



The Emerging Global Labor Market:
Part III—How Supply and Demand for Offshore
Talent Meet

| June 2005



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The Emerging Global Labor Market:
Part III—How Supply and Demand for Offshore
Talent Meet



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Preface

The *Emerging Global Labor Market* series is the end product of a year-long project by the McKinsey Global Institute (MGI), working in collaboration with our colleagues in McKinsey offices and practice groups around the world. This research builds on our extensive work on offshoring, global industry restructuring, and the impact of multinational company investment in developing countries. It spans detailed cases of eight industry sectors (automotive, health care, insurance, IT services, packaged software, pharma, retail, and retail banking) and an analysis of the available talent pool in 28 low-wage countries and another 8 mid- to high-wage ones. It also includes the Location Cost Index, a tool for companies to evaluate location attractiveness based on six groups of criteria: labor cost, vendor landscape, market potential, risk profile, business environment, quality of infrastructure.

MGI Fellows Martha Laboissière from McKinsey's São Paulo Office and Jaeson Rosenfeld, previously from McKinsey's Boston Office, worked closely with me to provide leadership to this project. The project team also included MGI Fellows Robert Pascal from McKinsey's North America Knowledge Center in Boston, Charles de Segundo from McKinsey's London Office, Sascha Stürze from McKinsey's Berlin Office, and Fusayo Umezawa from McKinsey's Tokyo Office.

We have benefited enormously from the extensive input received from McKinsey's global network of industry and functional experts, especially Ajay Dhankhar, Detlev Hoch, Chris Ip, Noshir Kaka, Krish Krishnakanthan, Glen Mercer, and Anupan Sahay, and from our external Academic Advisory Board, which included Martin Baily, senior advisor to MGI and senior fellow at the

Institute for International Economics and formerly Chairman of the Council of Economic Advisors to President Clinton; Olivier Blanchard at the Massachusetts Institute of Technology; and Richard Freeman at Harvard University.

Tim Beacom, MGI's dedicated research and information specialist, Nitin Seth from McKinsey's India Knowledge Center and Vivien Singer from McKinsey's North America Knowledge Center in Boston provided essential research support. Susan Lund and Gina Campbell provided thoughtful input and editorial support. Moreover, Deadra Henderson, MGI's Practice Administrator, Terry Gatto, our Executive Assistant and Rebeca Robboy, MGI's External Relations, supported the effort throughout.

As always, the findings and conclusions draw from the unique perspectives that our colleagues bring to bear on the sectors and countries researched here. These perspectives are a product of intensive client work with the world's leading firms. They are supplemented by in-depth analytical work and extensive interviews and dialogues with executives, government officials, and other leading thinkers. As with all MGI projects, this work is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

Our aspiration is to provide a fact base to the public debate on offshoring and the emerging global labor market to enable policy makers and business leaders to make more informed and better decisions.

Diana Farrell
June 2005

Additional Acknowledgements

Beyond the project contributors already mentioned in the preface, we would also like to explicitly acknowledge McKinsey colleagues, executives and experts around the world who contributed specifically their industry, local market insights and knowledge to this study. To those who chose to remain anonymous we also extend our gratitude. McKinsey & Company's unparalleled network is an essential component of any McKinsey Global Institute effort.

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Auto

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Additional Acknowledgements

Pharmaceutical

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Additional Acknowledgements

Hungary

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Guiding Principles

Any job that is not confined to a particular location has the potential to be globally resourced, or performed anywhere in the world. Broadly speaking, this includes any task that requires no physical or complex interaction between an employee and customers or colleagues, and little or no local knowledge.

Such jobs can be performed wherever a company deems most attractive. A company may choose to have a particular location insensitive job performed in the demand market (that is, in the market in which the resulting output is sold), in a border zone (nearshore), or remotely (offshore). Therefore, not all location insensitive jobs will move offshore.

We evaluate only service sector jobs. Although manufacturing jobs may be insensitive to their location as well, this study focuses on service jobs, whether they are in service sectors or in a back-office service function (e.g., accounting) in a manufacturing sector.

We focus on the demand for low-wage employment from high-wage countries. To estimate potential demand for globally resourced labor, we treat countries as neither inherently on the supply side nor inherently on the demand side in the global labor market. However, since cost is a major determinant of companies' location decisions, developed countries are most likely to provide the bulk of demand for offshore labor, and developing countries the bulk of supply. When we evaluate the actual rate of offshoring today and how fast it will grow, we examine only the demand for low-wage labor from high-wage countries.

We assume that demand for labor for a particular activity is the same onshore and offshore. In reality, capital/labor tradeoffs and increased service levels may cause high-wage countries to seek more labor in low-wage countries than they would for performing the same activity in the demand market. Productivity differences between the original location and the new location may also influence demand for labor. Since these effects can be either positive or negative and tend to level over time, our default assumption is that the number of FTEs¹ needed for an activity is the same whether located onshore or offshore.

For the demand evaluations we do not consider any supply constraints. All evaluations are made under the assumption that global supply will be able to meet demand. Actual supply conditions are examined in the second report in this series, "The Supply of Offshore Talent in Services".

¹ Full time equivalent

Introduction

Offshoring has rapidly become part of the everyday social lexicon. Conflicting and sensational reports of developed-world companies moving jobs to emerging markets like India and Brazil are now a staple of the news media and political debate.

The trend alarms many observers. Some believe that almost any job is subject to dispatch abroad, and that soon the developed world will lose even high-paid, professional service jobs that previously were not at risk: "If you can describe a job precisely, or write rules for doing it, it's unlikely to survive. Either we'll program a computer to do it, or we'll teach a foreigner to do it."¹ Others claim that offshoring white-collar jobs in R&D and elsewhere will erode one of the main sources of competitive advantage for developed countries, and eventually reduce their standard of living. They point to offshoring as a key cause of weak employment growth in the United States, maintaining that jobs lost abroad will not return soon. Swayed by such arguments, policy makers on both sides of the Atlantic have adopted or are now considering legislation that would penalize companies for offshoring jobs and prohibit any state-funded projects from being performed abroad.

But there are equally forceful proponents of offshoring. They argue that offshoring increases company productivity and profits, bringing benefits to their home economies. They say it represents a well-functioning global free market in

¹ David Wessel, "Barbell effect—the future of jobs: new ones arise, wage gap widens," *Wall Street Journal*, April 2, 2004.

labor: "arguing that [offshoring] hurts is arguing that free trade hurts."² They also suggest it affects only a tiny proportion of jobs in developed countries, and accelerates economic growth in the countries hosting offshore employment.

A big problem in this debate has been the shortage of hard facts with which to resolve conflicting arguments and reach a clearer understanding of offshoring's potential impact on the global economy. The purpose of the research described in this report is therefore to provide this fact base and help bring more clarity to the discussion.

For reasons described below, our research has concentrated on the offshoring of service jobs rather than jobs in manufacturing, and on jobs offshored from the United States and Western Europe to low-wage markets. The report's findings should help companies and policy makers in both developed and emerging markets to address the different issues raised for them by offshoring.

This introduction examines the context for our research, defines terms used in the report, explains the report's scope, and introduces the questions covered by each of the report's three sections.

CONTEXT FOR THE RESEARCH

Relocating jobs is nothing new. As communications have improved, companies have migrated jobs in high-labor-cost areas to cheaper and less restrictive labor markets. Initially they moved jobs within countries. For example, many manufacturing plants in the Northeastern United States shifted to the South and Southwest during the 1980s to take advantage of lower infrastructure costs, a less unionized workforce, and tax incentives. Then improving information and communication technologies made it possible for companies to disaggregate the value chain and outsource either entire processes or pieces of them to other companies in the same country. Numerous companies now provide other firms with technology support, software development, transactions processing, accounting, human resources management, and other tasks.

² Timothy Aepfel quoting Haseeb Ahmed in "Leadership (A special report) — Offshore face-off: moving jobs overseas can cut a company's costs; But is it bad for the U.S. economy? Two economists debate the issue," *Wall Street Journal* May 10, 2004.

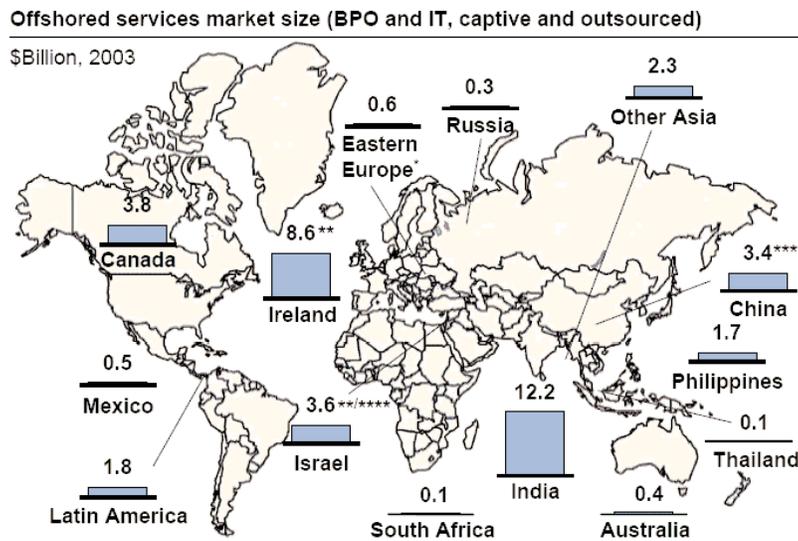
Recently, a confluence of factors has made it possible for companies to relocate or outsource their service activities even farther afield, to lower-wage locations offshore. These factors include further liberalization, improvements in information technology, a decrease in the perceived risk of operating in developing countries, and a shortage of labor in developed countries.

Ireland was one of the first offshoring locations, but emerging markets such as India and the Philippines were fast followers. Exhibit 1 shows the approximate value of offshore services in countries that supply them.

When companies decide where to locate a particular activity, they have to weigh the feasibility of performing it in a different location, away from the home market, against the benefits offered by performing it in that specific location, such as economies of scale and low labor costs.

Exhibit 1

INDIA AND IRELAND ARE THE DOMINANT PRODUCING COUNTRIES



* Includes Poland, Romania, Hungary, Ukraine, and Czech Republic.
 ** Primarily composed of MNC captives.
 *** Estimate, based on total Chinese BPO and IT services revenue (7.8) minus domestic demand for IT services (4.4).
 **** Estimate, based on 2001 market size of 3.0 and assumed growth rate of 20% p.a.
 Source: Software Associations; U.S. country commercial reports; press articles; Gartner; IDC; Country government Web sites; Ministry of Information Technology for various countries; Enterprise Ireland; NASSCOM; McKinsey Global Institute analysis

In the 1990s the lowering of bandwidth and telecommunications costs made many services less sensitive to their location. Manufacturing was similarly affected—better communication made it easier to operate a remote manufacturing location—but to a lesser extent, because cheaper communications didn't do much to help manufacturers with the costs of transporting their physical inputs and outputs. At the same time, the risks, both real and perceived, of locating service activities in developing countries, were lowered. The successes of early movers and supporting measures taken by governments in emerging markets, for example, to protect intellectual property, made other companies more confident of moving their services to these locations.

As companies continue to learn how to manage globally dispersed processes, the exact location of many functions will matter less and less. Already, a great many business processes can be performed remotely, and several can be performed anywhere in the world. A customer service call can be answered, an MRI can be read, and R&D can take place remotely. But how many such processes are performed remotely today? How fast is that number growing? To begin answering such questions, we need to define more precisely the options facing the companies driving this trend.

DEFINITIONS

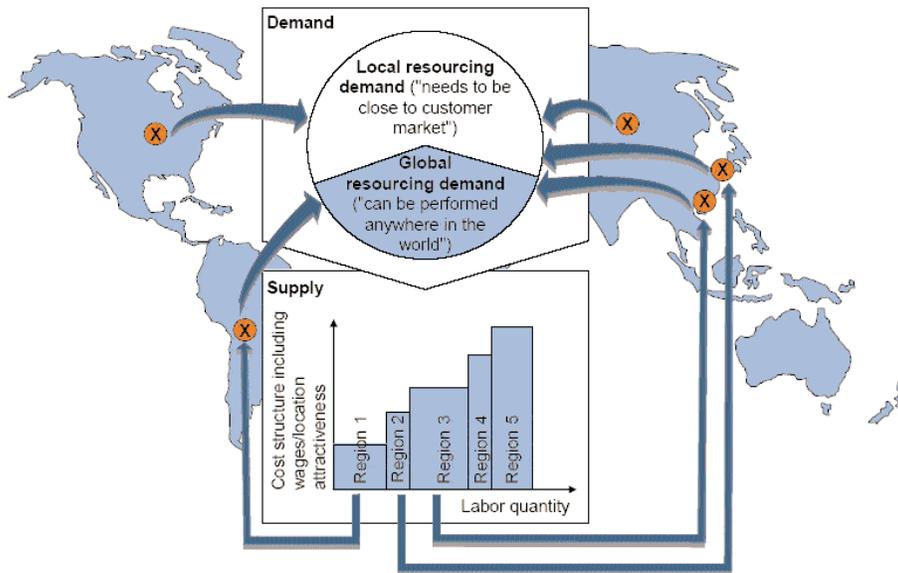
We define as "global resourcing" the process a company goes through to decide which of its activities could be performed anywhere in the world, where to locate them, and who will do them.

Any activity that is not constrained by the need for customer contact or local knowledge or by complex interactions is subject to global resourcing: it can be performed wherever a company deems most attractive (Exhibit 2). An obvious example of such an activity is answering customer service calls for a bank; these calls can be answered just as easily in Chicago, Dublin, or Manila.

Having identified services that could be performed remotely, a company faces two sets of decisions illustrated in the matrix in Exhibit 3. First, should it "offshore" those services, by which we mean perform them in another country outside the market where they are sold? Or should it perform them "onshore," in the same market in which it sells them?³ And, second, should the company

Exhibit 2

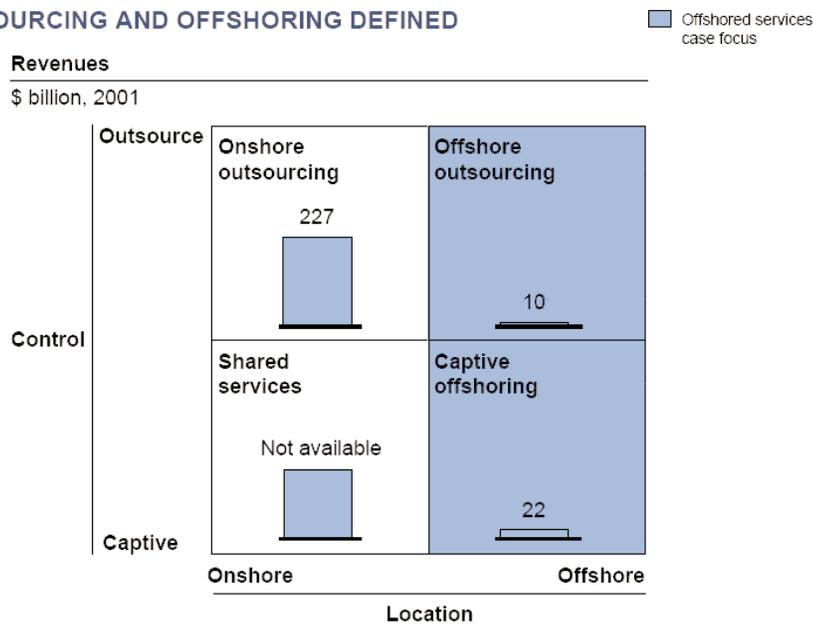
GLOBAL RESOURCING ENTAILS CHOOSING THE OPTIMAL LOCATION TO PERFORM PROCESSES THAT COULD BE LOCATED ANYWHERE



Source: McKinsey Global Institute analysis

Exhibit 3

OUTSOURCING AND OFFSHORING DEFINED



Source: Gartner; IDC; Aberdeen Group; UBS Warburg; Nasscom; U.S. import-export data; McKinsey Global Institute analysis

perform those activities in a wholly-owned "captive" unit? Or should it "outsource" them, by which we mean buy them from a third party?

The following are examples of location decisions that fall into each quadrant of the matrix:

- Wells Fargo operates call centers for its business units in several locations in the United States, including Utah and California. This is a captive onshore activity.
- Halliburton outsources software applications management to Accenture in the United States. This is an outsourced onshore activity.
- DHL, a German company, locates its European ITservices center in Prague. This is a captive offshore activity.
- The South African Depository System has its software application development performed by TCS, an Indian firm. This is an outsourced offshore activity.

The main focus of our study will be to understand the shift from "onshore" to "offshore" locations, although we will also touch on the "captive" versus "outsourced" decision. We also limit our attention to jobs that are relocated from high-wage to low-wage countries, even though the reverse process also occurs. For instance, R&D centers are often located in the United States even though they serve many countries, including developing ones.

Many service activities are labor intensive, so companies would benefit if they could offshore them to places with lower labor costs. But not all services can be offshored: some are much more sensitive to their location than others. Computer programming, for example, is relatively location insensitive. It can be done just about anywhere, because computer code can be cheaply and instantaneously "shipped" via the Internet to and from virtually any location in the world. At the other end of the spectrum comes services like haircuts, which have to be done close to the customer.

It is not necessarily rational for companies to transfer all location insensitive activities offshore. Consider server maintenance for United States companies.

³ The term "nearshoring" means offshoring to a country near the home market.

Even though server maintenance could be relocated elsewhere, that may not make sense because the United States has in place a better infrastructure and lower risk levels for server maintenance than other locations (this example will be explored in more detail in our IT services case).

Regulatory or organizational factors may also prevent a company from relocating services offshore. For instance, an insurance company might want to relocate its US property and casualty operation to a developing country; however, industry regulations require some of these services to be performed by a registered insurance agent. Since it is not possible to gain certification as a US agent in a foreign country, the activity has to remain in the US. Organizational factors play a part in the decision too. A software company might achieve lower wage costs by offshoring certain lower-end elements of its software development process. However, the company's process is well-developed and understood within the organization, and its smooth working depends on all members of the development team being in the same place.

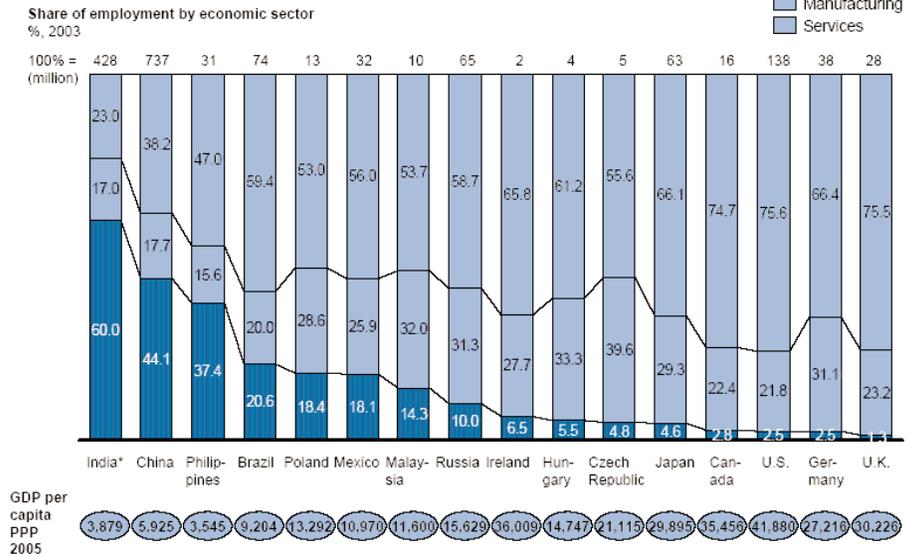
WHY WE FOCUS ON OFFSHORING SERVICES TO DEVELOPING COUNTRIES

Within the universe of jobs that are not constrained to one location, the focus of this report is the offshoring of service jobs from developed economies to developing markets. This is the issue that has dominated both the media and political debate, and for good reason. The service sector in developed countries supplies most jobs and the bulk of many countries' positive trade balances, and the trend toward offshoring jobs is growing fast. An additional reason for our focus on this area is the absence of data on its effects on the individuals, companies, and countries that provide offshored service labor.

The service sector is the biggest source of employment in developed countries (Exhibit 4), because they have already experienced the gradual shift in employment from agriculture to services that occurs as a country grows its GDP per capita. And while world trade has been growing at a brisk 6.9 percent annually for both services and manufacturing from 1980 to 2002, the offshoring of services to emerging markets, though still small, has been growing even faster (Exhibit 5). It is projected to grow at 30 percent annually from 2003 to 2008 (Exhibit 6). This would increase its share of services trade from 3 percent to 10 percent, making it a significant subcomponent of services trade. To put this in perspective, travel

Exhibit 4

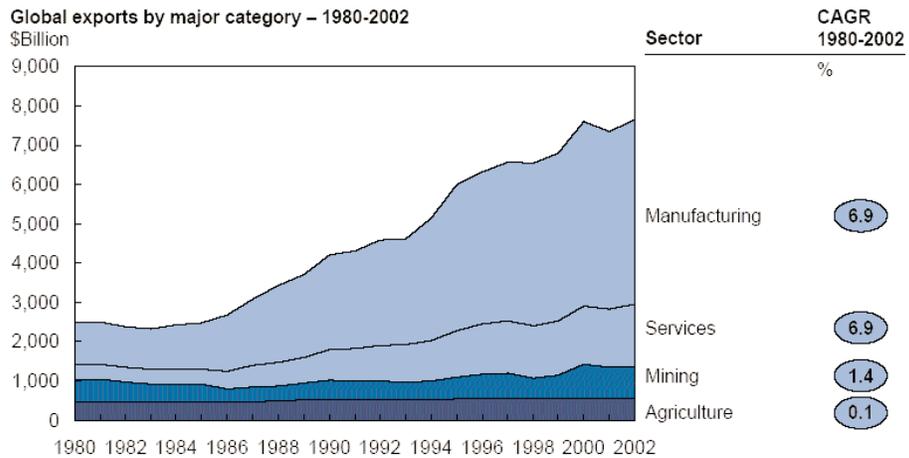
THE SERVICE SECTOR PROVIDES THE BULK OF EMPLOYMENT IN HIGH-WAGE ECONOMIES



* Shares as of 1999.
Source: ILO; Global Insight WMM; CIA World Factbook

Exhibit 5

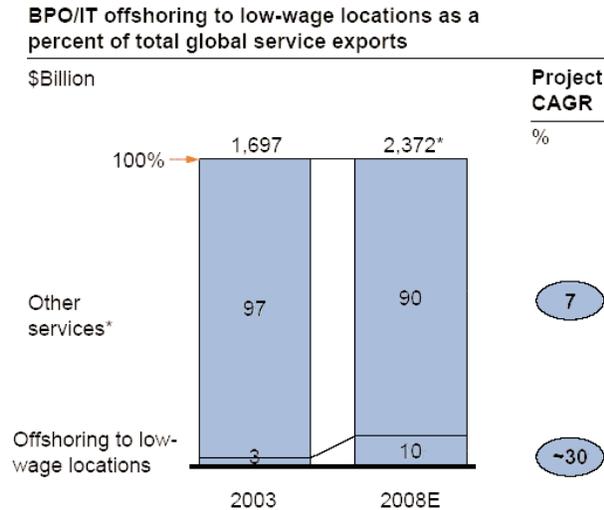
GLOBAL SERVICES AND MANUFACTURING TRADE HAVE GROWN RAPIDLY OVER THE LAST 20 YEARS



Note: Exports were used to measure global trade. In addition, the data are in nominal dollars since no deflators were available from the WTO for services trade.
Source: WTO; "International Trade Statistics 2003"

Exhibit 6

OFFSHORING REPRESENTS AN EVEN FASTER GROWTH SEGMENT OF TRADE



* Estimated at 6% annual growth from 2002 figure.
Source: WTO; McKinsey Global Institute analysis

represents approximately 30 percent of services trade the Organization for Economic Co-operation and Development (OECD) countries, while transportation represents 20 percent.

QUESTIONS ADDRESSED BY OUR STUDY

Our research sheds light on several key questions:

- What is the total number of jobs worldwide that can be globally resourced? How close will actual demand for offshoring from developed economies to emerging markets come to this potential total? How does the potential for offshoring and its degree of adoption differ among industries?
- What is the current supply of labor suitable to perform offshoring services in developing markets?

-
- How does supply and demand meet? Which countries will provide offshoring labor? Will different types of offshoring be attracted to different countries? How will offshoring affect employment and wages in developing and developed countries?

The report covers offshoring between a wide range of developed and developing countries (36 countries in all). To assess the situation on the ground, six full-time team members devoted 12 months to this research. In addition we tapped the expertise of consultants at 82 McKinsey offices in 44 countries, as well as conducting nearly one hundred interviews with companies in our focus countries.

We also collected the most comprehensive data available on actual offshoring demand through interviews with companies and from their own and analysts' reports. We collected detailed statistics on labor supply for 16 countries from sources of national statistics—making adjustments for consistency when necessary—to build the most comprehensive view of global labor markets that exists. We also collected data on 50 separate measures of the cost of operating in the 16 focus countries to understand which countries would serve as the most attractive offshore locations.

We determined not only the potential number of jobs that theoretically could be relocated offshore, but also the actual demand to date and how that will grow over the next five years. In addition, we determined both the potential supply of labor in each country as well as the realistic level of supply that is sufficiently skilled to provide services to overseas companies. This analysis allows us to understand the dynamics that bring together supply and demand in the global labor market, including the constraints that might appear and the potential impacts on wages and employment in both developed and developing countries.

We hope that this analysis will ultimately lead to a new way of looking at the range of issues presented by the offshoring of services.

Executive Summary

*"Something new is going on. America is short of jobs as never before, and the major candidates for our offshore outsourcing are ramping up employment as never before. So yes, I think two and two is four."*¹

*"The essential conclusion remains that offshoring, and more broadly import competition, while clearly having an important effect on some industries, workers, and communities, were not significant causes of the 'jobless recovery.'"*²

Opinions differ about the dynamics of supply and demand in the emerging global market for service labor. Some argue that the potential supply of offshore talent is nearly limitless, while others point to signs of limited supply already forcing wage increases. Having analyzed potential and likely demand for offshore talent in the first report in our series, and quantified potential supply in the second, in this third and final report we look at the fit between the two.

Supply and demand necessarily clear through price, represented in the labor market by wages. Mapping likely demand for offshore talent against the potential suitable supply shows that, as the conflicting views indicate, this market is not clearing smoothly. We discuss measures to improve the market's efficiency that could be taken both by companies on the demand side and by policy-makers in countries on the supply side.

¹ Stephen S. Roach as quoted in "Who Wins and Who Loses as Jobs Move Overseas?" Erica Kinetz, 7 December 2003. The New York Times.

² Charles L. Schnultze. "Offshoring, Import Competition and the Jobless Recovery." August 2004. *Brookings Policy Brief No. 136*

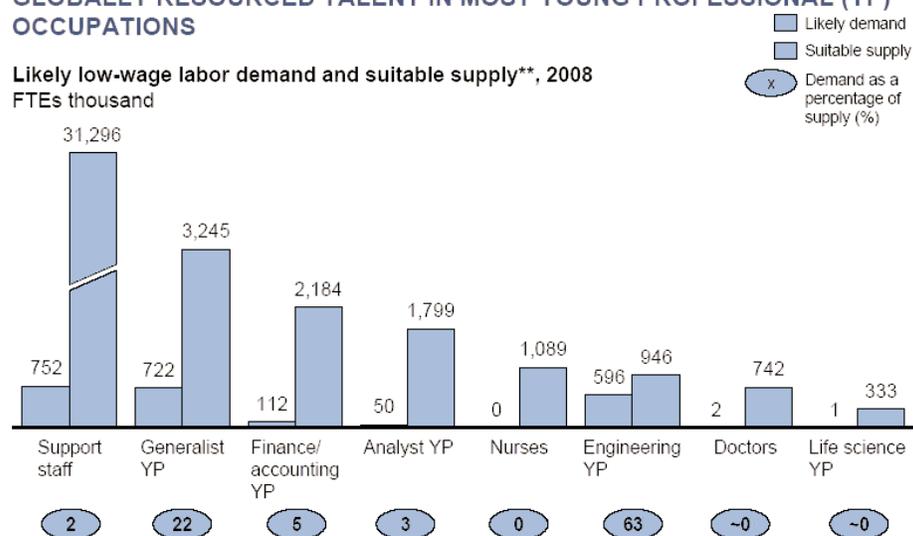
Potential supply of low-wage talent is greater than likely demand

Our results show that, at an aggregate level, the potential supply of suitable talent from the 28 low-wage countries we studied exceeds demand for offshore talent from companies in high-wage countries. This is true for each of the eight occupations we analyzed (Exhibit 1).³ For instance, in 2008 the supply of support staff suitable for employment by multinational firms will exceed demand by 98 percentage points, and the suitable supply of young professional generalists will be 78 percentage points greater than expected demand.

Exhibit 1

POTENTIAL SUITABLE SUPPLY EXCEEDS LIKELY DEMAND FOR GLOBALLY RESOURCED TALENT IN MOST YOUNG PROFESSIONAL (YP)* OCCUPATIONS

Likely low-wage labor demand and suitable supply**, 2008
FTEs thousand



* ≤7 years of work experience.

** Assuming constant suitability rates from 2003 to 2008; aggregated low-wage supply from 28 countries.
Source: McKinsey Global Institute analysis

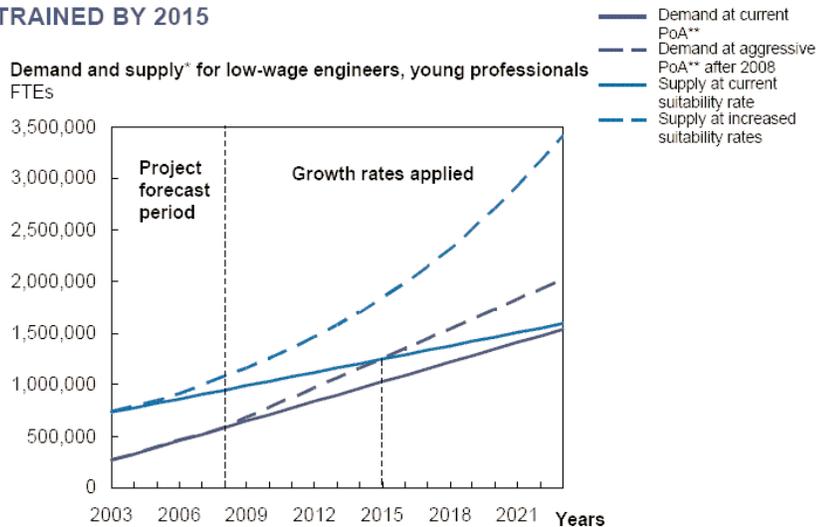
Only the supply of available engineers in low-wage countries is less abundant, contrary to opinion among many engineers in high-wage countries. Even if the combined supply of all 28 low-wage countries we studied is utilized, wage rises for engineers would reflect constraints in low-wage supply as early as 2015 if we assume an aggressive rate of growth in offshore demand for this occupation,

³ The occupations are: engineers, finance and accounting professionals, analysts, life science researchers, doctors, nurses, generalists, and support staff.

and an annual growth rate of 5 percent in the supply of labor suitable for employment in multinationals. If countries were to implement measures to make more of their graduates suitable for such employment, and supply were thus to grow at higher rates, this scenario would likely change (Exhibit 2).

Exhibit 2

AT CURRENT SUITABILITY RATES AND AN AGGRESSIVE PACE OF ADOPTION IN DEMAND, SUPPLY OF ENGINEERS COULD BE CONSTRAINED BY 2015



* Supply forecast is based on extrapolation of 10 low-cost countries to a further 18 low-cost countries and does not include effects of supply fragmentation.

** Pace of adoption is the rate at which companies are pursuing offshoring.

Source: McKinsey Global Institute analysis

Local supply/demand inefficiencies persist

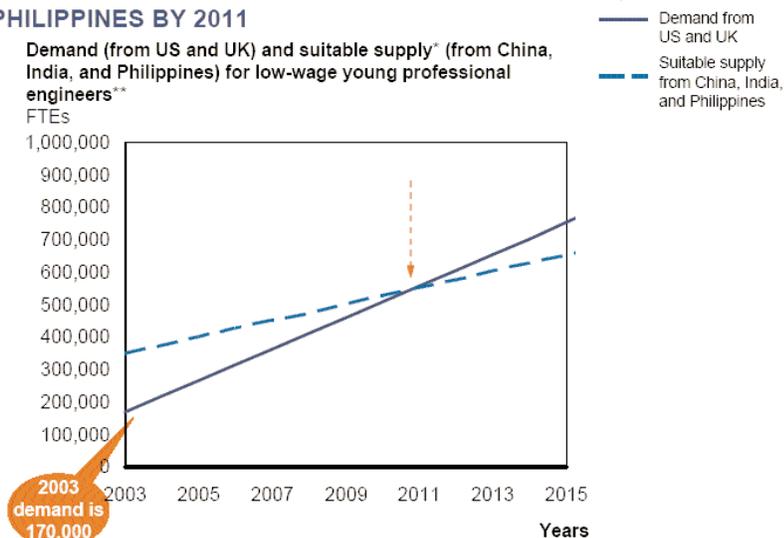
Matching supply and demand at this aggregate level gives an illusory impression of plenty. In practice, misalignment between supply and demand is creating localized labor supply constraints. On the supply side, potential employees are widely dispersed across low-wage countries and far from perfectly mobile. On the demand side, companies hiring offshore frequently follow each other to locations that have a track record in providing offshore talent. The resulting agglomeration of companies in popular locations has some positive effects, such as accelerating improvements in infrastructure, communications and the business environment. But it also leads to a concentration of demand in limited supply pools, which puts upward pressure on local wages and attrition levels.

Agglomeration is already affecting the supply and cost of labor in some cities in Eastern Europe and India. For example, if current demand trends continue, the supply of suitable labor in Prague and Hyderabad will be constrained as early as 2006 and 2008, respectively. (Labor market conditions in these two cities are examined in detail in this report.) And once companies have chosen a location, it is hard for them to switch to another one because of sunk costs in physical and human capital.

Agglomeration effects could also be felt at a country level in certain occupations. At present, India, the Philippines, and China are often the top choices for locating IT and engineering-based services for companies from the United Kingdom and the United States, the main sources of demand. If U.S. and UK companies continue to concentrate their activities on these three countries and current rates of offshoring persist, the demand for engineers from these two countries would fully absorb the suitable supply by 2011 (Exhibit 3).

Exhibit 3

US AND UK DEMAND COULD ABSORB THE ENTIRE SUPPLY OF SUITABLE YOUNG PROFESSIONAL ENGINEERS FROM CHINA, INDIA AND THE PHILIPPINES BY 2011



* Supply forecast does not include effects of supply fragmentation and local demand.
 ** ≤7 years of work experience.
 Source: McKinsey Global Institute analysis

Demand will disperse if companies analyze potential offshore locations rationally according to their specific needs

Companies have different requirements from offshore locations, depending on a host of factors including their home market, their first language, what activity they want to offshore, the scale on which they want to offshore, and whether they want to outsource or set up a captive operation. This means different companies will assign different costs and benefits to the same location. Put another way, there is no single, homogeneous supply curve in the emerging global labor market—every company faces a different curve.

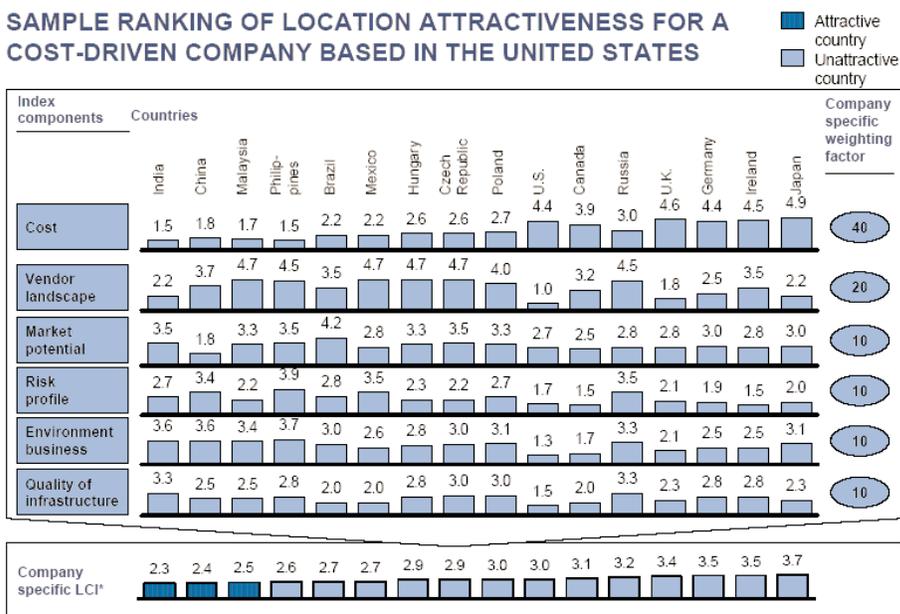
This feature of the market will act as a natural force for dispersing demand to fit supply more congruently, if companies act rationally to harness it. To do so, they need better information about the talent supply that suits their needs, and they also need to know the real costs of employing suitable talent in any potential location. Companies will find more information on the distribution of suitable talent across developing countries in "The Supply of Offshore Talent in Services," our previous report in this series. But each company needs to make its own analysis of location costs for each potential location.

What will that analysis entail? First, a company needs to define in detail the criteria governing its choice of location. At a broad level, these are likely to include: labor cost; the quality of local service vendors; market potential; the intrinsic risks of the location; its business environment; and the quality of its infrastructure. The company can then weigh these criteria according to its particular goals and requirements. When it has gathered the relevant data about the criteria from each potential location, it can calculate its own true cost of offshoring in any of them. (In this report we describe the Location Cost Index, a data-based tool created along these lines for assessing potential offshoring locations.) A company that ranks potential locations in order of their true cost will in effect be drawing its unique supply curve.

If companies consider only current wage levels in their assessments of offshoring locations, then India and China will seem the best choice to all of them, as these three countries at present have the lowest average labor costs for services workers. But when companies rank countries according to their unique cost criteria, more locations will emerge as attractive to more companies (Exhibit 4). Our database on supply countries shows they vary considerably on the basic cost criteria.

Exhibit 4

SAMPLE RANKING OF LOCATION ATTRACTIVENESS FOR A COST-DRIVEN COMPANY BASED IN THE UNITED STATES



* In this ranking 1 is the most attractive and 5 is the least attractive.
Source: Location cost index database

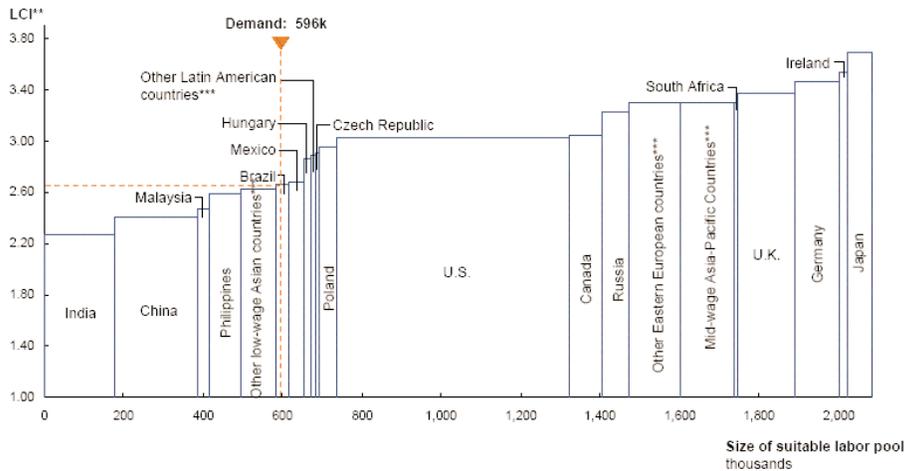
Global resourcing will raise average wages in low-wage countries and have muted impact on employment and wages in high-wage countries

What would be the effect on wages of engineers in low-wage countries if labor cost was the most important factor in the choice of location for all U.S. companies seeking to employ engineers offshore? Our analysis shows that demand would be satisfied by supply from the Asian countries plus a fraction of supply from Latin American countries (Exhibit 5). Average wage levels in countries to the left of the point where the market clears in this analysis could likely double. While wages will increase, making offshoring to low-wage countries less attractive, they will not reach wage levels for the same occupations prevailing in the United States or Western Europe. Instead, the market will clear when wages for offshore engineers are roughly equivalent to the level of wages in Mexico or Brazil, or about 30 percent the level of wages for engineers in the United States (Exhibit 6).

Exhibit 5

IF ALL COMPANIES SEEKING YOUNG PROFESSIONAL ENGINEERS WERE COST-DRIVEN, THEIR LIKELY DEMAND WOULD BE SATISFIED BY TALENT FROM COUNTRIES LEFT OF MEXICO...

Demand for remote labor vs. supply curve – young professional engineers*, 2008

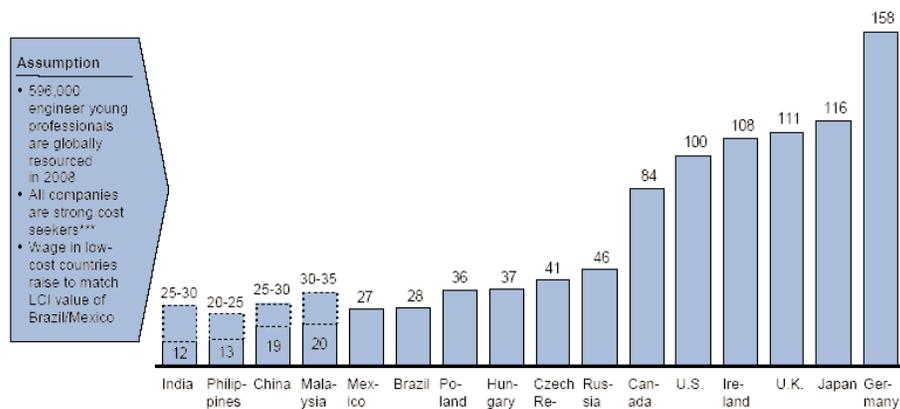


* 57 years of work experience; supply does not consider limited talent accessibility and domestic labor demand
 ** Location cost index. Applied the weighting of cost: 50%, vendor: 10%, market: 10%, risk: 10%, infrastructure: 10%, and environment: 10%
 *** The LCI values for the other countries are estimated
 Source: McKinsey Global Institute analysis

Exhibit 6

...AND WAGES OF YOUNG PROFESSIONAL ENGINEERS IN THOSE COUNTRIES COULD RISE TO APPROXIMATELY 30% OF U.S. LEVEL*

Comparison of hourly labor cost; Index**, U.S. = 100



* Does not consider stickiness, limited talent accessibility, domestic labor demand and manager scarcity which might inflate wages beyond these levels at least for some occupational categories.
 ** Hourly labor cost reflects average of all job categories within a country
 *** Weighting of labor cost with 50% within LCI
 Source: Watson Wyatt; local sources (e.g., Labor census); interviews, McKinsey Global Institute analysis

Wage costs overall in supply countries will rise more slowly if companies select locations according to their unique requirements. The resulting mixture of rational location strategies will disperse demand so that it fits more evenly with the distribution of suitable supply.

In contrast, local wage inflation will likely continue in some offshoring locations as long as companies concentrate their demand on a few cities. Because it is hard for companies to switch locations quickly, individual companies may see wages in their chosen offshoring location rise above the levels of neighboring countries along their individual cost curve, if demand in their chosen location begins to outstrip supply.

Offshoring will have little effect on wage levels in developed countries because it will have only a small impact on overall employment in those countries in the occupations we analyzed. Consider the impact in the United States. Over the past 30 years, the United States has experienced an 11 percentage point decline in manufacturing jobs, but wages have remained stable. By comparison, we estimate that a total of 9 percent of jobs in services in the United States could theoretically be performed remotely. However, it is unlikely that all these potentially transferable jobs will move offshore over the next thirty years, because of the considerable barriers to offshoring detailed in the first report in this series.⁴ Assuming that half the potentially transferable service jobs—a more realistic estimate, although still high—are actually relocated offshore over that period, the resulting job turnover would be around 225,000 jobs per year—or 1-2 percent of the 16 million jobs created⁵ per year in the U.S. economy.

Countries providing offshore talent can take steps to attract "best fit" companies

Since there is no general, fixed ranking of offshoring locations from the demand perspective, there is no preordained set of "winners and losers" on the supply side. Individual countries seeking to attract offshoring investment should target those companies and sectors whose requirements most closely match what the country can already offer, and then hone their attractive features. That strategy

⁴ The Emerging Global Labor Market. Part I-Demand for Offshore Talent in Services. Available at www.mckinsey.com/mgi.

⁵ Douglas Brown and Scott Wilson *The Black Book of Outsourcing: How to Manage the Changes, Challenges and Opportunities*. Wiley, 2004.

depends on supply countries forming a clear understanding of their potentially attractive features and which sectors or companies might favor them. Countries on the supply side of the emerging labor market will also benefit greatly from marketing their attractions to their target sectors. This is especially true for countries whose characteristics are rather similar to surrounding, and therefore competing, peers.

Concerning the attractiveness of a location's labor supply, the focus of government efforts should be on improving the quality of graduates rather than growing sheer numbers of graduates, as we explain in our second report in this series.⁶ Other important attractiveness factors that governments can influence in the short to medium term are their support for foreign investors, the state of the infrastructure, the competitiveness of their tax regime, and the effectiveness of intellectual property law.

Finally, policy-makers and educational institutions in high-wage countries should equip their graduates to work effectively with their peers in today's low-wage countries. In Europe, for example, those countries and companies that encourage their graduates to look for opportunities to the east, with appropriate language training, funded exchange programs and internships, will be best placed to benefit from the talent pool represented by new EU members, such as Hungary, the Czech Republic, and Poland and by emerging markets in Asia.

* * *

⁶ The Emerging Global Labor Market Part II-Supply of Offshore Talent in Services. Available at www.mckinsey.com/mgi



Synthesis

INTRODUCTION

Opinions differ about the fit between supply and demand in the emerging global market for service labor. Some argue that the potential supply of offshore talent relative to demand is nearly limitless, while others point to signs of limited supply already forcing wage increases. To date, however, the facts required to resolve this debate have been missing, in particular the answers to the following key questions:

- How does demand for offshore labor from companies in high-wage countries match the supply of suitable offshore labor from low-wage countries?
- Will a defined set of countries with similar supply characteristics continue to provide the bulk of offshoring labor, or will different countries attract different types of offshored functions?
- How will offshoring affect employment and wages in developing and developed countries?

Building on research described in the two previous reports in this series, in this third and final report, the McKinsey Global Institute (MGI) offers answers to these and several related questions.

The first report in the series, "The Demand for Offshore Talent in Services," presented estimates of current and future demand at an occupational level from eight sectors¹ for jobs that could be resourced globally (i.e., performed anywhere

¹ The eight sectors evaluated were: auto, health care, insurance, IT services, packaged software, pharmaceuticals, retail banking, and retail

in the world). These sectors together account for approximately 15 percent of the world's nonagricultural employment.

The second report, "The Supply of Offshore Talent in Services," estimated the availability of low-wage labor to meet this demand at an occupational level. It quantified the supply of talent suitable for employment in multinational companies (MNCs) in 28 low-wage countries and eight mid- to high-wage countries.²

In this report we analyze how demand and supply meet for the eight occupations³ that we previously evaluated. In the end, supply and demand will necessarily clear through price, represented in this market by wages.⁴ However, mapping likely demand against potential supply shows that, as the conflicting views reported previously indicate, this market is not clearing efficiently. The report shows where inefficiencies in the market are apparent, and the impact of the market's development on both high-wage and low-wage countries. We discuss measures to improve the market's efficiency that could be taken both by companies in high-wage economies on the demand side and by policy-makers in low-wage countries that wish to attract offshoring investment.

The report is divided into five sections:

- **Matching supply and demand at a global level** examines the fit between the supply of suitable talent from low-wage countries and the likely demand for offshore talent from companies in high-wage countries.
- **Evaluating inefficiencies in the market** discusses reasons for inefficiencies in the fit between potential supply and likely demand, including agglomeration effects (and their particular impact on two current offshoring "hub" cities), and "stickiness" effects.

² Mid- to high-wage countries studied in-depth were: Canada, Germany, Ireland, Japan, the United Kingdom, and the United States; Australia and South Korea were studied by way of extrapolation. Low-wage countries included in the in-depth study were: Brazil, China, Czech Republic, Hungary, India, Malaysia, Mexico, Philippines, Poland, and Russia; other low-wage countries studied were: Argentina, Bulgaria, Chile, Colombia, Croatia, Estonia, Indonesia, Latvia, Lithuania, Romania, Slovakia, Slovenia, South Africa, Thailand, Turkey, Ukraine, Venezuela, and Vietnam.

³ The eight occupations analyzed were: engineers, finance and accounting professionals, analysts, life science researchers, doctors, nurses, generalists, and support staff.

⁴ Therefore, when we refer to "supply exceeding demand" in a market, this can be properly viewed as a situation where pressure on wages will be present.

-
- **Selecting locations for global resourcing** discusses how companies can take a more analytical approach to selecting offshore locations and the impact that will have on the emerging global labor market. This section introduces the Location Cost Index, a data-based tool for evaluating offshoring locations populated with data from the potential offshoring locations we studied.
 - **The impact of offshoring on wages in low-wage and high-wage countries** presents the potential evolution of wages in developing nations in the light of offshoring and explains why its effect on wages in developed countries is likely to be negligible.
 - **Implications for companies and countries** examines what these findings mean for multinational companies seeking to locate service functions in low-wage countries, for developing countries seeking to attract such investment, and for policy-makers in developed countries.

MATCHING SUPPLY AND DEMAND AT A GLOBAL LEVEL

We matched our estimates of aggregate demand for globally resourced labor from companies in high-wage countries to the supply of labor suitable for employment in multinational companies in 28 low-wage countries. The results show that—at this effectively global level—the potential supply of labor in low-wage locations exceeds demand for the eight occupations we analyzed to 2008 (Exhibit 1). Only the available supply of engineers in low-wage countries is somewhat less abundant at this level, contrary to opinion among many engineers in high-wage countries. Other occupations with a relatively closer match between supply and demand are young professional generalists and young professional analysts.

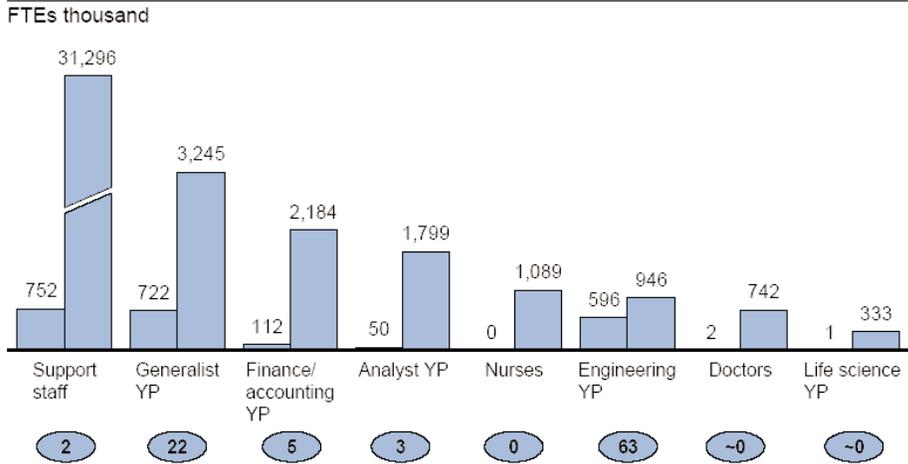
However, it is important to note that our estimate of total supply is based on data collected from 10 low-wage countries and extrapolated to a further 18 low-wage countries. In addition it assumes that all talent is available. It does not take into consideration the facts that not all suitable graduates in supply countries are accessible to multinationals for employment and that, in China, offshoring companies must compete with demand for talent from players serving the fast-growing domestic market and export-oriented manufacturing. (Both are discussed in depth in "The Supply of Offshore Talent in Services"). Lastly, we

include in our analysis countries that, although they have low wage levels and are indeed potential locations for offshored activities, are not currently considered by companies as top offshoring locations.

Exhibit 1

POTENTIAL SUITABLE SUPPLY EXCEEDS LIKELY DEMAND FOR GLOBALLY RESOURCED TALENT IN MOST YOUNG PROFESSIONAL (YP)* OCCUPATIONS

Likely low-wage labor demand and suitable supply**, 2008



* ≤7 years of work experience.
 ** Assuming constant suitability rates from 2003 to 2008; aggregated low-wage supply from 28 countries.
 Source: McKinsey Global Institute analysis

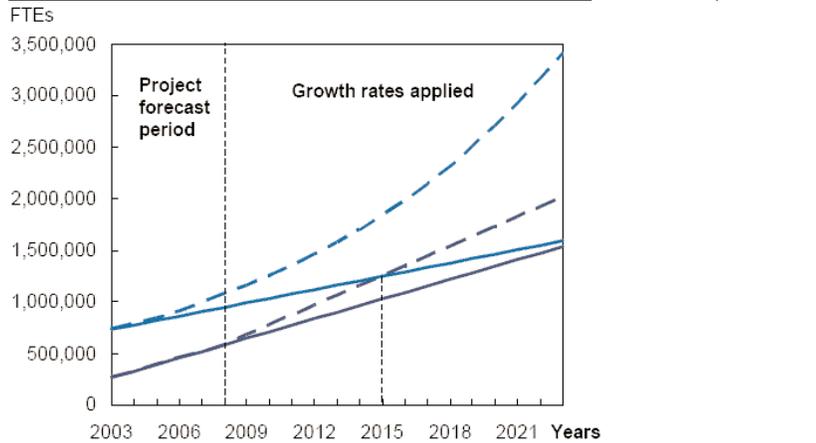
Engineers

At current rates of growth in offshoring by companies and growth in the supply pool, we estimate that the combined supply of qualified young professional engineers from all 28 low-wage locations might begin to be constrained by 2023. Indeed, average wages for engineers from the 28 supply countries would rise as early as 2015 if we assume an aggressive rate of growth in demand for this occupation. However, these supply constraints arise when we assume an annual growth rate of 5 percent in the supply of labor suitable for employment in multinationals. If countries were to implement measures to make more of their graduates suitable for such employment and supply were thus to grow at higher rates, these scenarios would likely change (Exhibit 2).

Exhibit 2

AT CURRENT SUITABILITY RATES AND AN AGGRESSIVE PACE OF ADOPTION IN DEMAND, SUPPLY OF ENGINEERS COULD BE CONSTRAINED BY 2015

Demand and supply* for low-wage engineers, young professionals



* Supply forecast is based on extrapolation of 10 low-cost countries to a further 18 low-cost countries and does not include effects of supply fragmentation.

** Pace of adoption is the rate at which companies are pursuing offshoring.

Source: McKinsey Global Institute analysis

Generalists and pure analysts

For these two groups, our analysis shows that no constraints on supply will appear if all 28 low-wage countries are considered. Since supply is not constrained, changes in the level of demand will do the most to determine the evolution of the emerging global market for talent in these occupations.

EVALUATING INEFFICIENCIES IN THE MARKET

The impression given by these figures of plentiful supply at the global and country level is somewhat illusory. In fact, companies hiring offshore frequently follow each other to cities or locations that already have a track record in providing offshore talent. The resulting agglomeration of companies in popular locations has some positive effects, such as accelerating improvements in infrastructure, communications, and the business environment. But it also leads to concentrated demand, which in turn leads to higher local wages and levels of attrition. These negative effects may persist because of "stickiness" factors making it hard for companies to switch locations.

Agglomeration

Agglomeration effects—benefits that all players enjoy due to the clustering of companies that perform similar activities in the same area—can be a powerful justification for companies to locate activities close to those of competitors or related industries. Manufacturing clusters, as in the Guangdong province of China, foster strong economies of scale, efficiencies in distribution, and concentration of infrastructure. High-tech clusters like the one in Silicon Valley foster innovation by facilitating interaction between "knowledge workers" in companies and research institutions. Clustering promotes other general advantages for a location including more vendors, more flights, better roads, and an improving business environment thanks to greater government support. Such advantages create positive externalities, so each additional member of the cluster will attract more followers.

However, cluster growth can eventually produce negative effects, mainly increases in wages and attrition rates as the labor supply becomes constrained. Recruiting costs and real estate costs tend to go down as agglomeration increases, but then rise as the cluster gets crowded (Exhibit 3). Agglomeration can continue to increase a location's attractiveness for a long time if the local labor supply is vast and positive factors, such as R&D benefits, are strong. However, if labor supply or real estate are limited, the attractiveness of the location begins to decrease as soon as those limits are approached (Exhibit 4).

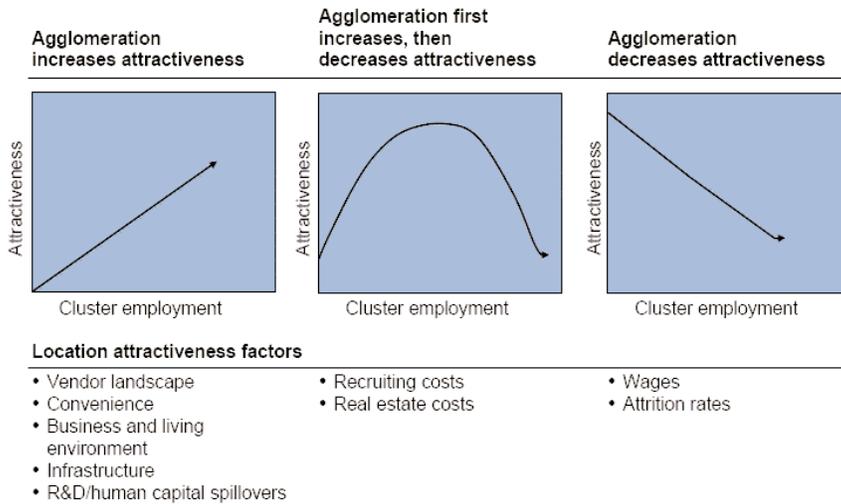
The impact of agglomeration on cities

Because pools of suitable labor are dispersed among and within countries and talent is not perfectly mobile, labor supply constraints can be visible much earlier in particular cities or regions than the aggregate size of a country's labor pool might imply. Agglomeration is already affecting the supply, cost of labor, and levels of attrition in some cities in Russia, Eastern Europe, and India, particularly for engineers and middle managers. We believe that several locations are at or past the peak of their attractiveness. In Prague and Hyderabad, two cities where the number of offshore operations has been growing strongly, the supply of suitable engineering labor may be constrained as early as 2006 and 2008 respectively.

- *Prague.* Several Eastern European cities have emerged as global resourcing destinations in the past decade, especially Budapest, Prague, Bratislava, and Krakow. These cities cater to nearby Western European countries who find in

Exhibit 3

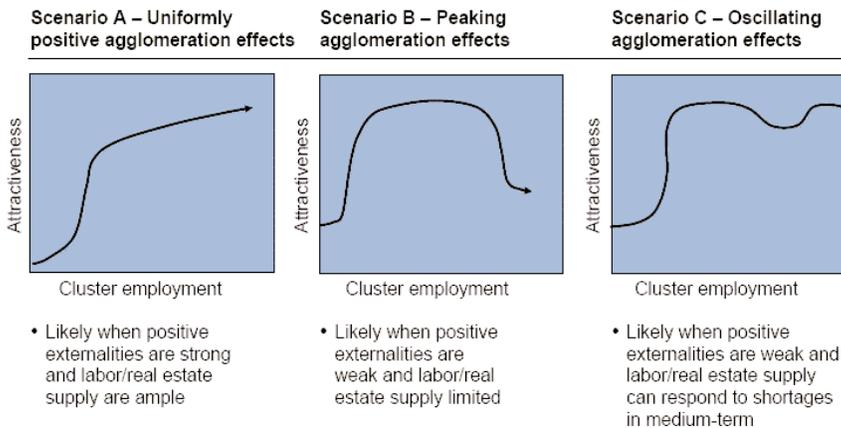
AGGLOMERATION CAUSES SOME LOCATION ATTRACTIVENESS FACTORS TO IMPROVE WHILE OTHERS DETERIORATE



Source: McKinsey Global Institute analysis

Exhibit 4

OVERALL, AGGLOMERATION CAN INFLUENCE LOCATION ATTRACTIVENESS DIFFERENTLY UNDER DIFFERENT SCENARIOS



Source: McKinsey Global Institute analysis

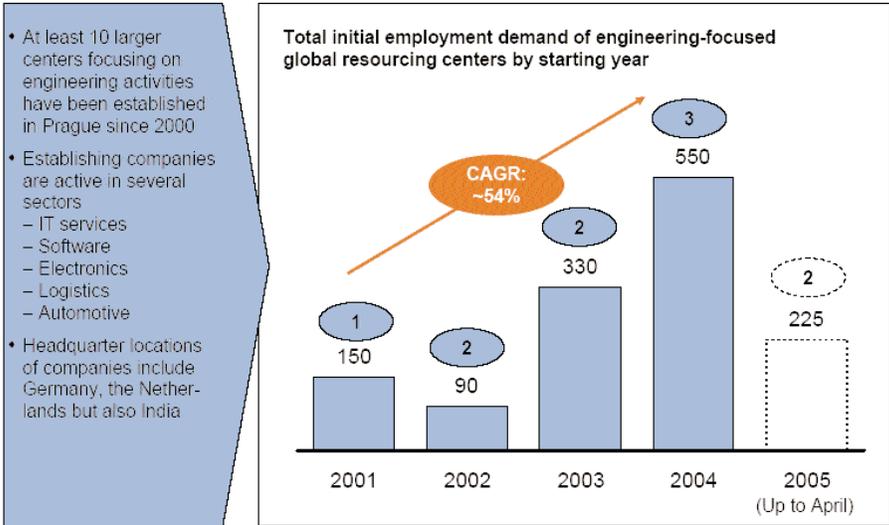
Eastern Europe the combined advantages of relatively low labor costs, speakers of multiple Western languages, and proximity. While most of the companies that offshore to Eastern Europe have headquarters in Germany, the United Kingdom, the Netherlands, and Scandinavian countries, these cities are also becoming increasingly attractive to Indian vendors who want to establish a presence close to Western Europe.

- Since 2000, several Western European and U.S. companies have selected Prague as a global resourcing location. In addition to the advantages that it shares with other Eastern Europe cities, effective self-marketing by the Czech government agency and Prague's attractive living environment have been decisive factors in its success.
- Offshore centers near Prague are notable for their variety and growth. Companies from diverse sectors (electronics, automotive, logistics, and software) have bundled their European shared services in captive centers in the city. These perform a wide range of activities including finance and accounting processes, call-center operations, IT services, and software R&D. At least 16 large centers have been established in the past four years, and their demand for talent is growing. Total demand for labor from new engineering-focused centers has grown by roughly 50 percent a year since 2001, and three of these centers have plans to employ around 1,000 FTEs by 2008 (Exhibit 5).
- Universities and colleges in the region graduate approximately 2,200 engineers per year. Roughly half of these new graduates are suitable for work in a multinational company. The supply of suitable local talent is growing at approximately 6 percent a year. However, if we assume that, by 2008, new engineering centers in the area will require about 550 FTEs and employment at the existing centers grows by 20 percent, then offshore centers alone will employ most of the suitable engineers in Prague (Exhibit 6). Wage increases for software and computer engineers beyond 10 percent per year, well above the average wage growth for service workers, indicate the beginning of supply constraints for this occupational group. So do reports from managers of the larger centers that they have started to recruit talent from other Czech and Slovakian cities (e.g., Brno, Bratislava) to meet their demand for labor in Prague.

Exhibit 5

SINCE 2000, PRAGUE HAS SEEN A STRONG RISE IN THE ESTABLISHMENT OF ENGINEERING-FOCUSED GLOBAL RESOURCING CENTERS

Number of new centers opened



- At least 10 larger centers focusing on engineering activities have been established in Prague since 2000
- Establishing companies are active in several sectors
 - IT services
 - Software
 - Electronics
 - Logistics
 - Automotive
- Headquarter locations of companies include Germany, the Netherlands but also India

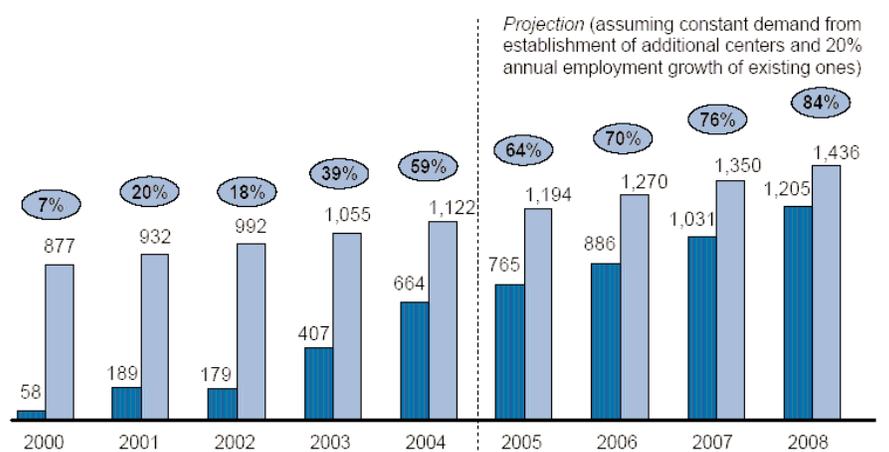
Source: Company Web sites; press releases

Exhibit 6

GLOBAL RESOURCING CENTERS WILL EMPLOY ALMOST ALL SUITABLE ENGINEERING GRADUATES IN PRAGUE BY 2008

Suitable engineering graduates from Prague universities/colleges*
 Demand for engineers by Global resourcing centers
 Share of suitable supply demanded by Global resourcing centers

Supply/demand for suitable engineering graduates in Prague



* Assuming ~6% annual growth equal to all of the Czech Republic.

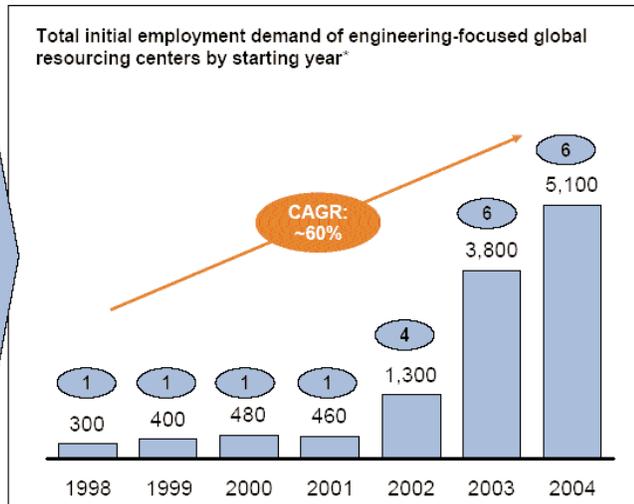
Source: Company Web sites; press releases; University Web site; Czech Ministry of Education; McKinsey Global Institute analysis

- *Hyderabad.* The scarcity of local engineers in Hyderabad is even more striking.
 - In the late 1990s, some companies, mostly U.S. and Indian, began to look beyond the "first tier" of offshoring locations in India such as Bangalore and Mumbai. Hyderabad emerged as a sizable hub for software and IT intensive activities once large IT outsourcers like TCS and Satyam established operations there. Even though business process outsourcers followed, Hyderabad is still a location largely for software/IT-industry activities. Several major U.S. software vendors have established captive centers in the city.
 - Altogether, at least 20 large centers focusing on engineering activities have been established in Hyderabad since 1998. The years from 2002 onward saw explosive growth in activity in the city. In 2004 alone, six new centers were established, together employing approximately 5,000 FTEs (Exhibit 7).

Exhibit 7

SINCE 1998, HYDERABAD HAS SEEN THE ESTABLISHMENT OF MANY LARGE ENGINEERING-FOCUSED GLOBAL RESOURCING CENTERS ● Number of new centers opened

- At least 20 larger centers focusing on engineering activities have been established in Hyderabad since 1998
- Establishing companies are mostly active in IT services and software development
- Operations are equally captive and third party
- Headquarter locations of companies are almost exclusively US and India



* Starting year employment was calculated based on 2004 employment using an assumed 20% annual growth rate
 Source: Company Web sites; press releases; McKinsey Global Institute analysis

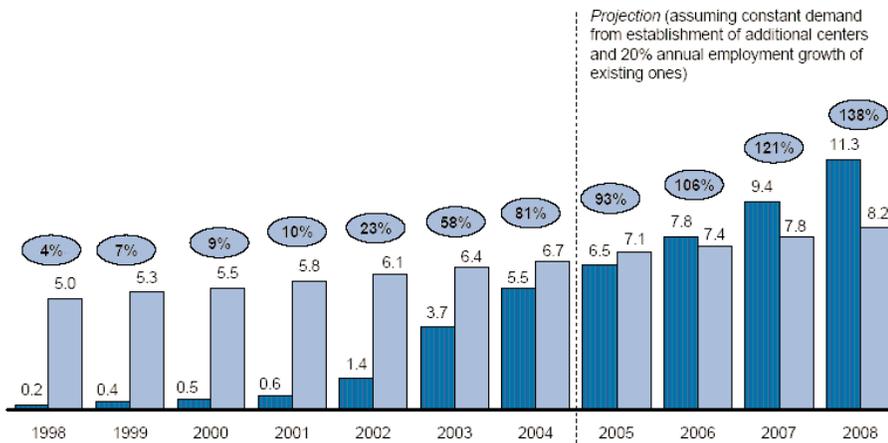
- Universities and colleges in the region graduate roughly 25,000 engineers a year, of whom about 25 percent are likely to be suitable for work in multinationals. That will not be enough to meet demand for engineers at current growth rates. Demand for engineers will surpass suitable local supply as early as 2006, and reach 138 percent of supply by 2008. In 2006, offshore centers in Hyderabad will already be relying on recruiting labor from elsewhere, even at the young professional level (Exhibit 8).

Exhibit 8

AT CURRENT GROWTH RATES, DEMAND FOR SUITABLE ENGINEERS IN HYDERABAD WILL EXCEED LOCAL SUPPLY BY MORE THAN 3,000

Supply/demand for suitable engineering graduates in Hyderabad
Thousand

- Suitable engineering graduates from Hyderabad universities/colleges*
- Demand for engineers by Global resourcing centers
- Share of suitable supply demanded by Global resourcing centers



* Assuming ~5% annual growth equal to all of India

Source: Company Web sites; press releases; McKinsey Global Institute analysis

The impact of agglomeration on countries

Agglomeration effects could be felt at a country level in certain occupations if current trends continue. Using data from the case studies of sectoral demand that form part of the first report in this series,⁵ we found that the United States and the United Kingdom together will account for 69 percent of the demand for globally resourced young professional engineers by 2008, while demand from

⁵ "The Demand for Offshore Talent in Services"

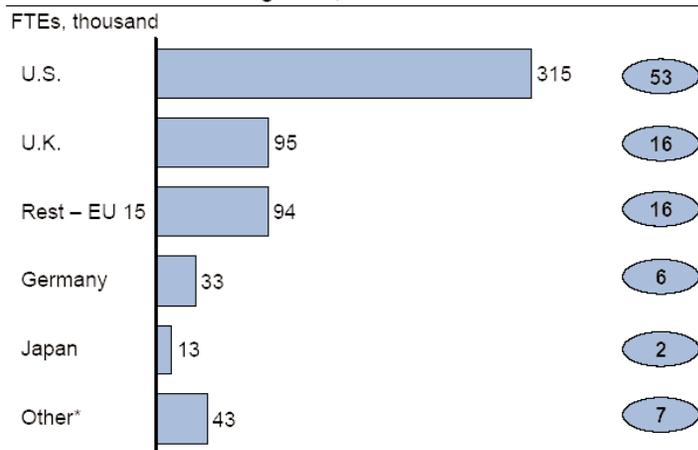
Germany and Japan will be much less significant (Exhibit 9). On the supply side, although several other countries are also offshoring locations, India, the Philippines, and China are very often the top choices among companies offshoring IT- and engineering-based services. We therefore matched demand for young professional engineers from the United States and the United Kingdom to the supply from India and China. We found that it would exhaust supply from these two countries by 2008. If supply from the Philippines is included, demand from the United States and the United Kingdom growing at current rates will exhaust the supply of young professional engineers from these three countries by 2011 (Exhibit 10).

Exhibit 9

THE U.S. ACCOUNTS FOR AROUND HALF OF DEMAND FOR OFFSHORED ENGINEERS

● Percent of total
SPLIT BASED ON
IT SERVICES CASE

Demand for offshored engineers, 2008



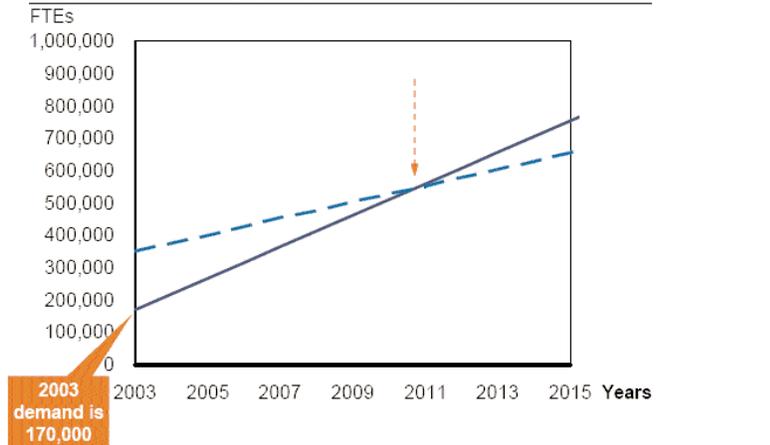
Total offshored engineers (young professional) in 2008: 596,000

* E.g., Canada, Ireland.
Source: McKinsey Global Institute analysis

Exhibit 10

U.S. AND U.K. DEMAND COULD ABSORB THE ENTIRE SUPPLY OF SUITABLE YOUNG PROFESSIONAL ENGINEERS FROM CHINA, INDIA AND THE PHILIPPINES BY 2011

Demand (from US and UK) and supply* (from China, India, and Philippines) for low-wage young professional engineers**



* Supply forecast does not include effects of supply fragmentation and competing demand.

** ≤7 years of work experience.

Source: McKinsey Global Institute analysis

Stickiness

If a company finds that agglomeration makes conditions in its chosen offshore location deteriorate, management may not be able to relocate quickly to a better place. The higher a company's initial capital outlay to set up an offshore enterprise, the "stickier" the location is likely to prove, because management will be looking for enough cost savings from any new location to make good the investment sunk in the first one. Offshored activities require different levels of investment in physical capital, making some "stickier" than others (Exhibit 11).

Similarly, companies invest heavily in developing human capital in their offshore activities, just as they do in their existing locations, with the development of knowledge workers requiring the most time and resources. The more a company has invested in human capital formation in their chosen location, the less likely it is to move as conditions in that locale deteriorate.

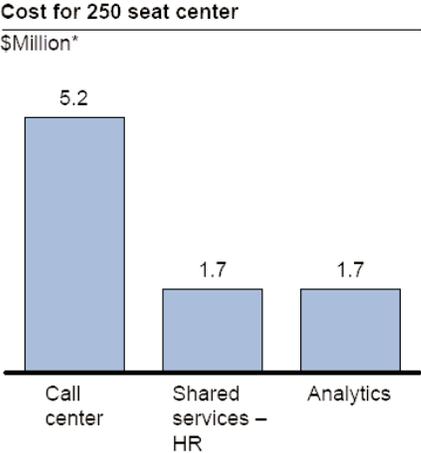
The cost of building human capital is difficult to measure, so we have no means of estimating objectively the degree of stickiness it creates. Anecdotal evidence, however, suggests that human capital investments are indeed an important

factor in relocation decisions. Lower human capital investments may even offset the stickiness created by high physical sunk costs. A call center needs a big initial investment in physical capital but much less investment in human capital than would an R&D or analytics operation, for example several companies have easily relocated call centers from Ireland and even India to the Philippines.

Finally, companies that use vendors to provide offshore services generally have fewer sunk costs in physical and human capital in any location. Consequently it is easier for them to change locations. However, switching vendors does incur some "start-up" costs, for example, spending on systems integration. The greater these costs, the "stickier" the location will appear to the management team that has invested in them.

Exhibit 11

ONE-TIME/INVESTMENTS COSTS FOR BPO CENTERS – INDIA



* Does not include severance costs.
Source: McKinsey analysis

SELECTING LOCATIONS FOR GLOBAL RESOURCING

As the supply of labor for particular occupations in some countries gets tight, and agglomeration makes supply even tighter in some cities, companies are likely to start tapping the supply of available labor in a wider range of countries. The way in which companies select locations for offshoring will become increasingly critical to the performance and profitability of their offshore ventures.

Companies have different requirements from offshore locations, depending on a host of factors including their home market, their first language, what activity they want to outsource, the scale on which they want to offshore, and whether they want to outsource or set up a captive operation. This means different companies will assign different costs and benefits to the same location. Put another way, there is no single, homogeneous supply curve in the emerging global labor market—every company faces a different curve.

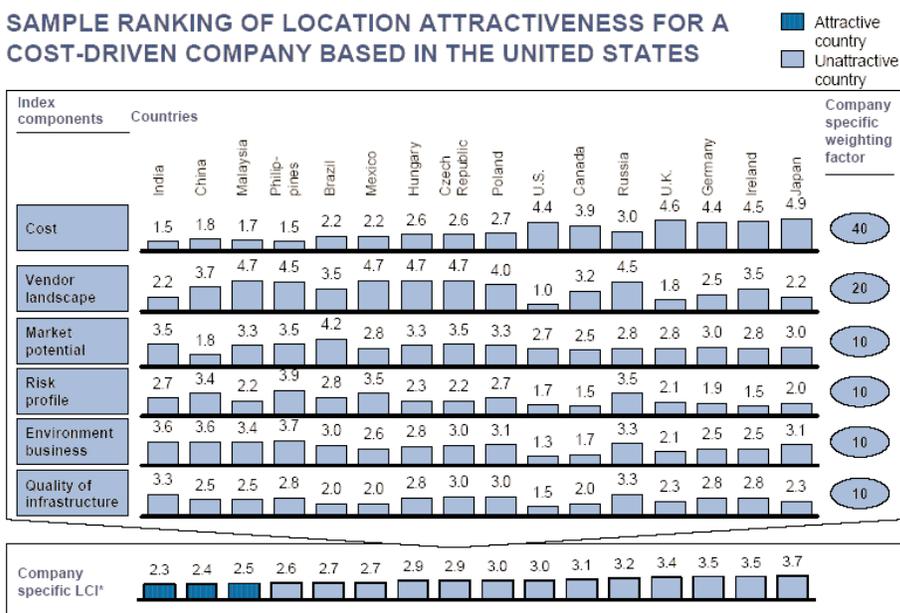
This feature of the emerging global labor market will act as a natural force for dispersing demand to fit supply more congruently if companies analyze carefully the cost of accessing labor in various global resourcing locales before choosing where to establish their facilities. Companies do this already, but not always comprehensively. To make a rational analysis, companies need better information about the location of talent that suits their needs, and they also need to know the real costs of employing suitable talent in any potential location.

What will that analysis entail? First, a company needs to define in detail the criteria governing its choice of location. At a broad level, these are likely to include: labor cost, the quality of local service vendors, local market potential, the intrinsic risks of the location, the nature of its business environment, and the quality of its infrastructure. The company can then weight these criteria according to its particular goals and requirements. When the company has gathered the relevant data about the criteria from each potential location, it can calculate its own true "cost" of offshoring in any of them based on both quantitative and qualitative measures. Using the Location Cost Index (LCI) database⁶ (see gray box), we can estimate the total cost to a particular company or group of companies of accessing labor in potential locations, and rank the locations accordingly (Exhibit 12).

⁶ Proprietary database developed in this study which evaluates countries along 50 different factors and creates comparative indexes.

Exhibit 12

SAMPLE RANKING OF LOCATION ATTRACTIVENESS FOR A COST-DRIVEN COMPANY BASED IN THE UNITED STATES



* In this ranking 1 is the most attractive and 5 is the least attractive.
Source: Location cost index database

The countries that emerge as lowest cost will vary depending on the preferences of the company making the analysis. As a consequence, an increasing number of countries will likely emerge as attractive to more companies, and so begin to participate in the global market for talent.

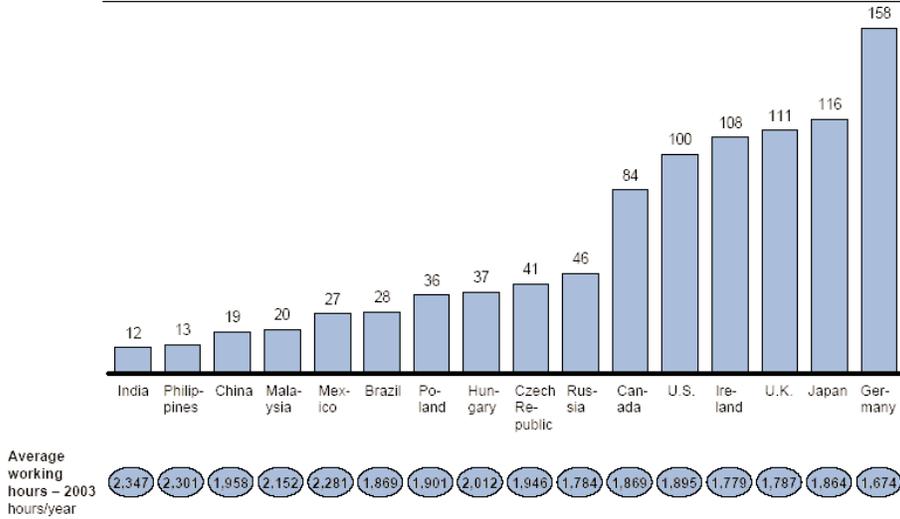
India, Philippines, and China, the most popular offshoring destinations today, are not necessarily the most attractive locations for all companies, even though they have the lowest average labor costs (Exhibit 13). Exhibits 14 and 15 demonstrate this fact using location cost analyses from real companies as examples.

Exhibit 14 shows the location ranking for a U.S. based company with some concern for cost but more interest in finding the right talent to undertake R&D. For this company, the United States turned out to be the best location—indeed, high-wage countries often emerge as the most attractive location for R&D functions. In contrast, Exhibit 15 shows the result for a European based company with a strong preference for convenience. For this company, easy flight access, a close time zone, and similar culture were important. As a consequence, it ranked nearby Eastern European countries the highest.

Exhibit 13

INDIA AND PHILIPPINES ARE THE MOST ATTRACTIVE COUNTRIES IN TERMS OF LABOR COST*

Comparison of hourly labor cost; Index**, U.S. = 100



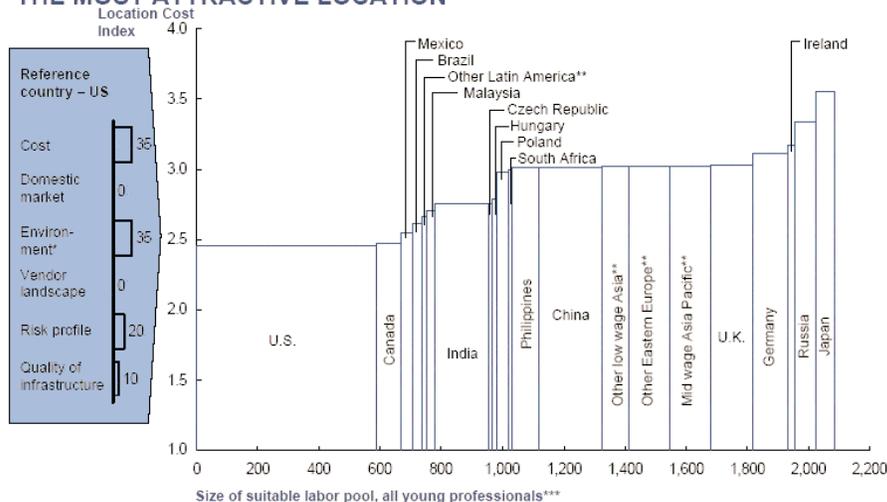
* Labor costs include benefits and taxes; averaged across a variety of professional job categories.

** Index is based on dollar wages; exchange rate: 12 months average as of January 2005.

Source: Watson Wyatt; Local sources (e.g., Labor census); Interviews

Exhibit 14

FOR A U.S. COMPANY ASSIGNING A RELATIVELY LOW WEIGHTING TO COST AND A HIGH WEIGHTING TO CONVENIENCE, THE U.S. RANKS AS THE MOST ATTRACTIVE LOCATION



* Within environment, convenience (e.g., travel time) is assigned higher weighting

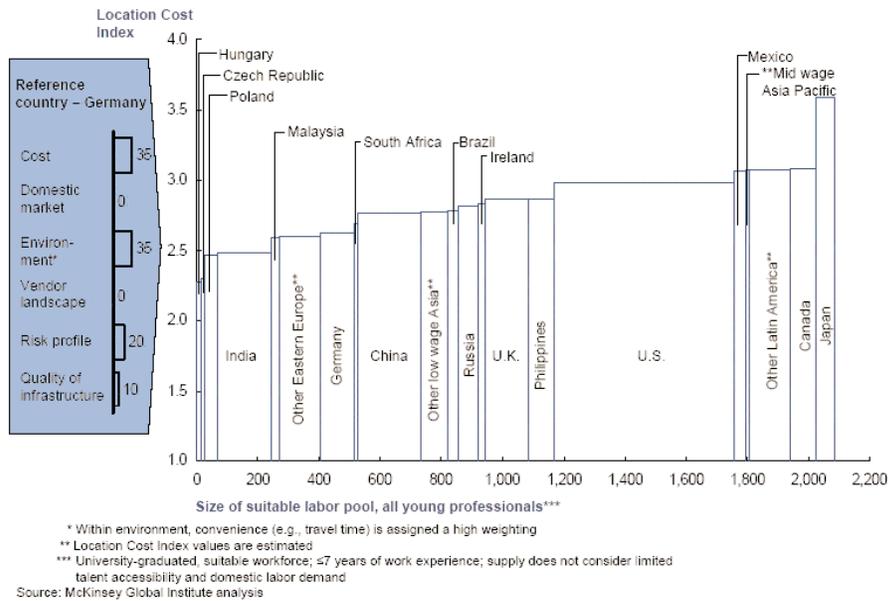
** Location Cost Index values are estimated

*** University-graduated, suitable workforce; ≤7 years of work experience; supply does not consider limited talent accessibility and domestic labor demand

Source: McKinsey Global Institute analysis

Exhibit 15

**FOR A CONVENIENCE-DRIVEN COMPANY BASED IN GERMANY,
EASTERN EUROPEAN COUNTRIES ARE MORE ATTRACTIVE THAN INDIA**

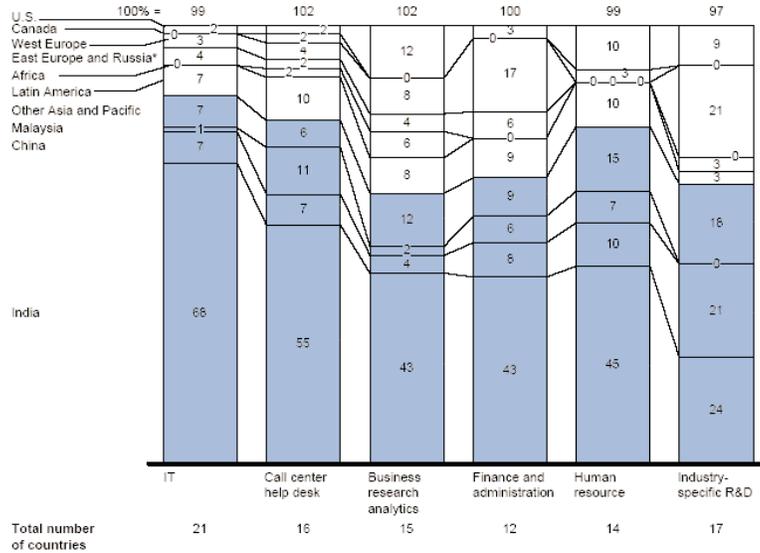


These examples show that when companies take an analytical approach to selecting their offshore locations, they choose different locations from each other. In fact, demand for offshore talent is already dispersing: a recent MGI survey of senior executives finds that companies are locating a significant number of offshore activities outside India, especially activities other than IT and call centers, India's established strengths (Exhibit 16). This suggests companies are beginning to make more detailed appraisals of their potential offshore locations. Such careful analysis will only become more important in the future, as more cities made popular by a "follow the leader" approach begin to hit supply constraints.

Exhibit 16

INDIA'S LEADING POSITION IN IT IS STRONGER THAN IN OTHER AREAS

Percent of share of survey respondents' current or future offshoring centers by country



* Includes Turkey
Source: McKinsey Global Institute Survey

THE IMPACT OF OFFSHORING ON WAGES IN LOW-WAGE AND HIGH-WAGE COUNTRIES

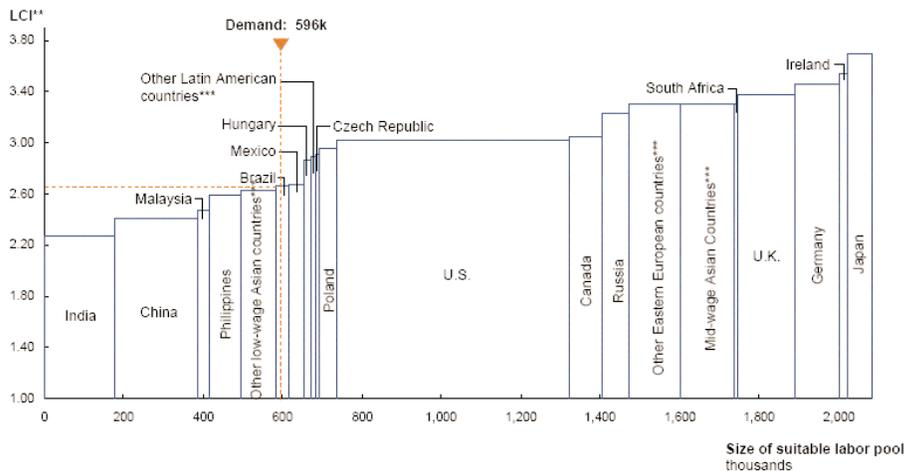
Wage levels can rise as the gap between demand and supply narrows, changing the relative attractiveness of countries over time. Some offshoring companies have already experienced wage inflation for engineers in low-cost countries. For example, in India the wages for software/IT middle-managers stood at 5 percent of the United States levels in 1998, but by 2003 had reached 15 percent.

How high could wage levels rise in what are now low-wage countries? To tackle this question, we modeled what would happen to wage levels for young professional engineers in supply countries if, in 2008, all companies in the United States seeking to hire such engineers offshore placed their highest weight on labor costs. Under this scenario, the demand would be met, moving up the supply curve, from India, the Philippines, Malaysia, China, other Asian countries (e.g., Indonesia), and Brazil (Exhibit 17). As a consequence wages in countries to the left of Mexico—the next most attractive country after Brazil—on the curve would be likely to rise to Mexican levels, or to about 30 percent of the United States levels (Exhibit 18).

Exhibit 17

IF ALL COMPANIES SEEKING YOUNG PROFESSIONAL ENGINEERS WERE COST-DRIVEN, THEIR LIKELY DEMAND WOULD BE SATISFIED BY TALENT FROM COUNTRIES LEFT OF MEXICO...

Demand for remote labor vs. supply curve – young professional engineers*, 2008



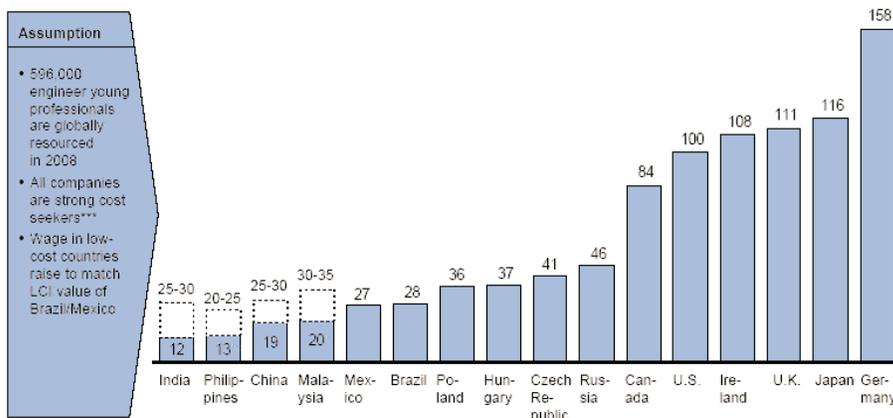
* 57 years of work experience; supply does not consider limited talent accessibility and domestic labor demand
 ** Location cost index. Applied the weighting of cost: 50%, vendor: 10%, market: 10%, risk: 10%, infrastructure: 10%, and environment: 10%
 *** The LCI values for the other countries are estimated
 Source: McKinsey Global Institute analysis

Exhibit 18

...AND WAGES OF YOUNG PROFESSIONAL ENGINEERS IN THOSE COUNTRIES COULD RISE TO APPROXIMATELY 30% OF US LEVEL *

■ Current labor cost
 □ Estimate of wage inflation

Comparison of hourly labor cost**; Index*, U.S. = 100

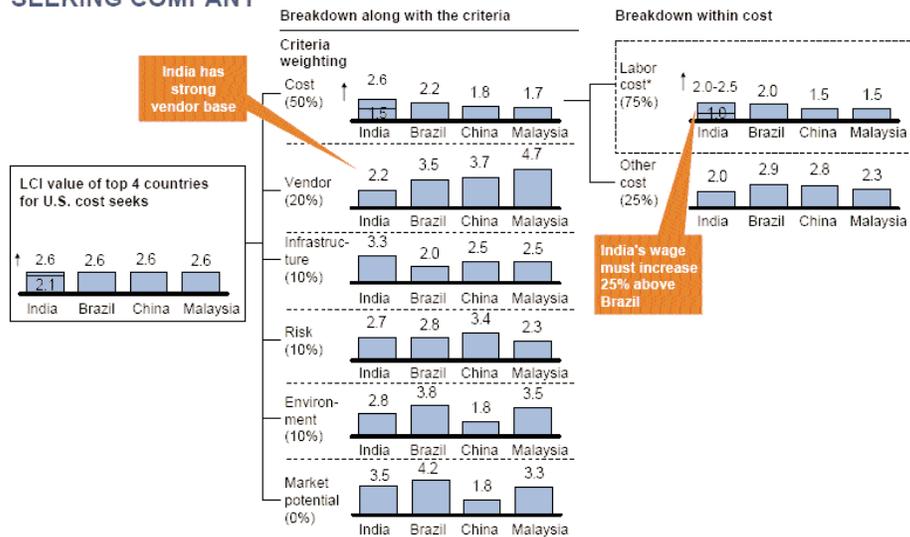


* Does not consider stickiness, limited talent accessibility, domestic labor demand and manager scarcity which might inflate wages beyond these levels at least for some occupational categories.
 ** Hourly labor cost reflects average of all job categories within a country
 *** Put 50% of weighting to cost
 Source: Watson Wyatt; local sources (e.g., Labor census); interviews, McKinsey Global Institute analysis

However, just because one country's wages increase to a higher level than wages in another country does not mean the two countries will exchange their positions in a particular company's location ranking, since each company's location analysis will rest on many factors other than wage costs. Indeed, wages in the first country may rise significantly higher than wages in the second before the first becomes less attractive if it has other location cost factors strongly in its favor. Consider an IT services company that places a heavy weight on labor costs and prefers to use a vendor. India's strong vendor base means that wages in India would have to increase 25 percent above those in Brazil—the next most attractive country—before India would rank lower (Exhibit 19).

Exhibit 19

INDIAN WAGES HAVE TO INCREASE ~25% ABOVE BRAZIL'S BEFORE INDIA CEASES TO BE THE BEST LOCATION FOR THIS U.S. VENDOR-SEEKING COMPANY



* Index of a labor cost: 1.0: ~15% of the U.S., 1.5: 15-25% of the U.S., 2.0: 25-35% of the U.S., 2.5: 35-45% of the U.S.
 Source: McKinsey Global Institute analysis

Several location cost factors tend to improve together as a country's participation in the global labor market increases. This can often partially counteract the negative impact of rising wages on a location's total costs (see the outline of positive agglomeration effects in the previous section).

In developed countries, offshoring will have little effect on wage levels because it will have only a small impact on overall employment in those countries in the occupations we analyzed. Consider the impact in the United States. Over the past 30 years, the United States has experienced an 11 percentage point decline in manufacturing jobs, but wages have remained stable. By comparison, we estimate that a total of 9 percent of jobs in services in the United States could theoretically be performed remotely. However, it is unlikely that all these potentially transferable jobs will move offshore over the next thirty years because of the considerable barriers to offshoring detailed in the first report in this series.⁷ Assuming that half the potentially transferable service jobs—a more realistic estimate, although still high—are actually relocated offshore over that period, the resulting job turnover would be around 225,000 jobs per year—or 1–2 percent of the 16 million jobs created⁸ per year in the U.S. economy.

IMPLICATIONS FOR COMPANIES AND COUNTRIES

Implications for companies

A variety of company needs meets a variety of country strengths. One major lesson from our evaluation of labor supply is that widely varying company requirements concerning supply locations face widely varying characteristics among potential supply countries. This implies there is no fixed ranking of supply countries: different companies will rationally choose different countries as their optimal location. For companies assigning more weight to cost reduction than any other criterion, then locations with the lowest wage costs—India, the Philippines, and China—will rank as most attractive. However, for companies with special environment or infrastructure requirements, or offshoring activities that go beyond IT support or call centers, other locations will be worth considering.

Careful selection of locations will become more important as more supply countries come into the market. This also suggests that more and more locations can and will participate as sources of supply in the global labor market

⁷ The Emerging Global Labor Market. Part I-Demand for Offshore Talent in Services. Available at www.mckinsey.com/mgi.

⁸ Douglas Brown and Scott Wilson *The Black Book of Outsourcing: How to Manage the Changes, Challenges and Opportunities*. Wiley, 2004.

in the future. Companies that simply "follow the leader" to popular supply locations have already caused—and experienced—growing wages and high attrition rates in several city labor markets. As more and more countries come into the market, companies will find an analytical approach to selecting an offshore location increasingly helpful for avoiding the negative effects of agglomeration. This approach needs to be complemented by an evaluation of the supply of suitable labor (see "The Supply of Offshore Talent in Services" for detailed recommendations on evaluating supply), but also the evolution of demand from other companies seeking talent in each potential location

Using vendors can reduce stickiness. An offshoring company should consider using a vendor in locations where wages are accelerating quickly, as the generally reduced "stickiness" of vendor contracts can allow the company to shift more easily to a more favorable location if wages in the first one rise too high. However, companies should check whether this comparative freedom of movement remains when the additional cost of vendor margins, the length of the contractual commitment, and any cost increase provisions in the contract are taken into account.

Implications for low-wage countries

Many countries can compete successfully on the supply side of the market. Since there is no general, fixed ranking of offshoring locations from the demand perspective, there is no preordained set of "winners and losers" on the supply side. Individual countries seeking to attract offshoring investment should target those companies and sectors whose requirements most closely match what the country can already offer, and then hone their attractive features. They might choose to highlight or improve one particular area to differentiate their country from other locations. This strategy depends on supply countries forming a clear understanding of their potentially attractive features and which sectors or companies might favor them.

Improving a country's attractiveness as an offshoring location will take time and effort. Improving a country's attractiveness as an offshoring location is a long term endeavour for policy-makers, since several important criteria affecting companies' location decisions are either largely beyond their control (labor cost) or are cultural as much as policy-driven (the business environment). They will

also be competing against other countries following the same strategy. But since several countries have a similar profile of overall location costs, it is all the more important for individual countries to nurture areas of distinctiveness.

High-priority areas can be improved even in the mid-term. On the other hand, there are several location cost factors of high priority to almost all companies that policy-makers can improve in the short to mid-term. They can reduce government bureaucracy, establish industry associations, make their taxation schemes more competitive relative to similar supply countries, improve laws protecting intellectual property and enforce them better, and strengthen the infrastructure of their dedicated "offshoring parks." Furthermore, our interviews suggest that smaller low-wage countries will find marketing their offer is itself a powerful tool for improving their attractiveness: management perceptions of a country and reality sometimes differ, and dedicated country marketing efforts can set them straight.

Implications for high-wage countries

Displaced service professionals should be retrained for employment in growing sectors of high-wage economies. Service sector workers displaced by offshoring are likely to include a higher percentage of college-educated workers than displaced manufacturing workers. Their higher education levels suggest they may also be more amenable to acquiring new skills through retraining, which could lessen the potential impact of displacement on their earning power.

Policy-makers in high-wage countries should collaborate with companies to ensure that retraining programs direct workers toward growing areas of the economy—for example health care. Furthermore, policy-makers should ensure that primary and secondary education responds to the shrinking share of repetitive, "rules-based" jobs in high-wage economies, as a result of both automation and offshoring.⁹ The more flexible graduates the education system produces, with strong mathematical, problem solving and teamwork skills, the more adaptable they will be to an ever-changing, innovative economy.

⁹ Frank Levy and Richard Murnane, "How Computers are Creating the Next Job Market." Princeton University Press, Princeton, NJ, 2004.

Graduates should be equipped to work effectively with their peers in low-wage economies. Finally, policy-makers and educational institutions in high-wage countries should equip their graduates to work effectively with their peers in today's low-wage countries. In Europe, for example, those countries and companies that encourage their graduates to look for opportunities to the east, with appropriate language training, funded exchange programs and internships, will be best placed to benefit from the talent pool represented by new EU members, such as Hungary, the Czech Republic, and Poland and by emerging markets in Asia.

Constructing an Analytical Approach to Location Selection

An analytical approach to selecting offshoring locations allows us to analyze preferences on a more general basis. Our experience and our interview base suggest the most important general location criteria are cost, quality of infrastructure, vendor landscape, risk profile, environment and market potential. Each general criterion comprises several sub-criteria:

- **Cost** includes labor cost, infrastructure cost, and corporate tax. Within infrastructure cost, telecom, real estate, and power supply were selected as representative measures.
- **Market potential** includes both domestic market potential, measured by size and growth of GDP, and access to attractive nearby markets. A company would rank market potential highly if it aimed to use a global resourcing location partly to enter or grow its share of an offshore market.
- **Environment** consists of government support, the business and living environment, and the convenience of doing business.
- **Risk profile** comprises disruptive events, security risks, regulatory risks, country investment risks, and data protection risks.
- **Vendor landscape** is based on available information on the IT/BPO market size and vendors in each of our countries. Note that this category could be made more specific to the process in question (e.g. pharmaceutical R&D) if it were being used to guide a company's decision for certain activity. However, for the purposes of this higher level model, we rely on general measures.
- **Quality of infrastructure** is based on measures of telecom/network service infrastructure quality and real estate availability.

Note that companies can place their own importance weights on each criterion and sub-criterion, resulting in different overall location rankings. Additionally, some criteria depend on the current "home" country from which the activity will be offshored. For example, if the United States is the home country, the time difference to India will be different than if Germany were the home country. Companies should take a forward-looking view of LCI—especially with respect to determining future wage growth. Implicit in this forward-looking wage analysis is an assessment of the supply and demand situation for the most important occupations to be hired.



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