

2017 A.T. Kearney Global Services Location Index

The Widening Impact of Automation

Developing nations have long enjoyed the economic benefits of other countries' offshoring. Now this model is in danger as technology takes over much of business process outsourcing.



A.T. Kearney

The 2016 Global Services Location Index (GSLI) report, *On the Eve of Disruption*, introduced no-shoring as the fastest-growing means of conducting business services in which anonymous data centers hosting cloud-based automation replace human labor. We observed that we were seeing the beginning of the end for the traditional offshoring industry in information technology outsourcing (ITO) and business process outsourcing (BPO)—but that, at the same time, the global labor market for services had just begun. Indeed, as automation destroys many low-skilled jobs, the focus will shift to higher-skilled jobs. And just as these services can be delivered across a physical corporate campus, they can be delivered—and increasingly are delivered—across distributed environments globally. Efforts to match the right talent at the right cost—anytime, anywhere—will continue and grow.

More than 1 million jobs are at risk in four countries alone: the United States, Poland, India, and the Philippines.

Automation now threatens hundreds of thousands of low-skilled and repetitive jobs in both developed and developing economies. As technology becomes increasingly mature and ubiquitous, jobs in the BPO arena will be particularly at risk. Today, automation, still in its infancy, complements and augments existing human skills in these industries, allowing workers to become more productive and efficient and fewer in number while accomplishing the same amount of work. As technology continues to improve and its implementation expands, our research finds that more than 1 million jobs are at risk in the next five years in four countries alone: the United States, Poland, India, and the Philippines.

Jobs at Risk from Automation

The fear that automation will destroy jobs is by no means new to developed nations that have seen successive waves of technological improvements displace low-skilled workers. This threat is less familiar, however, to the developing countries that have benefited from the offshoring and outsourcing trends over the past several decades. These lower-cost nations have experienced tremendous increases in high-quality employment and transformational economic growth in recent years, but this development model is now increasingly under pressure.

While a great deal of attention is often paid to the job destruction that results from automation, the role of technology in making remaining jobs more productive and creating new jobs is often overlooked. In fact, automation creates new, more highly skilled and more highly paid jobs that are required to manage mature technology, bringing higher salaries to workers. These new jobs, however, do not always go to those who lost their positions or even stay in the same country, as some new jobs are created in closer proximity to existing operations. The overall impact of automation on a country's labor force, then, is far from straightforward.

In this year's report, we quantify the impact of automation on BPO jobs in four countries across the world, incorporating a proprietary tool that looks at multiple factors including the increased efficiency, job replacement, and job creation that stem from automation and other related technology advances. A.T. Kearney conducted an analysis of the effects of automation on four

countries with specific characteristics: the United States, Poland, India, and the Philippines. In our estimate, several hundred thousand jobs are endangered in countries such as India alone, and developed countries such as the United States stand to lose even more, as automation imperils both outsourced jobs and those within companies in these more robust economies.

The threats we see to employment in the BPO industry are mirrored in the ITO industry, although the levers are different. The migration of customized enterprise resource planning software on corporate servers to cloud-based solutions is eliminating the need for programmers to work on software implementation and system integration one company at a time. While legacy systems will keep software engineers busy for many years to come, the era of ever-growing armies of programmers working in ITO is over. While erosion of ITO is also an increasing threat to employment in many countries, this paper focuses on the effects of automation in BPO.

The role of technology in making remaining jobs more productive and creating new jobs is often overlooked.

In the final sections of this report, we present the 2017 findings of the GSLI and summaries of recent changes in specific countries. Although automation will eliminate a substantial number of the jobs that are currently offshored, offshoring will continue to be important in the future as opportunities for outsourcing higher-level tasks that cannot be automated to lower-cost countries continue to be identified. The GSLI, now in its eighth edition, brings rigor to companies' decisions about where to locate these offshore operations.

Automation: From RPA to Cognitive Computing

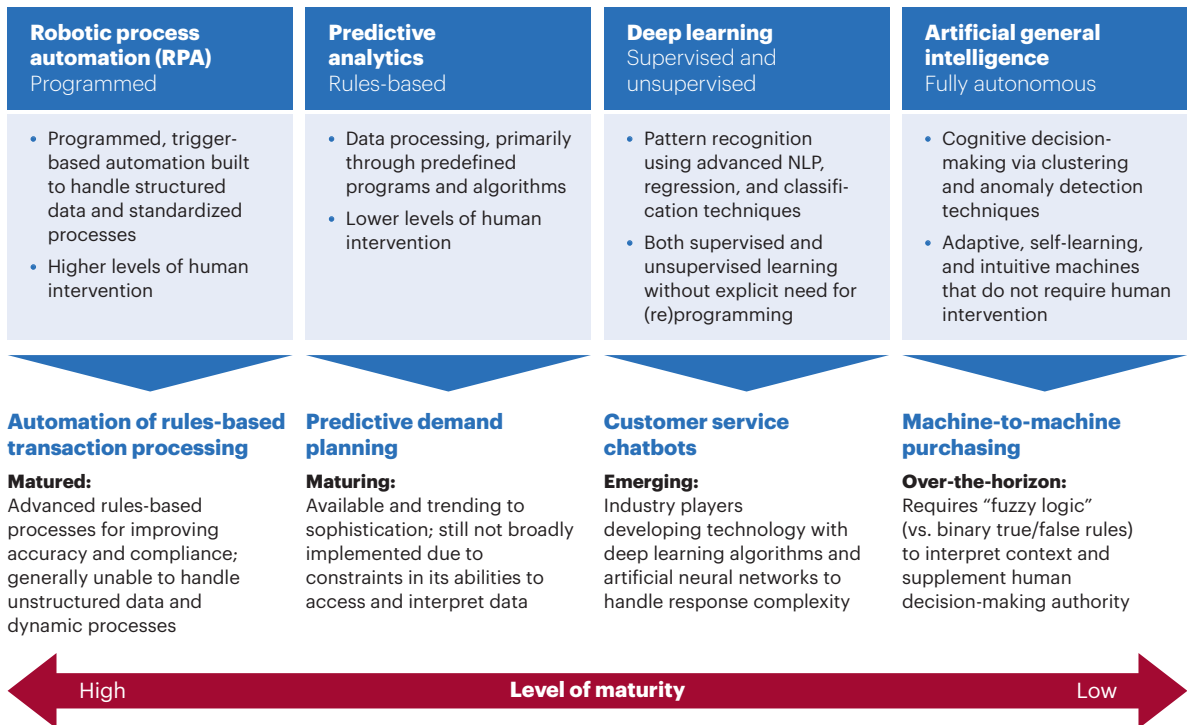
Automation has made significant progress in the past decade and now extends across business processes. Today, automation in the BPO industry focuses on robotic process automation (RPA). This programmed, trigger-based automation is built to handle structured data and standardized processes. It easily automates repetitive tasks, such as invoice matching and processing, by developing advanced rules-based processes that allow for improved accuracy and compliance. It works 20 times faster than humans, with reduced cycle time and waiting time, and with reduced error rates for manual tasks. Furthermore, it is more transparent than manual work and more easily audited, as every keystroke is tracked and reportable. It can be scaled to demand and utilized across unrelated processes, and it allows for greater control, enabling previously outsourced services to be brought back onshore. While this technology can improve human efficiency and productivity significantly, it still requires high levels of human intervention, and it is generally unable to handle unstructured data or dynamic processes.

RPA, however, is only the beginning of intelligent automation in the BPO industry. Figure 1 (on page 3) illustrates the range of automation possibilities in this arena, from the mature RPA technology that is currently being implemented to cognitive computing that is on the horizon.

As technology evolves, automation, in the form of deep learning and other cognitive tools, will continually develop new capabilities without human supervision or an explicit need for

Figure 1

Intelligent automation in the BPO industry, from RPA to cognitive computing



Note: NLP is natural language processing.
 Source: A.T. Kearney analysis

programming. Fully autonomous robots represent the apex of this technological evolution. While outsourcing companies claim to have this technology, with some even renaming BPO “cognitive process outsourcing,” it is still at low levels of maturity and far from broad-based implementation. When it is fully mature, however, these self-learning and intuitive machines that can supplement human decision-making authority will rewrite not only the outsourcing industry, but also many white-collar services industries, with potentially massive disruption for the economies of developed countries.

Archetypes for Analysis

Automation will result in substantial job loss in all countries involved in the BPO industry. However, as the industry profiles of different countries vary, the impact of automation on each country is unique. A.T. Kearney selected four different nations, each representing an industry archetype, and assessed the impact of automation on jobs.

United States, onshore. Onshore markets are home to jobs that reside in outsourced centers based in the same country as the customer and, in equally large numbers, to jobs that are still performed in-house and thus have not been outsourced or offshored. In addition to the United States, other countries in this category include nations in Western Europe, as well as Canada, Japan, and other developed economies.

Poland, nearshore. Nearshore locations provide BPO work for companies that conduct business in neighboring nations. The nearshore location is typically selected as the work is fairly well integrated with the operations of the companies, and proximity allows the nearshore workers to develop a better understanding of client needs. Poland, like many nearshore countries, focuses primarily on finance and accounting work. Other countries in this category include Hungary, the Czech Republic, Romania, and parts of Latin America, such as Mexico and Costa Rica.

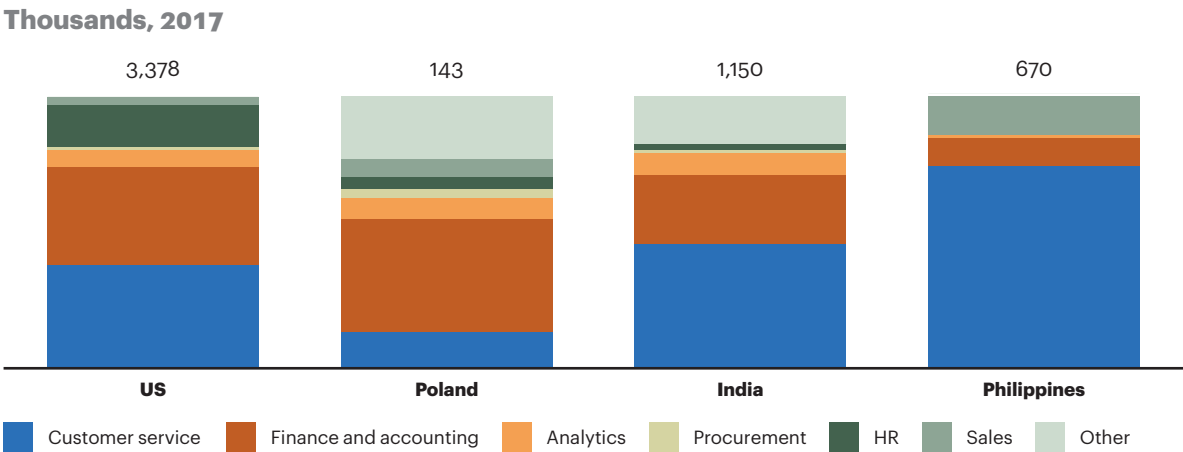
India, offshore. Offshore countries are low-cost countries that have received the bulk of new offshoring and outsourcing jobs over the past several decades. These countries are home to two types of BPO centers: outsourced operations and captives. India, the global leader in this category, serves as the archetype for offshore countries that conduct a somewhat equal mix of finance and accounting and customer service work (including procurement and predominantly non-voice), as well as some human resources and sales work. India is also strong in ITO (not included in this analysis) and knowledge process outsourcing (KPO).

The Philippines, offshore. The Philippines, another leading offshore nation, focuses far more heavily on customer service, especially voice services, as a result of its workers’ English language skills and neutral accents that more closely align to American customers. South Africa is an example of a country that also has a large customer service industry, in this case focused on the UK market; Morocco and Tunisia focus similarly on the French language market. These countries’ industries, however, are on a much smaller scale than the Philippines.

Figure 2 illustrates the size of the BPO industry in each of these archetypal countries, as well as the distribution of the different BPO functions within each country.

Note: The total number of jobs in the United States (3.4 million) includes both outsourced jobs and positions within companies that provide the same functions and that, therefore, are also at risk of elimination due to automation.¹

Figure 2
BPO jobs by type



Note: BPO is business process outsourcing.

Sources: NASSCOM, Philippine Statistics Authority, US Bureau of Labor Statistics, Association of Business Service Leaders in Poland; A.T. Kearney analysis

¹ The figure representing total BPO jobs for the United States includes all jobs in medium and large US companies that are in finance and accounting, customer service, human resources, and sales roles. We exclude jobs in these areas in companies that employ fewer than 100 people, as these companies are unlikely to have the economic capacity to invest in automation at this stage.

Determinants of Job Loss

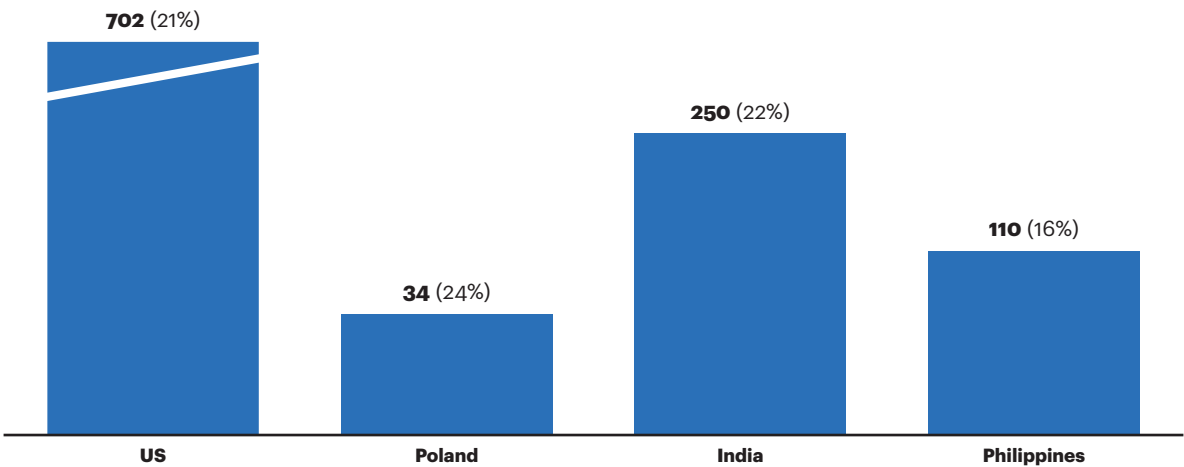
Each of these countries, as well as the hundreds of countries they represent, stand to lose a substantial number of jobs. The key determinant of this job loss due to automation is the mix of business functions that the BPO industry in that country serves, as some of these functions are more easily automated than others and, therefore, easier to replace with automation. Finance and accounting jobs, for example, have the highest potential for automation, while customer service jobs, the other most prevalent BPO service, are less easily automated due to their human component.² As chatbots and natural language processing (NLP) become more advanced, however, customer service jobs will be at greater risk.

Automation is also being adopted at different levels and at a different pace for different BPO functions, depending on the ease with which machines can take on these tasks. A.T. Kearney analysis indicates that the technology that will replace finance and accounting jobs is highly likely to be adopted in the next five years, while customer service, sales, and human resources technologies have a lower likelihood of adoption in this time frame. The combination of a function's potential to automate and the likelihood of the technology's adoption for that function over the next five years, then, provides an indication of the relative vulnerability of each type of job in the near term: finance and accounting jobs are most automatable and, therefore, most vulnerable to replacement by automation, while customer service, sales, and human resources jobs are more protected in the near term.

Based on our analysis, we can project the number of BPO jobs at risk in each country in 2022. Figure 3 presents these results, illustrating the divergent impact of automation on job loss depending on the profile and mix of BPO functions in a country.

Figure 3
Projected BPO jobs at risk

Thousands (% of total jobs), 2022



Note: BPO is business process outsourcing.

Sources: NASSCOM, Philippine Statistics Authority, US Bureau of Labor Statistics, Association of Business Service Leaders in Poland; A.T. Kearney analysis

² In addition to the threat of automation faced by customer service jobs, these jobs are endangered as companies seek to eliminate the need for customer service. As operations are increasingly working properly, fewer customers require assistance. This trend is not included in our analysis.

While onshore countries such as the United States will see high job losses, BPO hubs such as the Philippines are more protected from these job losses because of their high levels of customer service work. India is at high risk due to its high concentration of repetitive BPO work, and Poland, with its substantial portfolio of finance and accounting work, stands to lose a significant number of jobs as well.

It is important to note that BPO jobs in offshore countries are overall more vulnerable to automation than BPO jobs that are still onshore. Offshore jobs were selected for offshoring in the first place because they were highly repetitive, and the transformation process itself prepared these jobs for automation.

Job Creation and Reshoring

Analysis of the impact of automation on the labor force must also include the job creation that results from the new technology. As automation must be closely managed, particularly at this point in its development, it creates new jobs that require more advanced skills to build, train, manage, troubleshoot, and enhance the technology. Most of these new, skilled jobs involve design, maintenance, testing, and calibration. The greater challenge in these new positions is the business domain knowledge that is required in order to identify business' primary needs and deploy technology appropriately to achieve desired outcomes.

On average, **one new automation management position is created for every four jobs** that automation replaces.

A.T. Kearney's experience demonstrates that some of these workers move into higher-value positions instead of being laid off. We find that on average, one new automation management position is created for every four jobs that automation replaces.

In many cases, these new jobs will be created in closer proximity to the businesses, thus creating a "reshoring" effect in which automation eliminates jobs in one country and creates new jobs in automation management in an onshore country. This reshoring and its redistribution of jobs, then, only benefits onshore countries such as the United States.

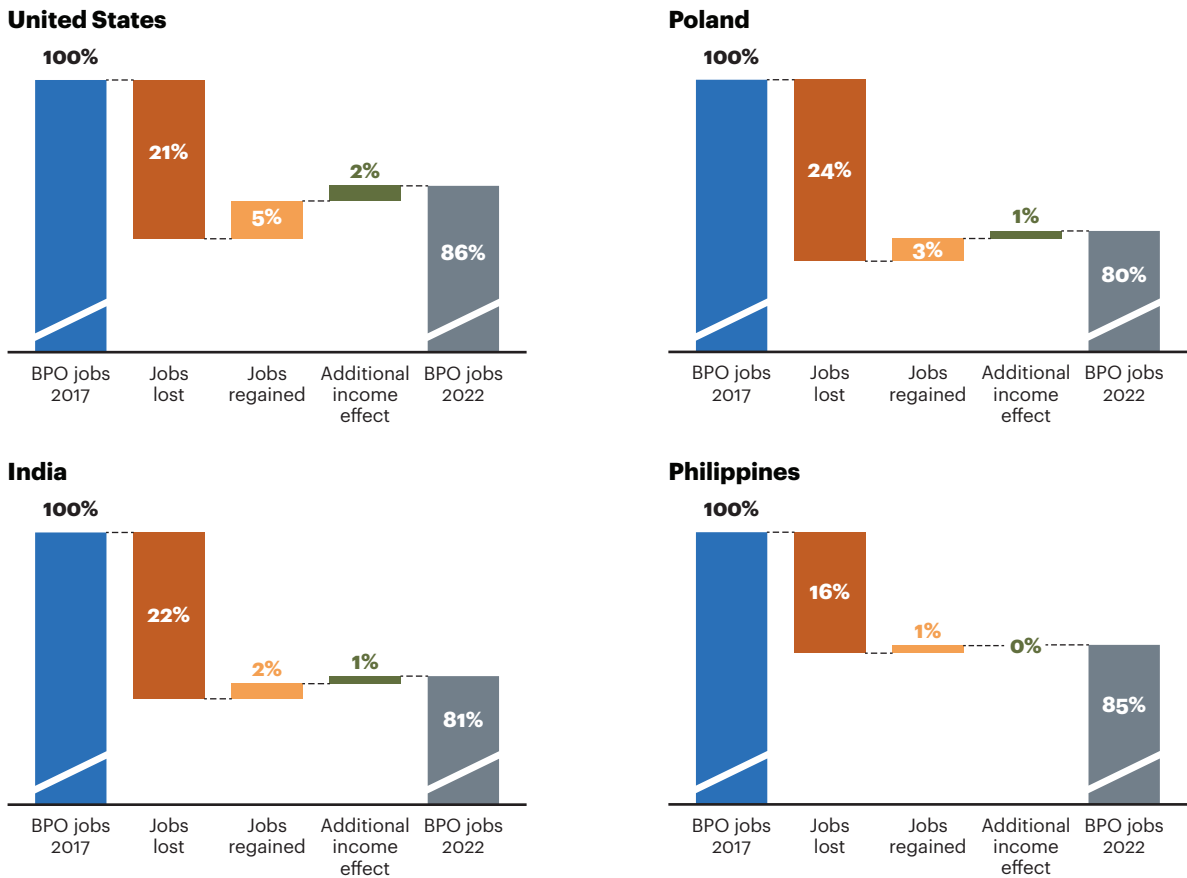
The determining factor for the number of jobs that are created "in-country" versus those that are "reshored" is the proximity requirement of the functions (activities and sub-activities) being assessed. Developed countries with large business operations, such as the United States, United Kingdom, France, and Germany, will see the highest level of in-country jobs created.

Net Impact of Automation on BPO Jobs

The bottom line impact of automation on a country's BPO employment, then, depends on the complex mix of the jobs eliminated, jobs created, and jobs reshored in a particular economy. Figure 4 on page 7 presents the projections for jobs lost and jobs gained for each of the four representative countries, as well as the additional income effect from the higher salaries of the

Figure 4
Projected BPO jobs

Summary of job losses, job gains, and income effects, 2022



Note: BPO is business process outsourcing.

Sources: NAASSCOM, Philippine Statistics Authority, US Bureau of Labor Statistics, Association of Business Service Leaders in Poland; A.T. Kearney analysis

more highly skilled new jobs. This figure offers a complete picture of the impact of automation on employment in these four archetypal nations. (Note that the projections and charts in figure 4 represent average estimates from the analysis we conducted; see below for a discussion of the factors that may influence degree of automation.)

In the United States, the archetype for onshore countries, almost 700,000 jobs are anticipated to be lost in the next five years, representing 20 percent of all BPO jobs. The country will also gain nearly 175,000 new BPO jobs, including both new jobs managing the automation that replaced US workers and new reshored jobs managing technology that replaced BPO workers in other countries. When the higher salaries from these new jobs are factored in, the net effect is additional income of 7 percent of total payroll, offsetting the 20 percent lost from automation. Overall, the United States and other onshore countries will see a major redeployment of workers into higher-level jobs—a phenomenon the United States has experienced throughout its history as technology continually replaces lower-level jobs and creates a greater need for more highly skilled workers.

On the flip side and at the other extreme, India, the archetypical offshore country, is expected to lose 250,000 jobs, representing 22 percent of all BPO jobs in the country. Very few Indian jobs (2 percent) are expected to be regained, which will result in an increase in income of only 3 percent of total payroll.

Finally, an offshore country such as the Philippines is more protected from job loss in the short term due to the concentration of customer service-type activity, which has less immediate automation potential. However, the country still stands to lose 110,000 jobs to automation (16 percent), and it has fewer prospects than India for regaining jobs. A lack of home-grown companies means that the Philippines is unlikely to benefit from new jobs created by automation. Unless the country creates new export opportunities, it will face major job losses by 2022.

Offshore countries are more protected from job loss in the short term due to the level of customer service-type activity.

Onshore countries, in which workers are most expensive, stand to lose the smallest proportion of their BPO jobs to automation given their ability to upskill their workers to a higher degree than lower-cost countries and we can expect to see a net move to reshoring.

Moderating Factors

It is important to note that these models are based on mid-range values for the potential for automation and the likelihood of technology adoption in the specific BPO functions outlined above. However, it is very possible that automatability may move slower due to the factors listed below:

- **Solution quality and availability.** While the proliferation of RPA has been significant, with spending now more than \$0.5 billion worldwide, only a few areas of RPA have reached full technological maturity. The span and quality of these products will serve as a practical limit on adoption and may result in greater lag.
- **Human capabilities.** The resources required to complete full automation transformations are currently limited, with service integrators struggling to keep up with the pace of industry growth. This factor may act as a brake on full adoption in the near term.
- **Implementation time.** The time to implement projects is a key determinant of the length of time to full adoption. It can take years to vet, select, train, and develop automation solutions before full job replacement is possible.
- **Upfront investment.** Upfront investments will remain a key impediment to automation implementation. As costs come down, the economics will improve and increase the pace of implementation, including small and medium-size enterprises.
- **Culture and inertia.** Inertia and culture also play key roles in adoption, as demonstrated by the number of employees remaining in high-cost countries and doing low-value work. Other cultural factors such as lack of awareness and trust, lack of organizational incentives to drive change, and aversion to RPA solutions may also slow adoption.

2017 Location Assessment

While our analysis indicates that automation will eliminate a substantial number of the jobs that are currently offshored, global services value chains will only grow in the future as opportunities for outsourcing higher-level tasks that cannot be automated are identified and new offshore jobs are created. As the number of locations suitable for offshoring continues to proliferate, companies seeking to benefit from these opportunities must take care to design the optimal global footprint. And countries that provide BPO functions must anticipate increasingly fierce competition for offshore jobs and dollars.

To inform companies' decisions about where to locate offshore operations and shed light on their complex and shifting choices, we present the 2017 findings of the GSLI. This Index tracks the contours of the offshoring landscape in 55 countries across three major categories: financial attractiveness, people skills and availability, and business environment (see figure 5 on page 10). Based on an assessment of 38 metrics, we identify the countries with the strongest underlying fundamentals to potentially deliver IT, BPO, and voice services (see appendix: About the Study on page 15 and 16).

The Index, by Country

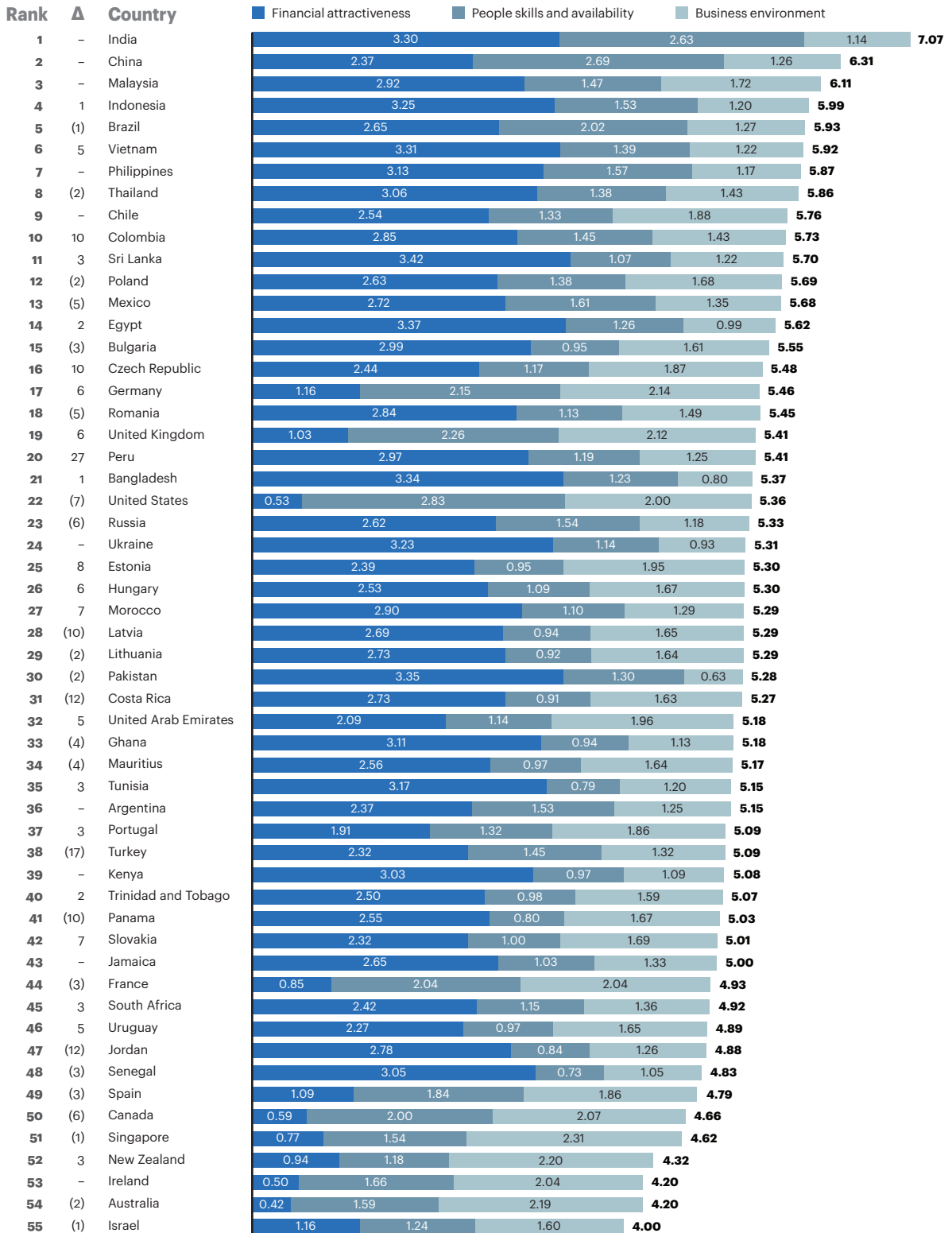
The Index has grown from covering 25 countries in 2004 to 55 countries in 2017, indicating just how global the industry has become. While most locations have experienced movements in the rankings over the years as competition has become more intense and as economies have developed, it is striking that the three countries at the top have held the same positions since we started measuring the attractiveness of locations for offshoring. In addition, we see a significant strengthening of Latin American locations this year that have steadily built stronger labor forces and improved their business environments. Colombia and Peru are both fast movers, while the big three—Brazil, Mexico, and Chile—maintain strong positions. Central Eastern Europe is a strong region where many of the top players are now converging, with Poland, Bulgaria, the Czech Republic, and Romania only a few spots from each other. Africa fails to advance with no country in the top 30; operating costs on the continent are relatively high and yet the talent pools remain shallow.

India (1) continues to lead the Index. As the undisputed industry leader, India offers a depth and breadth of English-speaking skilled labor that no other low-cost countries can match. In this year's Index, India's lead over the country ranked second, China, widened. In 2016, India's lead was already significant, at 0.47; in 2017, this lead has increased to 0.76. India's cost advantage against the United States is growing thanks to the strong US dollar, and the performance of Indian students on standardized tests is improving.

There are currently 200 multinational corporations operating in India and 1.1 million employees in BPO. At this stage, 500 companies are offering outsourcing services in 35 languages to companies in more than 66 countries. Hyderabad has risen recently to new levels of prominence and is home today to Facebook, Microsoft, and Qualcomm. News sources indicate that Apple, Amazon, Uber, and Google are all setting up their second-largest development centers outside the US in the city.

Automation, however, has already started to take its toll on Indian BPO operations. Infosys recently implemented intelligent software to take over the roles of 11,000 employees, offering no

Figure 5
2017 A.T. Kearney Global Services Location Index



Notes: Δ represents the change in rank since the 2016 Index. For France, Germany, the United Kingdom, and the United States, tier 2 locations are assessed. Numbers may not resolve due to rounding.

Source: 2017 A.T. Kearney Global Services Location Index™

details on the possibility of retraining employees or future layoffs to come. Wipro, too, released approximately 12,000 workers, between July 2016 and March 2017. These layoffs represent a 6 percent reduction in force of the two companies' combined workforces. In addition to the threat of automation, India faces competition for its BPO work from smaller countries that offer lower cost, niche strengths, or higher quality that outweighs any cost disadvantage.

China (2) holds steady in the ranking, although the nation fell further behind India this year due to a decrease in its business environment score. In 2016, Apple opened R&D centers in Shenzhen and Beijing. VXI Capital, a BPO firm with significant operations in China and Central America, was acquired by US private equity company The Carlyle Group in 2016, testifying to the increasing interest in the Chinese BPO market from international players.

We see a significant strengthening of Latin American locations this year that have **steadily built stronger labor forces and improved their business environments.**

Malaysia (3) maintains the third-place ranking it has occupied since the start of the Index in 2004. It is advancing in the people skills and availability category, but its retreat in metrics such as those included in World Bank's *Doing Business* report is troubling. The country is increasingly becoming the preferred destination for gaming and animation services, and BPO providers have been expanding operations to take advantage of growth in the Asia Pacific region. Since the beginning of 2016, Cognizant opened a new center to expand operations in Cyberjaya and Kuala Lumpur, and Luxoft was granted Multimedia Super Corridor status, which enabled it to receive special incentives to open an IT delivery center, including fast tracking for expat relocations, tax incentives, and operational support. During the same period, Genpact, which is already working with GSK in the area, expanded its finance and accounting, sourcing, procurement, analytics, and digital operations in Kuala Lumpur, with the goal of providing services in Southeast Asian languages. Aegis, Essar Group's BPO arm, is investing \$4-5 million and planning a third center in Malaysia that will provide 600 jobs (increasing the total at all three centers to 5,000) in the next two years, and Roche has committed \$26.3 million over two years to create more than 260 high-skilled jobs in Kuala Lumpur.

Indonesia (4) swaps positions with Brazil in this year's Index, moving up from fifth place last year. The potential of Indonesia in this industry remains largely unfulfilled, due to language barriers, low industry experience, and a difficult business environment. However, there are signs of industry growth, including the June 2017 announcement that Korean electronics conglomerate Samsung signed a five-year, \$130 million BPO contract with Indonesian Aditya.

Brazil (5) moves down the ranks slightly, largely due to a decreased business environment score. Brazil is beginning to create policies that are more amenable to the domestic outsourcing industry, including a new law passed in March 2017 that allows companies to outsource both primary and support activities and extends the maximum length of temporary work contracts from three months to nine months. This legislation could spur investment in the sector as companies outsource locally at first. Google has opened an R&D and analytics center in Belo

Horizonte and plans to double the current headcount of 100 at the center in the near future. Since the beginning of 2016, German GFT has opened a technology development center to support the local Latin American market and a digital innovation center in São Paulo. In addition, SKYY Digital Media Group has opened a digital solutions center to cater to the Latin American market.

Vietnam (6) moves into the top 10 this year from 11th place in the 2016 GSLI. This upward movement reflects the country's growing popularity for BPO centers. The country's BPO industry reached \$2 billion in 2015 and has grown at a rate between 20 and 25 percent annually for the past decade. This growth is due, in part, to the low cost of labor in Vietnam, which is half of that in India and China's tier 1 cities. Furthermore, a significant percentage of the predominantly young Vietnamese population is fluent in English. As Japan is the Vietnamese BPO industry's primary client, continued growth in this area will depend, in part, on the strength of the Japanese economy. Since 2016, Augen Software Group has opened a technology development center to service enterprise clients in Vietnam and other Southeast Asian countries. In addition, Kiwi Technology Center, described as a hub for New Zealand tech companies investing and doing business in Vietnam and ASEAN, opened a technology development center.

The Philippines (7), an industry leader, holds steady in the ranking. The country is gaining ground in high-value fields such as engineering and legal BPO, which is a necessity if the Philippines is to weather the oncoming job losses triggered by automation. The Philippines remains dominant in voice work; it was the location for 16 of the top 20 offshore call center projects in 2016. Accenture recently opened a third delivery center in the Philippines, and two firms, including Visa, opened centers as well. The industry slowed somewhat in 2017 as a result of the political situation. While the World Bank estimates that BPO revenues could grow to more than \$50 billion and provide 2.6 million more jobs (both double today's totals), our analysis is significantly less optimistic.

Thailand (8) falls two positions in this year's Index but as noted in past editions of the Index, has largely failed to develop the IT-enabled global services industry, focusing instead on its significant tourism industry and a growing manufacturing sector.

Chile (9) maintains its position. Given cost pressures in Santiago, companies are increasingly looking to second-tier cities in Chile, such as Valparaiso, Concepcion, and Valdivia, in order to limit salaries and turnover. Companies may enjoy a 10 percent arbitrage in tier 2 cities and significantly lower attrition rates. US niche BPO company CGS opened a 240-person center in Valparaiso in March 2017, and the company plans to expand to 400 if it performs as expected. Indian Tata Consulting Services (TCS) has 1,300 employees in three offices nationwide, now including one office in Valparaiso. Since the beginning of 2016, Atento has built a new contact center to serve Spanish telco Movistar, and two of the top 20 nearshoring deals in 2016 were located in Chile.

Colombia (10) saw significant upward movement in the rankings this year, moving up 10 positions to 10th place. The negative perception of security in Colombia is slowly diminishing, and the falling value of its currency will likely increase its popularity. Between 2011 and 2015, Colombia won 12 percent of new BPO and shared services centers in Latin America and the Caribbean. And Colombia was home to one of the largest nearshoring developments in 2016 when Luxembourg BPO giant Atento created 2,000 jobs in Bogotá.

Sri Lanka (11) moved up three places in the ranking this year, thanks to gains in all three categories. Labor costs in the country can be as much as 30 percent lower than other outsourcing destinations, and tax holidays extend between five and 12 years. More than 300 IT and BPO companies

operate in Sri Lanka, primarily small to medium-size companies and a few global corporations. The industry employs 80,000 people, and the workforce is growing at 20 percent year over year. At the beginning of 2016, MillenniumIT, a subsidiary of London Stock Exchange Group (LSEG), opened an IT delivery center. The industry sought to achieve \$1 billion in export revenue for 2016, and it is well on its way, having reached \$900 million.

Poland (12) moved slightly down the ranking this year from 10th place in the 2016 Index. The drop is associated with a decrease in political environment scores, and in turn increased country risk. Still we have witnessed expansion of operations by companies such as Accenture, Credit Suisse, Goldman Sachs, Zurich Insurance, and Cathay Pacific Airways. Competition for Polish labor is no longer just with other centers in the country—BPOs are now increasingly competing with companies in other European Union countries. Amazon, for example, has been actively recruiting top Polish talent to its locations in other European countries. Despite challenges on the labor supply side, Poland has significant depth of talent, unmatched in Central Eastern Europe and further expanded through the emergence of tier 3 locations such as Kielce, Rzeszow, Bialystok, Lublin, Zielona Gora, and Bydgoszcz.

Competition for Polish labor is no longer just with other centers in the country—**BPOs are increasingly competing with companies in other EU countries.**

Mexico (13) fell out of the top 10 this year from eighth place last year. Since the beginning of 2016, Deloitte has opened a technology development center, Monterrey-based Global Telesourcing had a 520-person expansion, and seven other companies announced expansions or new operations in the country. Global software companies such as Microsoft, Oracle, IBM, HP, Adobe, VMware, and SAP have IT operations in the country, and six of the seven highest-ranked outsourced services companies (according to the International Association of Outsourcing Professionals) have a presence in Mexico: Accenture, CBRE, Cushman & Wakefield, ISS, Jones Lang LaSalle, and Teleperformance. Tijuana is a growing destination, capitalizing on its proximity to Silicon Valley.

Egypt (14) advances two places from last year. The government decision to allow the Egyptian pound to float against the dollar and subsequent depreciation gave Egypt's competitiveness a boost. The country graduates approximately 500,000 students per year, with 10 percent in IT-related fields and other fields related to BPO, representing one of the largest qualified labor forces outside of India. Chinese Huawei opened a support and training facility to support 29 countries in the Middle East and Africa in the past 18 months, highlighting an emerging trend in which Chinese companies are seeking offshore destinations to support global expansion.

Bulgaria (15) fell three positions in the GSLI. Since the beginning of 2016, Coca-Cola Hellenic Bottling has invested \$1.1 million to expand a shared services center, US rideshare company Uber expanded operations with the goal of doubling the number of IT professionals in its Sofia engineering center, and Silicon Valley-based Service Source opened a revenue-as-a-service facility, hiring an additional 140 employees to add to the 60 they already have in Sofia.

Czech Republic (16) leaps 10 spots in the ranking, thanks to improvements in its people skills and availability and financial attractiveness scores. The country has 65,000 people employed in its business services sector, which is projected to grow to 100,000 by 2020. Companies anticipate 17 percent employment growth, with 85 percent of business service centers reporting expectations to grow in the next two years.

The country is home to more than 180 service centers, with nearly half of these centers in Prague. The sector brings in \$3 billion in annual revenue, representing 1.5 percent of Czech GDP. More than three-quarters of the centers have finance and accounting in scope, and more than half have customer operations and human resources. Finance and accounting represents 32 percent of employees, followed by customer operations (21 percent) and IT services and human resources (12 percent each).

Germany (17) moves up five positions in the GSLI to become the top onshore destination in this year's Index. The move is largely driven by currency movements as the US dollar has strengthened against the euro. For the purposes of measuring the German score, we are assessing the cost profile of the lowest-cost region, namely Saxony in the former East Germany.

Higher-cost onshore countries such as the United States will, overall, lose a smaller proportion of jobs due to the **higher percentage of jobs these countries regain through reshoring.**

Romania (18) falls five positions in the Index, despite the fact that GoPro added 100 hires in Bucharest and three other companies opened or expanded operations in the EU member state. Romania's outsourcing sector employs more than 100,000 people, and the top three sectors are banking, insurance, and financial services; technology and telecoms; and industrial and consumer goods. It is a popular nearshoring location due to strong IT and finance and accounting skills, as well as the wide range of foreign languages spoken.

The United Kingdom (19) joins the top 20 this year, up from the 25th position in last year's Index. While there is increased uncertainty after the Brexit vote, the same uncertainty has led to a plunging exchange rate for the pound, improving cost competitiveness. As with other onshore markets, the GSLI assesses a prominent tier 2 location as this is the logical alternative to offshore markets. In the case of the United Kingdom, we use Belfast and Northern Ireland as our benchmark.

Peru (20) leaps 27 spots in the ranking, the largest jump of any country in the 2017 GSLI. This improvement is due, in part, to improved source data for the compensation costs in Peru, which global HR firms present as a significant cost advantage. The ITO, BPO, and KPO sectors now include more than 300 companies and 45,000 workers. However, the country needs an additional 10,000 programmers to meet demand in the IT sector. In fact, many employers in Peru report difficulty filling jobs.

Looking Ahead

The 2017 A.T. Kearney GSLI confirms that the industry leaders, India and the Philippines, continue to perform well and offer companies strong options for offshore services. Our analysis of the impact of automation on these countries and others in the next five years, however, suggests greater cause for concern. While both India and the Philippines will be hit hard by automation, the effect on the two countries will be different. India stands to lose a substantial number of BPO jobs, but its more highly educated population ensures greater opportunities to focus on KPO or other higher-level tasks as the offshoring industry moves up the value chain. The Philippines' concentration in the less easily automated customer service function protects it in the short term, but the country has fewer options in the long term. Counterintuitively, higher-cost onshore countries such as the United States will, overall, lose a smaller proportion of jobs due to the higher percentage of jobs these countries regain through reshoring.

As we concluded in the 2014 GSLI report, countries in the low-value-add niche will see their opportunities erode as those with a strategy to advance aggressively along the value chain and to capitalize on the potential of jobs that manage automation do better. But the limited number of technology management positions available relative to the number of jobs lost will inevitably mean displacement of low-skilled workers.

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Appendix: About the Study

Country Ranking Methodology

The 55 countries in the 2017 Global Services Location Index were selected based on corporate input, current remote services activity, and government initiatives to promote the sector. They were evaluated against 38 measurements across three major categories: financial attractiveness, people skills and availability, and business environment (see figure).

The metrics used to evaluate location attractiveness were determined from responses to A.T. Kearney surveys, other industry questionnaires, and knowledge obtained in client engagements over the past five years. The relative weights of each metric are based on their importance to the location decision, again derived from client experience and industry surveys. Because cost advantage is typically the primary driver behind location decisions, financial factors

Figure
2017 A.T. Kearney Global Services Location Index criteria

Category	Dimensions	Description of metrics used
Financial attractiveness	Compensation costs	<ul style="list-style-type: none"> Average annual wages Average compensation costs for relevant positions (BPO analyst, IT programmer, contact center representative)
	Infrastructure costs	<ul style="list-style-type: none"> Average cost of infrastructure (occupancy, electricity, telecommunications) Blended travel cost to major customer destinations (New York, London, and Tokyo)
	Tax and regulatory costs	<ul style="list-style-type: none"> Relative tax burden, costs of corruption, and exchange rate movements
People skills and availability	Cumulative services experience and skills	<ul style="list-style-type: none"> Estimated IT/BPO sector size Quality/skill ratings for relevant positions (quality of management school, college education quality, relevant industry certifications for IT, BPO, and contact centers)
	Labor force availability	<ul style="list-style-type: none"> Population ages 15-39 Total tertiary enrollment
	Language capabilities	<ul style="list-style-type: none"> Scores on standardized education and language tests
Business environment	Country risk (economic and political)	<ul style="list-style-type: none"> Political risk (political stability, terrorism risk, regulatory burden) Foreign investment Ease of doing business
	Cultural adaptability	<ul style="list-style-type: none"> A.T. Kearney Global Cities Index® “personal contact” index scores (a combined score showing relative international exposure of people through travel, telephone, and remittances)
	Country infrastructure	<ul style="list-style-type: none"> Blended metric of country infrastructure quality (telecom, electricity) Overall local infrastructure quality
	Security of IP	<ul style="list-style-type: none"> Ratings of intellectual property protection ISO information security certifications Software piracy rates

Source: A.T. Kearney analysis

constitute 40 percent of the total weight in the published Index. The two remaining categories—people skills and availability and business environment—each constitute 30 percent of the total weight.

Jobs at Risk from Automation

Metrics used in A.T. Kearney's analysis of the four archetypal countries are based on a range of A.T. Kearney engagements with outsourcing providers and back-office functions with corporate clients. We determined the automatability of each BPO function by applying its potential to automate by its adoption level in the next five years. The resulting potential automatability range was then multiplied by the number of BPO jobs found in Indian National Association of Software and Services Companies (NASSCOM), IT and Business Process Association of the Philippines (IBPAP), US Bureau of Labor Statistics (BLS), and Poland's Association of Business Service Leaders (ABSL) in each function for each of the four nations, giving us the number of BPO jobs that will likely be lost by 2022. We calculated the number of jobs regained by distributing the new jobs across countries based on their proximity to the core business and for reshoring by distributing lost offshore jobs according to share of GDP. Finally, we calculated the additional income effect by applying the compensation costs associated with the new functions created; on average, these were 30 percent higher than salaries of existing positions at risk of elimination, based on A.T. Kearney experience. To determine the net impact of automation on each country's income in 2022, we took the number of total 2017 BPO jobs, subtracted the jobs anticipated to be lost by 2022, and added the jobs expected to be regained and the additional income those jobs would bring by 2022.

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The signature of our namesake and founder, Andrew Thomas Kearney, on the cover of this document represents our pledge to live the values he instilled in our firm and uphold his commitment to ensuring "essential rightness" in all that we do.

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