Pakistan in the Offshore Services Global Value Chain

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Pakistan in the Offshore Services GVC

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Acronyms

BOI	Board of Investment
BPM	Balance of Payment and International Investment Position Manual
BPO	Business Process Outsourcing
CMMI	Capability Maturity Model Integration
CRM	Customer Resource Management
ERM	Enterprise Resource Management
F&A	Finance and Accounting
FAST	Foundation of Advancement of Science and Technology
FDI	Foreign Direct Investment
FTE	Full Time Employees
GDP	Gross Domestic Product
GSLI	Global Services Location Index
GSP	Global Services Program (Uruguay)
GVC	Global Value Chains
HEC	Higher Education Commission
HIPPA	Health Insurance Portability and Accountability Act
HRM	Human Resource Management
ILO	International Labor Organization
ITC	International Trade Center
ITeS	Information Technology Enabled Services
ITO	Information Technology Outsourcing
KPO	Knowledge Process Outsourcing
LUMS	Lahore University of Management Sciences
MNC	Multinational Company
NSDC	National Skills Development Center (India)
NUST	National University of Sciences and Technology
P@SHA	Pakistan Association of Software Houses
PITB	Punjab Information Technology Board
PSEB	Pakistan Software Export Board
R&D	Research and Development
SEZ	Special Economic Zone
SLA	Service Legal Agreement
STEM	Science, Technology, Engineering and Mathematics
STP	Software Technology Park
WEF	World Economic Forum

1 Introduction

Pakistan entered the offshore services[1] GVC in the mid-2000s, gaining recognition as an alternative offshoring location in 2009. By this time, India and the Philippines had already achieved maturity in the global market, as other countries in Eastern Europe and Latin America were emerging (e.g. Poland, Mexico, Czech Republic). Coupled with perception issues, the late engagement of Pakistan in the GVC places the nation in the initial stages of development. To date, leading global third-party providers have no presence in the country, with the majority of exports deriving from domestically-owned companies. In 2017, Pakistan exported US$655 million in offshore services, while India and the Philippines surpassed US$117 billion and U$25 billion in export revenues, respectively (ASEAN Briefing, 2017; NASSCOM, 2017a; PSEB, 2018). While underdevelopment is apparent vis-à-vis global market leaders, Pakistan's offshore services exports have shown steady growth—15% CAGR in the 2008-2017 period (PSEB, 2018).

Pakistan's offshore services industry is centered on rudimentary Information Technology Outsourcing (ITO) sectors (e.g. software maintenance, troubleshooting management, website development). Driven by the growth of one single large company (6,000 FTE in Pakistan and 14,000 worldwide) funded by Pakistani-American in the early 2000s, the country is slowly expanding its participation in Business Process Outsourcing. Like in ITO, most BPO services are reckoned as transactional tasks (e.g. virtual assistance and voice-based customer support). Pakistan's engagement in sophisticated sectors is embryonic but successful; by 2018, about half a dozen large companies provide high-end solutions to large verticals in the US, including Financial and Insurance, Healthcare and Energy.[2] The entire IT-BPO industry is built on strong business ties with clients in the United States. Accordingly, the destination of about one half of IT-BPO exports is the United States (PSEB, 2018).[3]

Pakistan has been ranked amongst the top fifty economies to relocate IT-BPO processes since 2009 and is the most cost-effective location in the world in 2017 (A.T. Kearney, 2011, 2014, 2016, 2017). One highlight of the nation is its positioning in the freelance market; Pakistan is ranked as the fourth most popular country for freelancing in the world, according to the 2017 Online Labor Index by Oxford Internet Institute (OII)—after India, Bangladesh and US. [4] Main advantages of Pakistan's offshore services industry revolve around its sizable talent pool and low labor costs. Quality of service and talent adaptability to foreign markets is evolving favorably. As awareness grows amongst foreign clients, the industry is projected to boom in the following five to ten years (Field Research, 2018).

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[1] Offshore services refer to services conducted in one country and consumed in a different country. It includes Information Technology Outsourcing, Business Process Outsourcing (BPO) and Knowledge Process Outsourcing (KPO). Information Technology Services (ITO) is the basic building block for the offshore services value chain and is centered around the production and use of software and IT services. Business Process Services (BPO) is a highly diverse category that contains activities related to the management of business functions. Knowledge Process Services (KPO) refers to specialized activities that often require professional licensing, such as in the legal, and financial fields.

[2] Examples include IT security platforms for financial institutions (NETSOL Technologies), artificial intelligence platforms for the healthcare industry (e.g. 'Afiniti' by The Resource Group), and geoscience management solutions for the exploration and extraction of petroleum (LKMR).

[3] For the pursposes of this report, offshore services is also under the name IT-BPO exports.

[4] The Online Labor Index of the University of Oxford is the first economic indicator providing an online gig economy equivalent of conventional labor market statistics. It measures the supply and demand of online freelance labor across countries and occupations by tracking the number of projects and tasks across platforms in real time (Kässi & Lehdonvirta, 2016).

Looking forward, government stakeholders must reckon that the offshoring services GVC is generally largely dependent on foreign investment from developed countries such as the US and UK, and leading economies from the demand side, like India. Constrained by the country's poor security perception, Pakistan will need to intensify its efforts to address challenges deriving from an ambiguous fiscal framework, inadequate specialized infrastructure, weak quality of tertiary level education, and limited budget for international marketing and investment attraction strategies.

This report uses the Global Value Chain (GVC) methodology to understand how Pakistan participates in the global offshore services industry. GVC analysis has proven to be an effective tool for advising country governments on economic development and specific policies for industry upgrading. The study incorporates global and local analyses using both qualitative and quantitative data. Secondary information was used, including industry reports, journal articles and company data. Finally, a number of interviews were conducted during a field trip to Pakistan. More than 25 interviews with industry stakeholders were conducted, including private companies, educational institutions and Pakistani government officials.

This report is structured as follows: first, it provides an overview of the offshore services GVC to present a clear understanding of the scope of the industry, how markets are structured and how changing distribution of demand and supply destinations alter structural dynamics in the chain. It then analyzes the industry within Pakistan, detailing the country's position in the global market as well as the internal organization of the industry and the human capital status. After assessing the advantages and constraints observed in Pakistan, it looks to India and Uruguay for comparative case studies, detailing the lessons learned for Pakistan. The report concludes by outlining potential upgrading strategies to enhance the country's competitiveness in the global market. Across the entire report, focus is placed on the opportunities than Pakistan can leverage in the export market, excluding the domestic market space.

2 The Offshore Services Global Value Chain

Key Points

- The industry has grown exponentially in the last decades. Companies from developed countries looking to improve their efficiency, decided to unbundle and offshore several of their non-core business operations.
- Two of the leading suppliers of these services are India and the Philippines. Countries export services in three major forms: captive centers; global third-party providers; and domestically-owned third-party providers.
- The offshore services industry refers to services produce in one country and consumed in a different nation. The broad categorization of services is as follows: Information Technology Outsourcing (ITO); Business Process Outsourcing (BPO); Knowledge Process Outsourcing (KPO); and services specialized by sector.

The offshore services industry describes the trade of services performed in one country and consumed in another. This includes direct exports, as well as the international relocation of services activities that companies previously performed in their home country, ranging from software maintenance to research and development. To illustrate, in 1998 Microsoft established a

fully-owned division in Hyderabad (India) to become the largest R&D center outside the US. Ten years later, over 45% of the top 500 global R&D spenders such as Amazon, Boeing and Microsoft had established a captive center in India (Thakur & Ghosh, 2018). The relocation of activities can also be attained through international outsourcing, e.g. subcontracting a third-party provider based abroad. India is also the home of some of the top global outsourcing players in the world (Everest Group, 2018c). In 2017, India's largest IT exporter (TCS) signed a US$2.25 billion outsourcing deal with Nielsen (a US television rating measurement firm) to provide a wide range of professional services like application development, management sciences, and financial planning (Business Today, 2017).

The offshore services GVC consists of general business services that can be provided across all industries as well as services that are industry specific. The first category includes three main segments:

- Information Technology Outsourcing (ITO) is the basic building block for the offshore services value chain and is centered around the production and use of software.
- Business Process Outsourcing (BPO) is a highly diverse category that contains activities related to the management of business functions, including finance and accounting, procurement, supply chain management, and human resources management.[5]
- Knowledge Process Outsourcing (KPO) refers to specialized activities that often require professional licensing, such as in the legal, and financial fields. Examples of tasks within this category include: legal, business intelligence and data analytics services.[6]

2.1 The Global Offshore Services Industry

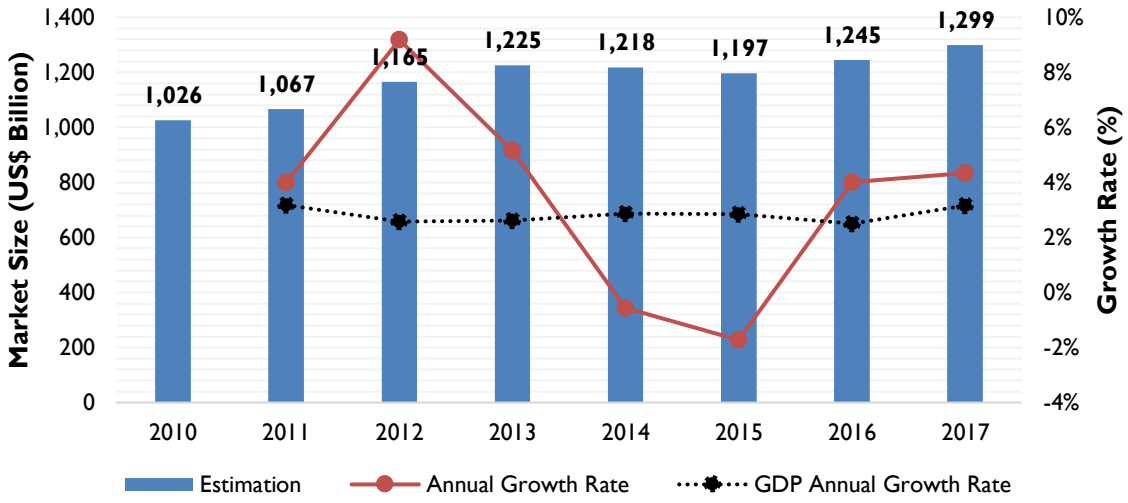
Offshore services emerged as a dynamic global sector over the past two decades. The information and communication technology (ICT) revolution that began in the early 1990s transformed the way companies do business by allowing for the separation of the production and consumption of services. In the search for efficiencies and economies of scale, firms began offshoring and outsourcing a variety of corporate functions. Driven by the need to lower costs and access talent, firms looked beyond the boundaries of the developed world. This has provided important opportunities for growth and employment in developing regions. Firms are attracted to less developed countries as offshore destinations because of their competitive advantages in areas such as low human resources costs, technological skills, language proficiency, time zones, and geographic and cultural proximity to major markets. As more sophisticated work such as new product development, research and development (R&D), and other knowledge-intensive activities are performed abroad, the supply of scientific, engineering and analytical talent offered by developing countries has also become key in attracting firms.

Measuring offshore services industry is not a simple task because official statistics do not provide accurate quantitative assessment.[7] While the market figures for this industry may vary because of

[5] List is indicative and non-exhaustive.
[6] List is indicative and non-exhaustive.
[7] Generally, countries do not collect detailed data on services exports within the global offshoring market frame. There are a relatively small number of trade classification codes to accurately identify services activities and companies have little incentive to disclose this information, while globally consensus has yet to be reached on how to collect data that correspond to appropriate definitions of services. In addition to this dearth of available

the different terminologies and methodologies adopted, private associations and consulting firms managing global outsourcing deals provide fair estimates. By 2017, estimations of the market size ranges from US$262 billion to US$1.3 trillion in revenues (Figure I), and around 6 million employees globally (Everest Group, 2018b; KPMG, 2017a; NASSCOM, 2018). Estimates from KPMG indicate that the offshore services industry grew at an average annual rate of 22.7% between 2012 and 2017, which is far greater than global GDP growth rates, which ranged from 2.5% to of 2.8% in this period (Figure 1).

Figure 1. Market Size of the Global IT-BPO Industry, 2009 – 2017



Source: Authors based on Fernandez-Stark et al. (2011); IBI (2005); NASSCOM (2011, 2012, 2014, 2018); The World Bank (2018).

Several trends have shaped the offshore services industry in recent years. The following are the most likely to create both threats and opportunities for Pakistan:

1. **Global expansion and sophistication of Indian services providers.** Between 2011 and 2018, the top ITO Indian providers (TCS, Wipro, Infosys and HCL) expanded their global footprint significantly, investing at least US$6,274 million in more than 132 new delivery centers (or expansions) around the world. The largest share of investment has been in Western Europe and North America (33% and 30%, respectively) while, the United States accounts for the largest portion of jobs (44%).[8] The spread of Indian providers was accompanied by a strategic shift oriented towards engaging in projects focused more in business value and outcomes and less in the firms' traditional cost arbitrage-based inputs (HfS, 2018). This, along with the following trends, suggests labor demand is increasingly leaning towards even more qualified talent and specific knowledge.

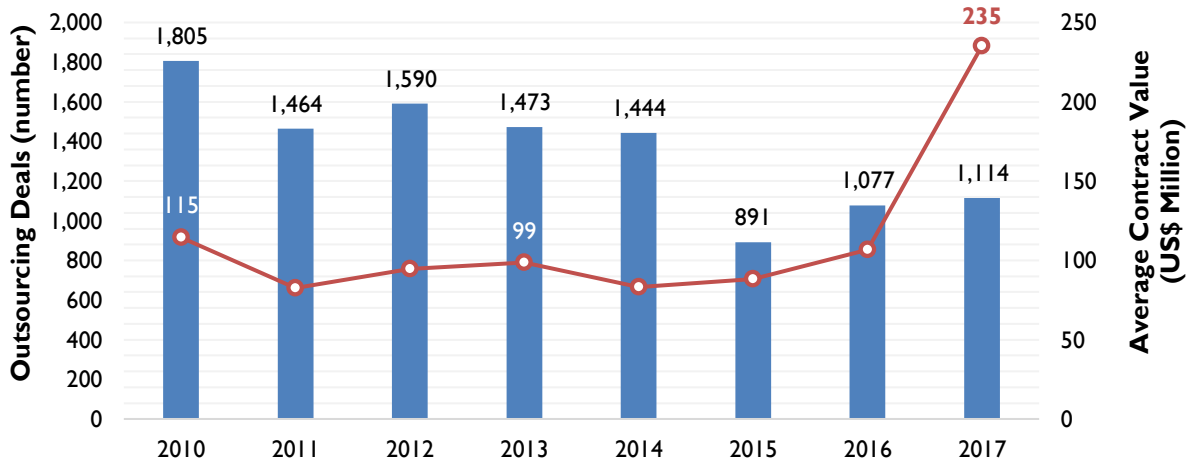
and reliable data, the different methodologies adopted to quantify the size of the offshore services industry have resulted in widely varying estimates from disparate sources (Fernandez-Stark et al., 2011).

[8] To illustrate, since May 2017 to August 2018, Infosys (India's second largest ITO firm) hired over 4,700 in the US, including nearly 500 people for its technology hub in North Carolina. In addition, the company announced the creation of 10,000 new jobs in multiple innovation hubs across the US with a focus on artificial intelligence, machine learning and other emerging digital technologies.

2. **Rise of intelligent process automation and digital technologies.** Intelligent process automation in this report encompass latest productivity-enhancing ICT, including sophisticated business software packages and other technologies developed to better understand customer tastes and better tailor goods and services to identified needs. The combination of intelligent process automation with manufacturing, known as Industry 4.0, is expected to drive the offshore services market towards digitalization and automation. This adjustment is progressively diminishing the importance of traditional offshore services; hence, third-party providers have been moving their value proposition from labor arbitrage to automation arbitrage, developing hyper digital platforms such as 'Infosys Nia' and 'Holmes' by Wipro. [9] As the intelligence processes market develops, the labor demand will shift from computer science engineers to technology and data specialists with computational, design, systems, and management skills (CBI, 2017; EESC, 2017).

3. **Increased complexity is pushing average contract value up.** In line with increasing sophistication and digital transformation of the offshore services industry, between 2010 and 2017 the average value of global outsourcing contracts doubled, whilst the number of outsourcing deals, experienced a 38% fall. [10] In spite of this, in 2017, as much as 79% and 86% of ITO and BPO deals (respectively) were valued at less than US$100 Million (KPMG, 2017a). Thus, while companies will need to remain active in terms of upskilling and incorporating most up-to-date technologies, the services offshoring space is likely to continue to give room to small and medium-sized companies.

Figure 2. Global Outsourcing Deals (2010 – 2017)



Source: Authors based on KPMG (2014, 2017a). **Note:** Deals analyzed are offshore services contracts of size US$5 million and above only. The count and value of the deals may vary notably in reality and is only indicative of market movements and trends in the offshore services space.

[9] 'Infosys Nia' is an AI platform that forecasts revenues and products need to be built, as it analyzes customer behavior, content of contracts, compliance and fraud (Infosys, 2017). *HOLMES* helps enterprises hyper-automate processes, redefine operations and reimagine their customer experiences (WIPRO, 2018).

[10] This trend has also been recorded by other leading consulting firms, such as Everest Group, which evidenced a 20% increase in the average annual contract value of outsourcing deals in the 2014 – 2017 period (Everest Group, 2018g).

4. **Automation is emerging as a threat to developing countries, but contact-center services delivery continues to grow.** The threat of automation replacing humans, especially, contact-center representatives, has been intensively debated in the past decade. Yet, the contact-center industry is expected to continue growing, outpacing the US$91-93 Billion by 2020 (Everest Group, 2018a). Indeed, automation will reshape the processes within these operations, but technologies will most likely work alongside contact-center agents, not replacing them (Naumov, 2018). For instance, it can be expected that automation enables agents to pass on monotonous tasks such as tagging and categorizing emails or responding to basic queries and rerouting calls. This would enable more agents to focus on higher-level service interactions that contribute to customer satisfaction and retention (Clinton, 2018; Naumov, 2018). To illustrate, the largest provider of customer support services in the world, the Philippines, has increased its revenues from US$8.9 Billion in 2010 to an estimated US$22.9 Billion in 2016; within this period, employment grew from 0.5 to 1.2 million (Site Selection Group, n.d.; TESDA, 2017).

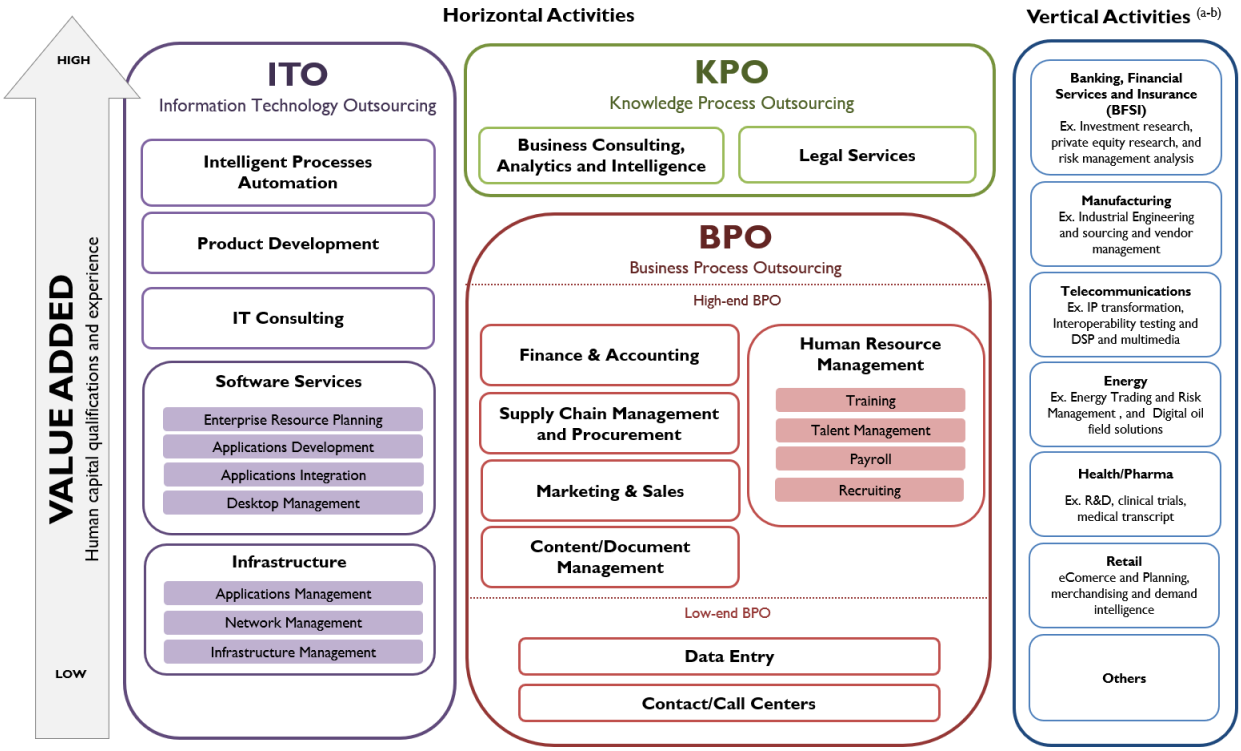
   In brief, customer experience will continue to be heavily dependent on high-empathy and creativity skills, thus on human talent (Clinton, 2018; Fersht & Snowdon, 2018). In addition to the behavior resistance to automation, evidence shows technological and organizational barriers to adopt automation in the short and medium term. The proliferation of ecommerce is also a source for additional contact-center demand (Franca et al., 2018).

2.2 Offshore Services Global Value Chain

The offshore services GVC is composed by different functions which can be organized according to employee education and experience level. As seen in Figure 3, these functions can be subdivided in horizontal services provided across all industries (presented on the left of the diagram) and vertical services specific to particular sectors of the economy (presented on the right). The activities included in horizontal services support generic business functions and rely on process expertise. These services range from manual, repetitive, and transactional processes to judgment-based operations that depend on analytical skills. Overall, there are three horizontal main segments, described in the text below. Table 1 describes its subsegments thoroughly, providing examples and total contract value by 2017.

Information Technology Outsourcing (ITO). This segment dominates the global outsourcing space with a contribution of 52% of the total deal value in 2017 (KPMG, 2017a). Most ITO contracts (85%) combine services belonging to two or more subsegments. The bundling of several ITO services into one contract grew from US$7.2 in Q4 2015 to US$21.2 in Q42017 (KPMG, 2017a). In brief, large organizations are hiring less service providers able to provide a wide range of solutions rather than multiple specialized vendors. On the meantime, high value-added activities, such as *Product Development* and *Intelligent Process Automation*, still capture a very small share of the market, contributing to 3% of ITO contract value in Q42017 (KPMG, 2017a).

Figure 3. Offshore Services Value Chain



Source: Authors. **Notes:** This diagram captures the industries with the highest demand for offshore services. [a] Each industry has its own value chain; within each of these chains, there are associated services that can be offshored; [b] This graphical depiction of vertical activities does not imply value levels; each vertical industry may include ITO, BPO and advanced activities.

Business Process Outsourcing (BPO). The segment accounts for 18% of worldwide outsourcing contract value (KPMG, 2017a). BPO can be subdivided into two categories: low-end BPO and high-end BPO. Low-end BPO consists of customer support services primarily, and accounts for 0.4% of the entire BPO contract value in Q4 2017 (KPMG, 2017a). High-end BPO comprises repetitive yet judgment-based activities such as finance and accounting, human resources management and supply chain management. These accounted for 7%, 27% and 30% of BPO revenues in Q4 2017, respectively (KPMG, 2017a). Opposite to ITO, BPO contracts combining several BPO services accounted for 4% of total contract value in Q4 2017 (KPMG, 2017a). This suggests that specialization is far more important in the BPO segment as compared to the ITO segment, which is more likely to favor large organizations able to provide a wide range of solutions within one single contract.

Knowledge Process Outsourcing (KPO). This segment captures the highest value-added of horizontal services in the chain, such as market intelligence, business analytics and legal services. While KPO and BPO require different levels of qualifications and expertise, they frequently involve similar functions. As a result, statistics are difficult to separate; thus, several consulting firms would include KPO data within the BPO segment. These indicate that 10% of BPO deals in Q4 2017 entailed KPO solutions, adding to US$41 million (KPMG, 2017a).[11]

[11] Unfortunately, more concrete and reliable estimations of this segment are currently not available.

Vertical services require specific industry knowledge. These may be so highly specialized to their sector that they have limited applicability in other industries; for example, information security software for the finance industry, loyalty program management in the travel and hospitality sector, and transcription services in the medical sector are vertical services (Fernandez Stark & Gereffi, 2016).

In the GVC literature, value is generally determined by examining the transformation of inputs to outputs at each stage. Inputs in the services sector, however, are intangible, including factors such as critical thinking, analytical and communication skills. This creates difficulties in accurately depicting "value-add". However, industry analysis shows that participation in different stages of the GVC depends primarily on two key factors: labor costs and expertise (Fernandez Stark et al., 2011). Value in the classification scheme presented in Figure 3 is thus determined by using human capital requirements as a proxy, that is, the approximate employee education and experience level required to perform different service functions for each stage (Fernandez Stark et al., 2010).

Employees located in the lower part of the value chain diagram have less education and experience, while the employees in the upper section of the value chain are more educated and have more years of experience. By indicating the human capital required at different levels of the offshore services value chain, this classification scheme provides decision-makers with an instrument for determining where they may be best suited to play a role in the industry (Fernandez Stark & Gereffi, 2016).[12]

[12] Section 2.5 provides more detail on Human Capital in the Offshore Services GVC.

Table 1. The Offshore Services GVC Horizontal Subsegments: Definitions and Total Contract Value in Q4 2017 (US$ million)

Subsegment	Description	Value (Share)
Information Technology Outsourcing: US$ 24,950 Million (Q4 2017) [a-b]		
Infrastructure	Management of software applications, network resources, and services required for the existence, operation and management of an enterprise IT environment. *Examples*: data center outsourcing, network management, hardware deployment and support, hosting services.	200 (1%)
Software Services	Pre-defined support and maintenance solutions adapted to software products owned by foreign clients. *Examples*: remote troubleshooting, installation assistance, basic usability assistance	2,600 (10%)
IT Consulting	Advisory services that help clients assess different technology and methodology strategies and, in doing so, align their network strategies with their business or process strategies. *Examples:* Assessment of network requirements and formulation system-implementation plans (advisory services): development of logical design of network environment and supporting infrastructure (architecture planning); advising on the rollout and testing of new network deployments (implementation planning).	250 (1%)
Product Development	Development and trade of own software packages, applications or digital platforms, owning the IP of all new software. *Examples:* packed, mass-market software.	0 (0%)
Intelligent Process Automation (IPA)	Solutions where technology used is smart (e.g. robotics, chat bots, image recognition, machine learning) and can be utilized to automate processes. *Examples*: Specification of detailed instructions for robot to perform (process development); assignment of jobs to bots and monitoring activities (robot control).	700 (3%)
Business Process Outsourcing: US$ 7,156Million (Q4 2017) [a-b]		
Finance and Accounting	Services belonging to the Finance and Accounting function of organizations. *Examples:* accounts payable, accounts receivable, general ledger, financial reporting, treasury and cash management.	1,517 (22%)
Human Resources Management	Service belonging to the management of organizations' personnel. *Examples*: recruiting, training, payroll, administration of health benefits plans, retirements plans, and workers' compensation insurance.	3,981 (56%)
Procurement and Supply Chain Management	Solutions pertaining to Procurement, Logistics and Supply Chain Management functions of organizations. *Examples:* management of logistic, purchase orders process, support of internal category managers.	384 (6%)
Content/Document Management	Document and content management solutions to support the business functions of organizations. *Examples:* document shredding, storage and imaging.	28 (0.1%)
Contact/Call Center	Customer Relationship Management (CRM) solutions and services. *Examples:* outbound calls, inbound calls, voice-based technical support, support through social media.	28 (0.4%)
Marketing and Sales	Management of sales and marketing functions of an organization. *Examples:* design of marketing strategy, lead generation, management of sales pipeline to social media.	n.d.

Source: Authors based on Gartner (2018); Golecha (2018); KPMG (2017a); Arvato Bertelsmann (2017). **Notes:** This table captures the segments with the highest demand for offshore services, thus KPO is excluded. [a] Total value of service offshoring deals of size US$5 million and above only. [b] Total includes other ITO or BPO services, as well as bundled services, which describes any combination of two or more ITO or BPO subsegments. Value and shares are retrieved from KPMG member firms' research and analysis based on IDC contract database.

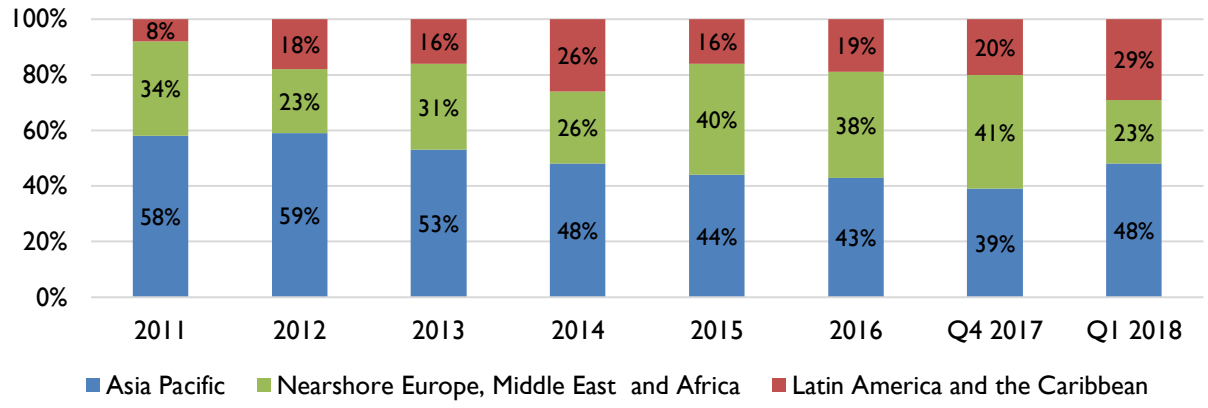
2.3 Distribution of Supply and Demand in the Offshore Services Global Value Chain

The supply of offshore services is principally located in developing countries, mainly concentrated in two countries: India and the Philippines. Driven by low-cost yet educated labor forces, combined, these economies account for about 70% and 63% of global Full Time Employees (FTE) and revenues, respectively (Everest Group, 2017). Nearshore Europe (e.g. Poland, Ireland, Scotland and Ukraine) is the second largest offshore services workforce, accounting for 14% of total FTE. Third in place is Latin America and the Caribbean (LAC), followed by Africa (10% and 6%, respectively) (Everest Group, 2017).

While still leading supply, Asia Pacific's portion in the offshore services industry has been gradually declining since 2011 (Figure 4).[13] Currently, seven countries from the region rank in the first ten positions on one of the most reliable offshore locations rankings, the Global Services Locations Index (GSLI).[14] These economies are: India, China, Malaysia, Indonesia, Vietnam and Philippines. Almost two thirds of Asia Pacific's share of the global market is composed by India and Philippines (42% and 20%, respectively) followed by Singapore (13%) and Malaysia (10%). The remaining 15% is scattered amongst other countries within the South Asia and East Asia and the Pacific regions (Everest Group, 2017).

Within the ITO segment, India remains the leader for large-scale projects, as measured by revenue and scale of IT-ready resources. The second most attractive location within the GSLI, China, continues to make extensive investment in an effort to leverage ITO scale and compete for coveted market share (Longwood et al., 2017).

Figure 4. Geographical Distribution of Service Delivery Centers, 2011 – 2018 (%)



Source: Authors based on Everest Group (2018b, 2018e); Srivastava and Raychaudhuri (2017). **Note:** Asia Pacific includes both 'South Asia' and 'East Asia and the Pacific' categories from the World Bank.

Demand is concentrated in developed countries. The largest buyer of the offshore services industry is North America (namely the US), accounting for 36% of the international outsourcing

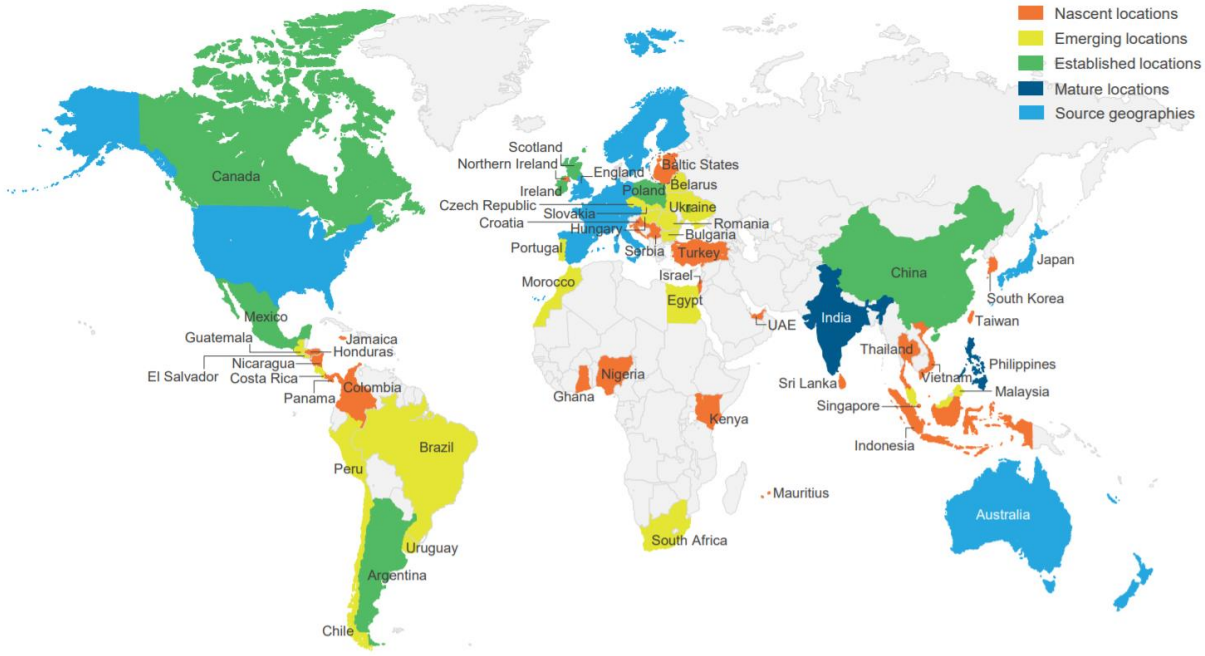
[13] 'Asia Pacific' includes both 'South Asia' and 'East Asia and the Pacific' categories from the World Bank.
[14] The Global Services Location Index (GSLI) is elaborated by one of the few most respectable consulting firms in the offshore services industry: A.T. Kearney. It evaluates 55 countries against 38 measurements across three major categories: financial attractiveness, people skills and availability, and business environment. Financial factors constitute 40% of the total weight in the published Index. The two remaining categories – people skills and availability and business environment – constitute 60% of the total weight (A.T.Kearney, 2017).

deals announced in 2017. The European Union follows with 28% of total share, while the UK accounts for 12% of the demand side, a slowdown from 2015 due to Brexit (Everest Group, 2017).

The map in Figure 5 illustrates the geographical distribution of supply and demand in this industry by country. To create this map Everest Group surveys national trade promotion and investment attraction agencies, or private associations from each colored country. While Pakistan would classify as an "nascent location", the country did not provide any formal information to Everest Group as to be placed on the map. This information already suggests limitations in marketing efforts.

At the firm-level, demand for offshore services is led by large firms and MNCs with global operations. The scope and size of their activities and the complexity of their infrastructure and systems led to significant operational costs, which, in turn, impacted their competitiveness. High overhead pushed MNCs to look for strategies to reduce costs, including establishing delivery centers in low-cost countries or alliances with outsourcing providers. In 2017, three quarters of deals were made by companies with annual revenues exceeding US$ 1.5 Billion (Everest Group, 2018d).[15]

Figure 5. Dynamics of Supply and Demand in the Offshore Services GVC (2018)



Source: Everest Group (2018b). **Notes:** Analysis based on headcount for offshore services exports in 2015, i.e. FTEs employed locally in offshore services exports across IT and BPO activities. **References:** Nascent locations (<20,000 FTEs); Emerging locations (20,000 – 100,000 FTEs); Established locations (100,000-500,000); Mature locations >500,000 FTEs). Information is based on country or city-level investment promotion agencies, Offshore Services organizations, and Everest Group. Source geographies represent most relevant demand markets.

[15] Demand levels differ by industry: the largest share of buyers from ITO and BPO deals is controlled by the Government sector (24%), followed by the Banking, Financial Services and Insurance (BFSI) sector with 16% of share, and the Technology and Communication industry, with a portion of 12% (Everest Group, 2018d).

2.4 Lead Firms and Governance

The industry is composed of three groups of key players that govern the industry: (i) captive centers; (ii) global third-party providers; and (iii) domestically-owned third-party providers (Gereffi & Fernandez-Stark, 2010). Each group represents a distinct delivery model. These are examined below:

Captive centers are divisions or subsidiaries of multinational companies that provide services to the home company from a nondomestic location. This business model allows the organization to keep control of their internal operations while reducing costs by establishing in less costly locations. In 2018, enterprises such as Alibaba, Analog Devices, BMW, Cisco Systems, Dropbox, Samsung and Volkswagen opened captive centers performing digital functions in countries different to their headquarter (Everest Group, 2018f).

Global third-party providers are large specialized companies providing a wide range of IT and BPO services to different clients. The latter select these providers based on competitiveness factors; in 2018, Centers for Medicare and Medicaid Services (US) selected Intelenet (earlier Serco) for analytics services, while KMD selected IBM for cloud services (Everest Group, 2018f). Among the top 20 ITO services providers, 12 are based in the United States and other developed countries (e.g. Accenture, Cognizant, IBM, Capgemini) while 8 are new multinationals from India like Infosys, HCL, Wipro and Tech Mahindra. During the 2000s, third-party providers acquired sufficient maturity and financial capability to assume operations not only in their own country but others as well. Establishing delivery centers in new emerging locations enabled third-party providers to mitigate concentration risk and take advantage of skills and time zones, as well as to tap into new markets. By 2018, TCS had over 147 delivery centers in 21 countries (TCS, 2018a). More recently, third-party providers partnered with specialized firms to accelerate their entry into higher value-added segments. To illustrate, in 2018 IBM partnered with a Russian oil producer (Gazprom Netf) to develop new technologies in the areas of Artificial Intelligence, predictive analysis, big data, and industrial IoT for improved efficiency of geological exploration and production of onshore oil reserves (Everest Group, 2018f).

The third group is comprised by domestic firms based in developing countries which provide IT and BPO solutions for clients abroad, such as NETSOL Technologies and Systems Limited (Pakistan). Different to global third-party providers, these organizations are well less internationalized, with most exporting to regional markets rather than to the US or Europe. SMEs and freelancers with more than 50% of revenues in exports are included in this category.

The governance structure of the industry varies depending on the segment of the GVC. In the lower stages of the chain, interaction between buyer and supplier is limited; the latter is confined by detailed customer's specifications and obligations comprehensively described in a Service Legal Agreement (SLA). In these stages, third-party providers are selected based on cost primarily. As value-added increases, the interaction between client and supplier is greater and the relevance of cost diminishes. Due to higher transactional costs, the relocation high-value added functions, such as business analytics or legal services is predominantly done through captive centers (Fernandez-Stark et al., 2011).

2.5 Human Capital in the Offshore Services Value Chain: Skills and Gender

The educational level and skills in local workforces have been key drivers of location decisions in the offshore services industry. Providing services in any level of the value chain, be it through entry in the value chain or upgrading, thus depends on the availability of required labor qualifications, technical, and soft skills (Fernandez Stark et al., 2011). Table 2 outlines the different educational profiles and training requirements for each segment of the GVC.

Formal education is used as a preliminary screen for potential recruits; in fact, the worldwide offshore services industry employs predominantly tertiary level students. Soft skills are required and are consistent across countries; these include communication skills (e.g. active listening and voice clarity, basic computer skills, and language ability) critical thinking, creativity, and complex problem solving thinking (Gereffi et al., 2011; KPMG, 2017b).

Experience in developing countries has shown that although these may not be adequately covered by official education systems, strategic investments in workforce development by the public and private sectors have been critical in improving competitiveness and positioning in the global market. 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., 2011).

Table 2. 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 goals	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 engineering/computer science	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 receivable and accounts payable processing, reconciliations, ledger keeping, and income and cash statement monitoring.	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 monitoring 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 or intellectual property services	Law degree	Experience and training in specific country legal systems	
Researcher	Undertakes projects to increase the stock of knowledge; develops new products based on research findings.	Master's/Doctoral degree	Experience/industry specialization	

Skill Level:	 **Low-Medium:** Literacy and numeracy skills; experience	 **Medium:** Technical education/certification	 **Medium-High:** Technical Education/Undergraduate Degree	 **High:** University degree and higher

Source: Fernandez Stark et al. (2011).

Gender dynamics vary significantly across the different segments of the offshore services GVC. In the lowest stages of the GVC, female employees are predominant. In the global call center workforce, 71% of agents are women (Hultgreen, 2018). Despite this figure suggest significant gender integration, the share of BPO female workers decreases in developing countries, falling to 52.5% in the Philippines and 31% in India (David, 2015).

Within this service segment, female employment in call centers is mostly at the agent level, while management is typically male dominated (Ahmed, 2013; Messenger & Ghosheh, 2011; Schwarzer, 2015). To illustrate, in 2016, one quarter of the Indian IT-BPO management were females (Economic Times, 2016). The reasons behind this relate to the strong gender bias in role assignation: women struggle to attain promotion due to disruption in family life and difficulty to balance between the dual burden of work and home.

Worldwide, the ITO segment presents significantly different gender dynamics. Females are vastly underrepresented in Silicon Valley tech jobs, as well as in South and East Asia economies becoming technology hubs; to illustrate, 70% of India and Singapore's tech workforce are male (Agarwal & Malhotra, 2016; Spenser, 2017). Barriers faced by girls and women in South and East Asia include: lower access to ICT tools and connectivity; limited time to pursue skill adoption due to domestic and care work; limited mobility; online harassment; limited gender-sensitive content in ICT training; weaker networks to leverage in job search and greater discrimination as compared to men (SPF & Dalberg, 2017). In addition, female IT workforce is still highly stratified, with the largest numbers of female workers concentrated in entry-level positions and lower-tier segments: by 2011, only 3% of female employees in IT occupied senior roles, 16% were middle management, and 81% were junior (Powell & Chang, 2016). In addition, the Indian IT workforce is largely urban and middle and high class and hail from educated families (Agarwal & Malhotra, 2016). Even when women do enter the IT workforce, most are bound by lifecycle factors such as marriage, childbirth and domestic work (Agarwal & Malhotra, 2016).[16] These create severe barriers for females' career development women in an industry that requires continuous training, application and long-work hours.

2.6 Standards and Certifications

In order to regulate the quality of services, as well as to enable transparency and comparability, the industry has developed a number of standards and certifications. These provide a common language and help to define service requirements, customer expectations and recognized terms and definitions. They also reduce the risks that might affect customers, such as data security vulnerabilities. Relevant certifications and standards for companies are summarized in Table 3.[17]

At the firm level, data security and intellectual property protection continue to be increasingly critical, especially in the BPO segment.[18] To address these concerns, global buyers and customers

[16] In India, one third of women that ultimately drop out of the IT industry attribute it to the lack of suitable employment opportunities. Assigned social roles, such as taking care of children and/or family reasons compile 49% of reasons why women fail to continue in the Indian IT industry (Powell & Chang, 2016).
[17] ISO has already published more than 700 standards that apply to specific services, and has also developed ISO/IEC Guide 76 addressing consumer issues (ISO, 2016).
[18] The major concerns include: operational disruption due to cyber-security breaches; liability risks through data loss; unauthorized data extraction/modification within company-internal data flow; damage to company reputation

would only admit service providers certified in Payment Card Industry Data Security Standard (PCI-DDS). The ITO segment relies on a range of voluntary, market-led, standards setting organizations with global reach.

Some verticals within the offshore services GVC (e.g. Healthcare) have also been widely regulated by Acts developed by national bodies, such as the Health Insurance Portability and Accountability Act (HIPAA) introduced by the United States government. HIPAA enforces hospitals, clinics, insurance providers, and all third-party entities that obtain personal information on their behalf, to comply with standards for how Personal Health Information (PHI) can be recorded, accessed, shared and stored. To obtain the HIPAA certification, companies must train their personnel in courses designed to teach agents and technicians how to comply with the privacy and security rules. Different to other certifications, there is no implementation specification that requires a covered entity to "certify" its compliance; rather, covered entities are obliged to perform a periodic technical and non-technical evaluation that establishes the extent to which an entity's security policies and procedures meet the security requirements.[19] While the exact cost of implementation is very difficult to estimate – and available data is significantly outdated – HIPAA compliance has been compared with Y2K preparations in terms of their impact and costs (Arora & Pimentel, 2005).[20]

Whilst compliance with PCI-DDS and HIPAA is an essential-to-critical consideration for every company providing customer support to US healthcare organizations, certain certifications remain voluntary, with very limited reach amongst third-party providers that are far below in global rankings. To illustrate, by 2018, the official body of COPC had certified only 7 organizations in India and 25 organizations in APAC (excluding India).

Further, each segment of the offshore services GVC has globally recognized professional certifications or global skills standards. These can include working knowledge of global software platforms (e.g. Microsoft, Cisco, and Oracle certifications) or financial analysis skills (e.g. CFA certification from the Global FCA Institutes).

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and loss of trust due to data loss; misuse of data during exchange of information with partners; loss of intellectual property; violation of regulations and laws on data security or data privacy; and endangerment of operators or users (CBI, 2017).

[19] The evaluation can be performed internally by the covered entity or by an external organization that provides evaluations or "certification" services.

[20] In 2005, the average costs varied from US$10,000 for a small private practice to US$14 million for a larger organization (Arora & Pimentel, 2005).

Table 3. Mandatory Quality Standards of the Offshore Services GVC

Standards and Certifications	Description	Relevance
PCI-DSS	The Payment Card Industry Data Security Standard (PCI-DDS) increases controls on financial services to protect consumer information against fraud. For example, call centers cannot record consumers' confidential information, such as security codes.	Critical
HIPAA	The Health Insurance Portability and Accountability (HIPAA) is a US law that ensures confidentiality, integrity and availability of protected health information (PHI). It applies the Privacy Rule to business associates' contractors, where any vendor which receives or utilizes protected health information from, or for, the covered entity needs to ensure the integrity and security of healthcare information.	Essential
COPC	Customer service provider global standard that focuses on implementing best practices to improve performance metrics in customer satisfaction and service, inbound and outbound sales, dispatch, collections, retention, remittance processing, fulfillment, and other related operations.	Voluntary
ISO 270001 and 27002	The ISO 27000 series of standards covers security. Best practices for privacy data protection include limiting access to personally identifiable information to verifiable need to know, such as payroll personnel, and privacy protection training for individuals with access to that data.	Voluntary
CMMI ®	The Capability Maturity Model Integration (CMMI) is a globally-recognized set of best practices that enable organizations to improve performance, key capabilities, and critical business processes.	Voluntary
ISO/IEC 30105-1:2016	ISO/IEC 30105 specifies the lifecycle process requirements performed by the IT-enabled business process outsourcing service provider for the outsourced business processes. It defines the processes to plan, establish, implement, operate, monitor, review, maintain and improve its services.	Voluntary

Source: Authors based on Avasant (2012); ISO (2016); CCMI Institute (2018).

3 Pakistan in the Offshore Services Global Value Chain

Key Points

- By 2017, the country accounted for 0.1% of IT-BPO exports in the world.1 This positions Pakistan well below the top 50 exporters of offshore services globally (ITC, 2018).
- The country's participation in the offshore services GVC is due to a booming IT industry. In 2017 Pakistan exported US$572 million in IT services (PSEB, 2018). This figure is about 5 times higher than in 2007. The destination of about one half of total IT exports is United States, followed by the United Arab Emirates and European Union, with 9% and 8% of total exports, respectively (PSEB, 2018). Pakistani-Americans have led the expansion of the industry building on their strong business ties with the US.
- Pakistan has yet not been able to attract prominent foreign operations,
- Country exports are highly concentrated in low value-added services within the ITO and BPO segments: in 2017, almost one third of Pakistan's offshore services exports derived from basic/transactional services like software maintenance and voice-based customer support (PSEB, 2018).
- Freelance is a growing activity; however is restricted to rudimentary virtual assistance tasks, including data entry, website technical help and troubleshooting, and social media management (Field Research, 2018).

In 2017, offshore services exports from Pakistan totaled US$655 million. The majority of revenues (87%) derives from the ITO segment, while the BPO segment accounts for 13% of exports (PSEB, 2018). The industry accounts for 0.2% of the country's GDP, and 2.4% of total country exports (services and goods). These indicators are 0.07 and 1.3 percentage points higher than in 2013 (PSEB, 2018).

Employment is estimated at 15,000 specialists (Rahman et al., 2017). This figure is unofficial and departs from unknown methodologies. Accurate statistics on employment is a challenge for all developing countries competing in this market, i.e. Pakistan is no anomaly. Finally, in Pakistan, services exports deriving from freelance activity is relevant; while total number of freelancers is presumably not reliable, with estimations ranging from 50,000 to 150,000 (Field Research, 2018).

While both quantitative and qualitative data suggest that Pakistan's offshore services industry is thriving, industry experts remark that growth has been driven by firm-level efforts and strong business linkages with Pakistani American in the US. Special treatment from the government side has been reckoned as limited—at least until 2017, when several incentives were announced. Whilst large companies with over 10 years of market experience frequently appraise the lack of intervention, the newest generation of firms and freelancers indicate the need for certain interventions, including improving the quality of tertiary level education and ameliorating the business environment, particularly, the visas regime (Field Research, 2018).

In the light of a sizeable labor pool and low labor costs, potential growth is apparent. Yet, compared to its regional competitors, Pakistan is at the initial stages of progress. Reasons behind this sentence are as follows:

- By 2017, the country accounted for 0.1% of IT-BPO exports in the world.[21] This positions Pakistan well below the top 50 exporters of offshore services globally (ITC, 2018). Regional competitors such as India, the Philippines and Sri Lanka accounted for 34%, 3% and 0.5% of the total IT-BPO market, respectively (ITC, 2018).
- Different to regional and global competitors, which base its value proposition in the presence of leading third-party providers and MNC, Pakistan has yet not been able to attract prominent foreign operations, recording no presence of the principal IT-BPO providers in the world (e.g. Accenture, Cognizant, TCS). Also, captive centers from multinational corporations are very few, accounting for less than 20% of offshore services exports in 2017 (Field Research, 2018). The dearth of foreign operations continues to hurt Pakistan' perception as a reliable offshore services location.[22]
- Pakistani IT firms remain very small in size compared to Indian firms; to illustrate, the largest IT-BPO firm in Pakistan employs about 20,000 workers worldwide, whilst India's largest IT-BPO provider employs up to 395,000 workers (Field Research, 2018; TCS, 2018b).[23] The small size of Pakistani companies limits the possibilities of meeting the needs of large global corporations and deters its credibility as an experienced services provider.
- Country exports are highly concentrated in low value-added services within the ITO and BPO segments: in 2017, almost one third of Pakistan's offshore services exports derived from basic/transactional services like software maintenance and voice-based customer support (PSEB, 2018). Freelance activity is restricted to rudimentary virtual assistance tasks, including data entry, website technical help and troubleshooting, and social media management (Field Research, 2018).
- According to A.T. Kearney (2017) Pakistan is the least attractive location for offshoring services in Asia, excluding high-income economies. As shown in Figure 6, Pakistan is ranked 30th in one of the most relevant offshore services indexes in the world: The Global Services Location Index (GSLI), elaborated by A.T. Kearney, one prominent IT-BPO management consulting company. Pakistan's poor positioning is due to its deficient business environment. In this metric, the country ranks lowest amongst all 55 considered economies.[24]

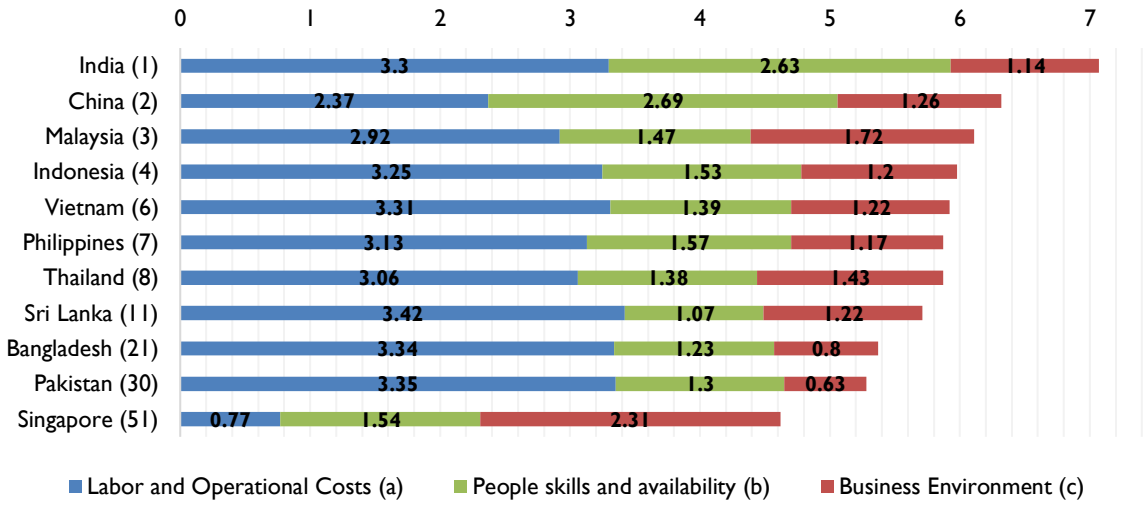
[21] We use statistics collected by the International Trade Center (ITC) for comparability reasons. Categories considered include *computer services* and *other business services* from Balance of Payment Methodology Revision Sixth (BPM6). *Computer services* consist of hardware and software-related services and data-processing services; they exclude non-customized packaged software (systems and applications) and video and audio recordings on physical media; computer-training courses not designed for a specific user; and leasing of computers without an operator. *Other business services* cover research and development, professional, and management consulting, as well as technical, trade-related and other business services.

[22] The presence of captive centers and third-party providers helps countries to build a reputation as a reliable destination to offshore services activities.

[23] The companies are The Resource Group (Pakistan) and Tata Consulting Services (India).

[24] See Section 3.5.2 for more details on Pakistan's business environment.

Figure 6. Pakistan in the Global Services Location Index by A.T. Kearney (2016)



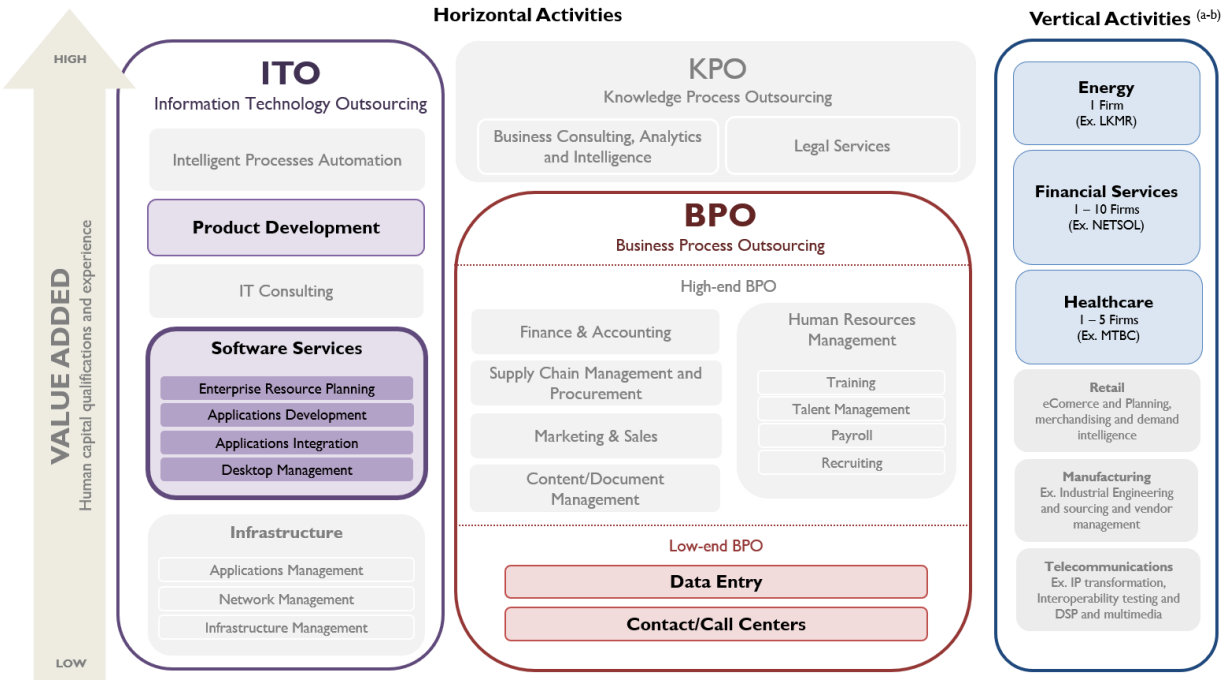
Source: Authors based on A.T.Kearney (2017). **Notes:** Numbers next to country's names correspond to the position in the GSLI Index, which ranks up to 55 countries; [(a)] A higher mark corresponds to lower costs of establishing an offshore services operation[25]; [(b)] A higher mark means a larger and more qualified talent pool[26]; (c) A higher mark equals to a better business environment[27].

3.1 Pakistan's Current Participation in the Offshore Services Global Value Chain[28]

Pakistan participation in the offshore services GVC is depicted in Figure 7. The country is active in the ITO and BPO segments, primarily. These account for 87% and 13% of total exports, respectively (Field Research, 2018). The vertical segment is composed of a small number of companies (about a dozen) that have developed specific knowledge in at least three sectors, including: Banking, Financial and Insurance Services (BFSI), Healthcare industry, and Energy. This segmentation is based on a wide analysis of the entire offshore services industry, including both large companies and SMEs. While a closer look to top 10 exporters provides a more nuanced scenario, segments of participation of these companies are quite illustrative; also, these account for 20% of total Pakistan's offshore services exports. By 2018, 3 out of 10 top exporters provided IT services for a wide array of industries, with 2 of them having opened BPO operations as well. Two other companies exported BPO services exclusively, namely data entry and customer support for different clients around the globe. Firms specialized in vertical sectors totaled 3 out of 10 (PSEB, 2018).

[25] Metrics used for this category include: average annual wages, average compensation costs for relevant positions (BPO analyst, IT programmer, contact center representative), average cost of infrastructure (occupancy, electricity, telecommunications), blended travel cost to major customer destinations (New York, London, and Tokyo), relative tax burden, costs of corruption, and exchange rate movements.
[26] Metrics used for this category include: estimated IT/BPO sector size, quality/skill ratings for relevant positions (quality of management school, college education quality and relevant industry certifications for IT, BPO, and contact centers).
[27] Metrics used for this category include: political risk (political stability, terrorism risk, regulatory burden), foreign investment, ease of doing business, A.T. Kearney Global Cities Index "personal contact" index, blended metric of country infrastructure quality (telecom, electricity), overall local infrastructure quality, ratings of intellectual property protection, ISO information security certifications, software piracy rates.
[28] Except for specific citations, the source of this section is Field Research (2018).

Figure 7. Pakistan's Participation in the Offshore Services GVC, 2017



Source: Authors based on Field Research (2018) and PSEB (2018). **References:** Colored subsegments indicate active participation; Weight of subsegments' outline indicates the estimated participation in the global market, with thicker outlines representing larger relative participation in total exports; Gray-colored subsegments indicate no current participation

Within the ITO segment, Pakistan participates in the *software services* and *product development* category. The former is much larger than the latter: by 2017, about 90% of offshore services exports derived from *software services* firms (Field Research, 2018). Pakistan is not active in other horizontal ITO activities. Within the BPO segment, Pakistan is positioned in the low-end BPO category, with 90% of revenues deriving from the *contact/call-center* sector (Field Research, 2018). The country is not active in high-end BPO nor KPO activities.

The highest value-added services exported from Pakistan derive from about a dozen large companies with over 10 years of experience in the market and substantial business ties with the US. These firms provide complex IT-BPO and KPO solutions to knowledge-intensive sectors in developed economies, ranging from asset finance and leasing software for the Banking, Financial Services and Insurance (BFSI) in the region (e.g. NETSOL Technologies), to medical transcription and artificial intelligence platforms for the US Healthcare industry (e.g. Medical Transcription and Billing Company), and geoscience management solutions for the exploration and extraction of petroleum in various countries (e.g. LKMR).

One highlight of Pakistan's participation in the offshore services GVC is the freelance activity. While there are no official estimates of the size of exports, the nation is ranked as the fourth most popular country for freelancing in the world, according to the Online Labor Index published in

2017 by Oxford Internet Institute (OII)—after India, Bangladesh and US.[29] Pakistani freelancers export a wide variety of low value-added IT-BPO services, such as virtual assistance for schedule management, web design, software development, online marketing, content writing, graphic design, online search, translation and transcription services, and data entry, among many others (Field Research, 2018).

3.2 Industry Organization

There are about 3,500 companies registered in the Pakistan Software Export Board (PSEB). About 50% of these (1,762) would have been active in the global market during 2017 (PSEB, 2018). This section highlights the organization of the industry, with a focus on the key stakeholders involved in its development.

Different to most offshore services locations, in Pakistan, domestically-owned companies are predominant along the entire value chain; within the Top 10 IT-BPO exporters, only 1 is foreign (Field Research, 2018).[30] Leading global third-party providers such as Accenture, Wipro or TCS have no presence in Pakistan. Captive centers from MNC companies are also absent. The dearth of foreign operations severely underscores the nation's positioning in the list of preferred platforms for offshore services operations.

Within the ITO segment, the industry can be organized based on two criteria, namely market share and functions.

- Market share: 25% of exports derive from the top 20 exporters (Table 4). The remaining three quarters of exports are captured by micro-freelancing organizations founded by returning expats or successful former freelancers (Field Research, 2018). Companies within this group employ over 1,000 FTE each and many have affiliates in the US or neighboring countries (e.g. NETSOL Technologies, Systems Limited, Teradata). Naturally, these firms can provide quality solutions while maintaining extensive payrolls.

- Functions: the great majority of exports (90%) derive from the *software services* sector. Solutions pertaining to the *product development* account for 10% of total ITO exports (Field Research, 2018). Different to *software services* firms, *product development* companies depend more on quality, skills, certifications and business linkages in the US than on scale. To illustrate, most firms within this group would employ 50 to 70 professionals (Field Research, 2018). While most ITO firms have been founded by Pakistani-Americans; some *product development* firms were started by local graduates from incubators in Tier-I Universities such as Lahore University of Management Sciences (LUMS), National University of Sciences and Technology (NUST), and Foundation of Advancement of Science and Technology (FAST) (Field Research, 2018).

[29] The Online Labor Index of the University of Oxford is the first economic indicator providing an online gig economy equivalent of conventional labor market statistics. It measures the supply and demand of online freelance labor across countries and occupations by tracking the number of projects and tasks across platforms in real time (Kässi & Lehdonvirta, 2016).
[30] S&P Global Market Intelligence Company.

Table 4. Distribution of IT-BPO Exports, by Share in Exports (2018)

Firm Group	Exports (US$ million)	Share in exports (%)	Share in total number of exporting firms (%)
Top 10 exporters [a]	166	20%	0,6%
Top 20 exporters	208	25%	1.1%
Top 115 exporters	416	50%	6.7%
Top 747 exporters	623.5	75%	42.7%
All (1,750 firms)	831	100%	100%

Source: Authors based on PSEB (2018); Field Research (2018). Note: (a) In order of share in revenues: NETSOL Technologies, S&P Global Market Intelligence Company, Systems Limited, Ibex Global Solutions, Teradata Global Consulting, i2c Pakistan, Afiniti Software Solutions, SBT Pakistan, Ahsan Enterprises, Medical Transcription and Billing Company.

Pakistan's BPO segment is controlled by a few large companies capturing more than 2/3 of BPO revenues, including: Ibex Global Solutions (The Resource Group), SBT Pakistan and Ahsan Enterprises. Remaining exports derive from BPO units within large ITO companies (e.g. Systems Limited) (Field Research, 2018).

Another important group in the Pakistani offshore services industry is composed of freelancers performing virtual assistance through online platforms such as Upwork. Like large companies, freelancers often have some personal or business connection with a relative or acquaintance in the US, which facilitated their establishment as stable IT-BPO services exporters.

Beyond firms, the industry consists of supporting public and private institutions, most based in Lahore and Islamabad (Table 5). In the private sector, Pakistan Software Houses Association (P@SHA) is widely recognized as the most prominent industry supporting institution (Field Research, 2018). P@SHA has led significant lobbying and advocacy initiatives to drive policy development. Public sector efforts for the IT and BPO industry are coordinated by the Pakistan Software Export Board (PSEB), a Government body under the Ministry of IT and Telecom (1995).

Table 5. Key Industry Stakeholders in the Offshore Services GVC

Name	Role in the Offshore Services Industry	Level of Engagement
Pakistan Software Houses Association (P@SHA)	• Lobby and advocacy to ensure government support. • Help formulate policies to strengthen the industry. • Address queries from potential clients and foreign agencies interested in outsourcing to Pakistan.	
Ministry of IT and Telecom	• Principal counterpart of the private sector and P@SHA	
Punjab Information Technology Board (PITB)	• Provides IT services and infrastructure to the local government and private businesses. • Develop policy alternatives and plan initiatives for building an internationally competitive IT industry in the province.	
Higher Education Commission (HEC)	• Works with private stakeholders to update the IT tertiary courses curricula and develop basic technical courses for freelancers.	
Pakistan Software Export Board (PSEB)	• Registers IT and BPO companies. • Collects IT and BPO exports.	

Source: Authors based on Field Research (2018).

PSEB is mandated to promote the offshore services industry in local and international markets; however, the body has not been able to develop sufficient marketing strategies and support mechanisms (Field Research, 2018). To illustrate, in five years, PSEB has only organized six outbound trade delegations to target markets, supporting an average of eight companies per year. (less than 3% of its members) (Field Research, 2018). Reasons behind this are threefold, including: limited resource allocation, visa restrictions for Pakistani engineers and technicians, and lack of engagement from the private sector (Field Research, 2018; Jamal, 2017). More specifically, larger firms rely on its own business network to obtain outsourcing deals, and smaller firms are reluctant to participate in international forums under a Pakistan pavilion due to poor perception in target markets (Field Research, 2018). PSEB is also responsible for the registration of IT and BPO firms; registry requires the payment of an annual fee, which is compulsory for firms to benefit from current and future fiscal and non-fiscal incentives, as well as to transfer US dollars from and to foreign clients.

While PSEB has been mandated with a wide array of other functions—ranging from undertaking research on the state of the industry to assist companies in acquiring quality, security and other certification—it is well documented that PSEB is considered an administrative agency solely. When asked by the most supportive government agency, firms indicate the relevance of topmost authorities from the Ministry of Information Technology and Telecom (Field Research, 2018). In fact, it is largely reckoned that PSEB (along with The Universal Service Fund and the National ICT Research and Development Fund) have little to do with policy-making, and are only focused on narrow mandates (Khilji & Zahid, 2017).

During the past decade, stakeholders described in Table 5 have worked to consolidate key demands of the industry. The most relevant advances and remaining challenges are as follows:

- Software Technology Parks. Pakistan has developed 14 Software Technology Parks. This totaled nearly 1 million square feet. Yet, buildings do not address offshore services companies' requirements such as uninterrupted year around operations, quality bandwidth, reliable power and security, accessibility, expandability and parking space. In addition, most space has been occupied by government agencies. For micro-freelancing companies, these buildings are not affordable (Field Research, 2018)
- Incubators. According to the HEC of Pakistan, currently 8 university incubation centers are established with the objective to support the development of spinoffs and entrepreneurs' access to financial and technical resources along with value added services such as intellectual property rights. Yet, incubators are too away to achieve the maximum output in terms of economic development, job creation, innovation and R&D commercialization (Jamil et al., 2016).

More recently (2017), the Prime Minister announced five incentive packages and tax holidays for the IT industry. These include: (i) extension of the tax holiday on IT exports from 2019 to 2025; (ii) 5% cash reward on IT exports; (iii) reduction of sales tax to 5% on IT within the Federal Areas; and (iv) reduction of the minimum acres of land required to create a Special Economic Zone to 5 acres of land (Field Research, 2018).

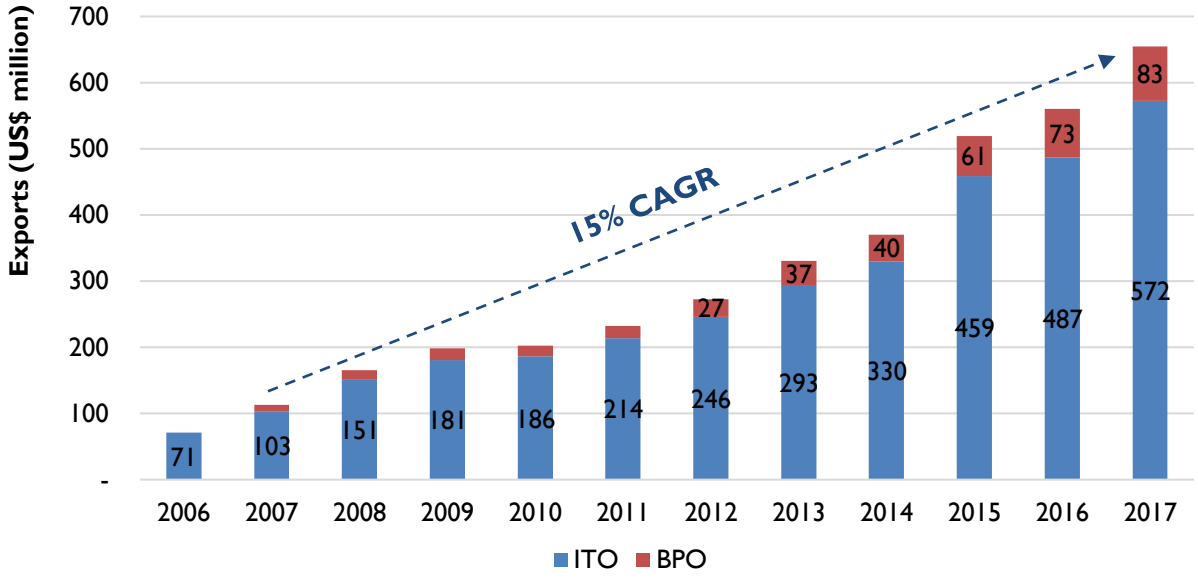
The incentives above will pave a way towards the execution of Pakistan Digital Policy, published in 2018 by the Ministry of Information Technology and Telecommunications.[31] While this policy goes a long way in terms of signaling its importance as an engine for economic growth, it should be underscored that goals are too general and poorly detailed. In brief, Pakistan's Digital Policy acts could be appreciated as an affirmation of the importance of the IT sector in the country; however, strategies and sequence of actions required to meet objectives are unspecified. This deters Pakistan's opportunities to build a valid roadmap for the formulation and implementation of the policy. Finally, the document does not provide with any evaluation or monitoring mechanisms. It could be expected that these failures hinder execution and compliance.

3.3 Industry Evolution in Pakistan's Offshore Services Global Value Chain

Pakistan entered the offshore services GVC in the mid-2000s through IT exports. However, it was not until 2009 that the country gained some recognition as an alternative offshoring location, when it attained its first admission into the GSLI ranking (A.T.Kearney, 2011). By this time, both India and the Philippines had already achieved maturity in the global market, while others in Europe and Latin America were already emerging (e.g. Poland, Mexico, Czech Republic).

Nonetheless, over the past ten years, IT-BPO exports increased by a factor of four, going from US$113 in 2007 to US$655 in 2017 (Figure 8). Within this period, the Compound Annual Growth Rate (CAGR) stands at 15% (PSEB, 2018). This indicates that Pakistan's sector, while still relatively small, has embarked on what should be a prosperous upgrading trajectory within the offshore services GVC. Text below Figure 8 describes each segment evolution separately.

Figure 8. Pakistan's ITO and BPO Exports, 2006 – 2017



Source: Authors based on PSEB (2018).

[31] Section 3.5.2 expands upon the Pakistan's Digital Policy.

Information Technology Outsourcing. As evidenced in Figure 8, the country's participation in the offshore services GVC is due to a booming IT industry. In 2017 Pakistan exported US$572 million in IT services (PSEB, 2018). This figure is about 5 times higher than in 2007. The destination of about one half of total IT exports is United States, followed by the United Arab Emirates and European Union, with 9% and 8% of total exports, respectively (PSEB, 2018). Pakistani-Americans have led the expansion of the industry building on their strong business ties with the US. The great majority of IT companies serve a wide range of industries, with less of half a dozen companies providing solutions for vertical industries (see segment 'Verticals').

Business Process Outsourcing. In 2017, Pakistan exported US$83 million in BPO services (PSEB, 2018). This figure is 7 times higher than in 2007. The emergence of the BPO segment traces back to 2002 when a group of Pakistani American investors based in the US relocated some of these firms' customer support to Lahore. As founders owned several American start-ups, the group grew rapidly through acquisitions and private equity (Field Research, 2018). Currently, the company has 20,000 employees globally, from which around one third is based in Pakistan.[32] Segment expansion and global recognition as a reliable BPO location has been constrained by Pakistan's high-risk perception and rigid visa regime. In the *contact/call-center* industry, customers typically visit the offshore operations as a quality assurance strategy. However, Americans are reluctant to travel to Pakistan for security reasons. This constraint is hard to overcome for new companies, placing much needed efforts in supporting the upgrading of existing operations.

Verticals. Companies providing services for vertical industries are by far the most sophisticated players of Pakistan's offshore services GVC. Based on interviews with experts, firms included in this category include; (i) NETSOL Technologies, which provide IT and KPO services for the Financial and Insurance sector; (ii) Medical Transcription and Billing Company (MTBC), which specializes in high-end IT-BPO solutions for the Healthcare industry; (iii) and LKMR, a formerly captive operation responsible for software development and data analysis for companies in the Energy Sector, specifically in oil and gas exploration. Box 1 expands on the MTBC example to provide the reader with a good example of how Pakistani companies can upgrade their offerings and expand its global footprint.

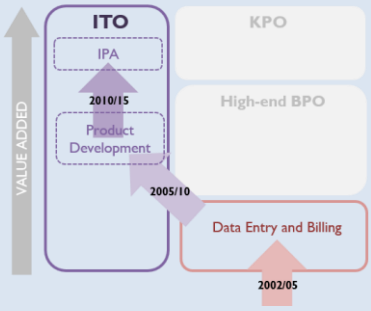
[32] Other locations include Philippines (8,000 FTE), Jamaica and Nicaragua (Field Research, 2018).

Box 1. Upgrading Trajectories of the Medical Transcription and Billing Company

MTCB, Medical Transcription Billing Corp. is a publicly traded company that provides a wide range of ITO and BPO solutions for healthcare clients in the US, from data entry to electronic health record, and voice recognition software (Figure 9 displays the company's upgrading trajectory). The company serves an expanding array of healthcare entities from single physicians, to medium sized health institutions as well as independent physician associations spread across over 40 US states. In 2017, global FTE reached 2,450, 80% of whom work in Pakistan's center (remaining 20% seats are split between the US headquarters, and a development center in Sri Lanka).

MTBC was founded in the US in 1999 by a Pakistani American. The firm began operations as a billing company, providing electronic claim services for healthcare providers located in New Jersey. Thanks to growing demand, the company grew quickly. In 2002, it established its first subsidiary in Islamabad to support the headquarters in the US. Location choice was based on the founder's business ties with Pakistani entrepreneurs, as well as on personal knowledge of the country's economics, talent, and culture.

Figure 9. MTBC Upgrading Trajectory in the Offshore Services GVC for the Healthcare Industry



In the early 2000s, the Pakistan operation provided data entry, transcription and billing services for MTBC US headquarters. During this time, services were provided through a third-party software which connected MTBC to clients. By 2005, the operation had developed its own software; at first, the software enabled physicians to schedule their medical appointments and manage their agenda. Later, they included a tool for physicians to evaluate the patient eligibility for insurance. Over the course of the next five years, MTBC upgraded to provide online electronic medical records, allowing clients to access their patients' medical record away of the office. By 2018, MTBC's comprehensive product portfolio included fully integrated artificial intelligence, revenue cycle and practice management solutions, as well as other lower value-added services, such as transcription and data entry. Company management cite the quality of Pakistani professionals as key to their success. MTBC is currently exploring new vertical markets and IT products, including software development for health insurance companies.

Source: Authors based on Field Research (2018); MTBC (2018).

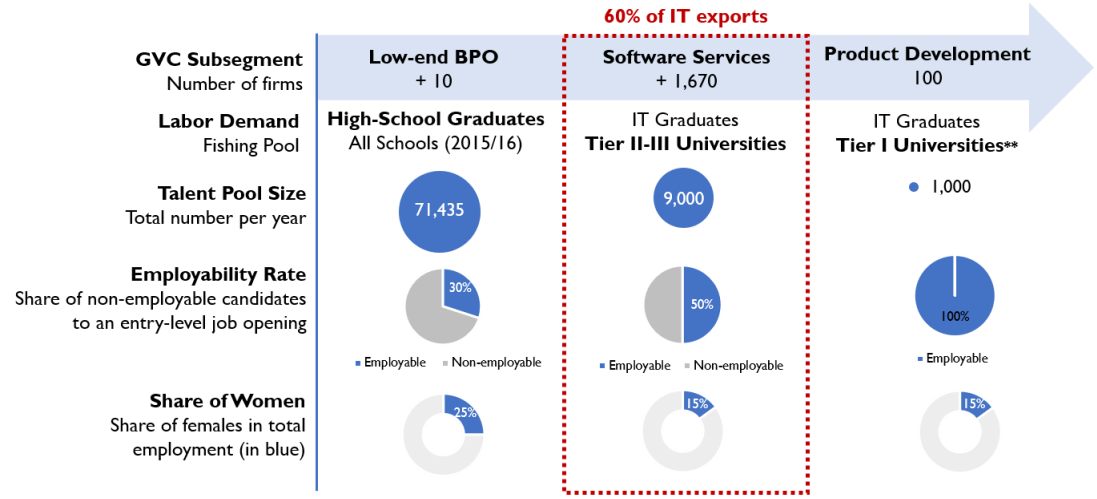
3.4 Human Capital and Gender of Pakistan's Offshore Services Industry

A sustainable offshore services industry is entirely dependent on the availability of human capital equipped with the necessary skills and proficiencies to deliver outsourced processes. A large population represents greater possibilities to host a variety of GVC processes with high potential to scale operations. Nevertheless, the human capital structure of the offshore services GVC generally begins at 12 years of education (Gereffi et al., 2011). While Pakistan is the sixth largest population in the world, high-school graduates account for just 3.85% of total population and only about 2% of individuals between 20 to 29 years old have completed a tertiary level degree (PBS, 2014; UNDP, 2017).

3.4.1 Availability and Employability

In Pakistan, the labor demand of the offshore services industry spans from high school graduates to tertiary level graduates, depending on the segment in which companies participate (Figure 10). Low-end BPO employ high-school graduates with good English communication levels. While the labor pool of Pakistan would seem large enough to enable expansion in the BPO segment, English-language skills, combined with neutral accents and cultural understanding of the customer host environment, exist only among the highest-educated strata of the Pakistani society.

Figure 10. Summary of Pakistan's Offshore Services Industry Talent Pool (2017)



Source: Authors based on Field Research (2018) and PBS (2014). **Notes:** (*) 2014/15; (**) 2016/17.

Labor demand in the ITO segment differs significantly depending on the level of sophistication of the services: while *software services* companies that provides basic services employ IT graduates from Tier-II and Tier-III universities, *product development* firms that offer more complex tasks engage exclusively with IT graduates from Tier-I universities such as LUMS, NUST and FAST (Field Research, 2018). While no precise figures of graduates are available, the private sector estimates that around 10,000 individuals graduate from all universities annually.[33]

Equally important for success in the offshore services GVC is the employability of the talent pool. That is, talent should be equipped with basic technical skills (i.e. computer literacy, English language comprehension, etc.) and relevant domain proficiencies (i.e. coding, graphics design proficiencies, etc.) that can ensure quality delivery of specific outsourced services. In Pakistan, the employability rate is very low; *product development* firms consider that graduates from Tier-II and Tier-III universities lack the most critical programming skills and English language fluency necessary. Only 10% of the graduates from the Tier-II and Tier-III universities are considered employable by product development firm, so they mainly hire from Tier I universities. (Field Research, 2018). For *software services* and BPO companies, which hire graduates from any university (namely, Tier-II and Tier-III) and high school institutions, the employability rate increases to 50%, and 30% respectively since they require less skilled workers (Field Research, 2018).

[33] Estimates range from 10,000 to 20,000 (Field Research, 2018). These disparities highlight that the lack of reliable and disaggregated statistics on human capital is a major challenge that needs to be addressed.

As a result, *product development* companies only hire talent graduated from 'progressive' universities such as LAMS, FAST and NUST. These Tier-I universities are highly linked to Pakistan's IT industry. However, these institutions graduate fewer than1,000 students annually (Field Research, 2018). Furthermore, as graduates from these universities usually come from wealthy families, they usually seek job opportunities in higher paying sectors or abroad; as a result, firms must pay a considerable wage premium for IT graduates of these Tier I universities over their peers at Tier-II and Tier-III programs.

Major skill gaps in computer science engineers include: (i) inability to code in contemporary technology platforms; (ii) weak English skills (Box 2); (iii) poor comprehension readiness to address foreign clients' concerns; (iii) inadequate soft skills, namely communication and teamwork; (iv) poor knowledge of corporate culture, e.g. reporting, compliance, escalations, e-mail etiquettes and protocols. Firms also highlight that Pakistani graduates generally lack critical thinking, creativity and problem-solving skills (Field Research, 2018).

Box 2. English Skills in Pakistan: Issues and Challenges

Literacy in English is considered a prerequisite for participating in the offshore services GVC. While Pakistan is the world's third largest English-speaking country after India (2nd) and United States (1st), with almost one half of its population speaking English as a second language, proficient English speakers are more likely the highest strata of Pakistani population.

The English constraint is rooted in the two distinct systems of education based on the medium of instruction: English and Urdu. The English medium schools are privately owned and cater to the upper class as well as some sections of the middle class. In contrast, the Urdu medium schools are mainly public sector schools catering to the lower income groups and they offer free education in addition to other incentives such as free textbooks (at least at the primary level).

Private schools offer 'quality' education to elite children in highly resourced classrooms through the medium of English. The outcomes for these children, who also have acquisition-rich home environments, are higher levels of proficiency in English compared to those children studying in poorly resourced classrooms who have little or no exposure to English outside the 30–35-minute English class every day in school. At the tertiary level, most teachers do not have formal qualifications or training in English language teaching.

Source: Authors based on Capstick (2011); Kroulek (2017)

While some firms (especially *software services* firms) are less pessimistic about the talent shortage (profile of employee does not require advanced coding skills and can be trained on-the-job) all firms interviewed indicate that English language remains a severe constraint. This is particularly true for graduates of Tier-II and Tier-III universities, where most teachers lack formal qualifications or training in English language (Capstick, 2011).

Lack of technical and technological skills are rooted in weak fundamentals in Science, Technology, Engineering and Mathematics (STEM), low quality of tertiary level professors, and inadequate teaching methodologies. Pakistan biggest constraint is the lack of educational materials and qualified teachers to encourage cognitive development or analytical and critical thinking skills from the primary and secondary levels (Field Research, 2018). In the tertiary level, even if the IT curricula are updated, professors lack the basic knowledge to efficiently instruct students in critical IT skills.

Finally, education models are based on theoretical instruction, which firms consider to be archaic and inadequate to prepare individuals in IT skill (Field Research, 2018).

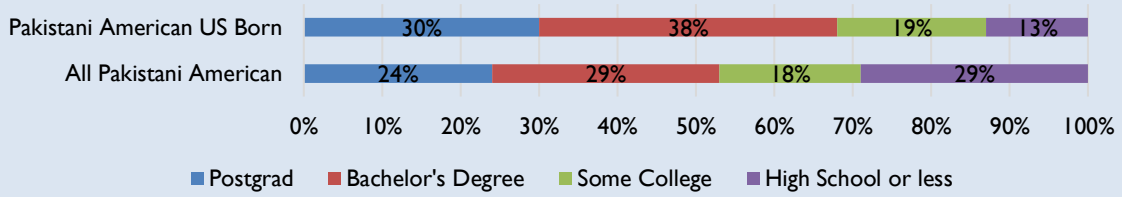
While brain drain lowers the availability of appropriate human capital, expats in the US have become a strategic asset for Pakistan's offshore services industry; the great majority of IT firms participating in the GVC were funded by Pakistani Americans or returning expats, and currently, most management personnel are expats or US citizens. In the United States, Pakistanis are considered a well-educated segment of the population (Box 3); a far greater share of first and second generation Pakistani-Americans earned undergraduate degrees than the US population overall, and individuals in this population are more than twice as likely to hold advanced degrees (PWC, 2017).

Box 3. Demographics of Pakistani Americans

Pakistani Americans play a critical role in Pakistan's offshore services industry. Several returnees have founded successful IT companies, while those still living and working in the US collaborate with Pakistani-based companies. These groups have developed strong ties with each other in the past 20 years.

In 2015, around half a million Pakistani immigrants and their children (the first and second generation) lived in the US. More importantly, their educational attainment levels are, on average, higher in the Pakistani diaspora than in the general US population, as is household income. Seven out of ten US born Pakistani Americans have at least a bachelor's degree (Figure 11).

Figure 11. Educational Attainment of Pakistani American (2015)



As a result, nearly 32% of the Pakistani diaspora is employed in a professional or managerial occupation (1% higher than the general US population). These occupations include specialized fields (e.g. engineering, science, law, or education) as well as administrative and managerial jobs (e.g. finance, or human resources). Furthermore, they are entrepreneurial; the Pakistani diaspora in the US has established numerous, well-funded, and professionally managed organizations. As a result, households headed by a member of the Pakistani diaspora had a substantially higher median annual income than US households overall. The median annual income of Pakistani diaspora households was about US$66,000 versus US$56,516 for all US households.

Source: MPI (2015); PWC (2017)

Female Participation in the Sector

While Pakistan holds the last spot in the Economic Participation and Opportunity sub index of the Global Gender Gap Index 2016, the IT segment features a slightly lower share of female workers compared to developed economies such as the US or UK (Table 6). Considering female participation in the overall labor force (22%) and the global bias towards male professionals in technology fields, the finding on Pakistan's female participation is somewhat remarkable (The

World Bank, 2018). This can partially be explained by the human capital structure of the Pakistan sector; in general, women who work in IT companies had access to higher-education degrees in Tier-I to Tier-II universities.

Table 6. Women in the IT Segment, Pakistan vs. Selected Countries

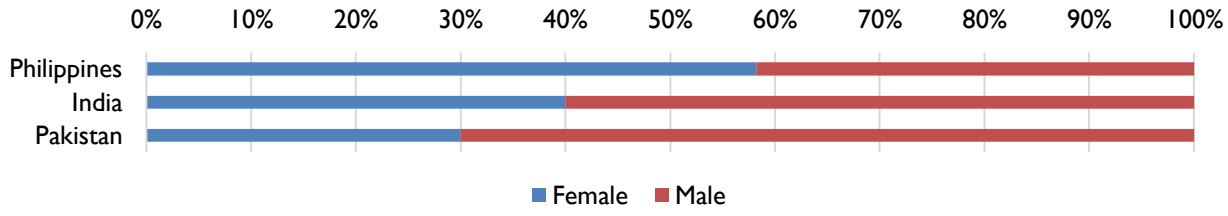
Country	Enrolled in IT College Studies	Working in the IT industry	Year
Pakistan	14%	15%	2016
India	45%	30%	2014
United States	22%	25%	2017
United Kingdom	18%	16%	2014
Brazil	15%	38%	2014

Source: Authors based on Field Research (2018); NASSCOM (2017b); Khalil et al. (2015).

Low participation of females in IT studies and IT employment is rooted in concerns for safety, mobility restrictions and traditional family roles (Field Research, 2018). Due to the 24/7 requirements of offshore services, many employers mentioned that not being able to work after 6 PM restrains job opportunities for women. One key challenge for women is simply the commute to work; first, traveling without the company of father or husband remains an issue. Second, the inadequate transportation system is of such significance that females may ignore better job opportunities and go for lesser value jobs just to avail transport facility provided by the organization (Faiza, 2013). The share of women enrolled in IT education is extremely low when compared to the ITO leader (India) where female participation in higher education IT studies accrues to 45% (Table 6).

The female share of Pakistan's low-end BPO segment is higher at 25%. This figure is well below India and Philippines' BPO industries, in which women account for 40% and 50-60% of total employment, respectively (Figure 12). Female employment is constrained by time zone issues; the US working hours are evening hours in Pakistan and females are reluctant to work late. While some companies have attempted to provide transportation services to women leaving work after 7 PM, most females are not allowed by parents or husbands to commute unaccompanied.

Figure 12. Share of Women Employed in the Low-end BPO Segment, Pakistan vs. World Leaders

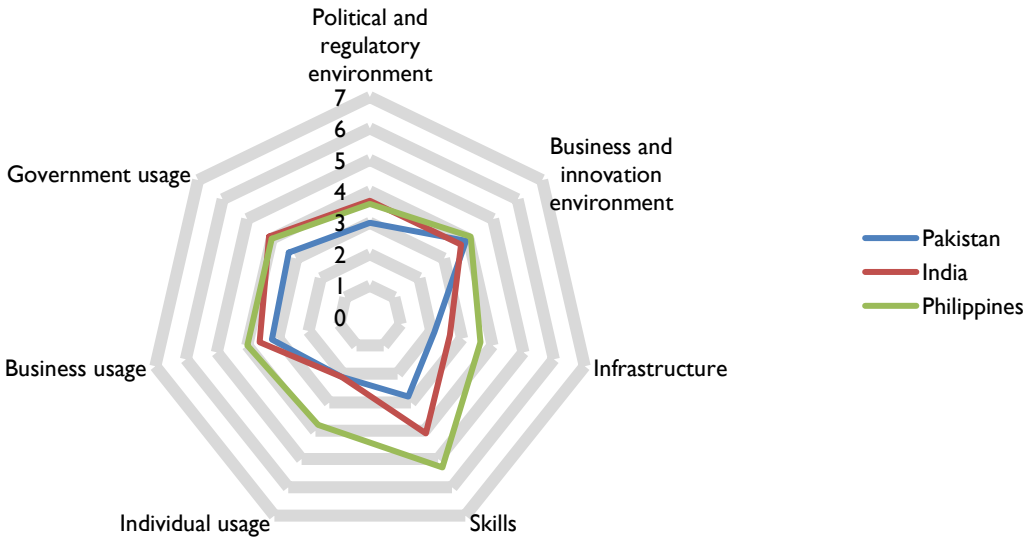


Source: Author based on Begum (2013); David (2015); Field Research (2018).

3.5 Advantages and Constraints[34]

Pakistan has been ranked amongst the top fifty economies to relocate IT-BPO processes since 2011 and is the most cost-effective location in the world in 2017 (A.T.Kearney, 2011, 2014, 2016, 2017). Despite low labor costs and decent service quality as per compared to India and Philippines, its attractiveness as an offshore location is severely restricted by investor perceptions that the country's security risk is too high. Infrastructure failures, administrative burdens, and low quality of education further constrain the country's ability to expand and improve competitiveness in high value-added segments (Figure 13).

Figure 13. Pakistan and Competitors in the WEF Networked Readiness Index (2017)



Source: Authors based on WEF (2017). **Notes:** A detailed list of each country position in the world ranking is displayed in Table A-II, Annex II.

[34] Except where otherwise indicated, data from this section is based on information gathered during Field Research in August 2018.

Table 7. SWOT of Pakistan's Offshore Services Industry

Strengths	Weaknesses
• Sizeable talent pool. • Satisfactory price-quality relationship. • Decent telecommunication infrastructure. • Favorable positioning in the freelance global market.	• Low attractiveness to foreign investors and clients due to negative image and rigid visa regime. • Lack of clarity in the national offshore services strategy; inadequate public-private coordination • Regulatory barriers and poor business environment. • Inadequate specialized infrastructure (office space) • Severe mismatch between skillsets provided by the tertiary level and private sector needs. • Inadequate international marketing; lack of branding. • Lack of reliable relevant data to position the industry in the global market.
Opportunities	**Threats**
• Leverage Pakistani expats and Pakistani Americans involvement in the US IT industry. • Close political ties and existing trade agreements favor Pakistan in pursuance of tapping the growing Chinese market.	• Increased negative perception of the country. • Reputation risk derived from Pakistani low-skilled freelancers providing poor quality work. • Digital transformation is requiring highly skilled workforces to accompany the automation and robotization processes.

Source: Authors based on Field Research (2018).

3.5.1 Advantages

Pakistan's advantages in the offshore industry revolve around its large young-English-speaking talent pool and low labor costs. These strengths align to main location drivers within the offshore services GVC. The following sub-section expounds upon the strengths indicated in Table 7.

1. **Sizeable labor pool.** Pakistan is the world's third largest English-speaking country after India (2nd) and US (1st). In Pakistan, around 49% of the population speak English as a second language, i.e. 94.3 million people (Kroulek, 2017). In addition, for customer support services, English pronunciation is relatively more neutral than in Sri-Lanka and India. The English advantage can facilitate Pakistan's growth in the BPO segment. However, the quality of English language needs to be improved.

2. **Satisfactory price-quality relationship.** According to A.T. Kearney's GSLI, Pakistan is the most financially attractive in the world for offshoring IT-BPO services (A.T.Kearney, 2017). Also, IT companies with presence in India and Pakistan point out that in very low-end solutions, the quality of Pakistan's talent pool surpasses that of India. In the low-end BPO segment, operational costs are 60% lower than in the Philippines, the world's customer support powerhouse. This edge is favored by the low competition for labor in Pakistan, due to the relative immaturity of the sector.

3. **Decent telecommunication infrastructure.** IT-BPO firms consider the telecommunication infrastructure adequate, with most stakeholders recognizing large advances in recent years. A few experts mentioned concerns on the speed of the internet broadband; it would not be as poor as to be regarded as a constraint.

4. **Favorable positioning in the freelance global market.** Pakistan is ranked as the 4th most popular country for freelancing in the 2017 Online Labor Index elaborated by OII after India, Bangladesh and United States. Within the somewhat unique context of Pakistan's competitiveness due to its image perception, the positioning in freelancers' platforms provides Pakistan a platform to showcase the availability and quality of IT-BPO talent.

3.5.2 Constraints

While Pakistan's potential is apparent, upgrading trajectories are severely constrained by its weak security situation and policy uncertainty. By discouraging FDI and business visits to and from Pakistan, this poor perception impacts the nation's competitiveness and contributes to the underdevelopment of the IT and BPO sectors. In addition, to low employability rates discussed earlier, growth is further hindered by inconsistencies in the regulatory framework, business environment and inadequate physical infrastructure. Finally, international marketing activities, including reliable quantitative information, are absent. The following sub-section expands upon these challenges.

1. **Low attractiveness to foreign investors and clients due to the country's negative image and high-risk perception.** This is the most widely-stated constraint facing the sector. Pakistan is generally perceived as a high-risk investment proposition, particularly by US firms, which are the largest IT services importers. In 2018, the US Department of State rated Pakistan with the Advisory Level 3, i.e. '*reconsider traveling*', pinpointing terrorism as the main reason. Similarly, the *'political stability and absence of violence/terrorism'* index from the World Bank ranks Pakistan in the 125th position in a total of 126 countries. According to industry stakeholders, potential buyers or investors in the US frequently decline to travel to Pakistan, impeding potential business and partnerships with local companies, as well as foreign investment.

2. **Lack of clarity in the national offshore services strategy and inadequate public-private coordination.** While Pakistan's first Digital Policy was launched in 2018, this lacks the defined goals and strategies required to meet national objectives. This is compounded by a lack of leadership from the institutions empowered to promote IT services exports and attract FDI. In response, many government departments, at the federal and provincial level, have created their own IT-BPO strategies. This has resulted in redundant and overlapping initiatives spread among different public agencies with limited and short-term impact. Furthermore, while P@SHA and the Ministry of IT have made progress over certain issues, (e.g. income tax exception until 2025) there is considerable debate between the private and public sectors on how to best develop the industry and its enabling conditions. Underlying this is the low level of awareness about the offshore services GVC is, and its dynamics and benefits.

3. **Ambiguous regulatory framework and poor business environment.** Excessive bureaucracy, high levels of corruption, and frequent and unpredictable regulatory changes creates uncertainty for investors (domestic and foreign alike). For IT firms, additional regulatory barriers and administrative burdens can be identified. The lack of a clear definition for IT products and services by the tax revenue office deters foreign investment, which requires transparent tax regimes, while locally, it opens up smaller, local companies

to harassment from tax enforcement authorities. Interviewees cite that this frequently leads to random charges and/or bribery, i.e. large sunk costs.

Bureaucratic requirements discourage registration of local companies, leading to high informality amongst small software companies and technology startups. Many of these companies can only receive international payments through private banks or Western Union; no globally recognized online payment platforms (e.g. PayPal) are licensed to operate in the country. This impacts freelancer credibility as quality services providers, adds administrative burdens of having to open a bank account, while at the same time reinforcing the high-risk perception held by potential foreign clients.

Finally, the visa regime, in addition to the security situation, further hinders foreign clients from visiting Pakistan; this is particularly troublesome for expanding the country's penetration into the US market.

4. **Inadequate specialized infrastructure (office space).** Both in Lahore and Islamabad, local and foreign companies struggle to find office space aligned to international standards and requirements of the offshore services industry, e.g. 24/7 availability, IT-ready infrastructure, among others. The existing buildings do not address offshore services companies' requirements such as uninterrupted year around operations, quality bandwidth, reliable power and security, accessibility, expandability and parking space. Moreover, since the Special Economic Zones (SEZ) regime was not developed from an offshore services' industry perspective, the minimum size of an SEZ (20 hectares) is vastly larger than current demand from the IT industry. This constraint is even more important for small IT product-based companies and freelancers, who lack affordable IT plug-and-play spaces (e.g. co-work) to expand their business and/or provide more complex and sophisticated services. Finally, the number and size of technology business incubators is also very limited for Pakistan's potential.

5. **Severe mismatch between skillsets provided by the tertiary level and private sector needs.** Except for Tier-I universities, tertiary education is failing to provide the students with the knowledge and technical skillsets needed by the IT industry. Producing globally employable graduates has been a challenge to Tier-II and Tier-III universities. As a result, the employability rate is very low: only 10% of IT graduates are considered employable by high-value added IT firms. Most relevant reasons behind this constraint include: (i) faculty members from Tier-II/III universities are not fully competent in coding skills nor in English-language; (ii) pedagogical know-how is inadequate to the industry needs (e.g. excessive theoretical instruction and low exposure to IT); (iii) quality assurance systems are absent.[35]

6. **Inadequate international marketing and lack of branding.** Pakistan has not developed a satisfactory international marketing strategy as to effectively position the country as an outsourcing/offshoring destination. While PSEB was formed the goal to promote the industry worldwide, the organization has failed to articulate and execute adequate initiatives towards FDI attraction and/or export promotion. PSEB has yet not engaged with renowned location advisory services' companies, such as Deloitte, KPMG, or

[35] Other aspects behind low quality of education include: poor socio-demographic conditions of the students

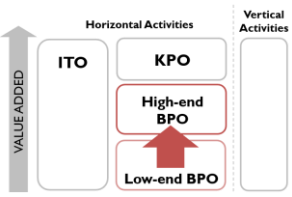
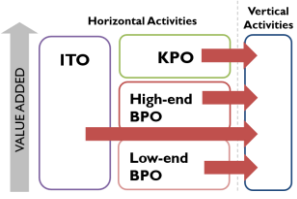
EY. Moreover, local companies avoid associating themselves with the Pakistan brand at international fairs organized by PSEB. Other institutions, such as Pakistan's Board of Investment (BOI) have no role on promoting the offshore services industry abroad.

7. **Lack of reliable data to position the industry in the global market, e.g. number of IT graduates.** Pakistan's international positioning is also severely limited by the lack of accurate and official information regarding the number of foreign operations established, exports, employment, human capital qualifications, and number of IT graduates. Currently, national statistics of the pool of IT enrollees and graduates by field of specialty and level of educational attainment are not available.

4 Lessons for Pakistan's Upgrading in the Offshore Services Industry from Global Experiences

Economic upgrading is defined as actors moving to higher value activities in GVCs in order to increase the benefits from participating in global industries (Gereffi et al., 2005). In the offshore services GVC, four principal upgrading trajectories can be identified (Table 8).[36]

Table 8. Selected Upgrading Trajectories in the Offshore Services GVC

Type	Diagram and Description
Upgrading within the BPO segment	 This encompasses the shift from basic customer support services to the provision high-end BPO services; it is a common trend for countries entering the GVC through the low-end BPO segment. High-end BPO activities rely on similar repetitive functions as with call centers, although as a whole, they draw on a slightly more educated labor force. Limited direct interaction facilitates growth of these functions as they do not heavily depend on language fluency. Training in high-end BPO functions is predominantly carried out by the private sector and on-the-job. ***Examples:*** South Africa is an important destination for BPO services currently employing 47,300 people and growing at 20% per year, which is twice the global growth rate of the industry, and three times faster than India and the Philippines. Currently, South Africa is actively working in expanding their BPO activities from low-end BPO to high-end BPO.
Functional Upgrading to Broad Spectrum services	 This trajectory describes functional upgrading to offer all services in the ITO, BPO and KPO segments. Maintaining the provision of low value services while at the same time providing high valued services requires a large but versatile low-cost labor supply. In small countries, inflationary pressure on wages due to limited but skilled workforce encourages countries to upgrade into higher value services or lose their competitiveness in the industry to other lower cost countries. ***Examples:*** Costa Rica is the most illustrative case of upgrading towards Broad Spectrum services. While transactional services are still being present, higher value-added functions were added over time, and today these operations carry out not only low value-added functions, but also high value activities.
Functional Upgrading through Vertical Specialization	 Companies offering some ITO, BPO and KPO services for a wide range of industries specialize and focus on key industries. This trajectory is closely correlated with leading productive industries in the host country. ***Examples:*** The Czech Republic, which entered into the offshore services industry through the establishment of BPO shared services activities, has quickly upgraded into R&D segments of vertical industries, particularly in the automotive, aerospace and IT areas.

Source: Authors based on Fernandez Stark and Gereffi (2016).

[36] For more information about upgrading trajectories in the Offshore Services industry, please see Fernandez-Stark, K., P. Bamber and G. Gereffi (2011).

4.1 Case Studies: India and Uruguay

In analyzing different prospective paths for upgrading for Pakistan in the offshore services GVC, it is useful to look more in depth at specific examples from countries facing similar questions of how to develop the enabling conditions for the industry and add value to services exports. Two cases were selected for further examination:

- ***India*** offers a compelling display of growth via specialized infrastructure and tax incentives within the Software Technology Parks (STPs), coupled with investments in talent development to leverage its cost-competitive but qualified labor. These initiatives drove investments by domestic firms and MNCs, allowing India to become the leading supply market of both traditional offshore services and digital services to the Industry 4.0.

- ***Uruguay*** provides an example of entry into the offshore services GVC by capitalizing on a qualified IT market which needed to tap into foreign growth markets. Uruguay expanded from *software services* to *product development* and from ITO to high-end BPO. Initiatives aimed at upgrading were supported by a highly coordinated approach with public and private institutions supporting the IT industry and a national strategy focused on the entire offshore services industry.

Table 9. Performance in the Offshore Services GVC; Pakistan, India and Uruguay

Indicator	Pakistan	India	Uruguay
IT-BPO exports (US$ millions, 2017)	**655**	**52,278**	**177**
Entry Year	Mid 2000	Early 1990	Late 1990
Entry Point	Mid ITO (Software Services)	Mid ITO (Software Services)	Mid ITO (Software Services)
Participation in Segments	Mid ITO (Software Services)	All	Mid ITO (Software Services); High-end BPO (e.g. F&A, Supply Chain Management)
Highest Value Activity (widespread only)	Intelligent process automation	Intelligent process automation	Intelligent process automation
Industry Composition	Domestic companies, SMEs predominantly	Domestically-owned third-party providers, foreign third-party providers, and GIC	GIC and shared services centers predominantly, except in ITO where domestic SMEs prevail
MNC Drivers	Cost and benefits of scale	Maturity, cost and availability of IT-skills, benefits of scale	Quality/skills, political/legal/economic stability; similar time zone (East Coast)
Business Associations	P@SHA: efficient body, focus on lobbying and advocacy	NASSCOM: strong body; independent funding; focus on the selling of services	ICT Chamber (500 members): forerunners in the economy; focus on lobbying and advocacy

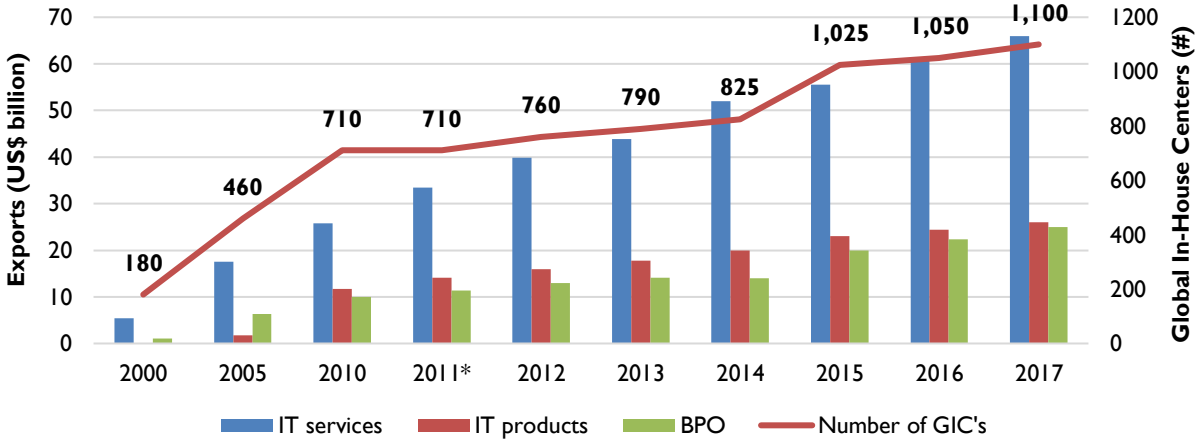
Source: Author based on ILO (2017); Uruguay XXI (2017b); World Bank (2017).

4.1.1 India

India is the leading global economic actor in the offshore services industry with a 55% share of the global IT services market. Low costs, strong technical and language skills, presence of premier educational and research institutions, historical concentration of high-tech firms, connections between locally born entrepreneurs and MNCs, as well as strong private association culminated in India becoming the largest exporter of IT in the world (Rao & Balasubrahmanya, 2017).

In 2017, offshore services totaled US$116.8 billion, equivalent to 20% of foreign exchange reserves and 1.6 times more than in 2012 (NASSCOM, 2017a). IT services exports have been the major contributor; these were estimated to have been US$66 billion during FY2017 (Figure 14); exports rose at a Compound Annual Growth Rate (CAGR) of almost 13% during 2009-2017. BPO follows, accounting for 22.2% of exports. The US has traditionally been the largest importer of Indian IT services exports, with 62% of exports in 2017. These service are concentrated in just a few end-markets; approximately 80% of offshore services exports from India is across four sectors: Banking, Finance Services and Insurance (BFSI), telecom, manufacturing and retail (IBEF, 2018).

Figure 14. Offshore Services Exports by Segment, 2000 – 2017



Source: Authors based on IBEF (2018).

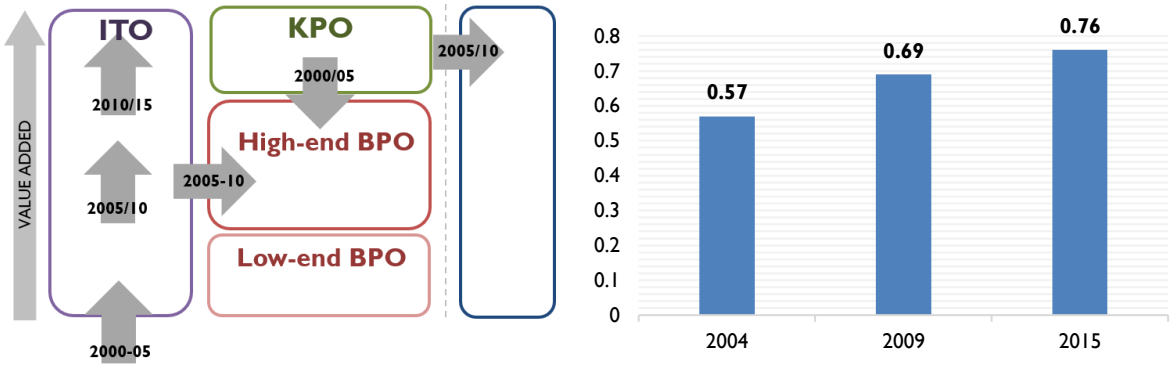
The Indian IT-BPO industry comprises over 15,000 firms. The industry exhibits a pyramidal structure with a handful of firms at the top. There were only 11 firms with an annual turnover greater than US$1 billion in 2013 (less than 0.1%), but they accounted for over 40% of total export earnings, and provide employment opportunities to roughly 35-38% of the workforce (IBEF, 2018). While larger firms generally offer bundled end-to-end solutions that encompass the entire offshore services GVC, small and emerging players excel in niche services/verticals (Bhattacharjee & Chakrabartib, 2015).

Industry Evolution

The Indian offshore services industry has developed from small beginnings at the bottom of the value chain to a major player in all segments of the global industry (Rao & Balasubrahmanya, 2017). Behind the rapid evolution of the IT and BPO sectors is its first mover advantage gained through the early development of an export platform for software services. Figure 15 outlines the upgrading trajectories of the Indian industry from its initial stages in 2000 when its strengths lay only in the low-end ITO sector to its emergence as one of the leading global players across all

segments in late-2000s, and the most sophisticated technologies pertaining to the Industry 4.0 in recent years.[37]

Figure 15. Upgrading Trajectories of Indian Offshore Services Industry (left); Ratio of Median Value Added to Sales (left)



Source: Authors (left); Rao and Balasubrahmanya (2017) (right).

With an abundant supply of technically skilled professionals (second only to the US), India could capitalize on the severe global manpower shortage of the IT boom in late 1990s; estimated to be over 1 million in the US alone This, coupled with high spending to resolve the Y2K problem was a boon for Indian IT professionals (Bhattacharjee & Chakrabartib, 2015). By 2000, India's IT sector was already highly developed, while some activities within the BPO segment were just beginning to emerge (particularly call centers and financial activities). By 2006, a broadening and deepening of IT activities was combined with greater emphasis on higher value-added services in the financial and health care industries, amongst others.

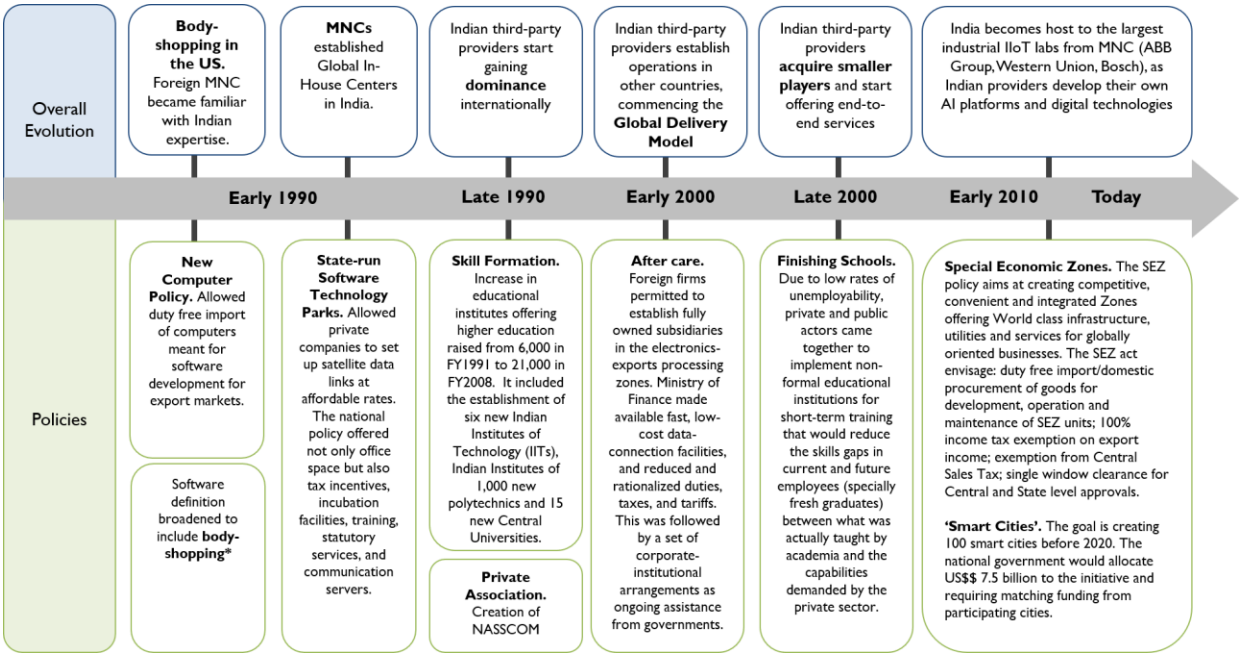
Driven by the availability of high-quality talent, synergies with existing traditional sourcing operations in the area and low operating costs, by 2017 India was now at the cutting edge of IT technology; it is host to some of the largest Internet of Things (IIoT) labs outside of home countries for several MNC. Firms such as ABB, Alibaba Group, and Western Union opened GIC performing digital functions, while GE, Bosch and SAP are ranked as five of the top ten industrial IoT employers in India (Everest Group, 2018b; Gupta, 2017). Bosch alone has 14,000 R&D associates in India, making it the company's largest R&D campus outside of Germany with 27% of its R&D employee count; the campus is focused on developing data mining and software solutions (Bosch, 2016).

Policies and Programs

The government has played a key role as a facilitator in the evolution of the offshore services industry in India. While the liberalization of the economy in 1980s was not intended to support the offshore services sector, it created the enabling conditions for services exports, e.g. improvement of the telecommunications infrastructure.

[37] TCS provides data processing and engineering support for Rolls Royce since the 2000s. More recently, Wipro supplied mining and construction equipment manufacturer, JCB, with an IoT solution to connect their global fleet, i.e. from the sensors to the cloud (Telematics Wire, 2016).

Figure 16. India's Offshore Services Industry: Evolution and Policies



Source: Authors based on Bhattacharjee and Chakrabartib (2015); Heeks (2010); IBEF (2018); Konrad Adenauer Stiftung (2015); NASSCOM (2011, 2012, 2017a); Rao and Balasubrahmanya (2017); Sahoo and Dash (2014).
Notes: (*) Indian software professionals were taken abroad to the clients' sites to execute short-term projects and lower-end jobs like coding and data conversion.

The most significant institutional intervention was the establishment of Software Technology Parks (STP) in 1988. Established in 39 locations, they provided ready-to-plug IT and telecommunication infrastructure, in addition to tax benefits, and satellite uplinks. Moreover, STPs provided support for related items such as import certifications and market analysis. The overall improved conditions for foreign direct investment encouraged many foreign firms to establish their businesses in India. The influx of multinational subsidiaries, in turn, resulted in rapid knowledge transfer, improving the availability of qualified human capital in the country.

Radical reforms continued through 1990s after a severe balance of payments (BOP) crisis which led to the abolition of industrial licensing, removal of entry barriers, exemption of corporate tax, opening up communication facilities, trade liberalization, devaluation of the rupee, and reduction in import duty on computers. These initiatives attracted multinationals which set up their captive centers in India. The growing presence of foreign firms benefited local companies, which acquired quality certifications and captured a wide range of skills beyond programming, such as quality assurance, project scheduling, among others.

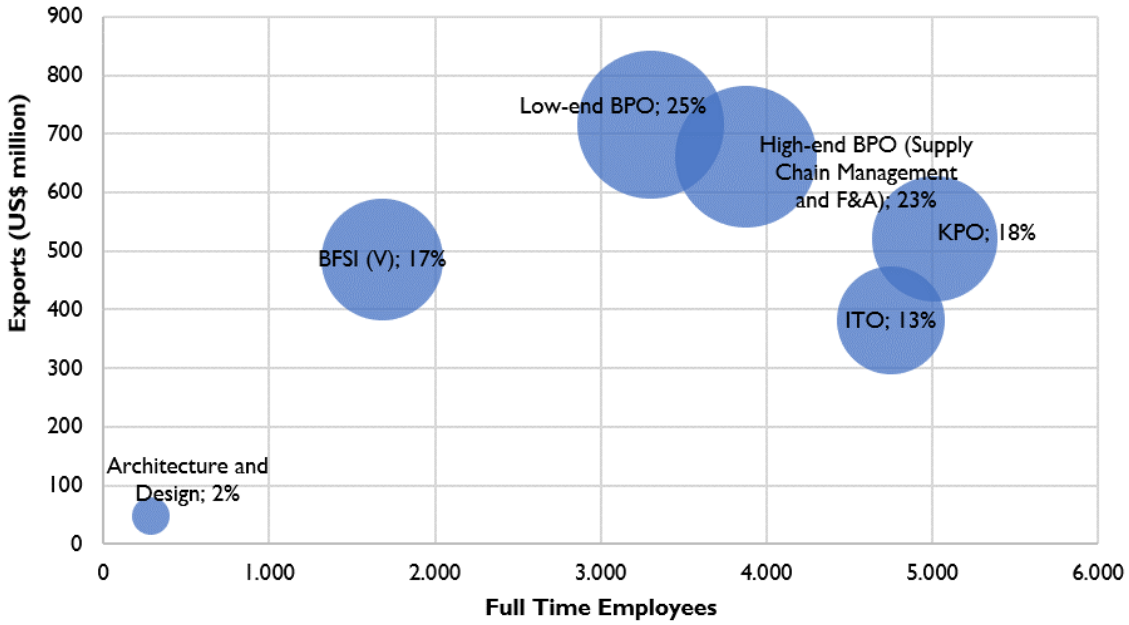
By the end of the 21st century, the Indian IT industry had firmly established its credibility in the world market. The leading Indian firms were quick to realize that demand for low-end value-added services had limited learning opportunities and value-added. As a result, supported incentives for skill development (Finishing Schools), public-private collaboration, and efforts by industry association NASSCOM, they diversified into various domains such as insurance, finance, customer support, among others. Finally, while the STP regime was terminated in 2011, a new Special Economic Zones scheme has taken its place, which offers similar incentives.

A key underlying element of India's leadership is the tremendous depth of India's educated labor pool. The number of IT-BPO professionals employed in all sectors in India grew more than four times during 2000 – 2007, with aggregate employment reaching 1.25 million in 2007 (Fernandez-Stark et al., 2011). By 2017 this number doubled, reaching 3.86 million FTE (NASSCOM, 2017a). One critical component of the human capital advantage was India's brain gain, reverted form India's brain drain. During the 2000s, professional and technical expats living in the US and the UK have been returning to India, driven by the rise in salaries, but particularly, enabled to do so by the cease of restrictions related to visas, investment and the purchase of property by Indian nationals who were citizens of other countries.

4.1.2 Uruguay

Uruguay's began to export IT services in the early-1990s and gradually expanded its participation in the offshore services GVC. Led by local firms, ITO represents a key economic sector for the country. In 2017, exports from this segment alone totaled close to US$380 million, making it the higher IT exporter per capita of Latin America and the Caribbean (Uruguay XXI, 2017b). Today, Uruguay has presence in most segments of the GVC, although with different degrees of participation (Figure 17).

Figure 17. Uruguay's Offshore Services Exports and Employment, by Segment



Source: Authors based on (Uruguay XXI, 2017b). **Notes:** The size of the bubble indicates the share of each segment in the offshore services industry.

While the country has a small population (3.4 million), and only graduates about 100 computer science engineers per year, the overall population's education level is very high. Moreover, Uruguay stands out as a privileged location in terms of political and economic stability, strong institutions (e.g. IP protection, Personal Data Protection) and safety.

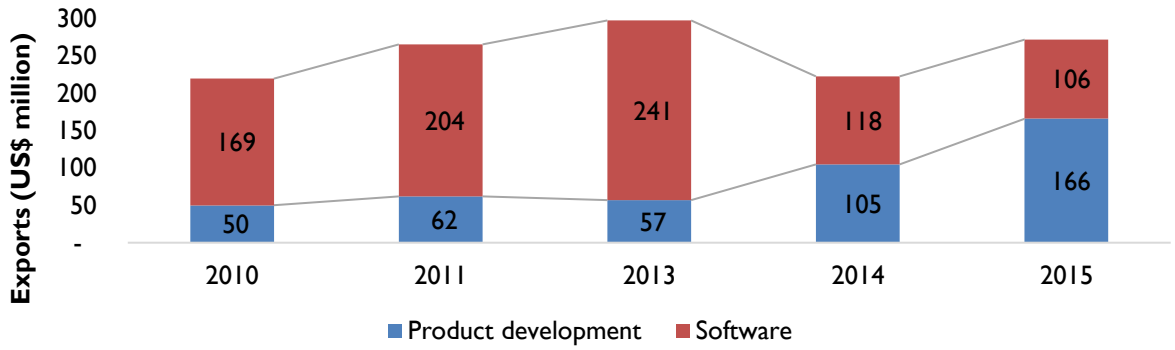
Industry Evolution

Uruguay's software industry began to develop in the 1980s, although computer science majors had been offered since 1968. Further development was enabled by four components: (i) qualified human resources; (ii) strong network of business leaders developing state-of-the-art technologies and competitive methodologies both at the regional and global level; (iii) construction of alliances and cooperation networks with large international companies headquartered in the US; (iv) strong ITC infrastructure (González, 2009).

Today, the industry includes more than 350 IT companies providing horizontal and vertical product development, intelligent process automation, and IT services (Uruguay XXI, 2017b). The arrival of Indian lead firm TCS in 2002 introduced new competition, forcing domestic firms to become more competitive and reinforcing its ability to provide high-end services, as well as product development. This investment was followed by many others, particularly from US-based tech firms establishing software development centers in Montevideo. Examples include NetSuite, Verifone, Bull, IBM, and Microsoft, among others (González, 2009).

Supported by specific policies, Uruguay was able to economically upgrade both within the ITO segment and the entire offshore services GVC. As showed in Figure 18, Uruguay's *product development* exports gradually surpassed the *software services* category, going from 22% to 60% of IT total exports in the 2010 - 2015 period.

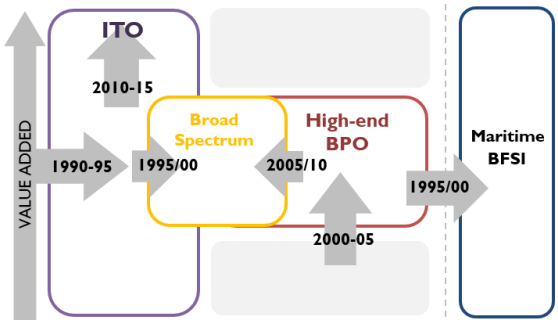
Figure 18. IT Services Exports from Uruguay: *Product Development* vs. *Software Services*



Source: Authors based on Couto (Forthcoming).

In addition to the growth of *product development* exports, the inflow of FDI prompted Uruguay's upgrading in the value chain to position itself as a preferred location for a wide range of services in the industry. By the early 2000s, Uruguay began to expand its presence as a regional F&A shared services provider, logistics hub and financial services center for MNC such as BASF, Roche, and Ricoh. The country has also developed specialized industry-specific software for the BFSI, maritime and livestock (traceability system) verticals. FDI and local development led to significant growth in exports per employee, which tripled between 2007 and 2014, evidencing economic upgrading throughout all segments of the offshore services industry (Figure 19).

Figure 19. Upgrading Trajectories of Uruguay's Offshore Services Industry (left); Exports per Employee (right)



Segment	2007 (US$ million)	2014 (US$ million)	Change 2007 – 2014 (%)
BFSI (V)	0.12	0.42	252%
High-end BPO	0.03	0.24	721%
ITO	0.06	0.09	53%
Offshore Services	**0.06**	**0.24**	**284%**

Source: Authors based on Couto (Forthcoming); Uruguay XXI (2017b)

Policies and Programs

Uruguay has maintained favorable, stable and reliable regulatory frameworks for FDI and offshore services exports since late-1980s. While the most significant growth of the industry was experienced before the government became actively involved with the industry (1999), the state provided the enabling conditions for its early development decades before. These include the Free Trade Zones (FTZ) regime, created in 1987 to promote both goods and services exports. Any firm under the FTZ is exempt from all corporative taxes—except social security—and any other tax to be created in the future (Uruguay XXI, 2017b). [38] FTZs have had a significant impact on the development of the industry, accounting for 50% of offshore services exports by 2014 (Uruguay XXI, 2017b). Private operators of these zones were the first stakeholders to promote Uruguay as an offshore services location in the early-2000s, successfully attracting captive centers centers and centers of excellence of international third-party services providers.

While the IT services industry benefited from FTZ largely, the state had a specific agenda to promote software exports. The active intervention of the government commenced in 1999, when the software industry was declared one of national interest, and a plan with long-term objectives to make Uruguay a technological hub was established. During the 2000s, the state supported the IT services industry through the development of efficient public telecommunication infrastructure and specific tax treatment (VAT and income tax exemption for exports). These policies were largely a consequence of the lobbing capacity of the Uruguayan Chamber of IT companies (CUTI).

In the second half of the 2000s, in dialogue with CUTI, Uruguay's government recognized the IT services industry as one of five key economic growth engines. This resulted in the creation of new supporting legislation and institutions, including the Intellectual Property (IP) Protection Law and the Agency for Research and Innovation (ANII). The IP protection law was approved in 2003, providing owners of computer software the exclusive right to authorize its reproduction, distribution, transformation and communication to the public. ANII was created in 2006 as an

[38] Benefits: income tax exemption; dividends paid to shareholders domiciled abroad are also exempt from paying taxes in the country; foreign staff may opt between making social security contributions in Uruguay or in their country of origin; foreign sales and purchases of goods and services are not taxed by VAT, neither are sales and services provided within the free zone; IRAE does not apply either when sales destined for the national territory do not exceed 5% of the total sales in goods in transit or deposited in the free trade zone (Uruguay XXI, 2017b).

entity to promote research and implementation of knowledge to the country's economy; it provides funds for research projects, postgrad scholarships, and innovative projects.

In March 2012, the country developed a national strategy entirely focused on the offshore services industry: The Global Services Program (GSP).[39] The GSP was financed by the Inter-American Development Bank (IADB) and the Uruguayan Government for a total of US$13 billion (Uruguay XXI, 2017b). The GSP is an ongoing project, aimed at increasing FDI, exports and employment in the offshore services industry. The program is run by the parastatal National Trade and Investment Promotion Agency (Uruguay XXI) through an Implementation Unit attached to the Executive Directorate of this organization. Engagement with the private sector (e.g. CUTI and the Shared Services Association), as well as facilitation services to articulate new business associations in higher end segments (e.g. architecture and engineering) are critical features of the GSP. Through public-private cooperation, the GSP was able to complete the following achievements:

- Collection and publication of quantitative and qualitative reliable data on the industry;
- Participation in more than 50 international offshore services fairs and events;
- Organization and financing of guided visits for more than 100 potential foreign investors;
- Facilitation of the residencies and visa procedures for foreign investors and Computer Science Engineers;
- Investment of US$2 million in more than 120 training programs (over 3,500 individuals) developed by offshore services companies to expand their business or upgrade in the value chain. This support—named 'Specific Demand Finishing Schools'—provides firms the possibility of implementing tailored training programs with subsidies of up to 70% of the direct costs. According to GIC established in Uruguay the 'Specific Demand Finishing Schools' program is one key component of the country's value proposition for FDI attraction and after-care. The instrument is well-known for its flexibility, agility, and compliance.

Within the GSP, special funding was assigned for the IT services industry (PROTIC). The initiative allows to co-finance up to 70% of the total cost of export business plans, with a maximum support of US$20,000 per company per year. Covered activities include commercial visits to foreign clients, participation in events abroad, reverse missions (bringing clients or potential clients to the companies' premises in Uruguay), consultancies and acquisition of databases. In the 2012 – 2016 period, PROTIC enabled more than a dozen companies to implement their business plans in the US, which in turn enabled them to reach new clients and open subsidiaries in San Francisco and New York (Uruguay XXI, 2017a).

4.2 Lessons Learned for Pakistan

India and Uruguay present different value propositions in terms of size of talent pool and cost-arbitrage. These countries are also significantly different when comparing its business environment. Nonetheless, both countries have managed to position themselves in an increasingly competitive GVC by supporting the private sector and facilitating the enabling conditions to enhance the economic benefits of chain participation. In both cases, valuable lessons exist for Pakistan if it is going to prioritize its expansion in the IT industry and entry into the BPO segment to a more significant degree.

[39] The GSP was the first national strategy for the offshore services industry in Latin America and the Caribbean.

1. **Establishment of specialized infrastructure and tax treatment.** Third-party providers and MNC in the offshore services industry, in general, have come to expect Technology Parks or Special Economic Zones (SEZ) benefits as a necessary condition for potential consideration. Both India and Uruguay have established strong SEZ with world-class infrastructure and competitive fiscal terms to support both foreign and local firms alike. Benefits in both countries include tax holidays, capital investment promotion policies, and 100% foreign equity ownership. In addition, these provide consulting and training services, implementation of internet infrastructure, data centers, incubation services, PMC services, systems integration and installation, and operations and maintenance of application networks, among many others. Overall, India's STP and Uruguay's FTZ have helped to support investor confidence in operating in unfamiliar business environments, and overcome constraints associated with operating in developing countries.

2. **Skill development is a critical element in driving economic upgrading and growth and private sector should lead.** While at different scale, both India and Uruguay have developed programs to develop human capital for the industry, illustrating the importance of skilled and employable professionals for the industry. The offshore services industry is highly dynamic and education systems often cannot respond in a timely manner to the changing requirements of the companies. Hence, policies towards skill development and economic upgrading should be driven by the needs of the private sector, which should be highly involved in skill development. In addition, instruments to facilitate training within companies should avoid excessive bureaucracy and be as agile as possible.

3. **Strong industry coordination and public-private dialogue facilitated articulation of industry growth strategy and skill development strategies.** India's offshore services sector is well organized through NASSCOM, while Uruguay's IT sector builds upon the efforts of the Uruguayan IT Chamber (CUTI). Continuous dialogue with the government—namely, Ministries of IT and Finance—have had tremendous impact on the development of effective and sustainable skill development strategies, e.g. *Finishing Schools* in India, and *Demand Specific Finishing Schools* in Uruguay. These have also been critical for national branding initiatives and consistent messaging; this is very relevant for offshore services, as per the value proposition of the country should be consistent across all stakeholders.

4. **FDI is critical to demonstrate credibility as well as to upgrade, especially in economies with little or negative visibility in the offshore services industry**. Solid and prosperous entry in the offshore services GVC usually happens after an international third-party establishes in one country, indicating the importance of the demonstration effect for other investors. As services (and human skills) are intangible, and production and consumption happen simultaneously, location choices of MNC largely depend on the experience of other global companies.

5. **After care is a key factor for economic upgrading**. Both India and Uruguay have demonstrated that companies are more prone to establish value-added operations in countries that focus on improving the overall business climate for an MNC, such as reducing bureaucratic hurdles, easing migration restrictions and guaranteeing property rights.

5 Recommended Upgrading Trajectories for Pakistan

Pakistan recently entered the offshore services GVC. Compared to other developing countries, its entry as a reliable offshore services location has been slow. Under these circumstances, the most pressing issue for Pakistan is to solidify its position in traditional offshore services segments such as IT and BPO. After consolidating both industries and gaining global recognition as a qualified and trustworthy competitor in these segments, Pakistan can pursue upgrading into more sophisticated processes.

Successful experiences in Pakistan are built on its sizeable talent pool, cost arbitrage and strong business linkages with Pakistani-Americans living in the US. These elements are the most relevant components of Pakistan's value proposition relative to competing nations across the globe. As such, they suggest a promising positioning of the country in the offshore services GVC. Three upgrading trajectories in the short- to long-term are recommended for Pakistan's advancement in the offshore services GVC: (1) Process upgrading to increase participation in the BPO segment; (2) Product upgrading to develop worldwide recognition as a qualified IT provider; and (3) Functional upgrading into specific verticals to leverage existent competitive advantages.

Short-term: Process upgrading to increase participation in the BPO segment. By the early 2000s, connectivity deficiencies and security concerns battered Pakistan's competitiveness as a BPO provider. Major improvements in internet infrastructure in the last decade have led to a conducive business environment for BPO operations. Recovery is evidenced by the upgrading experience of TRG and recent expansion of customer support operations in large ITO firms (e.g. Systems Limited). With a large youth cohort (nearly a third of the country's total population) Pakistan is ranked as the third largest English-speaking population in the world. Its attractiveness as a platform for unbundling BPO tasks is supported by low labor costs, estimated at 60% of those in the Philippines (Field Research, 2018). Accordingly, Pakistan offers the most basic conditions to compete in the BPO segment. While continuous growth in leading BPO locations suggest that job destruction is unlikely in the next three to four decades, automation will most definitely change skill and educational requirements for this segment.[40] With an adequate set of policies in place—ranging from skill development strategies to FDI attraction and business environment improvements—Pakistan can attain process upgrading and increase its participation in the BPO segment in the short-term.

Medium-term: Product upgrading to develop worldwide recognition as a qualified IT provider. Despite sustained growth, Pakistan IT exports and freelance activity remain concentrated in rudimentary services, with 90% of revenues deriving from low value-added sectors of the global market. Despite this, development of highly sophisticated solutions is on the rise, with some companies offering artificial intelligence platforms and geoscience management for vertical industries in the US. Qualified diaspora in developed economies provide Pakistan with a major opportunity to make foreign markets aware of its talent quality and cost arbitrage. By revisiting tertiary education shortfalls, collecting accurate data on the industry and ensuring adequate and affordable 24/7 office space is available, Pakistan can leverage its organic development and expect to become a cost-effective and qualified hub for higher value-added IT processes.

Long-term: Functional upgrading into specific verticals. Once Pakistan attains a solid position in the ITO and BPO segments, it will be easier to transition from horizontal to specialized

[40] See Section 2.1. for further information on this topic.

solutions, i.e. supplying IT and BPO services to vertical/sophisticated industries. This opportunity finds its roots in the process of knowledge accumulation driven by the spillover effect of the segment employees. To illustrate: companies such as NETSOL Technologies, S&P Global and MTBC provide adequate training to their employees as a means of correcting skill deficiencies; this training is associated with the introduction and dissemination of knowledge and new technologies to the country. In addition, it can be expected that IT-BPO companies specialized in certain verticals increase the demand for specific skilled workers and send signals about the need and opportunities for specific skills to educational institutions. In the long-term, Pakistan is likely to be able to develop expertise in verticals in which the country is already participating, including BFSI, Healthcare and Energy, as well as emerging sectors such as Gaming and Security. Existing competitive advantages in other local industries and can also be leveraged to develop specialized solutions; at this stage, private associations and policymakers are responsible for exploring the areas in which the country's knowledge and experience can be leveraged.

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Annex I. Tables

Table A 1. A.T. Kearney Offshore Services Location Index, Selected Countries (2017)

Country	2017 Rank	2016 Rank	2014 Rank	2011 Rank	Index Ranking 2017		
					Financial Attractiveness	People Skills and Availability	Business Environment
India	1	1	1	1	1,14	3,3	2,63
China	2	2	2	2	1,26	2,37	2,69
Malaysia	3	3	3	3	1,72	2,92	1,47
Indonesia	4	5	5	5	1,2	3,25	1,53
Brazil	5	4	8	12	1,27	2,65	2,02
Vietnam	6	11	12	8	1,22	3,31	1,39
Philippines	7	7	7	9	1,17	3,13	1,57
Thailand	8	6	6	7	1,43	3,06	1,38
Sri Lanka	11	14	16	21	1,22	3,42	1,07
Egypt	14	16	10	4	0,99	3,37	1,26
Bangladesh	21	22	26	NA	0,8	3,34	1,23
Morocco	27	34	34	37	1,29	2,9	1,1
Pakistan	**30**	**28**	**25**	**28**	0,63	3,35	1,3

Source: Authors based on A.T.Kearney (2011, 2014, 2016, 2017). **Notes:** [(a)] The Global Services Location Index (GSLI) evaluates 55 countries against 38 measurements across three major categories: financial attractiveness, people skills and availability, and business environment. Financial factors constitute 40% of the total weight in the published Index. The two remaining categories – people skills and availability and business environment–constitute 60% of the total weight (A.T.Kearney, 2017).

Table A 2. Networked Readiness Index, Selected Countries

Indicator	Pakistan	India	Philippines
Political and regulatory environment			
Effectiveness of law-making bodies	95	50	83
Laws relating to ICT	117	23	81
Judicial Independence	82	64	76
Efficiency of legal system in settling disputes	107	42	87
Efficiency of legal systems in challenging regulations	101	39	80
Intellectual property protection	112	50	17
Software piracy rate, % software installed	96	53	67
No. Procedures to enforce a contract	128	128	69
No. Days to enforce a contract	125	137	116
Business and innovation environment			
Availability of latest technologies	79	108	78
Venture capital availability	78	13	39
Total tax rate, % profits	49	123	92
No. Days to start a business	97	114	114
No. Procedures to start a business	114	133	138
Intensity of local competition	98	101	56
Tertiary education gross enrolment rate, %	115	89	73
Quality of management schools	70	55	40
Government procurement of advanced technologies	52	26	59
Infrastructure			
Electricity production, kwh/capita	111	98	103
Mobile network coverage, % population	125	111	67
Internet bandwidth, kb/s per user	115	116	79
Secure Internet servers/million pop.	123	105	96
Skills			
Quality of education system	75	43	31
Quality of math & science education	89	63	67
Secondary education gross enrolment rate, %	124	103	78
Adult literacy rate, %	106	95	41

Source: Authors based on WEF (2017).