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The Offshore Services Global Value Chain

ECONOMIC UPGRADING AND WORKFORCE DEVELOPMENT



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"**Skills for Upgrading: Workforce Development and Global Value Chains in Developing Countries"**

This research project examines workforce development strategies in developing countries in the context of the shifting upgrading dynamics of global value chains. Funded by RTI International and carried out by Duke CGGC, this research addresses policymakers, donors and development practitioners to improve our understanding of how workforce development strategies can enhance the upgrading efforts and competitiveness of developing countries in global industries.

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None of the opinions or comments expressed in this study are endorsed by the companies mentioned or individuals interviewed. Errors of fact or interpretation remain exclusively with the authors.

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Acronyms

BPO	Business Process Outsourcing
BPAP	Business Process Association – Philippines
CCC	Call Center Commission
CFA	Chartered Financial Analyst
CGGC	Center on Globalization, Governance & Competitiveness – Duke University
CMMI	Capability Maturity Model Integration
CORFO	Chilean Agency for Economic Development
CRM	Customer Relationship Management
DUKE CGGC	Duke University, Center on Globalization, Governance and Competitiveness
ERM	Enterprise Resource Management
eSCM	eSourcing Capability Model
ESL	English as a Second Language
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GSD	Global Service Delivery
GVC	Global Value Chain
HR	Human Resources
HRD	Human Resources Division- Government of India
HRM	Human Resource Management
ICT	Information and Communication Technologies
INSPIRE	Innovation in Science Pursuit for Inspired Research
IT	Information and Technology
ITO	Information Technology Outsourcing
KPO	Knowledge Process Outsourcing
LPO	Legal Process Outsourcing
MBA	Master's in Business Administration
MNCs	Multinational Corporations
NASSCOM	The National Association of Software and Services Companies – India
NGO	Nongovernmental Organization
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
SENCE	Servicio Nacional de Capacitación y Empleo
SLA	Service Level Agreement
TCS	Tata Consultancy Services
TESDA	Technical Education and Skills Development Authority – Philippines
UK	United Kingdom
U.S.	United States
Y2K	Year 2000 Problem

Executive Summary

This report uses the global value chain (GVC) perspective to examine the role of workforce development initiatives in a number of developing countries that are participants in the rapidly expanding offshore services industry. The offshore services industry has emerged as a dynamic global sector in the past two decades that directly employs 4.1 million people globally. The information and communication technology (ICT) revolution that began in the early 1990s transformed the way companies do business by allowing for the separation of the production and consumption of services. The industry includes a wide array of skill-intensive activities once considered strictly the domain of the industrialized world that are now performed in developing countries. These services include information technology outsourcing (ITO), business process outsourcing (BPO), and knowledge process outsourcing (KPO) as well as industry specific services.

A GVC approach is particularly useful in exploring the dynamic workforce skill issues in the offshore services industry for several reasons. First, by definition, offshore services are global: the geographic span of the industry encompasses the home market—usually in a developed country—as well as one or more developing country markets, which provide business services at a level of value added that is significantly determined by the quality of the available workforce.

Second, the upgrading of the industry has been catalyzed by three key groups of lead firms: (1) multinational firms that established subsidiaries in developing countries ("captive centers"); (2) large global service providers from developed countries that leveraged subsidiaries in emerging markets to provide services to the developed world; and (3) a group of strong Indian firms that have grown rapidly as the industry has developed and are now established as a significant presence in both developing (operations) and developed (client and sales teams) countries. All three groups of firms have driven the market by seeking cost advantages through the geographic separation of activities and sourcing from lowest-cost locations that were capable of providing services to acceptable standards. As such, the industry provides a clear illustration of how globalization has provided opportunities for both employment and business formation in developing countries where appropriate skills are present.

Third, developing countries are engaging in market-driven development—acquiring capabilities to upgrade services (providing better services, expanding the number of services, and/or offering higher value added services)—through significant investments in workforce training and managerial capabilities, provided initially by private offshore service providers but now increasingly supported by an expanded range of public, private, and multisector initiatives. Far from a race to the bottom, involvement in the offshore services industry has provided developing country workers, firms, and governments with an attractive opportunity to build the skill-based competencies required to meet the demands of global service markets.

This report examines the role of workforce development initiatives in terms of how developing countries can enter the offshore services value chain and what is required to move up it. We examine these workforce development initiatives in-depth for six different countries: India, the Philippines, Chile, Dominican Republic, Guatemala, and El Salvador.

Our analysis reveals the following findings with respect to workforce development and upgrading in this sector:

Upgrading

Five principal upgrading trajectories for the offshore services industry can be identified: Entry into the value chain; upgrading within the BPO segment; offering full package services; the expansion of IT firms into KPO services; and the specialization of firms in vertical industries. In each segment of the offshore services value chain (ITO, BPO and KPO), process, product, and functional upgrading may occur, and multiple upgrading (shifts) processes can happen simultaneously in a given country.

- Entry into the lowest segments of the value chain requires a supply of low-cost labor with basic education, as in the Philippines where wages in the call center industry are highly competitive with other industries, despite being amongst the lowest in the world.
- Entry into and upgrading through the value chain is dependent on the presence of an educated workforce that can meet global service delivery standards.
- Highly qualified labor is key for upgrading into higher segments of the value chain. Entry into high-value engineering services for mining by Chile, for example, was facilitated by the availability of a large number of well-educated engineers.

Workforce Development

While national education systems have provided the basic skills necessary in all countries, the majority of workers in this industry require additional training to fill the knowledge gap between local education systems and high-quality standards required to serve the global market.

- English-language skills' training has been central to all workforce development initiatives in all countries. In particular, English is key to upgrading the workforce, as many of the third-party providers operating in developing countries offer online training and development resources in English only. English training is also necessary for upgrading into higher value services, which include significant collaborative interactions with global communities, of which English is the main language.
- Job-specific or demand-driven training where the private sector trains staff for specific job functions is found to be the most effective means of ensuring that education and training meets the needs of the industry.

- Training in global certifications in the ITO sector is particularly important for keeping staff on the cutting edge of technology, and in turn is a requirement for upgrading into new activities. In Chile, in addition to training staff in current platforms, firms also encourage innovators to run training programs internally on their new projects.
- Training for near-hires[1] is an important means of rapidly increasing the supply of labor for the industry, helping developing countries to maintain their competitiveness. In the Philippines, this practice is particularly prominent for call centers, where steadily growing demand requires them to recruit new employees on a regular basis.

Institutions

There are emerging differences in the roles that different institutions play in driving workforce development across the value chain. This is influenced by the existing educational and training frameworks in the countries in which the chain is embedded, the stage of the value chain in which firms in the country are located, the portability of the skills developed, and the commitment of the government to promoting growth in the industry.

- **English language training** is highly portable and relevant for most jobs in the labor market for emerging economies. There are numerous public and multistakeholder initiatives to drive the development of language competencies in non-English speaking countries promoting the offshore services industry.
- **ITO** requires a depth of technical knowledge that must be accumulated through numerous training programs, ongoing education, and a variety of institutional approaches can be identified. In India, the private sector was forced to take a highly proactive role in developing their workforces to substitute for poor quality in educational institutions. In Chile, the government showed clear commitment to developing this segment and offered training subsidies to firms and fostered collaboration between technical educational institutions and the industry through the Public Private Strategic Council.
- **KPO and high value industry-specific segments** depend on high-level technical and analytical skills that are developed over time and rely on rigorous university education. As in the other segments of the offshore services value chain, however, there remain certain gaps between the education sector and the industry that must be filled. Nonetheless, many of the skills required for this sector are portable across different economic sectors and **multistakeholder initiatives** appear to be the most prominent approach to skills development.

[1] "Near-hires" refers to good potential employees who could not be hired due to small experience or training gaps in their resume.

- **Financing Workforce Development:** Two key trends can be identified. First, there appears to be a strong shift away from individual investment in education and training for this industry to firm-level provision due to increased competition between firms for talent and the gap between skills provided by the education sector and those required by the industry. Second, there is a substitution of government or public sector financing through tax incentives and subsidies for these firm investments in workforce development. The promising potential spillover effects have encouraged governments to directly finance education and training for the sector. Due to the fierce competition that has emerged between developing countries to attract large third-party providers and captive firms, numerous governments have launched initiatives to reduce these costs associated with workforce development. These trends further highlight the movement away from supply-driven workforce development to demand-driven development.

Global-Local Interactions and Standards

Entry into the value chain depends to a large extent on the presence of a large foreign provider. These firms play a central role in facilitating knowledge transfer regarding the industry to developing countries. Local firms often lack the competency, scale, or global market presence to compete with established Indian and developed market providers.

Standards and global certifications allow developing countries to signal their quality levels to the global market and thus compete with a large number of potential destinations. As a result, these standards have been broadly adopted at the lower end of the offshore services value chain. However, in order to upgrade into the highest segments of the value chain, know-how, innovation, and specialized university education are much more important than a specific industry standard.

In evaluating workforce development policy for this industry, policy makers must be keenly aware of the rapid evolution and highly competitive nature of this industry and develop a broader understanding of how to engage in workforce development to facilitate upgrading into these higher-level services. The skill level and qualifications of the existing and rising workforce determine the entry and upgrading potential of a host nation in this sector. The analysis highlights the shortcomings of traditional workforce development frameworks in developing countries to provide both the flexibility and quality to meet the skill levels required by the industry. It also suggests, however, that combined institutional approaches that foster collaboration between the private, public, and educational sectors can help to narrow this gap to meet global service standards.

I. Introduction

This report uses the global value chain (GVC) perspective to examine the role of workforce development initiatives in a number of developing countries that are participants in the rapidly expanding offshore services industry. The industry includes a wide array of skill-intensive activities that are now performed in developing countries, which were once considered strictly the domain of the industrialized world. They include information technology outsourcing (ITO), business process outsourcing (BPO), and knowledge process outsourcing (KPO), and other advanced activities such as research and development (R&D).

Offshore services are a potential vehicle for low- and middle-income countries to participate in the global knowledge economy. The industry offers attractive compensation and career development opportunities for graduates and professionals, incorporating previously marginalized groups—including rural women and youth—into the formal labor pool, creating employment in peripheral areas and second-tier cities, and reducing brain drain and promoting re-absorption of returning émigrés. Beyond employment, participation in the industry is seen as creating demand for education, stimulating creation of business and consumer services in the local market and stimulating domestic entrepreneurship (ECLAC, 2008).[2]

By 2008, the offshore services industry had created an estimated 4.1 million direct service jobs in the developing world (McKinsey, 2008). Developing countries—including Argentina, Barbados, Colombia, Costa Rica, Jamaica, Kenya, Mozambique, Nigeria, South Africa, Tunisia, and Uruguay, among others—are actively seeking opportunities to enter and upgrade in the offshore services market (ECLAC, 2008; Radwan & Strychacz, 2010). Numerous developing country governments are offering significant incentives to attract international companies to use their countries as export platforms for services (Gereffi et al., 2009).

Workforce skills are essential elements to participate in offshore services. Strategic investments in workforce development by the public and private sectors have facilitated both market entry and upgrading to higher value segments of the industry. This report illustrates how national and subnational workforce development institutions and actors in developing countries can respond to globalization, work effectively with global "lead firms," understand new skills requirements that globalization places on their workforces, and establish workable division of responsibilities in effective public-private partnerships (PPPs).

[2] Appendix 1 summarizes many of the perceived benefits of participation in the offshore services industry as articulated by Latin American investment promotion agencies (ECLAC, 2008).

This report is divided into the following sections. First, we discuss the global evolution of the industry and introduce the GVC for offshore services. Second, we identify potential entry points and upgrading trajectories for global services and discuss how they can be supported through workforce development initiatives. Third, we present case studies of three developing countries—Chile, India, and the Philippines—that have succeeded in the industry and analyze the workforce development strategies they have pursued, providing examples of the long-term possibilities for developing nations. Fourth, we analyze the role of three small low-income countries—the Dominican Republic, El Salvador, and Guatemala— that have also managed to achieve significant growth rates in the industry during the past decade. These countries highlight that certain gains from the globalization of the service industry may be captured by nations with otherwise limited economic development if their workforces can meet global market requirements.

II. Global Organization of the Industry

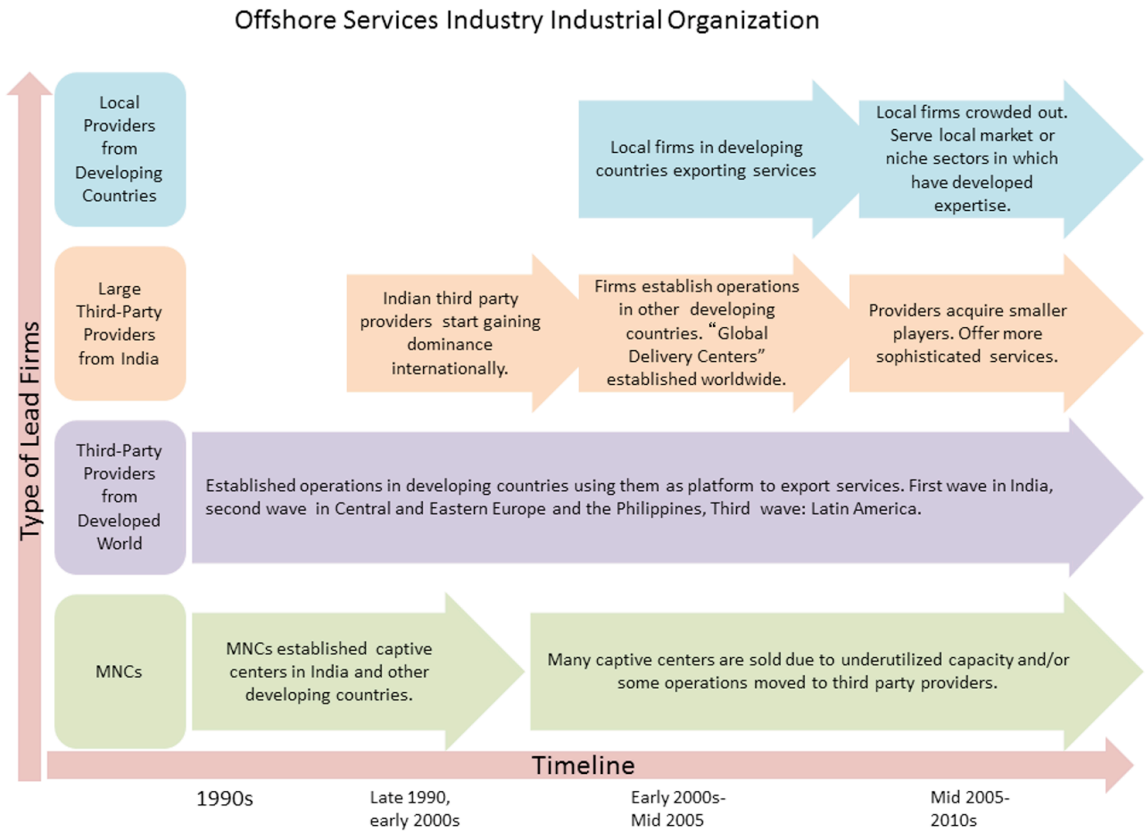
Over the past decade, the offshore services industry has experienced tremendous growth, emerging as a dynamic global sector and as a key employment generator for a number of developing nations. Structural changes in the global economy precipitated by the information and communication technology (ICT) revolution have transformed the way companies do business by allowing for the separation of production and consumption of services, and they have allowed emerging nations for the first time to contribute significantly to the world's services industry. In addition to the tremendous potential for direct employment, it is estimated that an additional four indirect jobs are created for every offshore services job that is created (ECLAC, 2008; NASSCOM, 2009).

The patterns of global industry development have been shaped by the business decisions of the industry's lead firms—multinational corporations (MNCs), third-party service firms from the developed world, and third-party service firms from India—which have evolved significantly since the early 1990s.[3] The decisions of these firms have been based on the need to improve efficiency levels (labor cost and supply), enter new markets, and gain access to "strategic assets" abroad (Lopez et al., 2008). Quality of service provision is not yet governed by global standards, although service level agreements (SLA) within business contracts between these lead firms and their clients are becoming increasing codified and standardized, including a range of performance metrics such as Average Speed to Answer and Turn Around Time.[4] ***Figure* 1** illustrates the evolution of lead firm roles and activities in this period.

[3] The role of service providers from other developing countries has differed across regions and segments of the market, and their role in the future is uncertain.

[4] Typical SLAs include services provided, standards of service, delivery timetable, responsibilities of supplier and customer, provisions for legal and regulatory compliance, mechanisms for monitoring and reporting of services, payment terms, how disputes will be resolved, confidentiality

Figure 1. Industrial Organization in the Offshore Services Industry



Source: Duke CGGC.

In the early 1990s, **MNCs,** such as General Electric, Unilever, and Citibank, empowered by new information technology (IT) and communication technologies, began to relocate many of their routine business activities to lower-cost locations. They established the first "captive centers" through their subsidiaries in developing countries, which allowed them to reduce costs of back-office finance and accounting services, such as payroll and document management. In the late 1990s, many of these operations were spun off or sold to third-party providers by MNCs to further reduce costs and focus on core business functions.

For the third-party providers who bought or took on the functions of captive centers from their MNC clients, this process simultaneously represented an enormous business development and knowledge transfer opportunity. Beginning in the mid-1990s, these **third-party providers from developed countries**—including IBM, Accenture, EDS (now HP enterprises), and Capgemini—began operating in

and non-disclosure provisions, and termination conditions. These contracts are negotiated on an individual basis between firms and specific terms of the contracts may vary substantially.

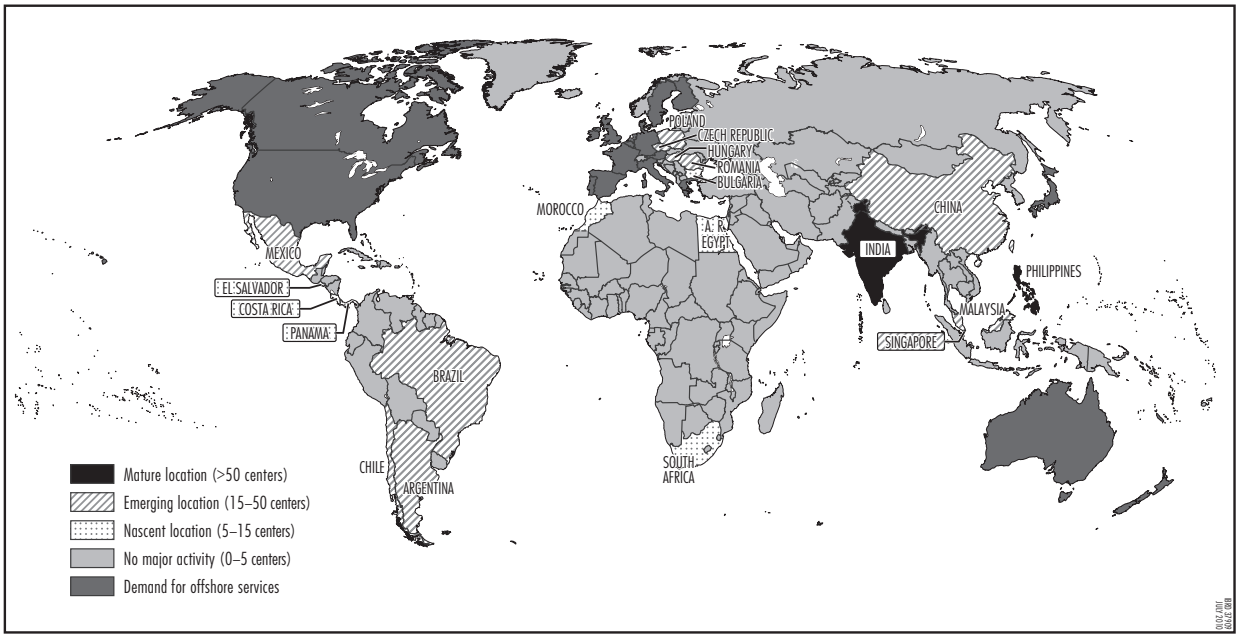
developing countries, using these as platforms for lower cost service exports. In addition, these firms established new service platforms—first in India, then in Central and Eastern Europe, and later in Latin America.

Also in the late 1990s, **Indian third-party providers**—including Tata Consultancy Services (TCS), Infosys and Wipro—as well as entrepreneurial IT companies, began a phase of rapid growth, offering IT services related to Y2K[5] and ecommerce during the technology boom, particularly to the United States, where many Indian entrepreneurs had good business connections (Arora & Athreye, 2002). During the first half of the 2000s, these firms established sophisticated Global Service Delivery (GSD) systems in which they maintain a headquarters in India, delivery centers in developing countries, and customer support offices near their customers in developed countries. For example, in Latin America during the 2000s, TCS opened operations in Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay; Wipro in Brazil; and Infosys in Mexico (Gereffi et al., 2009). This innovative service delivery model has been slowly adopted by developed country third-party providers, such as IBM and Accenture.

A number of **third-party providers from other developing countries** began to export IT services in the early 2000s, targeting the Latin American regional markets in particular. In general, these organizations have not had the competency, scale, or global market presence to compete with established Indian and developed-market providers. A few large and sophisticated providers from Mexico (Softtek, Neoris), Brazil (CPM Braxis, Politec), and Chile (Sonda) have been able to export to regional markets and are beginning to export globally (Gereffi et al., 2009). However, most of the smaller indigenous companies have been driven to providing outsourcing services to local markets and a few have developed niche market strategies to serve vertical (rather than general business services) markets (e.g., IT services for regional retailers). ***Figure 2*** illustrates the geographic extent of the offshore services industry as of 2008.

[5] Y2K, the Year 2000 problem was a problem for both digital (computer-related) and nondigital documentation and data storage situations at the end of the 20th century, which resulted from the practice of abbreviating a four-digit year to two digits.

Figure 2. The Global Supply and Demand for Offshore Services in 2008



Source: Duke CGGC based on data from Everest and Datamonitor.

III. The Offshore Services Global Value Chain

The offshore services industry refers to the trade of services conducted in one country and consumed in another and encompasses firms' decisions to "perform functions or activities anywhere in the world" (McKinsey Global Institute, 2005, p. 454). The industry is composed of general business services that can be provided across all industries, as well as services that are industry specific. General business services support generic business functions and include three main segments:

- **ITO** is the basic building block for the offshore services value chain and is centered around the production and use of software. It encompasses services such as network management, applications development, IT consulting, and software R&D. ITO services span the low-, mid- and high-value segments of the chain.
- **BPO** is a highly diverse category that contains activities related to the management of enterprise resources (ERM), human resources (HRM), and customer relationships (CRM). Specific BPO services include call centers, payroll, finance, and accounting; human resources (HR) activities are present in the low- and mid-value segments,
- **KPO** refers to specialized activities that often require professional licensing (such as in the medical, legal, and accounting fields). KPO services include market intelligence, business analytics, and legal services, which are the high value-added general segment of the chain.

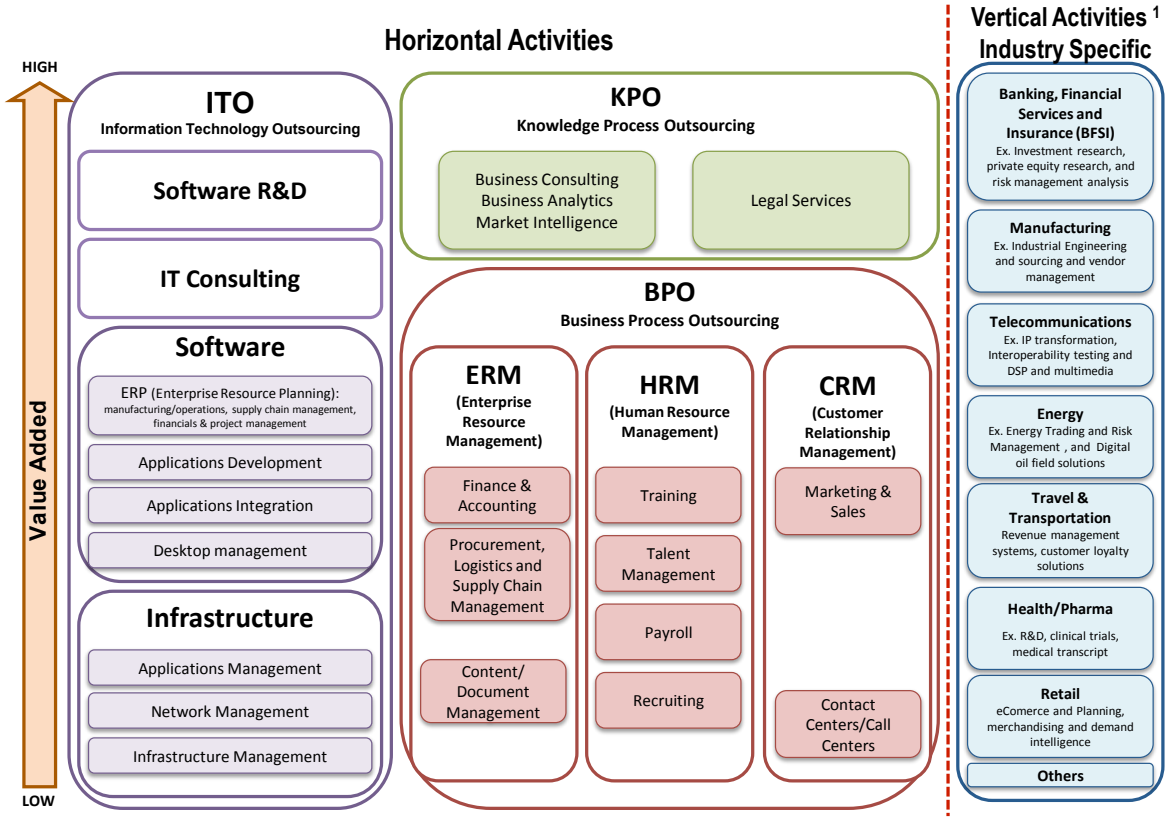
Industry-specific services include offshoring of activities that are not related to general business functions and that require specific industry knowledge. This might include pharmaceutical R&D, industrial engineering, and medical transcription, among others. These services may have limited applicability in other industries (Gereffi & Fernandez-Stark, 2010).

Figure 3 illustrates the industry's value chain, and highlights the main categories of activities in each segment (Gereffi & Fernandez-Stark, 2010), according to the level of value added.[6] The first categorization in the diagram refers to the three broad types of general business offshore services: (1) ITO, (2) BPO, and KPO. The second categorization refers to those industry-specific services. Within general business services, ITO contains a full spectrum of low-, middle- and high-value activities of the offshore services chain; BPO activities are in the low and middle segments, while KPO activities are in the highest-value segment of the chain.[7] Industry-specific services range from low to high value-added activities and may include (but are not limited to) ITO, BPO, and KPO activities.

[6] This classification was developed based on a series of interviews with leading firms in the industry in India and in Chile carried out between 2007 and 2009, compiling comprehensive employee, service, and client information, and complemented by secondary sources, including industry reports and 10 country case studies.

[7] This industry has continued to grow and evolve rapidly. While the global value chain presented in this article incorporates all activities conducted within this industry to date, each of the individual segments (ITO, BPO and KPO) can be considered as a separate value chain.

Figure 3. The Offshore Services Global Value Chain



Notes: [1] Vertical Activities, Industry Specific: Each industry has its own value chain. Within each of these chains, there are associated services that can be offshored. This diagram captures the industries with the highest demand for offshore services. This graphical depiction of vertical activities does not imply value levels. Each industry may include ITO, BPO, and advanced activities.

Source: Duke CGGC.

This diagram differs significantly from the representations of the value chains of manufacturing activities in which value added is measured through the analysis of inputs and outputs at each stage, and the output of one stage generally becomes an input of the next. In product-based industries, value is measured by the price of the inputs and outputs at each stage of a product's assembly. In contrast, in the offshore services industry, certain segments (ITO, BPO, and vertical services) contain high-, medium-, and low-value activities, and measuring value is complicated by the lack of reliable company-level data and trade statistics for services (Sturgeon & Gereffi, 2009).

To partially address this problem, the value of services in the offshore services value chain can be related to skill levels and work experience, that is to say, the human capital inputs of offshore services. Human capital has been found to be a key determinant of value creation, competitiveness, and success in service exports from developing countries (Chadee et al., 2011; Graf & Mudambi, 2005; Nyahoho, 2010;

Saez & Grover Goswami, 2010).[8] The visual representation of the offshore services value chain presented here is based on the available proxy for value added: wages paid to employees for different activities within industry segments. These relative wages, in turn, reflect required employee education and experience levels (Gereffi & Fernandez-Stark, 2010) and provide the best indication of "low" and "high" value-added activities. As a result, low-wage activities, requiring less education and experience, appear lower on the value chain map, while higher-wage activities, requiring employees with more formal education and experience, appear in the upper section.

Table 1 shows how both competitive salary and revenue data for different segments of the offshore services value chain in a middle-income country increase from segment to segment. As can be seen, employees in activities located in the lower part of the value chain have less preparation, particularly with respect to specialized skills, and earn lower wages, while the employees in the upper section of the value chain have more specialized skills and more years of experience and therefore command higher wages.

Table 1. Employment, Revenue, and Salary Information—Selected Segments of the Offshore Services Industry in a Middle-Income Country, 2008

Segment	Activities	Most populous position within segment	Average education level for employees	Average revenue per employee[a] (US$)	Median salary per employee[a]
BPO	Call Centers	Call center agents & technicians	High School / Bachelors degree	$19,720	$17,280
ITO	IT Infrastructure	Computer technician	High School/technical institute	$20,704	$16,932
	Software Development	Programmers	Bachelors / Masters Degree	$36,788	$28,065
	IT Consulting	Systems analysts	Bachelors / Masters Degree	$55,956	$45,455
KPO	Business and Financial Services	Financial analyst	Bachelors Degree in Business Administration	$127,081	$47,150
Vertical Activities	Engineering Services	Engineer	Bachelors Degree	$103,844	$53,514

Note: [a] This information is drawn from a confidential study published by Mercer 2008 for a certain country in Latin America.

Sources: Fernandez-Stark et al., 2010b; IDC Latin America, 2009; Meller & Brunner, 2009; Mercer, 2008; Wadhwa et al., 2008.

[8] Saez & Goswami (2010) find positive and significant correlation between human capital and service exports after controlling for institutional variables and electronic infrastructure. In addition, research by Nyahoho (2010) on the importance of factor intensity as a determinant of trade also finds that human capital is clearly related to exports of information services, while Shingal (2010) finds that human capital is one of three key variables that have the biggest impact on bilateral service trade. Chadee et al., (2011) found that human capital is considered to be the most critical source of competitiveness by management of offshore service providers.

IV. Economic Upgrading in the Offshore Services Global Value Chain

Developing countries have upgraded their participation in the offshore services industry by performing higher value-added activities related to ITO, BPO, KPO, and industry-specific services. This has occurred as clients in the developed world have become increasingly comfortable with outsourcing more sophisticated "core" business functions that were previously carried out in the developed world to offshore providers. In the process, a variety of third-party providers operating in the developing world have acquired additional capabilities to serve these clients.

In general, upgrading refers to "a process of improving the ability of a firm or an economy to move to a more profitable and/or technologically sophisticated and skill-intensive economic niche" (Gereffi, 1999, p. 51). Upgrading occurs when multiple firms or key lead firms operating within a country begin to provide higher value added products or services. Firms may upgrade by improving production *processes*, producing more valuable *products,* acquiring new *functions,* or by entering new value chains through *intersectoral upgrading* (Humphrey & Schmitz, 2002).

Upgrading Trajectories. Five principal upgrading trajectories for the offshore services industry can be identified: (1) entering into the value chain; (2) upgrading within the BPO segment; (3) offering full-package services; (4) expanding IT firms into KPO services; and (5) specialization of firms in vertical industries.[9] These five upgrading trajectories are presented in ***Table 2***. In each segment (ITO, BPO, and KPO), process, product, and functional upgrading may occur, and multiple upgrading (shifts) processes can happen simultaneously in a given country.

Entry into the value chain: The most frequently observed way to enter the offshore services value chain is through the establishment of call center operations. This represents an opportunity for low-income countries that seek to enter into the knowledge economy.[10] Companies seek employees with good general communication and problem-solving skills and typically hire young people with completed high school education, enrolled college students, and recent graduates. Further skills training is provided by the company. These operations rely on scalability in order to drive profitability, suggesting that these are best suited for developing countries with large populations.

[9] Process upgrading is also identified; however, due to marginal returns to economic development from this type of upgrading in offshore services, it is not discussed in detail in this paper.

[10] Since irregularities with misuse and sale of personal data were identified in the BPO industry India in 2006, a commitment to personal data protection has become very important for countries to enter the sector. Several countries subsequently introduced legislation to improve this; however, others such as India continue to hold a significant percentage of the market without having finalized this legislation.

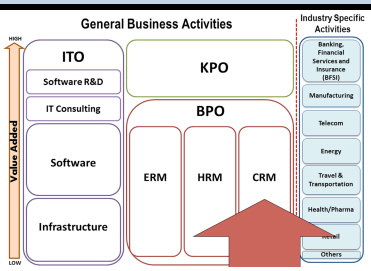
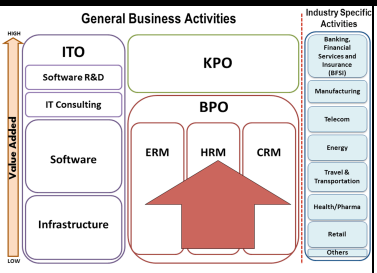
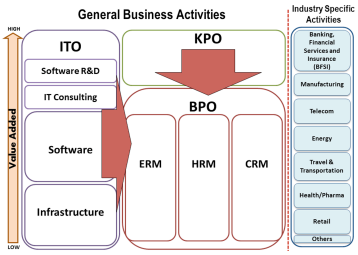
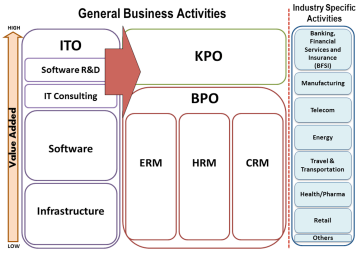
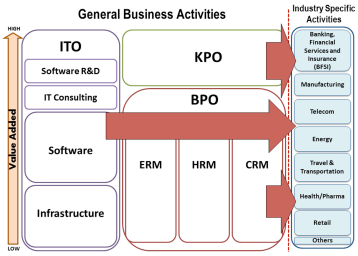
Upgrading within BPO activities: This describes the shift of companies that have established basic BPO operations such as call centers into new services, including finance and accounting, payroll, and supply chain management. In other cases, upgrading can also happen by improving and expanding call center operations or even specialization in certain niches, for example, call centers for sophisticated financial services. The learning curve associated with overcoming the challenges of exporting services during the introduction of call center operations can be quickly leveraged to both improve upon current services and upgrade into higher-value services. Higher-value BPO activities rely on similar repetitive functions as call centers, although as a whole, they draw on a slightly more educated and/or experienced labor force.

Companies that have already positioned themselves in the ITO and KPO segments may opt to provide a more comprehensive range of activities including BPO services. This process usually happens with the acquisitions of smaller BPO firms and/or creating a new business unit within the company. Maintaining the provision of low-value services, while at the same time providing high-value services, requires a large but versatile and comparatively low-cost labor supply. In small countries, inflationary pressure on wages due to a limited but skilled workforce encourages countries to upgrade into higher-value services—or lose their competitiveness in the industry to lower-cost countries. On the other hand, a large country with a significant proportion of the population earning low salaries can successfully upgrade into higher value services and at the same time remain competitive in basic services.

IT service firms searching for new ways to diversify their revenue streams opt to include KPO activities in their portfolio. IT companies that previously only offered IT services to their clients engage their customers to find solutions for "unsolved business problems rather than incomplete programming tasks" (William F. Achtmeyer Center for Global Leadership, 2008, p. 3). IT firms leverage their successful global approach to the technology industry by becoming players in the business-consulting field and hire a large number of Master of Business Administration (MBA) graduates and workers with business experience and sharp analytical skills.

Companies offering some ITO, BPO, and KPO services for a wide range of industries often specialize and focus on key industries in which to develop expertise. This trajectory is closely correlated with leading productive industries in the host country. Companies hire area experts to sustain their competitive advantage in specific niche areas, drawing on existing highly qualified human capital and a well-established pipeline for educating and training professionals and technicians for the sector.

Table 2. Upgrading Trajectories in the Offshore Services Global Value Chain

	Diagram	Description
Entry into the Value Chain		• Common way to enter the offshore services value chain is through the establishment of call center operations. • Opportunity for low-income countries to enter into the knowledge economy.
Upgrading within the BPO Segment (Functional Upgrading)		• Companies expand their BPO services within the segment. • Improving and expanding call centers operations or specialization in certain areas such as inbound or outbound, sales, CRM management, etc.
Broad Spectrum Services (Functional Upgrading)		• Companies positioned in the ITO and KPO segments may opt to provide a more comprehensive range of activities and include BPO services. • Acquisitions of smaller BPO firms and/or creating a new business unit within the company.
Upgrading from ITO to KPO functions (Functional Upgrading)		• IT service firms include KPO activities in their portfolio. • IT companies engage customers to find solutions for unsolved business problems.
Industry Specialization (Intersectoral Upgrading)		• Companies offering some ITO, BPO, and KPO services for a wide range of industries start specializing and focus on key industries to develop expertise. • This can include both lower value and high value activities.

Source: Duke CGGC.

V. Workforce Development in the Offshore Services Global Value Chain

Since high standards must be maintained when the provision of services is transferred from developed to developing countries, the educational level and skills in local workforces have been key drivers of location decisions in the offshore services industry (Graf & Mudambi, 2005; Hollinshead et al., 2011).[11] The quality levels expected by clients, however, often far exceed those of domestic markets in the developing world; thus, in addition to access to employees with a minimum level of education, this necessitates specific additional workforce development measures. To meet these global demands, offshore service providers employ a similar approach to employee development as in the industrialized world. These include selective competency-based hiring, minimum formal education, induction sessions, specialized and on-the job training, skill certification, mentoring, and leadership development programs (Fernandez-Stark et al., 2010b; Wadhwa et al., 2008).

Table 3 outlines the different educational profiles and training requirements for each segment of the value chain.

[11] Other determining factors have included operating costs (principally driven by labor expenses), quality of the telecommunications infrastructure, language skills and cultural compatibility, time zone, government support of industry, political and economic stability, maturity of the legal system, and protection of intellectual property rights (Lewin, 2008; Manning et al., 2008).

Table 3. Job Profiles in the Offshore Services Global Value Chain

Position	Job Description	Formal Education Requirements	Training/ Experience	Skill Level
ITO				
IT Technician	Maintains equipment and network devices, provides software support for updates.	Technical diploma/degree	Specific technical courses, on-the-job training, and experience	
IT Software Programmer	Programs software applications for general or customized use.	Technical diploma/degree	Software programming courses and certifications	
IT Consultant	Provides advice to help firms align IT strategy with their business objectives (may include information risk management, IT infrastructure, strategy, data management).	Bachelor's degree in IT/ Master's degree in engineering	Consulting/ management experience	
Software R&D Engineer	Designs, develops, and programs innovative software packages and functions.	Bachelor's /Master's/ Doctoral degree in industrial engineering/computer science/informatics	Software programming courses and certifications	
BPO				
Call Center Operator	Answers in-bound calls regarding specific products and provides general customer services.	High school/ Bachelor's degree	Two – three week of training and on-the- job training	
Finance and Accounting Analyst	Provides accounts receivables and accounts payable processing, reconciliations, ledger keeping, and income and cash statement preparations.	High school/ technical institute diploma in accounting	Technical training and on-the-job training	
Marketing and Sales Representative	Supports inbound and outbound sales, sales order processes, and customer monitoring.	Technical/Bachelor's degree	Short training and on-the-job training	
BPO Quality Assurance and Team Managers	Ensure BPO agents meet specified client service standards and monitor agent performance.	Technical and university-level professionals	Technical training and on-the-job training	
KPO				
Finance Analyst	Provide guidance to businesses and individuals making investment decisions; assess the performance of stocks, bonds, commodities, and other types of investments.	Bachelor's degree in business administration	Charted Financial Analyst (CFA) certification	
Business Analyst	Provides business services, such as market research, business opportunity assessment, strategy development, and business optimization.	Bachelor's/Master's degree in business administration	Experience	
Legal Analyst	Reviews and manages contracts, leases/ licenses. May provide litigation support services or intellectual property services.	Law degree	Experience and training in specific country legal systems	
R&D				
Researcher	Undertakes projects to increase the stock of knowledge; develops new products based on research findings.	Master's/doctoral degree	Experience/industry specialization	

Source: Duke CGGC, based on Fundación Chile, 2009; Fernandez-Stark et al., 2010b; Wadhwa, 2008.

Skill Level	Low	Low–Medium	Medium	Medium–High	High
	No formal education/ experience	Literacy and numeracy skills; experience	Technical education/ certification	Technical education/ undergraduate degree	University degree and higher

As can be seen in the ***Table 3***, formal education is used as an preliminary screen for potential recruits; however, this is generally complemented by further competency evaluations (Wadhwa et al., 2008). For example, the minimum level of formal education required to work in the BPO sector is a high school diploma, but this can vary by country, and the same position may sometimes require a college degree.[12] Required competencies, however, are consistent across countries and include communication skills—such as active listening and voice clarity; analytical, decision-making and basic computer skills; and language ability—as required by the firm's market. These competencies differ according to the service performed in the value chain. In higher-value ITO and KPO activities, for example, in addition to formal tertiary education, globally recognized certifications are almost as important as signal quality and skill level of potential employees. These can include working knowledge of global software platforms (e.g., Microsoft, Cisco, and Oracle certifications) or development of financial analysis skills (e.g., CFA certification from the global CFA Institute).[13]

Providing services in any level of the value chain, be it through entry into the value chain or upgrading, thus depends on the availability of the required labor qualifications and skills noted above for that stage (Graf & Mudambi, 2005). Lower levels of the value chain require a significantly larger number of employees than higher levels, which depend on quality rather than quantity. This search for suitable skills can draw on unemployed labor pools, existing employed labor attracted to the industry by higher relative wages and opportunities to work with global clients, new graduates from the growing higher education sectors in many developing countries or, as is becoming increasingly common in the industry, further developing the skills of the firm's current workforce.[14]

The dynamic and rapid growth of employment in this industry across developing countries, however, has put significant pressure on this labor supply. This has had two important consequences for workforce development. First, it has led to significant competition between firms for existing talent (Chadee et al., 2011). Firms must now focus not only on recruiting new employees, but also on retaining current employees.[15] Second, clients are placing increased demands for more sophisticated services from their service providers as they become more comfortable with the offshoring model. Thus, many firms have begun to provide their employees with a broad range of additional training and education programs, including mentoring, career planning and providing access to formal degree programs, such as MBAs or other Master's programs (Wadhwa et al., 2008). In the short term, these employees are bound to their

[12] Preliminary research suggests that this depends on the opportunities in the local labor markets and the quality of the education system.
[13] Appendix 1 provides an overview of several of the different certifications required at each level.
[14] Kumar and Chadee (2001) note that internal training and development can "result in specific advantages, where tacit organizational knowledge and specific on the job skills are more easily learned, transferred and applied."
[15] For example, the new "cohort" of working professionals in India is known to be highly ambitious. Leaving to pursue alternative, higher paying jobs or further education is cited as one of the main reasons for employee attrition in many segments of the industry (Wadhwa et al., 2008; Williams, 2004).

firms by contractual agreements to repay the costs of education facilitating firm upgrading; in the long term, the portability of these new skills can lead to positive externalities in local labor markets resulting in country-level upgrading. In addition, firms with "strong human capital orientation usually enjoy lower attrition rates, lower absenteeism, more competent workforces and higher productivity, all of which contribute to greater competitiveness" (Chadee et al., 2011).

These workforce development initiatives for employees differ according to the firm's position in the value chain. Training programs in the BPO sector tend to include the extensive use of internal e-learning platforms covering areas such as domain expertise certification, soft skills, and process quality improvement in order to upgrade the skills of large workforces. Some firms also offer BPO employees access to formal degree programs in higher education. High value ITO firms focus on maintaining their workforce at the cutting edge of technology, which includes acquisition of up-to-date certifications and training that foster innovative thinking.

As the industry continues to grow and evolve both at the global and local levels, diverse models of preparing, engaging, and developing current and potential employees for different stages of the value chain have emerged across developing countries. Country cases in the remainder of this report explore the variety of private, public, and multisector workforce development strategies undertaken in six developing countries to support these market entry and upgrading efforts of firms and countries in the offshore services value chain.

VI. Developing Country Case Studies

The cases of developing countries presented in this section illustrate the role of specific workforce development initiatives in supporting the process of entry and upgrading in the offshore services industry. The cases were chosen to represent the variety of upgrading experiences in the industry, including countries of different size and geographic locations. The pioneer cases with the longest and most diverse experiences in the offshore services industry (Chile, India, and the Philippines) are presented first to outline the full range of economic upgrading stages and workforce development initiatives for the offshore services industry. Subsequently, we discuss three low-income countries in Central America and the Caribbean that have entered the industry more recently.

We examine three country cases in depth: (1) Chile, (2) India, and (3) the Philippines. Each illustrates an alternative path of rapid growth and development of the industry. India and the Philippines are mature exporters of offshore services. India is the worldwide offshore services market leader, with both international and domestic lead firms. Over the past decades, it has upgraded to offer all services in the value chain, including industry-specific services. The Philippines has drastically expanded

employment in the BPO/call center segment to become the world's largest BPO destination and is also expanding into niche services. Chile is an emerging exporter in the sector, which has leveraged its small but highly educated workforce and developed strengths in the higher end of the value chain in ITO, KPO, and innovation services in specific industries. These cases reveal distinct workforce development initiatives that helped to promote upgrading.

In addition, we analyze the entry strategies and workforce practices of three low-income countries in the Central America and Caribbean region: (1) the Dominican Republic, (2) El Salvador, and (3) Guatemala. These countries provide examples of how smaller low-income countries have more recently entered the industry and they allow us to discern the role of workforce initiatives in supporting market entry. ***Table 4*** provides an overview of the economic and offshore services indicators in each country.

Table 4. Selected Economic and Industry Country Indicators, 2008

	India	Philippines	Chile	Dominican Republic	El Salvador	Guatemala
Gross Domestic Product (GDP) (US$ billions)	1,260	167	170	46	22	39
GDP per capita (at PPP)	3,011	3,306	14,579	8,446	6,721	4,749
Offshore services revenue (US$ billions)	47[e]	6	0.86	NA	NA	NA
Offshore services % of GDP	4	3.6	0.05	NA	NA	NA
Total labor force (millions)	475.6	38.8	7.1	4.4	2.8	3.9
Labor force in offshore services	2,236,614	475,000[b]	20,000	22,000	6,800	6,500
Entry Year	Mid1990s	Early 2000s	2000-2002	2000-2002	2004-2005	2005-2006
Entry Point	Low value IT	Call Center	IT & Call Center	Call Center	Call Center	Call Center
Highest Value Activity	High IT, KPO, R&D	BPO, F&A, HRO	High IT, KPO R&D	BPO, F&A HRO	Contact Center	BPO, F&A
Enrolment in higher education (millions)	12.82 [a]	2.48[a]	0.86	0.42	0.12	0.20
Gross Enrollment Rates (GER) **in higher education** (%)	11[a]	29[a]	47	35	21	9

Notes: [a:] 2005–2006; [b] 2009[; e]: estimates 2009. PPP is Purchasing Power Parity.

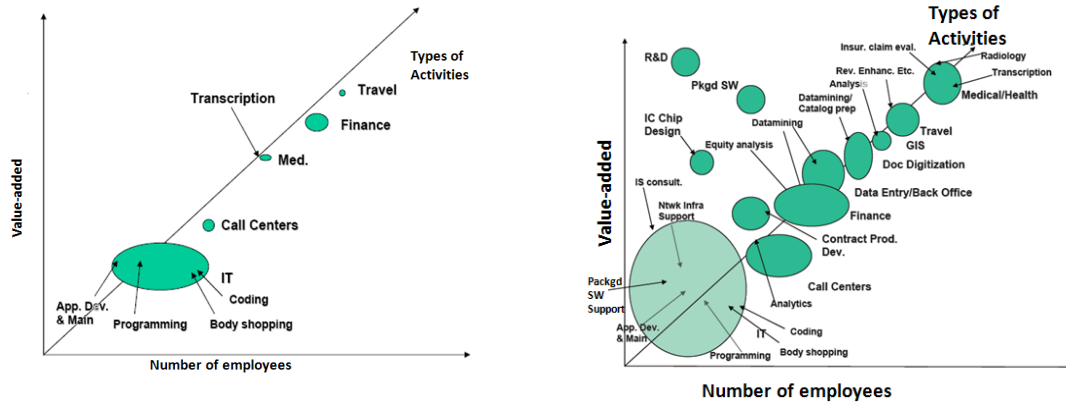
Sources: Economist Intelligence Unit, International Labor Organization, Business Processing Association of the Philippines, NASSCOM, IDC, Ministry of Human Development- Government of India, Ministry of Education-Chile; Commission on Higher Education-Philippines; UNESCO.

A. India

India is the global leader of the offshore services industry, accounting for approximately 40% to 45% of the world market (NASSCOM, 2008). India offers services in all segments of the offshore services value chain, including ITO, BPO, KPO, and a significant number of advanced services for specific industries such as finance and health care. In 2009, revenues reached US$47 billion, accounting for 4% of the country's GDP (NASSCOM, 2009). By 2008, the industry employed 2.3 million people, with an indirect job creation of approximately 8 million (NASSCOM, 2009). The industry estimates demand for new recruits will reach 1.4 million for 2009 and 2010 (OECD, 2010).

India's upgrading trajectory involves continued expansion in all segments of the industry. The country has not abandoned the provision of low-value services in favor of high-value services. As a result, Indian services provision is marked by significant overlap, with upgrading and workforce development often occurring in parallel in different segments. ***Figure 4*** below illustrates this simultaneous evolution and expansion of India's capabilities in the offshore services value chain from 2000 to 2006. Firms initially entered the industry to support the IT sector, and, by 2006, they had also moved into the provision of higher-value services, such as financial and legal analysis (Dossani & Kenney, 2007; Sako, 2009).

Figure 4. Upgrading in the Indian Offshore Services Industry



Source: Dossani & Kenney, 2007.

Industrial Organization

A mix of large foreign providers, MNCs captive centers, and local Indian firms has characterized the offshore services sector in India since its inception. Early captive centers were closely followed by global providers, such as IBM and Accenture. Indian firms grew quickly alongside these firms to become important sources of competition in the industry. Today in India, IBM is the largest employer in the country; however, TCS, Infosys, and WIPRO follow closely.

Workforce Development

A shortage of qualified human capital in early stages of the industry led firms in the private sector to develop highly functional and efficient training and development programs, matching specific skills development to client needs. With sophisticated internal development capacity, firms now draw on college graduates from a broad range of disciplines and hire across the male-female pool, focusing on general ability and attitude rather than specialized domain and technical skills. These programs offered greater flexibility and sharper focus to training than traditional universities, and recently firms have begun to play a direct role in shaping curriculum design within universities and other established training academies. As the global market becomes more competitive and India upgrades across all industries, this ability to leverage initiatives such as formal classroom-based training, on-the-job training and mentoring in order to rapidly a large number of workers provides a country with an exceptional asset.

The following three key phases of industry upgrading can be identified (also see ***Table 5***):

Stage 1. Entry into IT services in the value chain: 1990s-2010

India's offshore services industry began with the ITO segment. The country entered the new market by offering simple IT support services and continued to upgrade successfully into sophisticated software R&D. By the end of the 20th century, India was considered to be one of the most important IT providers in the world. This entry into IT services has its roots in the country's sizeable supply of low cost, English-speaking engineering talent, the phenomenon of innovative Indian "body-shopping"[16] solution during the protectionist years in India, and the Y2K crisis at the end of the 20th century. As large global providers such as IBM began to seek out this cheaper talent to resolve the challenges presented by Y2K, a number of Indian IT professionals who had worked in the United States returned home having gained considerable domain expertise and began to work in these new centers and also established new Indian firms. These initiatives have evolved into India's well-known leading firms, such as TCS, Infosys, and WIPRO (Dossani, 2005). These firms leveraged their relationships with multinationals in the country, adopted and adapted leading management practices to the Indian reality, and were able to emerge as successful competitors in the global IT sector.

Workforce Development. During this period**,** firms quickly found that the tertiary education system, while large, was unable to sustain the supply of quality engineering talent required to satisfy the exploding demand for IT services. In 2003, one firm alone, WIPRO, was hiring 1,000 employees a month (Williams, 2004). Enrollment in tertiary education increased by four million students between 1999 and

[16] Body-shopping was the name given to the practice of sending IT programmers from India to the United States to work directly on client sites. This practice was common during the 1970s and 1980s.

2005 and reached 12.8 million by 2006 (Agarwal, 2009), thanks to a large number of private institutions that emerged to support this growing demand for education.[17] This showed remarkable progress in increasing access; however, competing for limited, well-qualified teaching staff, these new institutions struggled to maintain high quality standards for the growing IT sector (Altbach, 2009).

Many of the new graduates emerging from these universities were under-skilled and few were employable without further training (Wadhwa et al., 2008). To meet demand for services and maintain their position in the market, the private sector thus had to fill the gap by developing significant in-house training practices. Human capital recruitment, training, and development became a central part of corporate strategy in India and all senior management was actively involved in this development. Firms also established sophisticated feedback mechanisms to constantly refine recruiting strategies to meet their projected needs. A substantial proportion of employee technical training continues to be carried out internally, matching specific skills development to client needs. Several of the larger firms, including Wipro and Infosys, have established their own training campuses (Wadhwa et al., 2008), which increased the efficiency with which they can upgrade.

During this initial phase of upgrading, there were also a number multisector initiatives in workforce development. To improve the education provided at universities for the offshore sector, a number of private-sector firms reached out to established institutions. Cadence India, for example, launched a partnership with over 100 colleges to train trainers, provide discounted software, and offer practical experience in design for students (Wadhwa et al., 2008). This program continues to ensure that students are already experienced users of the widely adopted Cadence software programs when they enter the workforce. Another example is Accenture's Campus Corridor Program, which has facilitated their deployment of electives for third-year engineers across numerous universities in India. Accenture also reaches out to faculty of these universities, inviting them to their Indian facilities to keep them up to date on cutting edge technology (Accenture, 2010). Public initiatives included the establishment of the Very Large Systems Integration (VLSI) Special Manpower Development Program by the Human Resources Division (HRD) in a joint initiative with both the private sector and educational institutions to develop qualified HR for VLSI and the related software design sector, which is aimed at facilitating further upgrading in IT R&D (Department of Information Technology-India, 2010).

[17] Earning "University" status in India requires an Act of Parliament and thus many of these new institutions have only gained "deemed university" status, which allows them to confer academic degrees. The lack of transparency and quality standards in the assignment of this status led to the suspension of further awards in 2007 (Agarwal, 2009).

Stage 2. Expansion into BPO and Upgrading into KPO Operations: early 2000s

Toward the end of the 1990s, MNCs, such as GE, had experimented with using India as a backoffice provider for BPO services. However, it was only in the early 2000s that the BPO segment began to take off in the country. The burst of the Internet bubble in 2001 highlighted the vulnerability of the IT sector focused on the provision of just one service, and the early success of these captive back-office centers encouraged IT firms to embark into BPO services to diversify revenue streams.

As Indian firms expanded across the ITO and BPO segments, they came into direct competition with global service providers such as IBM and EDS. These global providers had a distinct advantage over the Indian firms as the result of their acquisition and development of business consulting divisions in the 1990s. This second phase is also marked by the country's upgrading from ITO to KPO activities. Indian firms, such as Infosys and WNS Global Services, recognized the importance of shifting their sales strategy and began offering business consulting services.

Workforce Development. Rapid growth in the BPO sector through the mid-2000s was supported by the same efficient private sector recruiting and training techniques, such as Enterprise Resource Planning systems that track and analyze existing skills and attrition data to forecast recruitment needs (Wadhwa et al., 2008).[18] Upgrading into the ITO consulting and KPO segments, however, required firms to recruit heavily from existing labor pools and MBA programs. Adjusting their compensation packages to attract top talent, companies sought out experienced consultants from leading global competitors and focused on hiring the top 10% from MBA programs. These firms recognized that their value proposition in these segments was drawn directly from their access to their IT and BPO operations. Thus, in addition to training opportunities in leadership and management that are more common to traditional consulting practices, training focused on developing awareness of the power of the GSD model and leveraged successful techniques such as e-learning platforms developed for the BPO and ITO segments. BPO firm Genpact sought to harness its internal workforce by launching a program in 2006 to train their BPO workers to take on roles of the company's growing analytics domain. They also established a customized executive education program in partnership with Duke University; 300 employees participated in this program in 2007 (Wadhwa et al., 2008).

In order to meet global standards in accounting practices, CFA certifications by the CFA Institute became increasingly important for Indian BPO operations as well as firms providing offshoring in the financial services sector. The number of people taking CFA tests in India increased fivefold between 2002 and 2006 and had reached 4,500 by 2008, compared to a 25% decline in the United States during the same period (Everest Group and Letsema Consulting, 2008; Onaram, 2006).

[18] Unlike ITO services, BPO services do not require engineers and can be drawn from a broad range of disciplines.

Nongovernmental organizations (NGOs) have also played a small role in bringing marginalized groups such as rural women to the industry. With fewer opportunities to move to the city than men, these women have been found to be more loyal, helping companies to reduce their attrition rates (India Knowledge@ Wharton, 2010). Training programs ensure that high quality standards are maintained.

Due to the success of private sector initiatives, government workforce development initiatives were largely absent in this upgrading phase.

Stage 3. Vertical Industry Specialization: Mid–Late 2000s

The most recent upgrading in India has been a shift into vertical industry specializations, with increased intersectoral upgrading. By mid-2000s, the global service markets became increasingly consolidated, with smaller providers being absorbed by large firms. In order to differentiate themselves, firms began to specialize in vertical industries offering high- value, industry-specific services, such as R&D offshoring. In the healthcare industry, for example, by 2010, multinational pharmaceutical companies, such as TCS, began offering clinical trial services for pharmaceutical giants such as Roche (Gupta, 2008). The IT giant also leveraged its position as a subsidiary of TCS, to enter specialized R&D services for the aeronautical, automotive, and healthcare industries and had soon established six R&D labs (Tata Consultancy Services, 2009). Mid-sized IT firms such as KPIT joined forces with Cummins to provide high value IT services for the automotive industry (KPIT Cummins Infosystems, 2009), while Infosys honed in on becoming the leading outsourcing provider for the financial services sector (Infosys, 2010).

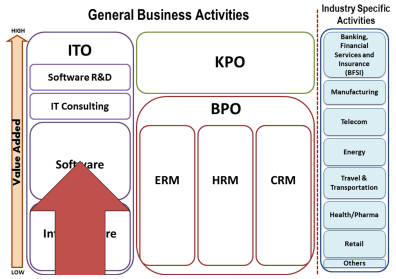
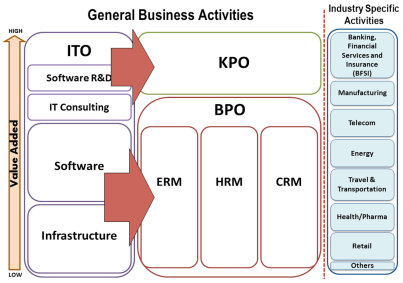
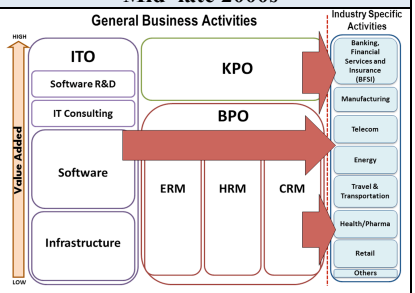
Workforce Development As the offshore firms advance into higher-value services, the availability of highly skilled researchers is required. In initial stages of this upgrading, the private sector tapped into the existing labor pool (both university graduates and experienced professionals) of specialized talent from different industries combined with human capital from high-value IT services. However, India currently has a comparatively low number of researchers and technicians working in R&D compared to other developing countries. Firms thus focus on fostering educational upgrading and sponsoring employees to pursue doctoral programs, and this is becoming an important driver of talent development. Training emphasis has been placed on building cross-functional teams and providing technical training specific to the industry, as well as the GSD model. Training takes place both in-house, as well as through customized programs with different science, technology, and management institutions in India.

To further boost the low number of doctoral candidates in the country, a new government program, INSPIRE (the Innovation of Science Pursuit for Inspired Research) was launched in 2008. This three-part program is aimed at discovering talent at an early stage and setting them on the path of research

careers through the provision of scholarship and internships (Department of Science & Technology - India, 2010). The National Competitiveness in the Knowledge Economy program was set up by the Department of Education to identify potential demand for highly qualified human capital and determine the best means by which to develop the appropriate workforce.

Table 5 provides an overview of the industry evolution and the corresponding workforce development initiatives that took place in India during the past two decades.

Table 5. India: GVC Upgrading and Workforce Development Initiatives

1990s–2010	Early 2000s	Mid–late 2000s
		
Private Sector Workforce Initiatives		
▪ In-house training supplements poor quality tertiary education. Several firms begin to work with universities to improve quality of graduate skills. ▪ Companies began hiring recruits from numerous different fields in the middle of their university degrees and providing in-house training to quickly get new hires up to speed. ▪ Recruitment, training and development, management and process improvement, and retention become a central part of corporate strategy.	• Firms hire top talent from rival firms and MBA programs for KPO and IT consulting. Workshops held on benefits of the GSD model. • Training programs for BPO with accent neutralization and cultural programming. • In-house university training includes graduate-level training including MBAs and courses in leadership and management (Cohen, 2008). • Call center training. English accent neutralization	• Firms hire staff from the industries they are serving. • Highly technical industry specific training is provided for cross-functional teams.
• Wipro open university campus with 300 professors on staff and offer courses from Japanese to advanced engineering. Basic training begins with 12–14 weeks of introductory courses in the Wipro methodologies, technical knowledge, languages, and accents. • The Infosys Global Education Center trains over 4,000 "freshers" or new recruits per year during 14-week training sessions in state of the art facilities in Mysore, India (Schlosser, 2007). • Other firms established customized programs for potential employees through leading science, technology, and management institutions or worked closely with different universities to improve curriculum development in different disciplines, as well as providing workshops for both faculty and students. There is limited evidence of new training institutions emerging to address this growing need for HRD.		
Public Sector Workforce Initiatives		
• Government established an HRD in the Department of Information Technology. • New regional institutes in Kohima, Nagaland, and Agartala created programs to increase regional employment opportunities and facilitate availability of quality IT manpower (Department of Information Technology-India, 2009). • IT programs focus on course content, generating mentors, improving the quality of existing engineering and IT university programs, and expanding access to increase the number of skilled graduates in the IT sector.		• Government launched INSPIRE in 2008 to build R&D capacities by recruiting talent early (15 years old), providing scholarships for all tertiary education levels, and guaranteeing research fellowships. • The National Competitiveness in the Knowledge Economy program was set up to help identify demand for highly qualified human capital and the best means to develop that talent.
Multisector Workforce Initiatives		
• Cadence India launches a partnership with IIT Kanpur and Kharagpur to train faculty and provide scholarships and software. • HRD launched a 5-year Information Security Education and Awareness Program and engaged educational institutions to offer diplomas, certificates, Bachelor- and Master-level courses in information security. By 2010, 25,000 students and government officials had participated in these training programs.	• NGOs focus on drawing marginalized groups meeting the minimum education and skills requirements into the industry labor pool through the establishment of rural BPOs. With fewer opportunities, this group has shown greater loyalty and decreased the cost of attrition. • Gram IT, a rural BPO focused on youth recruitment, put new employees through a 12-week full time training program to improve their fluency in English, as well as develop computer and typing skills (Byrraju Foundation, 2010)	

Source: Duke CGGC.

B. The Philippines

The Philippines is quickly becoming the leading destination in the world for call centers and finance and accounting outsourcing. In addition, the Philippines has also moved into vertical services with the provision of medical transcription services. In 2008, revenues reached US$6 billion, and the BPO industry alone accounted for 3.6% of the country's GDP. That same year, IT/BPO sectors together accounted for 12.4% of the Philippine exports (BPO Services Association, 2009). By August 2009, the number of full-time employees had risen to 475,000, with an average annual increase of 40% in employment generation between 2004 and 2008. Call centers represent 61% of all employees in the industry.

Industrial Organization

The industry's success is mostly due to the numerous international BPO firms that have set up operations in the Philippines to serve the U.S., Asian, and Australian markets. These firms include leading third-party call center providers Sitel, Sykes, Convergys, and Teleperformance. In 2010, Sitel was operating seven major call centers in the country. Teleperformance offered 7,000 seats across six centers, while Convergys has a 2,041 seat center, making it the biggest call center in the world. Local firms have been present in the industry. However, with the exception of E-telecare, which ranked third in revenues before merging with Stream Global Services in 2009, these firms are quite small and they have been overshadowed by the large global providers.

Workforce Development

The development of the offshore services industry in the Philippines has been fueled by the large and steady supply of university graduates emerging from the country's tertiary education system who consider BPO service an attractive career alternative. In addition, there are industry-wide efforts to enhance both spoken and written English of these graduates and a commitment by the government to provide specific training programs to facilitate their entry into the sector. The tertiary education system in the Philippines is recognized for its high enrollment levels: 29% of the university-aged population are enrolled in one of approximately 2,000 higher education institutions in the country (UNESCO Institute for Statistics, 2010). In 2008, the Philippines graduated approximately 490,000 college students. This has provided an ample supply of human capital for the offshore services industry. Most workforce training initiatives were focused on improving competitiveness in the BPO segment.

The offshore services industry in the Philippines has evolved rapidly and three upgrading stages can be identified:

Stage 1. Entry into the value chain through BPO call center services: Late 1990s

The Philippines entered the value chain through the provision of call center services around the turn of the century. Pioneer firms such as Sykes set up call center operations in the country in 1997, with just 16 employees, and by 2003, it had grown to over 2,000 agents (Sykes, 2010). By 2009, the country had the same number of call center agents as India (The Economic Times, 2010).

Workforce Development. The Philippines' successful entry and expansion into the call center industry can be attributed to the large number of English speakers in the country and low labor costs. Given the country's historical ties with the United States, a significant proportion of the population are fluent in American English,[19] and offshore service providers soon found that Philippines agents were more culturally compatible with American clients than those in India. Thus, the minimal need for voice and cultural training has helped the fast growth of call centers in the country. In addition, the Philippines call center sector provides an attractive career alternative for college graduates in the country, and salaries in the industry are highly competitive in the domestic labor market (Friginal, 2009).

Primary and secondary education is two years shorter in the Philippines than in India, and college graduates have the equivalent of associate degrees in the United States. During entry, the private sector easily hired from this pool of graduates, offering short 2–3 week training for employees to be effective on the job. The companies provided in-house trainers for ongoing monitoring, assessment, and coaching of staff. In addition, several initiatives were established by the private sector to improve the language skills of the industry workforce, particularly of "near-hires" (Friginal, 2009). These initiatives include hiring American expatriates or Filipinos with advanced English skills to provide ongoing language classes for employees, and ADEPT, a joint initiative between the industry association Business Process Association of the Philippines (BPAP) and educational institutes to enhance language skills of university students.

Furthermore, BPAP established a new National Competency Test. Interested participants complete an online test covering basic skills, English proficiency, and computer literacy, as well as behavioral competencies, required for successful participation in the industry. Results are published in a hiring database available to firms in the industry to diminish both recruiting costs and to help sustain the significant demand for new employees.

In multistakeholder initiatives, the BPAP has opted to share information from the National Competency Test with educational institutions to help them ensure their curriculum meets global industry requirements. The government supported this initiative through the Commission for Information and Technology by providing financing for the first 10,000 applicants to take the test for free (Valermo,

[19] The Philippines is the third largest English-speaking country in the world, and 72% of the population is fluent in American English (BPO Services Association, 2009).

2010). It is hoped that this will provide a forum for those in workforce development to learn how to adapt their curriculum for better industry results (BPAP, 2010). Other collaborations between firms and universities have been established to train future call center employees, such as a pilot program between the BPO firm Sitel and the University of Cordilleras.

Stage 2. Upgrading throughout the BPO segment: Mid-2000s

The country's offshore services sector has upgraded through the BPO segment, expanding services from call center operations to finance and accounting, allowing the industry to establish a dominant presence on the global market. By 2010, Manila had become the world's largest city destination for BPO activities (Vashistha & Nair, 2010).

Workforce Development. The sector continued to expand into higher value BPO services, thanks to the relatively high percentage of the population that hold college degrees, as well as the general suitability of the labor force to work in MNCs. Employability rates for finance and accounting graduates are twice as high in the Philippines as in India, and 2.5 times for generalists, given that higher education in this country has followed Western models (Beshouri & Farrell, 2005). Most university courses in finance and accounting are taught according to U.S. standards, providing widespread talent for the establishment of back-office operations for many American banks and financial institutions (Singh et al., 2008). Overall, it is estimated that two-thirds of the 490,000 college-degree graduates in 2008 completed programs suitable for the offshore sector (BPO Services Association, 2009). The private sector was thus able to draw on this segment of the labor pool in order to drive growth through the value chain.

The sector also focused on developing middle management to remove a potential bottleneck in the growth of both call centers and other back-office operations. Pre-MBA programs have been developed with local universities, as well as with Harvard Business Publishing, in order to help the industry meet developed world standards.

In both the first and second stages of upgrading, the government has focused on providing substantial funding for training to direct underutilized labor capacity towards the growing BPO segment in the country. ***Box 1*** highlights these initiatives. These initiatives were expanded in light of the 2008–2009 economic crisis, when the government contracted several private sector partners and training institutes including the Trade Union Congress to provide month long "finishing courses" for unemployed engineers and returning overseas Filipinos to enter the call center industry.

Box 1. Training-for-Work Scholarship Program—Philippines

In 2008, through the **PGMA Training for Work scholarship**, the government distributed around 40,000 scholarships focused on workers across the ITO and BPO sectors. The call for applications invited "recent high school graduates, employees looking for a career change, underemployed or unemployed" people to apply on a need-blind basis. Over 30,000 people have graduated from these training programs and 67% of them are now employed in the offshore services industry (BPAP, 2009). In 2009, President Gloria Macapagal-Arroyo expanded this training for work program to quickly ramp up near hires.* According to the BPAP, 75% of these near hires subsequently found work in the industry, and an estimated 8,000 people were expected to complete this program in 2009.

*"Near hires" are potential employees for the sector that are rejected in the recruitment process due to specific shortcomings in their skills. Program training focuses on developing near hires weaknesses in order to usher them into the workforce as quickly as possible (Oliva, 2008).

Stage 3. Vertical industry specialization: late 2000s

In addition to these two previous upgrading trajectories, the Philippines have also sought to upgrade into industry-specific offshoring sectors with the inclusion of services for the medical industry, establishing the country as a destination for medical transcription. The foray into the medical transcription industry draws on the enormous supply of trained medical professionals in the country.

Workforce Development. The establishment of a medical transcription service sector tapped into a large and predominantly jobless medical workforce.[20] The scarcity of jobs in the past had led many of these Filipino workers to migrate abroad to find employment, resulting in a large brain drain. Medical staff are widely recognized for their quality internationally and a significant number of them work in hospitals and medical facilities around the world. This makes them very suitable to serve developed countries in all type of medical transcription activities.[21] In order to facilitate the growth of this niche, initiatives were taken by the private sector to provide certifications for staff to meet global transcription standards. The privately owned MTC Academy, the largest medical transcriptionist certification institution in the Philippines, established a partnership with the American Association for Medical Transcription (AAMT), matching the curricula and central examination system (MTC Academy, 2010).

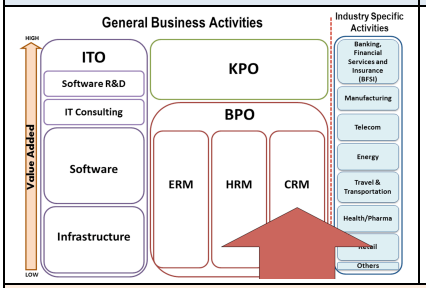
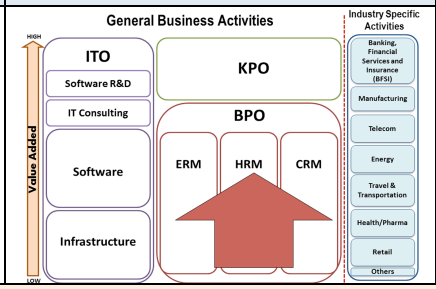
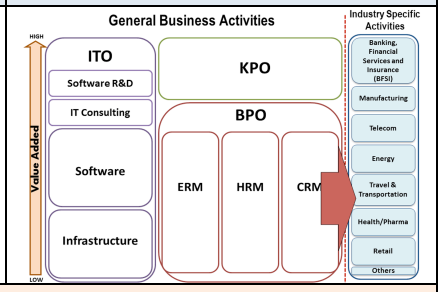
The government has also supported the growth of this segment, offering scholarships to healthcare professionals for specialized training including laboratory work, knowledge about foreign healthcare systems, particularly that of the United States, and accents and idioms to prepare them to provide high-quality services for mainly U.S.-based doctors (Philippines Medical Transcription, 2007).

[20] Medicine is the third most popular career choice in the country,

[21] The Philippines has a large and growing number of nurses. Enrollment in the medical field increased from 150,000 in 1999–2000 to 550,000 in 2005–2006 (National Statistical Coordination Board, 2010). Salaries for medical transcriptionists are on par with those of registered nurses (approximately US$220 a month).

Table 6 provides an overview of the industry evolution and the corresponding workforce development initiatives that took place in the Philippines over the past two decades.

Table 6. The Philippines: GVC Upgrading and Workforce Development Initiatives

Late 1990s	Mid-2000s	Late 2000s
		
Private Sector Workforce Initiatives		
• Short 2–3 week training for call center operations.		• Focus on raising awareness of medical transcription as a viable career alternative (Sibal, 2009). • MTC Academy establishes partnership with AAMT to provide training for transcriptionists based on the U.S. model and standards.
• Opportunities to practice and in-house language trainers provide constant monitoring and coaching. • National Competency Test and database helps to reduce recruitment delays and costs.		
• American expatriates work with agents in various areas of language production and task performance. • ADEPT, a program designed to improve English language skills of BPO applicants, is launched in universities. Additional English language improvement programs introduced to raise "near-hires" to U.S. standard levels amongst graduates.		
Public Sector Workforce Initiatives		
• 40,000 PGMA Training for Work scholarships offered for the ITO and BPO industry. • In 2009, program expanded to "near hires". • In 2009, government also provides crash training for out of work engineers and overseas. Filipinos returning to the country for hiring in the BPO sector.		• Government offers scholarships to healthcare professionals for specialized training, including laboratory work; knowledge about foreign health care systems, particularly that of the United States; and accents and idioms to prepare them to provide high quality services for mainly U.S.-based doctors (Philippines Medical Transcription, 2007).
Multisector Workforce Initiatives		
	• Educational system has favored curriculum related to BPO rather than ITO activities, particularly in finance and economics. Two-thirds of college-degree graduates in complete programs suitable for the sector.	
	• As a result of the crisis, the Trade Union Congress was contracted by the government to provide finishing courses for call center agents and for medical transcriptionists (Boboy Syjuco, 2010).	
• In 2007, University of the Cordilleras launched a pilot preparatory course in English proficiency, technical competency, and customer relations collaboratively designed with a U.S.-owned BPO Sitel Philippines (Cabreza, 2007).	• Middle management training programs developed by BPAP with Ateneo de Manila University and De La Salle University. Harvard Business Publishing, BPAP also developed an e-learning tool, combining online and class activities. 100 managers graduate in first year.	

Source: Duke CGGC.

C. Chile

Compared to India and the Philippines, Chile is a small, but high-value player in the offshore services industry (Fernandez-Stark et al., 2010a). Chile offers services in the high-value ITO and KPO segments, as well as services such as R&D in select industries, including agriculture and mining. The country continues to offer some call center and lower-value BPO activities, as well, but these have mostly migrated to lower-cost countries in Latin America. By 2008, the country registered close to US$1 billion in service exports (IDC Latin America, 2009b). The offshore services industry employed 20,000 people at the end of 2008. The development of this industry benefitted substantially from targeted industrial policy driven by the country's economic development agency, la Corporación de Fomento de la Producción (CORFO).

Industrial Organization

MNCs and large global services providers have led the offshore services sector in Chile, although several mid-size companies and the largest firm, Sonda, also play an important role in the IT segment. Small local IT firms can be found at the high end of the value chain, contributing to advanced software development and R&D. The engineering service export sector has been dominated by large foreign firms, including Fluor, Bechtel, and SNC-Lavalin. Smaller companies have contributed to exports in a minimal way, and typically export their services to Peru or Colombia. In 2005, Comicrom, Chile's largest domestic BPO firm was sold to TCS, and subsequently the sector has been almost the exclusively realm of large global service providers including Capgemini, Sitel and Teleperformance.

Workforce Development

Two key factors have provided Chile with an important source of competitive advantage in entry and upgrading in offshore services. First, the government has played an essential role through the provision of the high-tech workforce development incentives for foreign offshore companies (see ***Table 7*** These incentives facilitated investments in certification and English-language training, as well as recruiting and training highly specialized personnel.

Table 7. List of Incentives under the High Tech Investment Program-Chile

Incentives	Financial Support	Maximum
On-the-job Training (HT3)	New employee training program	Up to 50% of annual salaries (Max=US$25,000 per person)
Specialized Training & Recruitment (HT6)	Acquirement of specific knowledge or recruitment of experts	Up to 50% of specialized training or recruitment. (Max = US$100,000 per person)

Source: CORFO, 2009.

Second, Chile's strong tertiary education has been important for providing a small but technically qualified labor pool to support the development of high-value niche activities for the value chain. The past two decades in Chilean tertiary education have been characterized by tremendous growth, and the number of graduates doubled between 1998 and 2007, reaching 82,200 in the latter year (Ministerio de Educación, 2009).

The following three major upgrading phases can be identified within the country:

Stage 1. Entry into the value chain through ITO and BPO services: Early 2000s

Chile entered the offshore services value chain in 2000, offering both IT and BPO services. The country initially attracted regional shared service centers for MNCs operating in Latin America, such as Citigroup and Unisys. However, with its small population and no particular strengths in the IT sector, this small middle-income country was an unlikely choice for entry into the industry. Chile's successful entry as an offshore services provider is to a large degree the result of the active role played by the government in promoting the country as an offshore services platform. In 2000, the High-Tech Investment Program was launched by the government to provide a wide range of investment incentives to attract foreign companies. These efforts began to pay off when Chile was ranked ninth in AT Kearney's first Global Services Index for offshore service activities (AT Kearney, 2007). However, growth continued to be slow until 2006, when the government launched the second phase of the High-Tech Investment Program and legislation regarding data protection came into effect. That year, over 20 new IT and BPO third-party providers established operations in Chile.

Workforce Development. During the initial period of entry into the value chain, many of those newly enrolled in the tertiary education system were the first generation in their family to attend university, and many had to combine studies with work (Brunner, 2007). This group fed into the newly established BPO segments as part-time employees with quality education. BPO firms provided short two- to three-week induction and training programs. The scalability of many of these services, however, was restricted to Spanish-speaking markets, due to the limited number of English speakers in the country. While some firms offer language training to help alleviate this problem, salaries for English speakers

remained on average 30% higher than for Spanish speakers, reducing competitiveness for English services from Chile. A large number of government-accredited training institutions[22] now offer English language classes; however, quality varies and this problem continues to limit upgrading and expansion through the BPO segment.

On the other hand, existing talent in engineering was a significant driver for the installation of IT centers in the country. Strong engineering faculties at Chile's well-respected universities and an evolving domestic IT market provided a limited but high quality supply of talent.[23] The private sector complemented this strong educational base by providing English training, as well as certifications and workshops in leading software platforms, to ensure their staff remained on the cutting edge of technology. Many companies financed training initiatives through the incentives of the High-Tech Program and training was conducted either in-house or by existing external training organizations.

The government also offered English training scholarships for IT specialists. Between 2008 and 2010, the government awarded 3,000 of these scholarships. In addition, the technical training institute DuocUC invited company directors of MNCs in the sector to join the board of its IT department to help focus curriculum to meet the industry needs. The institute established specific agreements to provide training for employees of GenShare, GE´s joint venture with UST Global in Chile. GenShare's facilities will be established on the DuocUC campus (Barriga, 2009).

Stage 2. Upgrading into high value ITO and KPO segments: Mid-2000s

Chile rapidly upgraded into the high-value ITO and KPO segments after 2006. These segments continue to become more specialized, and, in IT services, many Chilean teams are dedicated to providing solutions for highly complex and unique problems. Following the selection of the industry in 2007 as 1 of 8 key clusters to drive economic growth, renewed support from the government provided further impetus for expansion. That same year, the government established a Public-Private Strategic Council to manage the newly created Global Services Cluster. This council represents foreign service providers in Chile, industry associations, educational institutions, and representatives from the public sector, including the Ministry of Economy and the Ministry of Education (Castillo, 2008). CORFO continued its outreach program to attract firms in these high value-added segments, and in 2009 and 2010, it hosted several international conferences focused on the industry.

Workforce Development. As offshore services continued to evolve, the high-quality and limited supply in engineering forced rapid upgrading into high-value niche sectors. As firms realized they would

[22] The government offers economy-wide tax incentives to encourage companies to invest in human capital development. Only those training programs offered by accredited organizations are eligible for the tax relief.
[23] In 1999, the Chilean government introduced the Digital Agenda to increase ICT readiness of the economy.

be unable to compete with countries such as India on large scale projects, they used a relatively small number of high-quality engineers to develop expertise in specific areas of software development. The private sector focused on improving the innovative environment for its workforce by increasing global exposure through online forums with offices around the world, providing certification training in global platforms and software, and offering mentorship to improve leadership and teamwork development (Gomez et al., 2009). Furthermore, in many of the captive centers (for example, Citigroup, J.P.Morgan, Equifax), upgrading was facilitated by transfer of knowledge through both formal and on-the-job training carried out by employees based in the developed world and India.

Government initiatives include its eagerness to tap into the mobile, professional workforce that was once captured by Silicon Valley. An open immigration policy has allowed for talent to move to Chile to help bridge the gap as new skills are developed locally (Schenkel & Knezovic, 2009). In 2010, the government created Start-Up Chile, an innovative program to attract entrepreneurs to set up IT companies in Chile.[24] If successful, this program will help build world-class domestic IT companies that few countries outside of India have been able to do. In addition, the offshore services industry became one of a limited number of priority sectors for national study abroad scholarships for technical training and internships administered by BecasChile.[25]

Upgrading into KPO activities has drawn principally on the large number of graduates in business administration and experienced professionals in the business community. As in India, private sector training in this segment includes GSD workshops provided in-house, as well as programs focused on leadership and management skills, with both internal and external trainers. The private sector firms that established service export operations—such as Evalueserve, leverage their e-learning tools, such as global teleconference calls lead by trainers based in India—and incorporate a high level of on-the-job training and mentoring provided by experienced managers who help their trainees work through projects on a step-by-step basis.

Stage 3. Vertical industry specialization: Mid 2000s

A third upgrading trajectory can be identified in the country's expansion into the provision of specialized engineering and R&D services. As offshoring of higher value services has expanded globally, Chile has tapped into its considerable expertise developed around its key productive sectors: mining, agriculture, forestry and aquiculture. This has been particularly successful in engineering services for the mining industry, which accounts for one-third of the country's offshore service exports (IDC Latin

[24] The program provides 90% of start-up costs, including employee salaries, as well as providing infrastructure and logistics support for a total of up to US$40,000 (CORFO, 2010).
[25] These scholarships are based principally on merit and career trajectories, with socioeconomic means accounting for just 10% of the evaluative process.

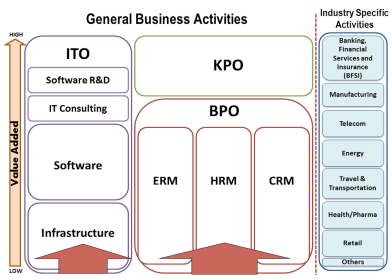
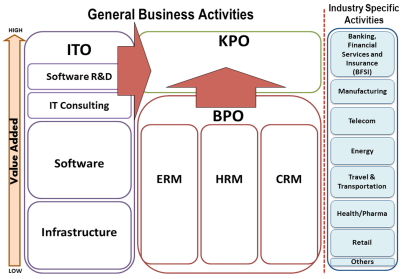
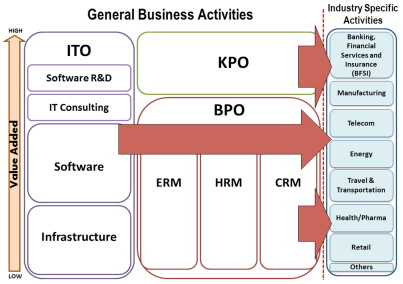
America, 2009b). The importance of engineering services to the offshore services industry is reflected in their special representation on the Public-Private Strategic Council.

Workforce Development. The private sector has focused on raising awareness of R&D as a career alternative, fostering collaboration with researchers from abroad and creating opportunities for technical and professional staff to work together to improve efficiencies (Campos & Schlechter, 2009). Upgrading has occurred most rapidly in the mining sector, where Chilean engineering had established a solid reputation worldwide. The country graduates approximately 5,000 engineers annually, the majority of whom are very highly qualified technically. With the commodity boom in 2007, firms based in Chile rapidly began exporting their know-how, particularly in copper extraction, to all parts of the world and service exports in engineering exploded. Existing expertise in agriculture and food production has also been leveraged recently with a number of captive R&D stations being established in the country. All of these sectors have been supported by the expansion of tertiary education led by private institutions,[26] which has increased the number of students pursuing postgraduate degrees.

Government workforce initiatives that promote upgrading into the sector include the establishment of the National Innovation System in 2007, which helped place R&D and innovation as high national priorities for investment and development. New scholarships to pursue Master's and doctoral degrees abroad increased the number of researchers available in these high value segments. The government also extended the High-Tech Incentives Program in 2009 to cover R&D functions in industry-specific sectors, and it awarded support to Monsanto, Pioneer and Seminis to establish R&D labs in northern Chile, focused on improving seed production. ***Table* 8** outlines these upgrading stages and the corresponding workforce development initiatives that took place in Chile.

[26] Between 1990 and 2006, enrollments in private independent universities increased by 900% and in state universities by 160%, while professional institutes also saw a rise in enrollments (Ministerio de Educación, 2009).This growth was largely the result of reforms carried out by the military government in the 1980s that saw a decline in government involvement in higher education and the creation of a private market higher education system.

Table 8. Chile: GVC Upgrading and Workforce Development Initiatives

2000–2008	2007–2010	2010
		
Private Sector Workforce Initiatives		
▪ BPO sector draws on large number of new university students and provides 2–3 week induction workshops and training. ▪ IT companies draw on engineering talent and provide extensive certification training in Microsoft, Cisco, Sun Microsystems, etc. ▪ Firms offer English training.	▪ Firms leverage their e-learning platform for employees offering broad range of programs from English to accounting and leadership.	▪ Private sector focused on raising awareness of career alternatives in research and development. ▪ Engineering firms focused on improving management and leadership skills, English, and global exposure of employees.
▪ The country's strong technical tertiary education system provides the industry with a small but qualified labor pool.		
Public Sector Workforce Initiatives		
▪ Perfeccionamiento Intensivo en Inglés: English training scholarships offered for IT specialists. 3,000 scholarships provided in three years. ▪ BecasChile extends academic scholarships to technical programs and internships abroad for the global services industry.		▪ BecasChile Scholarship program launched to increase the number of highly skilled workers in the labor force in niche industries. ▪ HiTech program also extended to cover niche industries.
	▪ Start Up Chile launched to attract entrepreneurs in high-value export services sectors in both ITO and other niche sectors. ▪ National Innovation System established to promote innovation in all economic sectors facilitates growth in the sector.	
▪ HiTech training incentives (HT3) offers provide 50% of new employee on-the-job training costs (maximum: US$25,000 per employee). ▪ HiTech Program training incentives (HT6) offer 50% of training costs (maximum: US$100,000 per employee) for specialized training or recruiting ▪ Servicio Nacional de Compensación y Empleo offers income tax deductions for firms' training expenses (available to all companies in the country).		
Multisector Workforce Initiatives		
▪ Increased interaction between private firms and technical institutions improves IT curriculum. ▪ GenShare and DuocUC sign an agreement for training of IT programmers in application development.		▪ Engineering firms represented on Public-Private Council of the Offshore Services Cluster and contribute to human capital development policy.

Source: Duke CGGC.

D. Low-Income Nations entering the Value Chain: Spanish-Speaking Central American and Caribbean Countries

A number of small, Spanish-speaking nations in Central America and the Caribbean have moved into offshore services, supported by investment agencies targeting the numerous benefits the industry has bestowed upon other developing countries. With small populations and only limited access to higher education, these small nations seem like unlikely candidates for entry into the industry. However, they have successfully leveraged their low costs and the "nearshore" platform concept of similar time zones and cultural and language compatibility to enter the offshore services as low-value service providers, principally for the Hispanic market in the United States.

Three country examples are analyzed in this section: (1) the Dominican Republic, (2) El Salvador and (3) Guatemala. These cases represent a clear entry path that has been emulated across the region and can be replicated in others—that is, entering into the call service business to cater primarily to the U.S. Hispanic market. Guatemala and the Dominican Republic have since upgraded within BPO services to provide not only Spanish, but also English-speaking call centers, finance and accounting services, HR outsourcing, and supply chain management to their clients.

The investment promotion agencies of all three countries continue to support upgrading into higher-value IT, animation, and KPO services through several initiatives, such as building dedicated science parks. However, to date, these initiatives have not moved the countries into new segments of the offshore services value chain, although they continue to provide and expand BPO functions (Dominican Republic Export and Investment Center, 2010; Gereffi & Fernandez-Stark, 2010). ***Table 9*** below provides an overview of the industry in these countries.

Table 9. The Offshore Services Industry in Dominican Republic, El Salvador, and Guatemala

		Dominican Republic	El Salvador	Guatemala
Entry Point		Call center, Spanish speaking	Call center, Spanish speaking	Call center, Spanish speaking
Highest Value Activity in 2010		BPO, finance & accounting, HRO	Contact center	BPO, finance & accounting
Industry Employment	**2006**	18,000	4,700	
	2008	22,000	6,800	6,500
	2010	25,000	9,000	9,000
Number of Offshore Centers in 2010		65	38	50

Sources: Casiano, 2010; Dominican Republic Export and Investment Center, 2010; ECLAC, 208; Frost & Sullivan, 2010; Gereffi et. Al, 2009; Invest in Guatemala, 2010; PROESA, 2010; World Bank, 2010. Also review of company websites of those with installed capacity in these countries including STREAM, Sykes, Teleperformance, Capgemini, and Transactel.

The Dominican Republic, which entered the industry in the early 2000s, has achieved significant growth with 25,000 employees in 65 centers, compared to 9,000 employees in 50 centers in Guatemala, while supply in El Salvador is slightly more consolidated. All countries currently project continued expansion, although it is clear that the 2008–2009 economic crisis did slow the installation of new centers.

Both the Dominican Republic and Guatemala place heavy emphasis on maintaining global standards for call centers. In Guatemala, to manage quality standards, new call center operations must pass an internal certification to become a member of the Call Center Commission (CCC). The CCC was established with government support to attract new talent to the industry, rather than competing for talent and driving up attrition rates (Cuevas, 2010; Nearshore Americas, 2010). In the Dominican Republic, where the industry has matured, the growing number of training institutes that serve the industry must be accredited by the Dominican Republic Call Center Association and face heavy competition from the U.S.-based Resource Center for Customer Service Professionals, which offers programs for both incoming agents (two weeks) and call center supervisors and managers (three days). The Dominican Republic claims to have more U.S.-certified agents than any other country in the region (Cuevas, 2010).

These three countries have created a "nearshore" platform that focuses on the United States. While they principally serve the Hispanic market, the use of "Spanglish" by clients requires call center agents to also understand English. English training is thus a leading challenge for workforce development. All three countries offer programs to improve English. The government carries out most of these initiatives; however, the private sectors of each country also provide ongoing English training for their employees. In the Dominican Republic, the government sponsors English as a Second Language programs (ECLAC, 2008); in 2010, the Guatemalan government offered 2,000 scholarships to study English to members of the Call Center Commission (George, 2010; Gereffi et al., 2009). El Salvador created the National English Center in 2006; in 2010, Access to Employment, a joint effort between the government and the U.S. Agency for International Development (USAID), was launched with the goal to train 8,000 students and workers over a 4-year period in English language and computer skills (Felperin, 2010). Both Guatemala and El Salvador are further integrating English into their primary and secondary school curricula (ECLAC, 2008; Gereffi et al., 2009). El Salvador has tried even more creative measures of enticing children of the diaspora in the United States back to the country to spend a year "Meeting their Roots" while working in call centers (Zappone, 2006).

Most companies in this region have also established training programs focused on improving customer service, such as the 100-hour finishing school for near-hires that Sykes, Teleperformance, and Transactel operate in El Salvador (Felperin, 2010). In all three countries, companies rely on enrolled university students for their workforce, although Guatemala is keen on promoting the industry as a long-

term career alternative. A large and rapidly growing Guatemalan firm, Transactel, is working to replicate the Indian corporate-university model, creating an in-house university in 2009. The university provides courses in English, accounting, and finance, as well as leadership and management. In 2010, 200 employees opted to pursue the in-house Bachelor's degree in Business, while a further 22 are enrolled in the company's MBA program (Sigloxxi.com Guatemala, 2010).

The relative success that these countries have achieved in entering the offshore services value chain highlights the potential of the nearshore model in facilitating entry for countries that would otherwise remain at the margins of the industry.

VII. Analysis and Discussion of the Country Cases

The GVC perspective provides a useful framework to understand how countries upgrade along the value chain, the kinds of institutional involvement needed to facilitate upgrading, and the most relevant workforce development practices. We summarize below our main findings for this complex, global industry that geographically spans both developed and developing nations.

A. Economic Upgrading

The preceding country cases reveal a clear pattern of entry for low-income countries into the offshore services value chain. The El Salvador, Guatemala, Honduras, and the Philippines all entered the industry through call centers, the lowest value segment of the value chain. This pattern has emerged as result of the limited conditions required for entry into the value chain at this stage: Available low-cost labor with a minimum of high school education, language, and cultural compatibility with clients and adequate telecommunications infrastructure.

In the Philippines, the large supply of American-style English speakers at highly competitive salaries gave the country a major advantage to enter the industry. Despite a significant time zone difference for serving the U.S. market, language and cultural compatibility gave the Philippines an edge over India, and the country is rapidly becoming a world leader in call center provision. The Spanish-speaking Central American and Caribbean countries studied (the Dominican Republic, El Salvador, and Guatemala) were not obvious candidates to enter the industry, as each country has a relatively small labor force of 3–4 million. However, they were able to compensate for this by using their language and cultural proximity to target a niche market of voice BPO services for the Hispanic market in the United States.

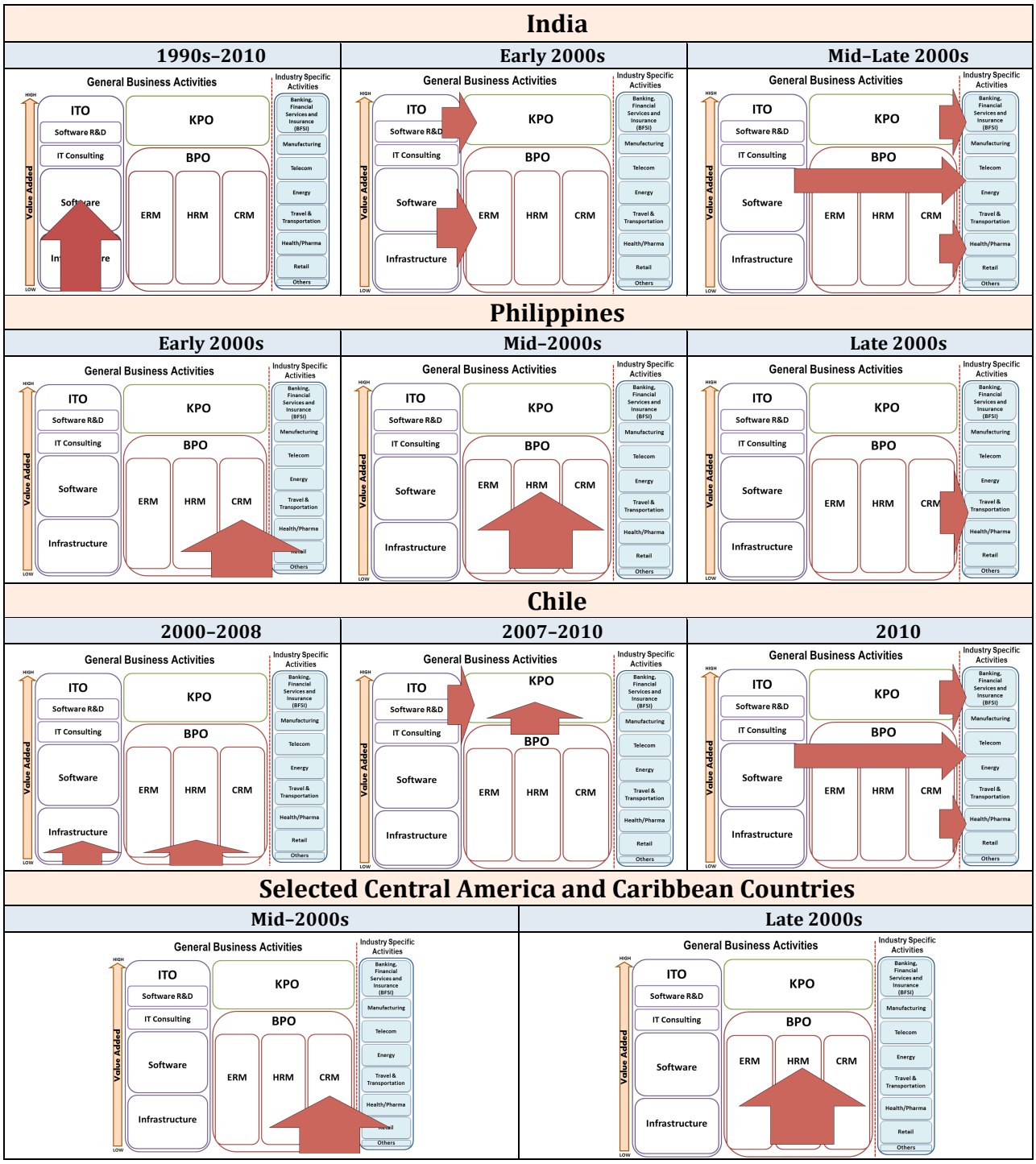
India, as the first mover in the industry, is an exception among low-income countries entering the GVC through ITO services. The presence of low-cost, experienced, and well-prepared IT workers with connections to firms in the United States prior to the Y2K crisis was a critical factor in facilitating India's entry strategy. Chile's entry into ITO services in parallel to entry into some higher-value BPO activities,

on the other hand, suggests that middle- to high-income countries[27] may follow distinct strategies for entry into this chain. As with India, a key factor facilitating Chile's entry into the ITO segment at the beginning of the 2000s was the presence of well-educated, experienced engineering talent. Many low-income developing countries, however, lack the engineering, mathematical, and science talent that India had accumulated prior to the 1990s. Thus, it is questionable whether this entry strategy is replicable for other low-income countries.

Although entry into the BPO segment appears to be the main alternative for developing countries to join the value chain, once a country has entered the industry, upgrading is nonlinear and several possible upgrading trajectories can be pursued. This is highlighted in ***Figure 5***, which provides a representation of the upgrading trajectories followed by the six countries analyzed. India entered the value chain first and upgraded through the ITO segment, followed by simultaneous upgrading into BPO and KPO services, and finally specialization in industry-specific segments. Chile's upgrading trajectory began with entry into the ITO and BPO segments, followed by upgrading into KPO and industry-specific services, while at the same time, moving out of BPO services. The Philippines upgraded and expanded mainly through BPO, with a particular industry-specific shift into medical transcription, while the countries in Central America and the Caribbean have not yet upgraded beyond BPO services.

[27] GDP per capita is below US$8,500 in all countries in the study, with the exception of Chile, which has seen the most success in higher value services. Countries with the highest employment in the segment, India and the Philippines, both have GDP per capita of less than US$3,500. See Table 4 for further comparisons.

Figure 5. GVC Upgrading Trajectories for Selected Developing Countries in the Offshore Services Global Value Chain



Note: For the full version of the offshore services GVC background diagram, see Figure 1.

Source: Duke CGGC.

Analysis of these cases confirms that the supply and quality of human capital and the capacity to improve the skills in the workforce are two key factors that govern the upgrading trajectories a country may pursue. Low-cost labor is key for the lower segments of the value chain, where labor arbitrage is important, while highly qualified workers are essential for access to the higher end of the value chain that favors competency and skill. The country cases provide several examples of this.

Upgrading trajectories into labor-intensive segments: India had a large supply of low-cost college graduates with a broad range of degrees not suitable for the IT industry that allowed the country to move into labor-intensive BPO operations. Efficient 2-3 week training programs by the private sector continued to increase the potential labor pool for these activities. Similarly, in Guatemala, the supply of college graduates eager to work in the BPO industry, combined with initiatives such as Transactel's university training, have facilitated the country's continued upgrading into higher-value BPO services, including finance and accounting.

Upgrading trajectories into knowledge-intensive segments: In Chile, the presence of a large number of engineers and the country's mining expertise facilitated the country's upgrading into offshore services for engineering in the mining sector. In the Philippines, the presence of a large number of under-employed medical practitioners gave the country a solid advantage to move into the medical transcription field. The government's scholarship programs in conjunction with private sector initiatives for U.S. medical transcriptionist certifications quickly opened the market for the Philippines to upgrade into this industry segment.

The importance of available skilled labor for upgrading is clear in the case of the Spanish-speaking Central American and Caribbean countries. In each of these countries, the government development agencies actively engaged in trying to attract firms in the ITO segment. However, due to the lack of personnel or educational institutions capable of developing the required workforce, these countries have not been able to advance very far along this trajectory.

B. Workforce Development

While national education systems have provided the basic skills necessary in all countries, the case studies show that the majority of workers in this industry require some level of specific training to fill the knowledge gap between the education systems in developing countries and the high-quality standards required to serve the global market. A number of different initiatives to feed the labor pipeline are thus required to sustain growth and drive upgrading. Although these initiatives differ across the range of activities included in the value chain, the most relevant for developing countries seeking to enter the market are as follows: the acquisition of English-language proficiency; job-specific training to meet market needs; the acquisition of appropriate international certifications; and skill training for "near

hiring." Tertiary education also plays a major role in upgrading into higher value activities that require formal education qualifications.

- **English-language skills training** has been central to all upgrading initiatives in the six countries studied. In the Philippines, ongoing classes for employees and joint initiatives with educational institutes to enhance language skills of university students have played an important role in all upgrading phases. In the Dominican Republic, Guatemala, and El Salvador, English training has been important despite serving principally Hispanic markets. Furthermore, for most segments of the value chain, English is key to upgrading the workforce, and many of the third-party providers operating in developing countries around the world offer online training and development resources in English only. English training is also necessary for upgrading into high-value services. These include significant collaborative interactions with global communities, of which English is the main language. For example, Chilean engineers in the mining industry are required to interact with clients and colleagues in Australia, Canada and South Africa, among other countries.
- **Job-specific or demand-driven training** refers to practices whereby job seekers are trained for a specific role within the organization. This type of training has provided a rapid and efficient solution to filling the skills gap. Widespread adoption of this practice for driving upgrading in the offshore services value chain emerged in India in response to the mismatch between the skills being provided by the tertiary education system and those demanded by the industry. Uncertainty regarding return on investment in training is reduced for both the firm and the employee, and thus both are willing to invest the required amount to drive skills development. In India, private-sector training programs at Infosys and Wipro expanded to the point where both companies today have large in-house universities for trainees. In Guatemala, Transactel has moved to copy this initiative, although its impact is yet to translate into country-wide upgrading. In Chile, government training subsidies awarded to companies in the offshore service sector incentivized companies to invest in the industry-specific training needed to meet their clients' demands. In the Philippines, in-house, on-the-job training and "finishing school" programs are used to prepare college graduates as BPO call center agents.
- **Certification training** has been an essential workforce development initiative for driving upgrading in developing countries (see ***Appendix 1***).[28] The agreement between the Medical Transcription Associations in the Philippines and in the United States to provide certifications for medical transcriptionists was vital for the former country to access the U.S. market. In Chile, IT firms moving into higher-value R&D services had to provide certification training in different software platforms to

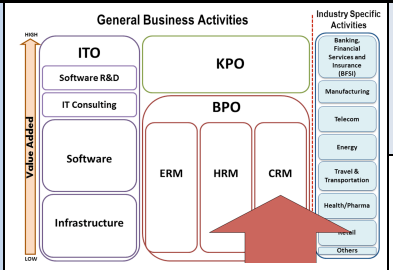
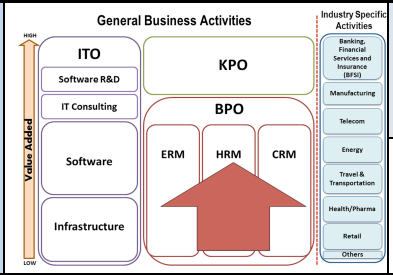
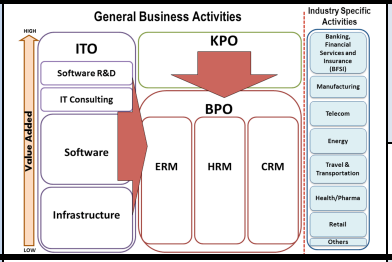
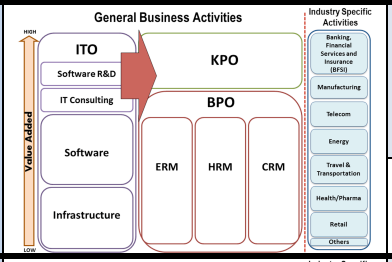
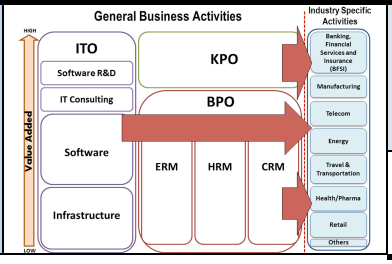
[28] Different segments of the value chain require different certifications and standards and are thus broadly referenced as "certifications" in the text. Appendix 1 provides a detailed review of most commonly used certifications and standards.

ensure their staff were on par with peers in developed countries, while expanding into BPO call center services required certifications in data and security protection. In the Dominican Republic, a growing number of training institutes accredited by the Dominican Republic Call Center Association provides certifications for both incoming agents and call center supervisors and managers to serve the U.S. market. The Dominican Republic claims to have more U.S. certified agents than any other country in the region, and the country employs more than twice as many agents as its neighbors, Guatemala, and El Salvador.

- **Training of near-hires** (i.e., potential employees for the sector that are rejected in the recruitment process due to specific shortcomings in their skills) has also become an important workforce development practice. This effort to capture talent that is not hired due to small skills gaps increases the available labor at different points of the value chain, while focusing training for specific job segments. This has been important to maintain the continued expansion of the Philippines BPO segment, which experienced average annual increase of 40% in employment generation between 2004 and 2008.

Table 10 outlines the most common workforce development strategies that have accompanied upgrading between stages of the value chain, drawing on both our country cases, as well as other countries that have successfully upgraded along the value chain.

Table 10. Workforce Development Implications and Upgrading in the Offshore Services Global Value Chain

	Diagram	Workforce Development Implications	
Entry into the Value Chain		Call centers hire people with high school diplomas or Bachelor's degrees. Further skills training is provided by the company or private training institutions.	
		Skills Preparation Short technical training	**Institutions** Private sector Government
Upgrading within the BPO Segment (Functional Upgrading)		Skills development is carried out by the private sector, either through in-house or contracted training programs. Further technical training is provided to existing and new employees.	
		Skills Preparation Short technical training Formal education (degree required)	**Institutions** Private sector Government Tertiary educational institutions
Full Package Services (Functional Expansion)		Expansive hiring process targets candidates with high school diploma and/or colleges graduates to work in the BPO segment. New hires must complete BPO training programs to guarantee quality services.	
		Skills Preparation Short technical training Formal education (degree required)	**Institutions** Private sector Government
Upgrading from ITO to KPO functions (Chain Upgrading)		Personnel with higher education qualifications recruited. Typically MBA graduates and workers with business experience. Workers must have sharp analytical skills.	
		Skills Preparation Formal education (degree required)	**Institutions** Tertiary educational institutions
Vertical Specialization (Chain Upgrading)		Companies hire experts to sustain their competitive advantage in specific areas. For example, a BPO company providing medical transcription services must hire nurses and doctors to ensure accurate service provision.	
		Skills Preparation Formal education (specialized degree required)	**Institutions** Tertiary educational institutions

Source: Duke CGGC.

In product[29] and process upgrading shifts, when offering new services or improving internal processes requires only short-term training that can be provided easily by the private sector, the firm is likely to train existing staff rather than hire already skilled staff due to high recruiting and induction training costs per new employee. However, in functional and chain upgrading, where firms wish to move into value chain segments or activities that require more in-depth education, they are more likely to pursue one of two strategies: (1) hiring already qualified employees or providing this formal education either through an in-house university, or (2) helping to finance university degrees for existing staff. This latter option helps employee retention by providing options for career development.

Indeed, the case studies reveal an interesting trend toward a preference for in-house training provision versus hiring external training organizations. In-house training is divided between formal training, on-the-job training, and online e-learning modules. The e-learning model offers both scale and flexibility, allowing employees to access the online system during down periods at work. The extensive use of internal resources is particularly prominent in India, where firms have developed internal training capacity to rapidly meet the demands of their growing clientele. A similar system has been adopted by Indian firms based in Chile, where firms leverage their relationships with their Indian offices to provide direct internal training from India to Chilean employees. In the Philippines, firms provide internal language classes for employees in addition to on-the-job training by supervisors.

Existing external training organizations were identified in those cases principally catering to English-language training, soft skills training, and training for certifications—that is, for highly portable skills that are required by a broad range of economic sectors. In Chile, for example, this skills training is provided through the existing workforce development framework, SENCE. The Dominican Republic was the only country studied where industry specific training institutions were operating. The failure of external training institutions to emerge as leaders in the offshore services workforce development sector is of particular interest and further research will be important to understand why this has occurred.

[29] Product upgrading in this industry refers to offer a more sophisticated service. An example of product upgrading would be when a Spanish call center expands to offer English.

C. Institutions

The case studies also indicate that there are emerging differences in the roles that different institutions play in driving workforce development across the value chain. This is influenced by the existing educational and training frameworks in the countries in which the chain is embedded, the stage of the value chain in which firms in the country are located, the portability of the skills developed, and the commitment of the government to promoting growth in the industry.

Language training: As economies become increasingly globalized, English language skills have grown in importance to facilitate international trade in goods and services across all economic sectors. This skill is highly portable and relevant for most jobs in the labor market for emerging economies. In the offshore services industry in particular, language skills are key in all stages of the value chain and in many countries, firms must still pay a premium for English-language speakers. It is thus not surprising that there are numerous public and multistakeholder initiatives to drive the development of language competencies in non-English speaking countries promoting the offshore services industry. In Chile, the government provided 3,000 scholarships for IT professionals of all levels of expertise to study English. El Salvador created a National English Center and, together with USAID, embarked on a project to provide language training for 8,000 people. Additionally, El Salvador, along with Guatemala, incorporated English into the primary and secondary school curriculum.

BPO: Given that the short-term training programs focus principally on internal company protocols and software (limited portability of skills)—while leveraging general communication, problem solving and decision-making skills are developed in high school and college—additional workforce development in the BPO segment is generally carried out internally by the private sector (e.g., Chile, Dominican Republic, and India). However, in the Philippines, due to the importance of the sector to the national economy and limited alternative employment opportunities, the public sector has also committed to driving workforce development for this sector. Existing government vocational training institutions were used to provide a "finishing school" for potential call center agents. State-funded scholarships play a key role in developing the labor pool for the industry, as well as financially supporting the private sector's National Competency test initiative.

ITO: The institutional approach to workforce development for the ITO segment is more complex, as the industry requires a depth of technical knowledge that must be accumulated through numerous training programs and ongoing education. Given the disparities in the quality and availability of technical and engineering education in the different countries studied, a variety of approaches can be identified. In India, as both the public and private educational institutions struggled to maintain high quality in the face of growing enrollment, the private sector was forced to take a highly proactive role in developing their

workforces. Some companies almost bypass the tertiary education system completely by hiring second-year students and training them internally. Having created this internal capacity, Indian firms can now leverage this, allowing them to establish operations in countries that have more limited IT capacities. In Chile, the government had launched a country-wide digital program in the 1990s and showed clear commitment to continuing to develop this segment of the value chain, offering training subsidies to firms and fostering collaboration between technical educational institutions such as DuocUC and the industry through the Public-Private Strategic Council.

KPO and high value industry specific segments: Where the offshore services industry depends on high-level technical and analytical skills that are developed over time and rely on rigorous university education, multistakeholder initiatives appear to be the most prominent approach. Many of the skills required for this sector are portable across different economic sectors. Training for these skills can also strengthen general managerial competencies that are seen as important bottlenecks in emerging economies. As in the other segments of the offshore service value chain, however, there remain certain gaps between the education sector, and the industry that must be filled. In Chile, the government invited representation from the engineering sector to join the Public-Private Strategic Council to facilitate interaction with educational institutions. In the Philippines, government scholarships were provided to ramp up medical staff in private academies to become medical transcriptionists, thus providing the catalyst for upgrading into services for the health care industry. In India, the government-launched INSPIRE to raise awareness of long-term opportunities in research work to support the development of R&D initiatives in the country working with both educational institutions and the private sector to secure internships for participants of the program during their training.

Workforce development requires an active and innovative commitment to investments in education and training. While a detailed discussion of these changes is beyond the scope of this paper, two key trends emerge from the case studies that warrant analysis. First, there appears to be a strong shift away from a sole focus on education and training for this industry to firm-level provision, as firms compete for talent and offer increasingly attractive opportunities for further education to retain and attract qualified personnel. Second, government or public sector financing increasingly is provided through tax incentives and subsidies for private sector investments in workforce development. The meteoric rise of India's offshore service sector and the subsequent opportunities for developing countries to enter the global knowledge economy with higher wages, better jobs, and transfer of technology have proven to be highly attractive to developing countries. These promising spillover effects have encouraged governments to directly finance education and training for the sector.

Due to the fierce competition that has emerged between developing countries to serve as hosts for the large third-party providers and captive firms, numerous governments have launched initiatives to

reduce both fixed and variable costs of doing business for offshore services firms, including minimizing labor training costs. These trends highlight the movement away from supply-driven workforce development to demand-driven workforce development. In both cases, the private sector determines the training to be provided.

D. New Global-Local Interactions

Lead firms in the offshore services GVC played a critical role in entry into the industry in all of the countries studied. These firms established captive centers (i.e., wholly owned subsidiaries) in developing countries to provide low-cost services to their operations in the developed world. With a significant deal of headquarter oversight, these firms facilitated the transfer to knowledge, implementing corporate training programs and streamlining services to meet their global standards. As a result of both staff turnover and the eventual sale of these captive centers to third-party providers, multinational lead firms left considerable know-how installed in these developing countries. By continuing to demand the highest levels of service controlled by certification processes such as the ISO standards (see ***Appendix 1*** for a summary of industry standards), many MNCs continue to facilitate workforce development and industry upgrading around the world.

In a number of the countries we studied, buyers drive upgrading by increasing the demand for services from their suppliers around the world, especially where there are large third-party providers installed. In the Spanish-speaking Central American and Caribbean countries, which began by providing Spanish incoming voice services, clients continued to request additional, slightly higher value services, such as outgoing calls, e-mail, and text messaging services, as well as more sophisticated BPO services. In India, increasing demand from clients has led Indian firms to expand into high value R&D services.

The modus operandi of the global third-party providers, and the Indian providers in particular, has been driving upgrading around the world. When these providers establish service centers, their training programs leverage the workforce development model that has been so well refined in India. Staff in other developing locations have access to tremendous online university resources and teleconference training from the main headquarters, and many senior managers are taken to India for months of onsite training. As these firms seek to expand into regional markets, such as Latin America, they are using these training systems to rapidly upgrade the capabilities of their regional suppliers.

The diffusion of the high standards required by leading third-party providers and their MNC clients have ensured the widespread adoption of professional certifications and industry standards in developing countries. Where providers meet both domestic and export demand, this has facilitated broader adoption of world-class standards in the domestic industry as local firms are required to raise their levels to compete with these large foreign firms. Standards have been clearly established on the low

end of the value chain, in particular with respect to the growing awareness of security issue in the protection of personal data and call centers. In the higher segments of the value chain, global skills requirements in terms of English and a global perspective are important for upgrading, because there is more interaction between the client and colleagues based abroad. Know-how, innovation, and specialized university education are more important as one advances along GVCs.

VIII. Conclusion

The offshore services industry provides an opportunity for developing countries by offering increased employment in service jobs, facilitating the entry of these countries into the knowledge economy, and providing access to new markets. Entry into the value chain is found to be relatively easy for low-income countries, requiring a reliable telecommunications infrastructure and language or cultural proximity to clients, but most importantly providing access to educated low cost labor. Entry into the lower segment of the value chain provides significant employment opportunities—even for small countries, such as those in the Caribbean—for many developing countries, which are also considered better jobs with competitive salaries. As a country moves into more sophisticated services that provide higher paying jobs, as well as increased export revenue, the level of knowledge transfer increases along with the technical skills required to perform these services.

In evaluating workforce development policy for this industry, policy makers must be keenly aware of the rapid evolution and highly competitive nature of offshore services and develop a broader understanding of how to engage in workforce development to facilitate upgrading. The skill level and qualifications of the existing and rising workforce determine the entry and upgrading potential of a host nation in this sector. The analysis highlights the shortcomings of traditional workforce development frameworks in developing countries to provide both the flexibility and quality to meet the skill levels required by the industry. It also shows, however, that institutional approaches that foster effective collaboration between the private, public, and educational sectors can help to narrow this gap to meet global service standards.

Appendix 1: Standards in ITO

Industry Quality Standards

The offshore services industry has not yet adopted any official "legal" standards; however, certain voluntary standards or best practices models have been encouraged to enhance the credibility of superior services of a third-party provider in the global market. The most popular quality standards in this industry are:

ITO: Software Development

- **CMMI.** Capability Maturity Model Integration (CMMI) is a process improvement approach that helps organizations improve their performance. CMMI was developed at Carnegie Mellon, Software Engineering Institute. CMMI focuses in the three following areas:
    - CMMI for Development (CMMI-DEV): Product and service development;
    - CMMI for Services (CMMI-SVC): Service establishment, management and delivery; and
    - CMMI for Acquisition (CMMI-ACQ): Product and service acquisition.

For example, Accenture has certified their operations is these developing countries: Argentina, Brazil, China, Czech Republic, India, Latvia, Mauritius, Mexico, the Philippines, and Slovakia, among others (Software Engineering Institute-Carnegie Mellon, 2010).

- **eSCM-SP.** The eSourcing Capability Model (eSCM) is a framework developed by ITSqc at Carnegie Mellon University designed to allow service providers to continue their organizational improvement (ITSQc, 2010).
- **ISO 9001-2000/2008**. This certification applies to specific requirements for quality management systems. This certification aims to enhance customer satisfaction through the effective application of the ISO system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements. Developing countries are leading the growth in certification.

Table A-1 shows an overview of the growth rate of ISO 9001:2000/20008 certifications around the world.

Table A-1. Growth Rate ISO 9001:2000/2008 Certifications, Worldwide

	Dec. 2005	Dec. 2006	Dec. 2007
North America	19.4%	3.0%	-22.5%
Europe (including CEE)	17.6%	9.8%	4.2%
Australia/ New Zealand	-2.6%	3.1%	-57.6%
Africa/West Asia	53.7%	47.8%	10.5%
Central and South America	32.2%	30.6%	33.9%
Far East	11.8%	21.8%	14.8%

Source: ISO.

- **ISO/IEC 27001:2005** is designed to ensure the selection of adequate and proportionate security controls that protect information assets and give confidence to interested parties. In recent years, India has been awarded the second highest number of certifications annually after Japan. (ISO, 2009).
- **ISO/IEC 20000-1:2005** promotes the adoption of an integrated process approach to effectively deliver managed services to meet business and customer requirements. For an organization to function effectively, it has to identify and manage numerous linked activities. Coordinated integration and implementation of the service management processes provides ongoing control, greater efficiency and opportunities for continual improvement.

Appendix 2. Selected Career Trajectories in the Offshore Services Value Chain

Table A-2 provides an overview of how the accumulation of these skills can potentially advance employee career trajectories in the industry.

Table A-2. Selected Career Trajectories in the Offshore Services Global Value Chain

Advanced ↑ Entry

ITO		BPO		KPO	
Project manager software development	Master's degree + certifications + interpersonal skills			Business/account manager (representing client)	MBA+ interpersonal skills+ experience
Team leader	Bachelor's degree + certification + interpersonal skills	Team Leader	Bachelor's degree + company certification skills + interpersonal skills	Consultant	MBA+ interpersonal skills+ experience
Software engineer/ Developer/Programmer	Bachelor's degree + certifications	Project manager	Bachelor's degree + company certification skills + interpersonal skills	Senior or lead Business Analyst	MBA + interpersonal skills
Test software	Associate's degree plus certifications	Supervisor	Associate degree + interpersonal skills	Business Analyst	MBA
Technical writing	High school diploma/Associate's degree	Trainee	High school diploma/ Associate degree	Junior business analyst	Bachelor's degree
Position	**Education/Skills**	**Position**	**Education/Skills**	**Position**	**Education/Skills**
Software Development		**Call Center Agent**		**Business Analyst**	

Note: Interpersonal skills include those important nontechnical skills that are required in all human interactions. These include personal qualities such as emotional intelligence, perseverance, motivation, self-discipline, assertiveness and creativity, and social skills such as the ability to work well in a team, empathy, effective communication, conflict management and leadership (Jordan, 2009).

Source: Duke CGGC.

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