk ratings of countries were then used by Kempf et al. (2001) to identify the following key regions for offshoring:

- **Brazil** is possibly the best suited for cross-border collaboration opportunities among the four countries short-listed from the Americas (Argentina, Brazil, Chile and Mexico). Though currently below a lot of radar screens, Brazil displays some strong fundamental characteristics that make it a potentially attractive country to consider. One of Brazil's key attributes is the level of telecommunication and Internet infrastructure deployed.

- **China** has created an environment supportive of cross-border collaboration. The labor force appears to be strong in high technology and data from other industry sources indicate that China offers very competitive charge rates in the IT sector. Measures of China's infrastructure are also positive, though, like India, China does not seem to be spending as much on investments in telecommunications. In fact between 1995 and 1999, China spent a total of $5.9 billion—only slightly more than the Philippines' $5.1 billion.

- The **Baltic states of Estonia, Latvia and Lithuania** offer some interesting opportunities for cross-border collaboration. While data on wages for these three countries is unavailable, each of these countries has some of the highest numbers of scientists and engineers in research and development per million people of all the countries studied.

- **India** continues to be the predominant offshore player with software and services. India has a large, technologically advanced labor pool. In fact, the U.S. Immigration and Naturalization Service (INS) reports that Indian nationals received 42.6% of the H1-B temporary skilled worker visas issued between October 1999 and February 2000. Also, government support of its tertiary education systems and private IT training institutions, along with a low-wage-rate environment, continues to make India attractive as a source of skilled technologists. However, the economic data collected in our research reflects a dichotomy between the growth of demand for IT services and the development of telecommunication and information technology infrastructure that may cause concern in the future.

Going by reports in the media and various other sources, as of now China and India are among the topmost players in offshore-insourcing arena (Cohen, 2005; Karamouzis & Young, 2004; Kempf et al., 2001; Wiggins, Datar, & Liu, 2002a; Wiggins, Datar, Leskela, & Kumar, 2002b). The offshore-insourcing scenarios of these two countries have been discussed in Appendix I of this chapter. However, it is important to note that these are not necessarily the only countries that can successfully offer the advantages of offshore-insourcing. Though China and India seem to be among most "popular" destinations at present, this can change in the future. The countries that offer the optimum balance in terms of cost, infrastructure, accessibility, skilled IT personnel, political climate and social

acceptability would be "right" destinations in the future, depending on the needs of relevant company. The following factors need to be considered while considering an offshoring location (Iyengar, 2005; Karamouzis & Young, 2004):

1. **Cost of IT personnel:** Salaries for IT personnel vary from location to location

2. **Infrastructure:** Telecommunications, roads, real estate, water, and power

3. **Access:** International access and quality accommodation

4. **Talent pool/skills:** Availability and diversity of skilled IT personnel, and academic institutions that can continuously generate such skilled IT personnel with diverse skills

5. **Cost of living**

6. **Political climate and support:** National and state/local governments, political ideology, and religious tolerance

7. **Quality of life:** Housing rates, cosmopolitan feel, religious tolerance, transportation, crime rate, climate and public infrastructure

8. **Expatriate friendliness:** A job posting at the chosen location should not be considered a hardship assignment by the expatriates

9. **Service-line capabilities:** Some locations may be specialized hubs for particular types of industries and services

Implementation: How to Insource from Offshore?

Various issues related to offshore-insourcing were discussed in the earlier sections (i.e., decision making phase), namely "why to insource from offshore?," "what to insource from offshore?", and "where to offshore?" We find that there is a scarcity of literature on "how" to insource from offshore. Therefore, a conceptual approach is adopted in this section where the author utilizes his experience of working in the Indian software industry to come up with a possible conceptual framework that attempts to answer the "how" question[1].
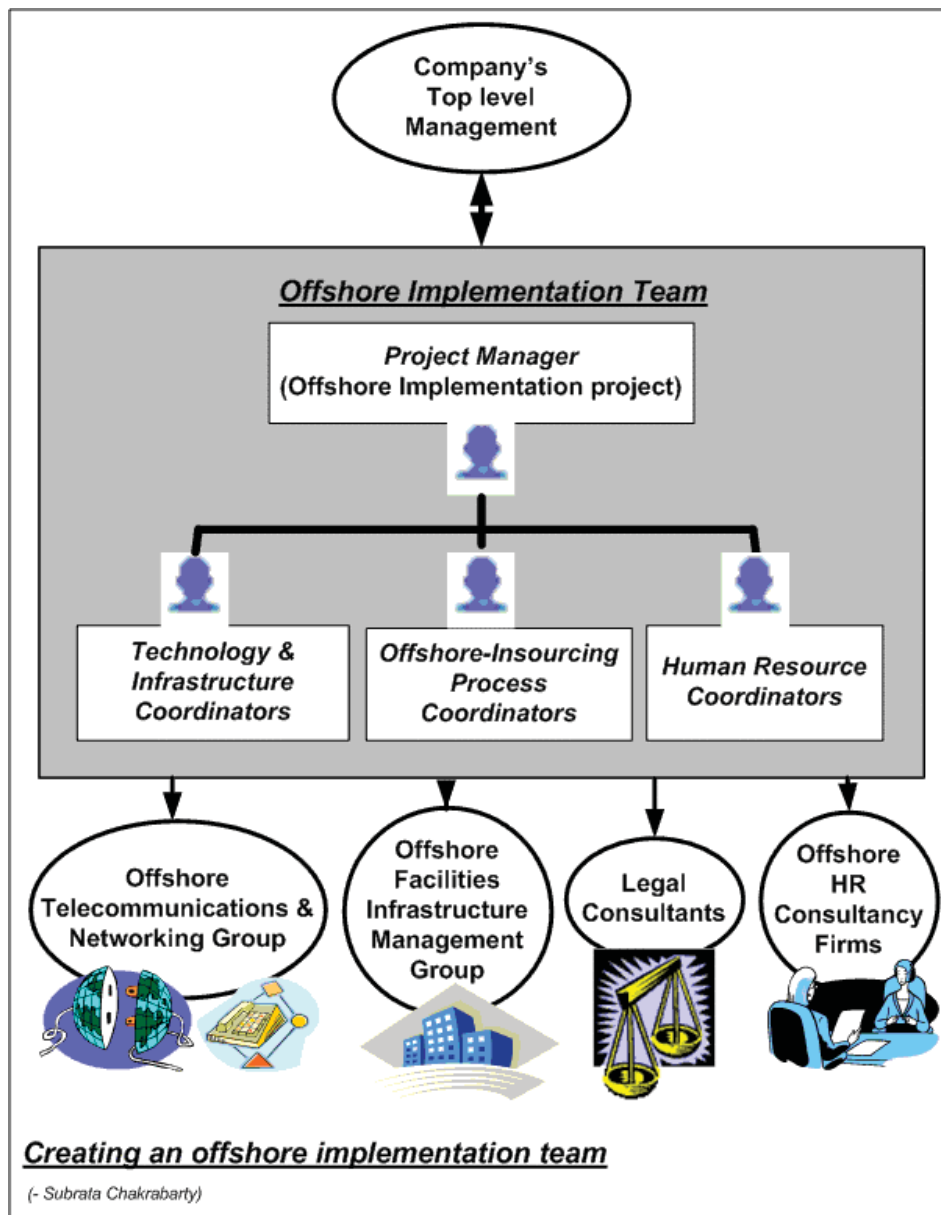
How to Create the Offshore Implementation Team?

An "*Offshore Implementation Team*," which is the "core" team with the responsibility of overseeing the implementation of the offshoring operation, can

be created. This core team may comprise of the company's onshore employees and/or external consultants. The *offshore implementation team* can use the assistance of the onshore company's high-level management and various external entities such as legal consultants, HR consultants, telecommunications/ network consultants and facilities/infrastructure consultants. Visas/permits will need to be processed and issued for all offshore implementation team members and other people that will be traveling to offshore.

For example as shown in Figure 3, the offshore implementation team may consist of a project manager, human resource coordinators, technology and infrastructure coordinators, and an offshore-insourcing process coordinator.

Figure 3. Creating an offshore implementation team

Creating an offshore implementation team
(- Subrata Chakrabarty)

The "*project manager*" (of this offshore implementation project) will have general managerial responsibilities towards setting the offshore facility, will interact with the company's top level management, and will have the various coordinators reporting to him or her. The "*HR coordinators*" will take up responsibilities of organizing training, staffing and related scheduling and management activities. The "*technology and infrastructure coordinators*" will take up the responsibility of network/system infrastructure management, which involves procurement and setting up of equipment for the offshore facility, and related scheduling and management activities. The "*offshore-insourcing process coordinators*" should ideally be people with prior experience in setting up such offshore facilities, in advising and coordinating the offshoring process, in change management, in addressing challenges of the offshoring process, and in related risk mitigation activities.

The *offshore implementation team* will interact with various other groups like the company's top level management, the offshore telecommunications and networking group, the offshore facilities infrastructure management group, the legal consultants, and the offshore HR consultancy firms.

The *company's top level management* will have the responsibilities of sanctioning funds for the offshore implementation project, monitoring the business value of the offshore implementation exercise, getting the go-ahead from the firm's shareholders, championing change management, reviewing the status at identified milestones, and making relevant decisions and approvals for future phases (Kobyashi-Hillary, 2004, pp. 231-248).

The *offshore telecommunications and networking group* will be responsible for designing the core network that will be required to set up offshore operations, shipping/installing/configuring of the core network infrastructure in the new offshore office, setting up connectivity (wide area network or WAN) among the onshore and offshore offices for secure data communication, and setting up of telecommunication networks such as phone lines and internet service (CMIS, 2004).

The *offshore facilities infrastructure management group* can help, for example, in either setting up the offshore office in a previously established IT Park which houses other international companies, or actually hiring contractors to build a new offshore facility building. The facilities should include office furniture, power systems, cooling systems, and network cabling (CMIS, 2004).

The *legal consultants* would provide counseling on labor laws, offshore telecom regulations, data privacy and cross-border information transfer, offshore intellectual property laws, taxation, software copyright and license laws, etc.… (Kobyashi-Hillary, 2004, pp. 177-190)

The *HR consultancy firms* will be responsible for advertising, creating brand awareness in the offshore labor market, and assisting the offshore implementa-

tion team's HR coordinators with staffing activities like executive search, recruitment, training and temporary staffing (Cerebrus Consultants, n.d.; Ma Foi, n.d.).

By *benchmarking* against companies that have successfully set up offshore-insourcing operations (see Appendix I), the *offshore implementation team* must plan and then compare its offshore implementation performance. Appendix-I, which addresses the question "Where to offshore?" provides a list of the 15 biggest InfoTech companies in the world, most of which have an offshore presence in China or India. These companies may be used as benchmarks of successful offshore-insourcing.

How to Manage Change Among Onshor e IT Personnel?

Iyengar and Morello (2004) suggest that the questions listed in Table 2 are asked by the onshore business unit staff and onshore IT professionals whenever they hear the dreaded "offshore" word in their organization. IT professionals at onshore share the concerns of the business unit, and also have additional concerns since they are the primary individuals affected by any offshoring decision. Staff members in the business/administrative units are primarily concerned about changes in work procedures, loss of expertise, personal benefits, and risks and the need for a cautious approach. IT professionals are additionally concerned about the possibility of loss of their own jobs and those of their friends, their perpetually uncertain future, and their own capabilities to handle such a change. Companies may face non-cooperation and lack of initiative from unmotivated employees while offshoring.

Table 2. Business unit and IT staff concerns on offshoring (Compiled from Gartner Research, Iyengar and Morello (2004))

Business Unit Staff concerns on offshoring	IT Staff concerns on offshoring (in addition to concerns shared by Business staff)
▪ *"How will my business unit get the work done now?"* ▪ *"Won't we lose our subject matter expertise?"* ▪ *"Why should I support this effort? What's in it for me?"* ▪ *"Isn't this initiative risky?"* ▪ *"Shouldn't we take things slowly--one step at a time?"*	▪ *"Will I lose my job?"* ▪ *"Will my friends lose their jobs?"* ▪ *"Even if I make it through the first round of layoffs, what happens next?"* ▪ *"They're only keeping me through the transition, so why should I help out?"* ▪ *"How can I possibly perform in my new role--one that I don't like and am not trained to handle"* ▪ *"Will I need to work additional hours or shifts so that I will be able to communicate with my offshore counterparts?"*

Table 3. Change management challenges (Compiled from Gartner Research, Iyengar and Morello (2004))

Emotional challenges	Communications challenges	Execution challenges
▪ **Emotions:** disbelief, anxiety, fear, denial, shock, resentment, anger, stress, resistance, disengagement and a desire to leave the organization. As a result, productivity falls ▪ **Fear:** employees wonder if they will lose their jobs next	▪ **Information accuracy:** Delays, second-hand information, distortion ▪ **The Media:** Misinformation from media stories causing panic and resentment ▪ **Management communication:** Conflicting information from managers	▪ **Tolerance:** Lower initial tolerance for offshoring by normal employees ▪ **Processes:** IT process need to be redesigned for more complex global delivery ▪ **Knowledge Transfer:** Business & IT knowledge transfer to offshore ▪ **Control:** Power & control of onshore management/staff over offshore ▪ **Transition:** Long transition time and employee attrition during this time

Iyengar and Morello (2004) further suggest three kinds of challenges that companies encounter in early stages of offshoring, namely: emotional, communications and execution challenges, which are explained in Table 3. Emotional challenges are often triggered by emotion rather than reason; communication challenges involve misinformation and distortion; and execution challenges represent practical concerns in performing successful offshoring.

Hence, a *communication strategy* should be created to introduce the concept of an offshore IT team and to address the fears of the existing onshore IT professionals about *offshoring*. Communication can be affected through periodic staff briefings, weekly newsletters, increased notice board activity, etc. The company moving offshore might want to undertake *awareness training* sessions for the company's onshore employees to familiarize them with their proposed *offshoring plans and processes*, and hence lead to better mutual understanding. Managers should communicate offshoring plans with maximum details and honesty to the onshore IT personnel. Failure to do so effectively might result in a backlash and lower productivity from onshore IT personnel, and can adversely affect the employer's image in the job market (Morello & Terdiman, 2004). The communication strategy can include the following rules (Morello & Terdiman, 2004):

1. Make a communication plan for onshore IT personnel, and communicate transparently all that is known and not known

2. Convey the truth to onshore IT personnel about the intentions and reasons for offshore sourcing

3. Analyze the strengths, weaknesses, opportunities, and threats for the departments/projects and IT personnel most closely affected

4. Clearly state the jobs to be retained at onshore, and state if the affected IT professionals would be retrained for other roles by identifying new opportunities, career options and transition periods for the affected IT professionals

How to Get the Offshore Office Ready for IT Personnel?

The offshore implementation team will need to get certain important things in place (Kobyashi-Hillary, 2004, pp. 123-248) before staffing the offshore office:

- Getting the *Facilities Infrastructure* ready
- Getting the *Technical Infrastructure* ready
- *Other tasks* would include:
  - o   Establishing a banking relationship
  - o   Selecting legal representation
  - o   Setting up an accounting system
  - o   Obtaining required licenses/permits
  - o   Obtaining insurance and establishing a security plan

One of the major tasks for a company moving offshore is to get the *Facilities Infrastructure* ready (CMIS, 2004). The offshore office can be located in a previously established offshore development park with other international companies, or can be purchased or built in a suitable location. In case the facility is leased, general maintenance and janitorial services need to be included in the lease agreement. The facilities should feature all of the basic elements for establishing a working office for IT professionals that includes office furniture, power, cooling, initial telecomm, and network cabling. Appropriate power and cooling will need to be provided for any technical equipment required.

Another major task would be to get the *Technical Infrastructure* ready (CMIS, 2004). The offshore office will need to be highly self-sufficient, and yet remain connected with the onshore corporate location for productive collaboration between IT professionals at offshore and onshore. The technical infrastructure that would be needed by offshore IT personnel include e-mail servers, file servers, Web servers, application servers, database servers, personal computers, printers, software and also the network infrastructure. Licenses for the software should allow its usage in the offshore location. A *network operation*

team has to design the core network required to support the IT personnel's offshore operations. Time should be allocated to ship, install, and configure the core network infrastructure in the new offshore office. For example, a private MPLS (Multi-protocol Label Switching) wide area network (WAN) between the offshore office and the onshore facilities may be set up for secure, inter-corporate data communication. Telecommunications networking (phones, PBX (private branch exchange) equipment, Telco, ISP (Internet service provider) setup) will also need to be done.

How to Plan Staffing at Offshor e?

An organization chart, staffing projection, and staffing budget will have to be made (CMIS, 2004):

- An *organization chart* for the offshore staff and IT personnel should be developed. It should also explain how the offshore office should report into the onshore office.

- An offshore *staffing projection* describing the skill set of each staff member and IT professional, complete with approximate salary bands appropriate for the offshore region will be needed.

- A *staffing budget* will need to be prepared, and this will include costs for legal procedures, consultants, training, travel, communication, accommodation and various infrastructure facilities.

How to Make Use of the Recruiting Options at Offshore?

The options for recruiting at offshore possibly include (1) direct/permanent hiring, (2) contract hiring, and (3) contract-to-permanent hiring (Moses Associates, n.d.; Schweyer, n.d). The pros and cons for each option should be studied. Also, the labor laws of the offshore region need to be studied in great detail (Kobyashi-Hillary, 2004, pp. 177-190).

Permanent hiring is highly recommended if the position requires the IT professional to have access to highly critical information systems, have security rights/privileges, or if the position requires a managerial role. If a company can groom and retain its offshore managerial and IT talent, then there is greater knowledge retention within the company, and there is a lesser threat of leakage of the company's proprietary or sensitive information. Since there is a greater dependence on the knowledge possessed by the permanent IT personnel on key

processes/tools/functions, if a key skilled employee quits, it is harder to find a replacement that can be equally knowledgeable and productive (however, strict emphasis on documentation of processes/tools/functions across the organization can help new hires to learn quickly). Permanent IT personnel also increase the companies' benefits costs, they may become lackadaisical and may take their job for granted, and during business slumps it is expensive and difficult to manage the surplus manpower.

Contract hiring involves hiring IT personnel temporarily on projects (such as for project work involving programming or engineering services) and the contracted IT personnel may be released by the company at any point. Contract hires can be more responsive to their responsibilities since they don't take their job for granted. They try to stay updated with the latest technology and retrain on their skills. This is a more cost-effective approach because during business slow-downs the contracted IT personnel can be easily released. However, contract employees have very low job-security and this may lead to high attrition; also there is significant knowledge loss when the contract hire is released (there is scope for intellectual capital theft, and sensitive data may leave the company). When the economy is booming, it is difficult to find quality IT personnel in the competitive job market and getting good employees as contract hires will be a tough call.

In *Contract-to-permanent hiring*, the IT professional is hired on a contract basis for a fixed period of time, beyond which there is an expectation that they could be converted into permanent employees based on performance. The company can groom, and test the technical knowledge and team skills of the IT professionals before deciding to retain them full-time. This ensures quality staffing. If business declines during the "term-of-contract," the IT professional can be easily released.

Offshore managers must be ideally hired on a permanent basis, because continually changing managers will significantly effect and slowdown the effective execution of IT and administrative functions. Moreover, managerial skills are rather hard to come by, and managers need to build a long-term rapport with their counterparts at onshore to better coordinate the operations of the two offices and develop a good working atmosphere in the offshore facility. *Non-managerial staff at offshore can* be hired on a contract-to-permanent basis, that is they will be on a contract basis for a limited period (say a year), beyond which they will either be made permanent or released (based on their performance). This allows the management to observe their work before making a permanent hiring decision.

It is necessary to groom and build managerial and IT talent at offshore. To reduce the effects of attrition, there needs to be a strict enforcement of documentation

of key processes, tools and functions, which in turn leads to better knowledge management. During temporary labor spikes, the company can step up the *hiring of contract personnel* on a project to project basis and release the temporary hires when demand declines. This will help the offshore company to be flexible and agile in terms of meeting business and staffing needs while keeping costs down.

How to Use Expatriates for Offshore?

Companies can bridge the gap of time zones, interaction styles and flawed communications by using the talents of individuals with multicultural fluency that is often found in expatriates who have been immersed in the customs, language and workplace rhythms that are essential in the diffusion of new offshoring processes with the overall enterprise (Bittinger, 2003). Some personnel from onshore may be deputed at offshore, and some personnel from offshore may be deputed at onshore, to bridge the onshore-offshore divide. Bittinger (2003) reports from a study by Hilary Harris (Cranfield School of Management, Cranfield University, UK) that organizations are using four types of international work assignments:

- **Long-term:** The expatriate and his or her family move to the host country for more than one year
- **Short-term:** Assignments are less than a year, and may involve family accompaniment
- **International commuter:** The employee commutes on a regular basis, while the family remains at home
- **Frequent flyer:** The employee takes frequent trips abroad, but does not relocate

Candidates selected for expatriate roles should preferably have work experience abroad for better cultural sensitivity and adaptability, language/communication/interpersonal skills, leadership skills, ability to work and collaborate from remote locations, understanding of parent companies mission, vision and culture, and most importantly the person's and the person's family's willingness to travel (Bittinger, 2003). Bittinger (2003) states that the biggest reason why the expatriate strategy sometimes fail is due to soft family related issues like resistance from spouse due to various personal and career related reasons, inability to adapt to foreign culture, or plain homesickness.

How to Carry Out the Recruitment and Induction Training Process?

Will a company's current structure be able to support the offshore recruitment process or will the company need to employ the services of a local HR consultant at offshore? The task of selecting the right staff and IT professionals and creating the right organization structure may require localized experience. A company moving offshore might want to maintain authority over the entire advertising, hiring and training process to gain greater control over the skill level and service quality of new employees. Figure 4 shows a possible example of how the recruitment and induction training may be conducted.

Recruitment

Hiring of staff and IT professionals at offshore will involve many tasks (see Figure 4). *Brand awareness* should be created by advertising the recruitment program in the media (such as leading newspapers) and ensure that the job postings and advertisements have been posted on the company Web site and others job-search Web sites.

Most HR consultants provide two types of selection services: *database selection* and *advertised recruitment* (Ma Foi, n.d.). *Database selection* uses an automated Web enabled database that allows for speedy matching of candidate profiles with recruiting company's needs. *Advertised recruitment* can be used for tasks like "head-hunting" to attract specific segments of personnel such as senior managers, and also for skill specific recruitment.

Interviews with short listed candidates need to be arranged. Interviews at offshore may be conducted by managers at onshore through videoconferencing; and in such a scenario, the difference in time-zones between onshore and offshore need to be taken into account. Access to facilities such as rooms, computers, internet-connectivity, projectors, printers, teleconferencing, videoconferencing, etc… should be available at interview sites.

Induction Training

The newly hired managers from offshore may need to travel to the onshore offices to acquaint themselves with the company's business, work culture, policies, practices, and people (see Figure 4). During this time, managers from offshore can study the onshore company's business and IT work. Information gathered at onshore needs to be clearly documented so that the entire organization, including new employees, may benefit from it.

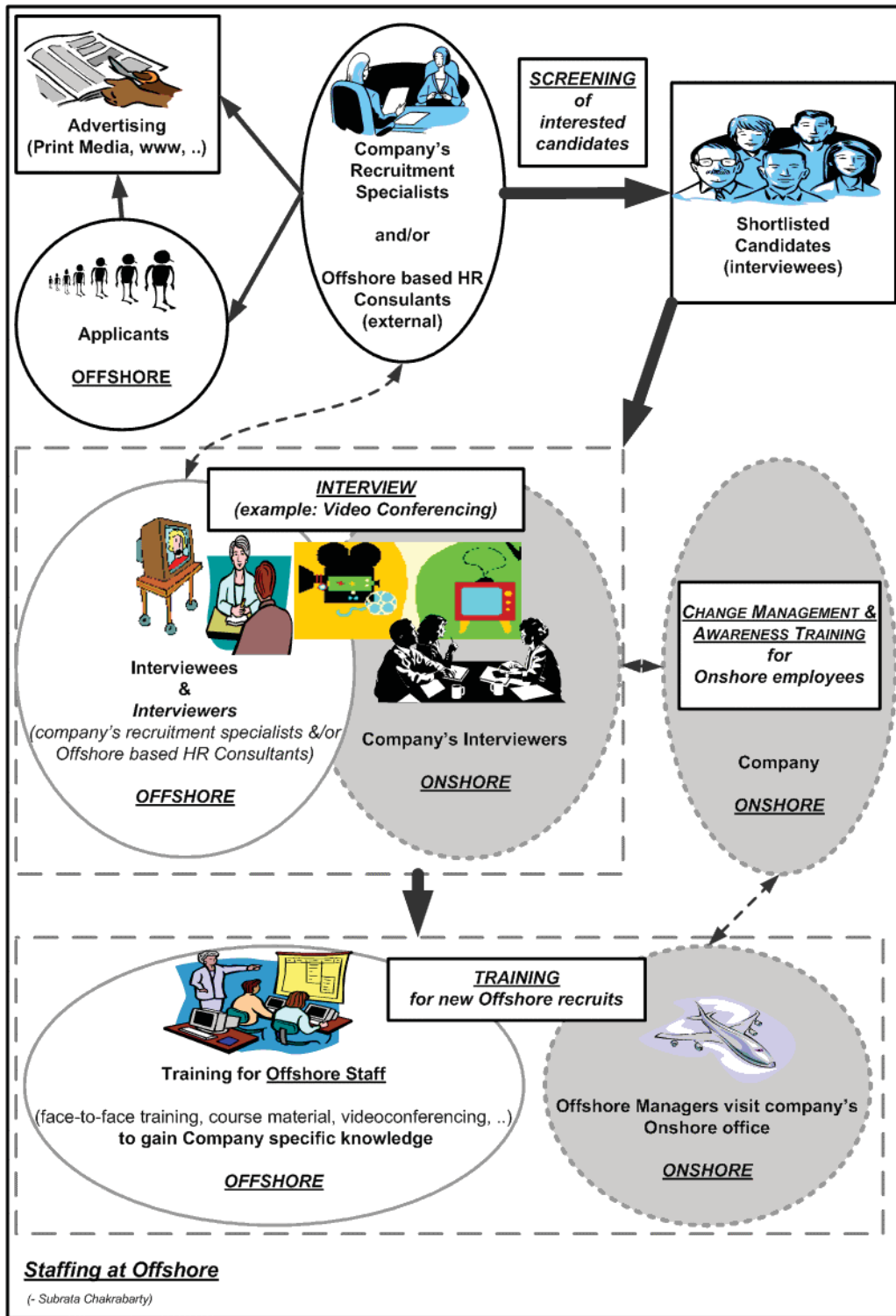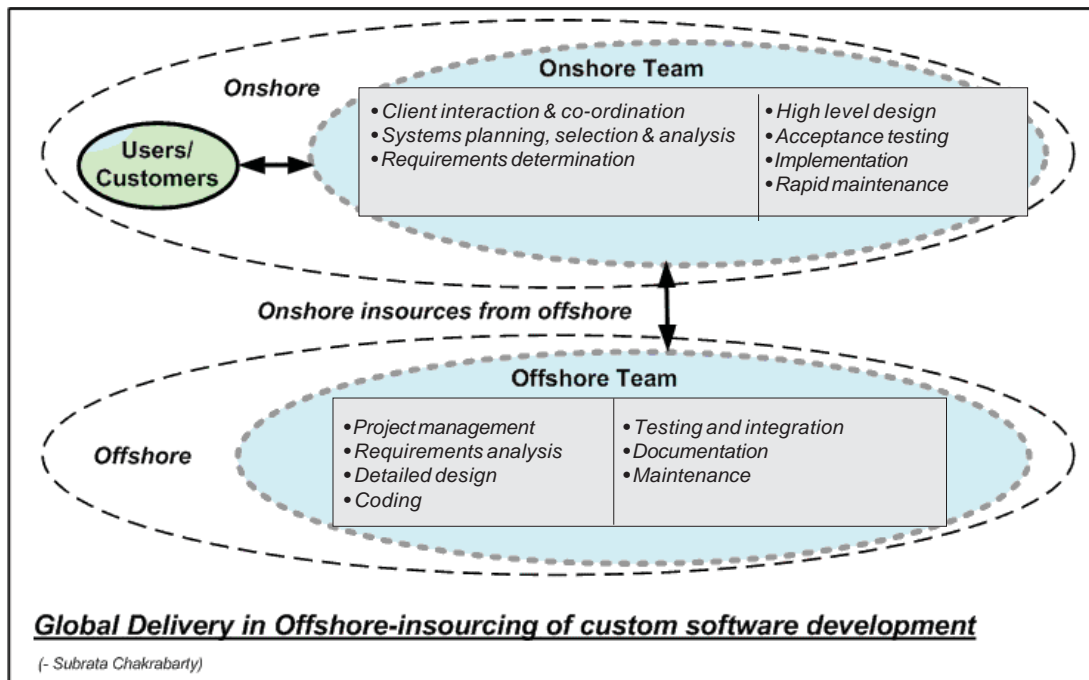*Figure 4. Staffing at offshore (A possible recruitment and induction training process)*

Staffing at Offshore
(- Subrata Chakrabarty)

Figure 5. Global delivery in offshore-insourcing of custom software development

Global Delivery in Offshore-insourcing of custom software development

(- Subrata Chakrabarty)

All the other offshore hires can be trained on the same matters by their offshore managers (when the managers return to offshore from onshore after their training), or by the onshore managers (by videoconferencing, or they can fly down from onshore to offshore). The knowledge transfer process for the new employees who haven't traveled onshore may be limited by a lack of face-to-face contact. Though it might be advisable to send several of the offshore employees to onshore for training, this may involve a huge cost burden (temporary relocation, compensation, and travel needs).

How to Manage the IT Personnel at Onshore and Offshore?

How does a company overcome issues of communication, coordination, culture, language, trust, distance, time-zones, and knowledge transfer among IT professionals at onshore and offshore? These issues can be managed with the effective and intelligent implementation of the *global delivery model*.

The *global delivery model* has been used by offshore based vendors like TCS (http://www.tcs.com), Infosys (http://www.infosys.com), and Wipro (http://www.wipro.com) to successfully provide services to its onshore clients. The same global delivery model can be adopted when a company decides to *insource*

it's IT needs from its own offshore subsidiary. In *global delivery*, a company's offshore delivery centers are located worldwide and are comprehensively networked with collaborative systems and technologies that allow the seamless integration of projects being delivered from multiple locations, and thereby provide economies of scale & scope (Tata Consultancy Services, n.d.).

The "*global delivery model*" is an offshoring model that takes advantage of the global talent pool to give the best value to a company in terms of cost and quality. As illustrated in Figure 5, the work is broken down into logical components, which are then distributed to suitable global locations such that the company gets access to the global talents (of IT professionals from various countries) and also creates maximum value in terms of cost and quality (Infosys, 2005a). The procedure of narrowing down on the IT functions that can be insourced from offshore has been explained in the earlier section "What to insource from offshore?" In the example shown in Figure 5 where *custom development of software* is selectively offshored, the onshore IT professionals can be involved in user/customer interaction & coordination, systems planning & selection, systems analysis, requirements determination, high level design, acceptance testing, implementation, and rapid maintenance support; while the offshore IT professionals can be involved in project management, requirements analysis, detailed design, coding, testing and integration, documentation, and maintenance.

The global delivery model (GDM) allows a company to make best use of low-cost and skilled IT professionals from across the world. This geographical and psychological distance between onshore and offshore IT personnel creates unique challenges that need to be managed. Bell (2003) proposes five steps to succeed in the implementing the GDM: *(1) integrate levels of leadership, (2) focus on processes, (3) invest in cross-team training, (4) deploy collaborative tools, and (5) track success to team goals.*

How to Integrate Levels of Management at Onshore and Offshore to Build a Relationship?

In the first step, leadership at both onshore and offshore must flow from "functional" managers (and not just the CIO/senior IT leadership), which is inclusive of various IT professionals such as application developers, infrastructure managers and project managers (Bell, 2003). The goal should be to develop a *sense of team purpose* and an understanding of the overall mission and vision of the onshore-offshore relationship.

As discussed earlier, IT managers need not turn to *offshore-outsourcing* of work to external vendors for gaining access to low cost skills. Hirschheim and Lacity (2000) believe that with the support of upper management, IT managers can take the lead in replicating a vendor's cost reduction strategies even with

insourcing. The *offshore-insourcing* option offers lower cost advantages (primarily due to lower salary levels of offshore IT personnel) and this low cost advantage is probably biggest driver behind the offshoring trend (Apte & Mason, 1995; Carmel & Agarwal, 2002; Sobol & Apte, 1995). However, for achieving the kind of *efficiency* that established offshore vendors have attained, the IT managers should strive to integrate its own onshore and offshore units towards a common goal and purpose.

A culture of *collaboration, transparency, and accountability* among the IT professionals, coupled with clearly delineated roles and responsibilities would enhance cooperation and communication between onshore and offshore (Bell, 2003; Murphy, 2003). Personal relationships should be developed between the onshore and offshore IT professionals by encouraging regular videoconferencing and by actually visiting each other's countries to better understand the cultural and social aspects of their counterparts.

How to Focus on Pr ocesses to Coordinate Activities of Onshore and Offshore IT Professionals?

In the second step, IT managers must clearly define the *work processes* such as workflows and *scheduling*. Offshoring can lead to problems of communication, coordination, and lack of control over schedule and quality (Apte & Mason, 1995, pp. 1252-1253; Carmel & Agarwal, 2002, p. 68; Sobol & Apte, 1995, p. 271).

Protocols should be established for coordinating across time zones, efficiently using resources, reporting expenses, resolving open issues, and managing risk (Bell, 2003).

IT tasks can be designed in a *modular* fashion (by breaking down the larger tasks into smaller and relatively independent modules), which makes it easier to distribute the work globally. This also reduces transaction costs (the cost of coordinating work activities between onshore and offshore), improves synchronization, and simplifies the supervision and feedback processes (Carmel & Agarwal, 2002, p. 66).

Processes should be established to coordinate activities between IT professionals at offshore and onshore. 24x7 operations (needed for faster cycle time for software production, customer service, network management, production support, etc…) can be potentially achieved by globally distributing the work across time zones, and this would need effective *coordination processes* among the onshore and offshore IT professionals (Apte & Mason, 1995, p. 1252; Sinha & Terdiman, 2002).

The transition of IT processes *from old to new state should be managed by* creating a new onshore-offshore model of IT management, and establishing the

new procedures and relationships with the cooperation of both onshore and offshore IT professionals. A variation of the *Lewin's* "unfreeze-change-refreeze" change-management model may be used:

- **Unfreeze:** Prepare for change by unfreezing processes that are affected by offshoring

- **Change:** Implement the change by introducing new procedures and processes for effective offshoring

- **Refreeze:** Strive to regain stability by practicing and documenting the new procedures and processes. Proactively improve the onshore-offshore coordination, communication, and management processes for successful offshoring

How to Invest in Training and Relationship Building to Overcome Diversity Between Onshore and Offshore IT Professionals?

In the third step, the firm should invest in an ongoing onshore-offshore training programs, where the main challenges to overcome are: *distance, issues of trust, cultural and language differences. Training sessions* should focus on *improved team collaboration, planning, interpersonal skills, negotiation skills, dispute resolution skills, work processes, and knowledge transfer*; all of which may be done through online self paced trainings, virtual classrooms (Web-casts, videoconferencing), or even traveling of onshore and offshore IT professionals to each other's locations for face-to-face training (Bell, 2003). This can help in overcoming the barriers like cultural differences, lack of trust, distance, and language (Apte & Mason, 1995; Carmel & Agarwal, 2002; Sinha & Terdiman, 2002; Sobol & Apte, 1995).

Also, the earlier section in this chapter titled *"How to manage change among onshore IT personnel?"* gave a detailed account on managing change and addressing such issues at onshore early on; and the earlier section *"how to use expatriates for offshore?"* elaborated on how expatriates may be used to bridge the onshore-offshore divide.

How to Deploy Collaborative Tools to Manage Projects Across Distance and Time-Zones?

In the fourth step, challenges of communication between onshore and offshore IT professionals, and time-zones should be continually mitigated using the best

of collaboration technologies. Deployment of software applications/tools for online collaboration and synchronous meetings (audio/video), e-mail, calendar functions, scheduling, assigning tasks, time accounting, process and workflow management should be considered (Bell, 2003). Effective execution of the globally distributed work across time zones would need the latest collaboration tools and technologies, which can lead to successful 24x7 operations for faster cycle time for software production (Apte & Mason, 1995, p. 1252; Sinha & Terdiman, 2002), for continuous monitoring of critical IT functions and infra-structure, and for 24x7 customer service.

The internet and the latest communication technologies such as e-mailing, teleconferencing, videoconferencing and instant-messaging allow collaboration among globally distributed teams in spite of the geographic distances (Carmel & Agarwal, 2002, p. 66). Pauleen and Yoong (2001) suggest that some electronic communication channels are more effective than others in building relationships. At the same time, Compeau, Higgins, and Huff (1999) state that self-efficacy with respect to information technology use is a factor in our choices about what technologies to adopt, how to use them (if we have a choice), and how much to persist in the face of obstacles to successful use of such technologies. Pauleen and Yoong (2001) suggest that while *e-mail* is a basic communication channel between distant teams, it is more suitable for communicating information and coordinating projects than for building relationships. The *telephone* on the on other hand is regarded as a reliable means for building relationships. Further-more, desktop *videoconferencing* is seen to be an affordable alternative to face-to-face meetings, which can enhance relationships by putting face to a name; however internet based videoconferencing is taking time to catch on as it requires access to greater bandwidth. Also, *Chat* programs were found to set up opportunities for informal and spontaneous communication that facilitates socialization and allow participation of activities happening "backstage" where feelings and emotions can be exchanged. This seems to be in line with the findings of Compeau et al. (1999), from the perspective of an IT professional's capacity or power to produce the desired effect (self-efficacy) of building better relationships.

How to Track Individual and Team Successes of Onshore and Offshore IT Professionals?

In the fifth and final step, using effective measures/metrics and periodic appraisals, individual and group performance should be tracked based on an established set of achievement criteria. The links between company and project goals, team behavior, onshore-offshore collaboration, and individual contribu-tions should be continually reinforced (Bell, 2003).

Implementation: Evaluating Outcomes

While evaluating outcomes, the company should examine the open issues and develop risk mitigation strategies to continually improve its chances of success in the future (Currie & Willcocks, 1998). Some of the possible frustrating experiences are: (1) lower than expected service quality of the offshored work, (2) the communication/coordination/collaboration issues between the onshore and offshore IT professionals, and (3) hidden costs that were not estimated earlier. On the other hand there may be many positive outcomes too, like: (1) satisfaction with skills and quality of work by offshore IT professionals, (2) the significant cost savings, (3) faster time to market and 24x7 hour support from IT professionals worldwide, and (4) the possibility of new business at the emerging offshore markets.

To evaluate the outcomes, some of the key considerations are (Murphy, 2003):

- **Onshore-offshore rapport:** Do the onshore and offshore IT professionals share good rapport?

- **Allocation of roles and responsibilities:** Are the roles and responsibilities understood and agreed? Is there confidence that each party will live up to its promises and is trustworthy in its actions?

- **Measurement of employee performance:** Is there a process for measuring success achieved by offshore and onshore IT teams and professionals? Do processes exist for providing performance based feedback?

- **Measurement of work quality and financial performance:** Can satisfaction with quality and costs be accurately assessed relative to estimated expectations from offshore IT work?

- **Business process risks:** Is the business at onshore and offshore being managed right? What changes in process and governance are required to improve the success rate?

- **Technology/Infrastructure risks:** Have the right technology, infrastructure and collaborative tools been deployed?

- **Financial/Economic risks:** Are the financials as per expectation? Are we realizing the expected economic benefits of offshoring?

Once outcomes have been evaluated, the next step is documenting the best practices and risk mitigation plans. These "lessons learned" should be analyzed in depth and the resultant feedback should be used to further improve the procedures in the *decision* and *implementation* phases of offshore-insourcing.

Future Trends

Is the trend of sourcing IT work from offshore sustainable? Or is it just a fancy paradigm that is over-hyped? Karamouzis et al. (2004) of Gartner Research list the following predictions:

- Gartner estimates that less than 3% of companies' global IT services spending ($606 billion) will be on globally sourced services in 2004. By 2007, Gartner forecasts that the globally sourced component (external labor as billed to the client) of IT services spending will be about $50 billion, or about 7% of the $728 billion total. India will continue to dominate as a supplier of globally sourced services.

- By 2006, infrastructure services delivered in a global delivery model from India to U.S. companies will surpass $1 billion (0.8 probability).

- Gartner estimates that the BPO market will grow to $173 billion by 2007; of which, 14 % of labor costs will be delivered by offshore resources, with India accounting for more than half of that activity.

- By 2005, security and privacy concerns will replace human capital issues (such as job loss and displacement) as the No. 1 offshore-related backlash issue (0.7 probability).

- By 2008, labor rates for application-related services in India will rise by 40 to 60 %age points over 2004 rates (0.7 probability).

The previous predictions by Gartner Research point out that offshoring will continue to rise phenomenally, but the rise will be tempered by possible increase in labor rates, and security and privacy concerns. Iyengar and Terdiman (2003) interestingly note how strict immigration policies by certain governments can actually have the unintended of effect of encouraging offshoring:

Some countries are tightening immigration rules and policies to limit the temporary or permanent migration of overseas staff into a country. This may have the unintended consequence of causing more work to be moved offshore. This is particularly the case in countries such as the United States, where business decisions are strongly driven by the need to deliver good returns to shareholders.

Hence, the trend of offshoring would continue. Companies worldwide are realizing the benefits of offshore-insourcing, and at the same time managing various challenges that come with such bold initiatives (especially with regard to setting up the offshore facility for IT professionals, and thereafter managing the IT professionals).

Conclusion

This chapter introduced a prescriptive conceptual framework for the *offshore-insourcing* journey. The question "*Why to insource from offshore?*" was answered by discussing how a company should decide whether it needs to insource or outsource, and whether it needs to go offshore. Furthermore, the relevant challenges and issues were discussed, so that a company can make knowledgeable decisions towards making the best use of IT professionals worldwide. The question "*What to insource from offshore?*" was addressed by describing how a company can select the IT functions that it should insource from the offshore IT personnel. The question "*Where to offshore?*" was answered stage by looking at the criteria for choosing an offshore destination and by surveying some popular offshore countries.

The question "*How to insource from offshore?*" was addressed by describing the process of creating the team that will implement the decision to offshore, process of managing change at onshore, getting the offshore office ready, and the process of recruitment and induction training. We discussed the management of the IT professionals at the offshore center using the global delivery model. Finally, we stated the importance of continuously *evaluating the outcomes* of the entire offshore-insourcing process, and of using the feedback to further improve the decision making and implementation phases.

The prescriptive conceptual framework for decision making and implementation of offshore-insourcing presented in this chapter will hopefully serve as a guide to those who are curious about the journey of IT companies to new lands.

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Endnotes

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[2] A survey of Web sites of the world's 15 biggest IT companies for their presence in China and India was done by the author and Ms. Jun Wang. Acknowledgements to Ms. Jun Wang, a Chinese graduate student at Mays Business School, Texas A&M University, USA, with previous work experience in the Chinese software industry, for compiling information related to China.

Appendix I:
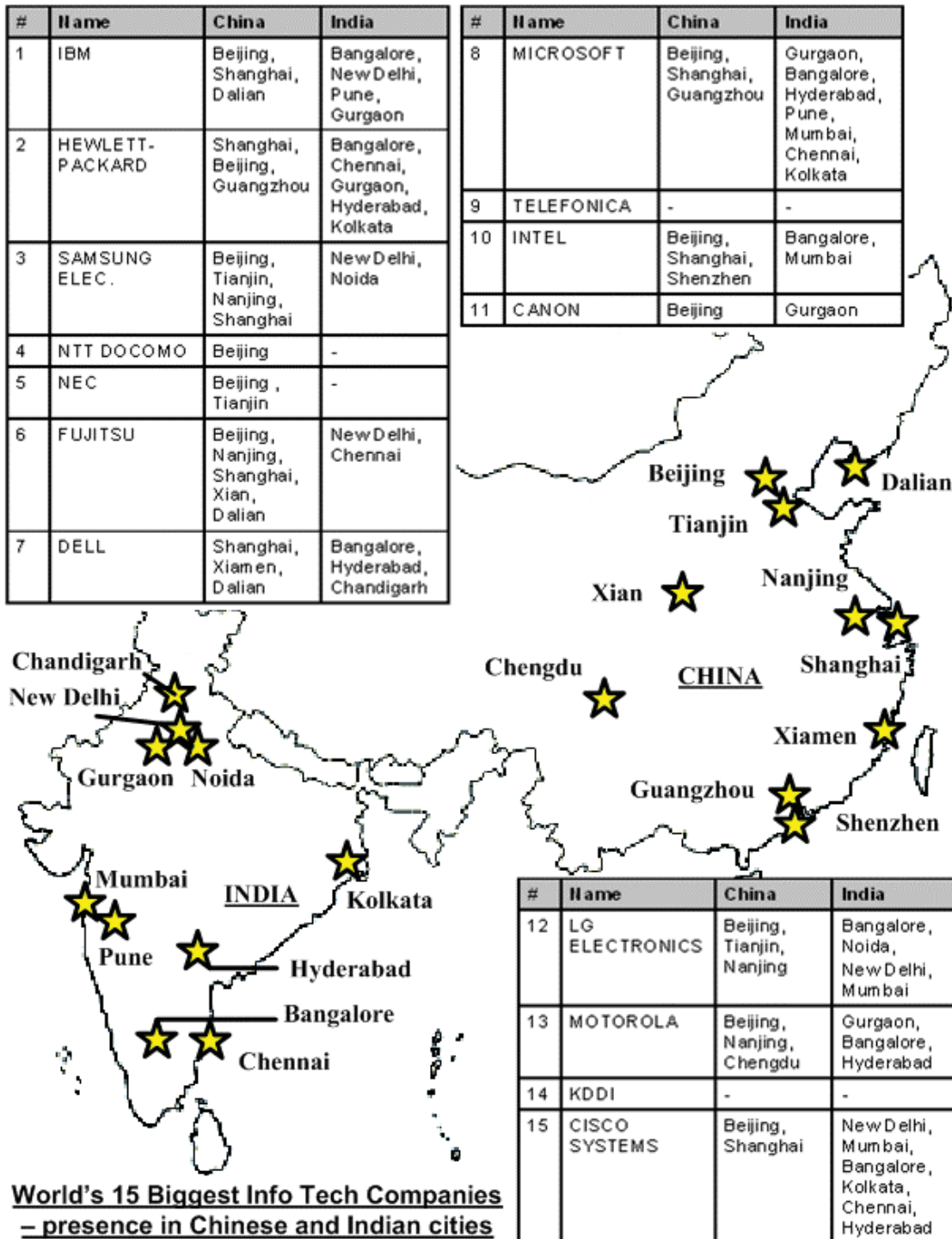# Surveying the Offshore-Insourcing in China and India

Let us compare the two big offshore insourcing players, namely China and India (Cohen, 2005; Karamouzis & Young, 2004; Kempf et al., 2001; Wiggins et al., 2002a; Wiggins et al., 2002b). Some of the relevant comparative statistics between India and China are presented in Table 4 (Wiggins et al., 2002a). India seems to have a clear advantage in terms of its software exports and number of IT professionals, while China seems to have an advantage in terms of Internet Bandwidth, number of software companies and marginally lower costs of IT professionals.

Let us consider the case of India in more detail. It is sometimes difficult to speak about information systems "offshoring" without using the word "India." Debates on offshoring often target India, earning it both ire and admiration. Karamouzis and Young (2004) state that India continues to hold the undisputed leadership position as an offshore destination for IT firms in developed countries such as US and Western Europe. They attribute India's competitiveness to abundance of resources, significant cost of labor differential, proven execution capacity, and also its English speaking capabilities, and predict the following:

Table 4. India's and China's IT statistics (Compiled from Wiggins et al., 2002a) (Source: Gartner Research/Gartner Dataquest)

Attribute	India	China
Total Exports	$ 43.75 billion (+5.77%)	$ 265.1 billion (+6.8%)
Software Exports	$ 6.2 billion (+37.78%)	$ 0.85 billion (+112.5%)
Software as a % of Total exports	14.17%	0.37%
IT professional graduating each year	73,218	50, 000
Current IT Professionals	522,000	150,000
Demand for IT Professionals	400,000	350,000
Number of software companies	3000+	6000+
Internet Bandwidth	1.4 Gbps	7.6 Gbps
Hourly rate for Developer (2 years experience)	$24	$12 - $25
Hourly rate for Project Manager	$30 ($50 for top end)	$50
Annual Salary for Entry Level Developer	$2,555 - $4,913	$2,423 - $4,846
Annual Salary for Developer (2 years experience)	$4,913 - $9,212	$4,486 - $6,057
Annual Salary for Project Manager	$9,580 - $26,529	$6,057 - $28,992
Legend: All numbers are for 2001, unless specified. Percentage increase/decrease figures are for a one year period.		

Figure 6. World's 15 biggest info tech companies (Presence in Chinese and Indian cities)

#	Name	China	India
1	IBM	Beijing, Shanghai, Dalian	Bangalore, New Delhi, Pune, Gurgaon
2	HEWLETT-PACKARD	Shanghai, Beijing, Guangzhou	Bangalore, Chennai, Gurgaon, Hyderabad, Kolkata
3	SAMSUNG ELEC.	Beijing, Tianjin, Nanjing, Shanghai	New Delhi, Noida
4	NTT DOCOMO	Beijing	-
5	NEC	Beijing, Tianjin	-
6	FUJITSU	Beijing, Nanjing, Shanghai, Xian, Dalian	New Delhi, Chennai
7	DELL	Shanghai, Xiamen, Dalian	Bangalore, Hyderabad, Chandigarh

#	Name	China	India
8	MICROSOFT	Beijing, Shanghai, Guangzhou	Gurgaon, Bangalore, Hyderabad, Pune, Mumbai, Chennai, Kolkata
9	TELEFONICA	-	-
10	INTEL	Beijing, Shanghai, Shenzhen	Bangalore, Mumbai
11	CANON	Beijing	Gurgaon

#	Name	China	India
12	LG ELECTRONICS	Beijing, Tianjin, Nanjing	Bangalore, Noida, New Delhi, Mumbai
13	MOTOROLA	Beijing, Nanjing, Chengdu	Gurgaon, Bangalore, Hyderabad
14	KDDI	-	-
15	CISCO SYSTEMS	Beijing, Shanghai	New Delhi, Mumbai, Bangalore, Kolkata, Chennai, Hyderabad

World's 15 Biggest Info Tech Companies – presence in Chinese and Indian cities

Through 2008, India will remain the dominant offshore service provider, with no other nation achieving a double-digit share of the global offshore service revenue (0.8 probability).

By 2008, Indian labor rates for application-related services will rise by 40% to 60% beyond 2004 rates (0.7 probability).

India graduates a total of 300,000 to 400,000 engineering and computer/IT majors every year (of which graduating IT majors are more than 73,000 per year, however, many of remaining non-IT majors are already skilled or re-skill themselves on IT); at the same time, hiring and managing growth is challenging in India since it is witnessing unprecedented growth in demand for skilled human resources and the largest India based vendors plan to hire several hundred to thousand employees each month (Karamouzis & Young, 2004; Wiggins et al., 2002a). Furthermore, though there is ample supply of fresh graduates, "middle managers" are currently scarce in India, and the eagerness of expatriates of non-Indian decent to assume these scarce "middle manager" positions are low, thereby increasing effort is focused on tapping Indian repatriates from U.S. or Western Europe, or to build on local talent.

Choosing a nation for offshoring is not an end in itself. Cities within nations have their own advantages and disadvantages. Choosing the right city to match your needs is crucial. To find out the extent to which top IT companies have offshore offices in Chinese and Indian cities, we[2] first short listed the Top 15 Information Technology companies from BusinessWeek's list of 'The InfoTech 100' based on Sales Revenues (BusinessWeek, 2004). We then decided to find out the cities in China and India in which these companies have set up offices by searching their respective Web sites. Attempt has been made to provide only the locations where information systems related work (R&D, software development, support, etc.) is probably performed, and explicit sales offices were omitted. See Figure 6 for each of the top 15 companies' names, country of origin, rank, sales revenues, Chinese cities, Indian cities, and the Web site address.

Most of the top 15 companies have set up offshore bases in China and India, the only exceptions being the Spanish Telefonica and the Japanese KDDI. While searching the Web sites it was found that most of these companies carry out high end R&D activities in China and India, which is contrary to the popular perception that these companies move offshore only for the low-cost advantage. A premier science and technology magazine "*NewScientist*" recently had a cover story titled "India: The next knowledge superpower," and one article named "India special: The silicon subcontinent" (Cohen, 2005) stated:

Some of the biggest names in IT are heading towards Bangalore once more, and this time round it's not cheap labour they are looking for. They are hunting down the brightest, most inventive minds in India to populate a swathe of cutting-edge research facilities. The work being done in these labs rivals any in the U.S. and Europe.

The article lists companies like Microsoft, General Electric, Hewlett-Packard, Texas Instruments, Google, and IBM that have set up *research labs* in India to take advantage of its skilled professionals. This realization of the value of offshore-insourcing is not just for the cities like Bangalore, but this optimism isseen across many emerging offshore-insourcing destinations across the world.

Appendix II:
Surveying for IT Skills
in Offshore Destinations

As an example, we have listed the services offered and the industries targeted by a large India based software services provider named Infosys (http://www.infosys.com) in Table 5 (Infosys, 2005b, 2005c). Such a survey might help a company to decide about the skill set availability of the IT professionals in the respective offshore destination, and hence aid in addressing the decision question "where to offshore?"

Table 5. Services offered and industries targeted by Infosys Technologies Ltd.

Services offered by Infosys (http://www.infosys.com)	**Industries** targeted
Application and Infrastructure Services: Custom Application Development, Application Maintenance, Application Re-engineering, Infrastructure Management, Independent Testing and Validation, Application Portfolio Management ***Enterprise Services*** (1) ***Packaged Applications:*** Supply Chain Management (SCM), Customer Relationship Management (CRM), Enterprise Application Integration (EAI), Enterprise Resource Planning (ERP) (2) Business Intelligence and Data Warehousing (3) *Systems Integration:* Strategic Technology and Architecture Consulting, Enterprise Content Management, Identity Management, Migration and Deployment, Enterprise Information Portal, Enterprise Mobility (4) Business Continuity (5) Platform Services ***Product R&D Services:*** Product Design & Development, Product Sustenance, Testing & Automation, Offshore Product Development Center, Additional Product Services, Product Consulting & Professional Services ***Consulting Services:*** Corporate Performance Management, Balanced Scorecard ***Business Process Outsourcing*** (1) ***Banking:*** Credit cards, retail lending, mortgage processing, retail banking and account management, cash management, trade services, lease and loan processing, investment banking, (2) *Securities Industry:* Custodians and Fund Administrators, Investment Managers, Investment Banking and Brokerage firms, Market Data and Analytics providers, (3) *Insurance:* Life, non-life, intermediaries, re-insurers, (4) *Finance & Accounting:* Accounts payable, accounts receivable, GL and fixed asset accounting, reporting and regulatory filings, (5) *Telecom:* Operators, OEMs and value service providers	▪ Aerospace and Defense ▪ Automotive ▪ Banking and Capital Markets ▪ Communication Services ▪ Discrete Manufacturing ▪ Energy ▪ Healthcare ▪ High Technology ▪ Insurance ▪ Life Sciences ▪ Media and Entertainment ▪ Resources ▪ Retail & Consumer ▪ Packaged Goods ▪ Transportation ▪ Services ▪ Utilities