IT OFFSHORING

MARKET ANALYSIS AND ESSENTIAL FRAMEWORK FOR SUCCESS

by

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Submitted to the Alfred P. Sloan School of Management and the School of Engineering
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Abstract

IT offshoring is the practice of acquiring Information Technology capabilities, usually from
an outsourcing service, but also through company-owned, dedicated centers, in remote lower-cost
locations.

The goal of this thesis is to develop a strategic framework to help companies succeed in the
offshoring process. The framework assesses the five essential factors: strategic factors, to check
the proper alignment of the offshoring venture with the overall company strategy; internal factors,
to check the readiness of the organization; as well as operational factors, to assess the
implementation part of the offshoring project. To evaluate the whole process, some metrics such
as productivity, quality and flexibility are proposed (outcome factors). Finally, the framework
assesses some contextual factors that influence companies before, during and after they decide to
offshore.

Based on Michael Porter’s five-forces model, the industry analysis indicate that customers
have the most power in the industry and vendors have little pricing power due to low barriers of
entry and exit. Despite the fact that it is a growing industry, there is a high level of rivalry and it
is not attractive.

The market demand and supply analysis focused on the larger players showed that India,
China, Russia and Eastern Europe are providing the bulk of the contracted services originally
performed in the U.S. and U.K.

The latest trends in the market are the shifting roles of the agents, the role customers take of
being vendors and building their captive centers, the industry consolidation for companies to
achieve scale and organize the market, and the need of the vendor to provide broader services
such as BPO (Business Process Outsourcing) to better serve their customers.

It is exhilarating to be able to spot opportunities both in the supply and demand side. Winners
will be the ones who benefit the most from the industry changes, and they will also be the ones
who are able to capture most of the value created by the industry as a whole.

Thesis Supervisor: Edward B. Roberts
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In writing this thesis and spending this year at MIT, I realize that while I have learned much, there is still much to learn. I would like to thank:

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1. INTRODUCTION

What is IT (information technology) offshoring? It is shorthand for offshore outsourcing of information technology work. Offshoring is the practice of acquiring IT capabilities, usually from an outsourcing service provider, but also through company-owned, dedicated centers, in remote lower-cost locations.

A common misconception is that all offshoring involves outsourcing, and this is not true. Offshored processes can be handed off to third-party vendors or remain in-house.

IT offshore services include, in order of importance, the following categories: software maintenance and support, development and integration, hardware maintenance and support, products implementation, consulting, education and training. The offshoring of business processes services such as call centers, financial services, human resources or other processes is not covered in this thesis. These other processes include those that have a high component of IT, but they are not considered pure IT services.

The origins of IT offshoring can be found in the Chatrapati Shivaji Museum of Mumbai, India, where there is an exhibit dedicated to a number of British Man-of-War ships built by Indian companies in the early 1800s. Originally manufactured offshore for reasons of cost, these ships performed better than British vessels, due to superior materials and greater workmanship. History repeated itself many years later, when production offshoring involved relocation of physical manufacturing processes to a lower-cost destination. Examples of production offshoring included the manufacture of electronic components in Taiwan and the production of apparels, toys, consumer goods in China, which offered cheap prices through very low-wage rates and economies of scale.

Following a similar pattern as manufacturing, the growth of the IT offshoring industry is linked to the availability of large amounts of reliable and affordable communication infrastructure following the telecom bust of late 90s. Together with the digitization of many services, it is now
possible to shift the actual delivery location of services to a lower-cost location in a transparent way to end-users.

As other service segments remain flat or shrink, IT outsourcing is the fastest-growing segment of the technology services market. Cost savings remain the main driver for this fast growth, along with speed-to-market and quality, keeping the motivations constant for companies to outsource offshore.

Offshoring is now capturing around 1% of $600 billion, currently spent worldwide in IT services. As the market is growing at a fast pace, companies increase profits and revenues year after year, while new players are entering the market. Market analysts and the research interviews indicate, however, that margins are getting slimmer, and the market is becoming more competitive.

The offshoring business is based on labor arbitrage, as labor accounts for more than 50% of the total cost of the service. By reducing labor costs by a factor of ten, the total savings varies from 30 to 50% at the most, after adding new cost such as management and communications. Savings are often achieved by a combination of factors such as productivity increase, the rationalization of services, and the economies of scope and scale that vendors are also able to provide. Offshoring often increases the quality of service, and offer higher flexibility to customers.
Table 1: Examples of Offshore vendors and second-order productivity savings

<table>
<thead>
<tr>
<th>Work taken offshore</th>
<th>Offshore productivity savings</th>
<th>How vendor delivered savings</th>
</tr>
</thead>
</table>
| Infrastructure management for Pan Asian financial services firm. | • TCS met 25% productivity gains of initial SLA and boosted efficiency by another 20%  
• TCS rationalized the existing pool of 2,000 applications down to 200. | • An eight-month rationalization process that added new functions to surviving applications |
| SAP application maintenance at large utility | • The maintenance staff of 60 people is now 15 with 50% of work offshore.  
• SAP usage increased 1.6 times given the simplification work done by L&T Infotech. | • Cataloged simplification opportunities at both a maintenance and business process level that were implemented by offshore staff |
| Monthly customer satisfaction survey for a U.K. bank | • Internal staffing levels were cut an additional 40% from process improvements and full offshore utilization. | • Vendor's predictive dialer improved throughput.  
• Offshore agents redesigned call process to incorporate access to previous surveys. |
| Customer service call center for logistics company – average call handle time, 240 seconds | • 24/7 beat original SLA of 185-second handle time by 15 seconds.  
• Final time with process improvements was 170 seconds.  
• Client applied Indian practices to U.K. for another 10% gain. | • Knowledge mapping of historical data to manage volume peaks.  
• Close monitoring of staff skills.  
• FAQ to put more answers at operator's fingertips. |

Source: Forrester Research, Inc - "Unlocking The Savings In Offshore" February 2003

At a company level, the strategic reasons to offshore and the management of the relationship with the vendor reveal the key factors to succeed. Literature review and interviewees are full of success stories from which successful frameworks are built, in chapter 3. Nevertheless, many companies failed, for strategic and/or operational reasons, when they moved their IT department to offshore locations.
Offshoring can be really useful, and it can be a disaster. The key to success is: 
Do you understand your own business? At what level do you understand your business? Do you understand, strategically, what seems to be changing? So you know you aren’t outsourcing something that is about to go through a significant change. If you have that kind of rigor, and you have a good process discipline, then I think you can distribute work across the globe effectively.¹

The purpose of this thesis is to help the reader understand the dynamics of the industry and have a first neutral approach to the industry. Eventually, this thesis will help corporations, who want to go offshore, assess the parameters of success. Hopefully, entrepreneurs will spot some business opportunities after reading it.

Finally, it is important to mention that this thesis has a worldwide perspective and does not cover the understandably emotional debate about the loss of U.S. white-collar jobs, caused by IT offshoring, which has been recently and vastly covered by media and politicians in the United States.

¹ Extract from a recorded presentation from an IT offshore user.
2. REASONS TO OFFSHORE

Quality, cost and time to market are the main three reasons for companies to offshore. But after experiencing successful offshoring ventures, many firms report that the lack of skilled resources, labor flexibility, and best practices acquisition are their main benefits and reasons for continuing offshoring.

Quality in software is difficult to measure, but several initiatives have been set in place to standardize quality outputs. Among others, there are the initiatives promoted by the PMI (Project Management Institute), ISO (International Standard Organization), RUP (Rational Unified Process) and the SEI (Software Engineering Institute - Carnegie Mellon). The SEI set up the CMM (Capability Maturity Model) that became a de facto standard for assessing and improving software processes.

*The Capability Maturity Model for Software describes the principles and practices underlying software process maturity and is intended to help software organizations improve the maturity of their software processes in terms of an evolutionary path from ad hoc, chaotic processes to mature, and disciplined software processes.*

The CMM for Software has been an effective means of modeling, defining, and measuring the maturity of the processes used by organizations developing and maintaining software-intensive systems. The CMM is organized into five maturity levels:

---

2 SEI (Software Engineering Institute Software- Carnegie Mellon)
Exhibit 1 Capability Maturity Model

Source: SEI-Software Engineering Institute - Carnegie Mellon

1) Initial. The software process is characterized as ad hoc, and occasionally even chaotic. Few processes are defined, and success depends on individual effort and heroics.

2) Repeatable. Basic project management processes are established to track cost, schedule, and function. The necessary process discipline is in place to repeat earlier successes on projects with similar applications.

3) Defined. The software process for both management and engineering activities is documented, standardized, and integrated into a standard software process for the organization. All projects use an approved, tailored version of the organization's standard software process for developing and maintaining software.

4) Managed. Detailed measures of the software process and product quality are collected. Both the software process and products are quantitatively understood and controlled.

5) Optimizing. Continuous process improvement is enabled by quantitative feedback from the process and from piloting innovative ideas and technologies.³

³ SEI (Software Engineering Institute Software- Carnegie Mellon)
According to the SEI model, 73% of the companies with CMM level-5 (top level) appraisal performed are based outside USA, Europe or Japan. Of the 111 companies around the world that achieved the valued level-5 Appraisal Performance, 67.5% were based in India. IT contractors need this certification to prove their quality to customers while in-house IT department, with similar levels of quality, do not tend to go through the certification process.

*Table 2: Country and companies with CMM level 5 Appraisal performance*

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of companies with CMM level 5 Appraisal Performed</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>75</td>
<td>67.5%</td>
</tr>
<tr>
<td>U.S.</td>
<td>27</td>
<td>24.3%</td>
</tr>
<tr>
<td>Canada</td>
<td>3</td>
<td>2.7%</td>
</tr>
<tr>
<td>Japan</td>
<td>2</td>
<td>1.8%</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>0.9%</td>
</tr>
<tr>
<td>Russia</td>
<td>1</td>
<td>0.9%</td>
</tr>
<tr>
<td>Singapore</td>
<td>1</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>111</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*Source: SEI- Compiled list of Organizations who have publicly Announced their Maturity Level 5 after having an Appraisal Performed. The information on this list has been frozen as of 4/17/2003*

Some IT players argue that in order to achieve the certification, it is easier to build a new company around the model than to certify an established one. That fact probably explains partially the different degree of implementation between India and the rest of the countries.

Nowadays, quality is taken for granted as vendors increasingly push in that direction, and it is not anymore a source of differentiation among large vendors.
Costs take out and time-to-market is like a pendulum, sometimes time-to-market is more important, than cost loses its value. Then, sometimes, the cost becomes important. In 2000, time to market was important, cost was not important, and then it started swinging again... until 2003, it has been costs take out. Now we are seeing the pendulum shifting again. Those are the two things that keep the industry going. Services providers like us, really, are in the business for these reasons and we have to tune ourselves to the market.4

Quality trades off with flexibility, and vendors that do not achieve the highest levels take advantage of a bigger degree of flexibility compared to more rigid high-quality vendors. The truth is that each level of quality in the CMM model represents gains in productivity in respect to each of the inferiors’ levels. Also, companies that have worked with CMM-5 level vendors report a positive influence in their internal organization, forcing internal teams to adopt the similar quality levels that their suppliers have adopted.

In a software development company, we tend to be fairly informal in many of our methodologies as we are a small company. From the outside, when you look at the process that is involved in sending stuff to India, it really imposes on us a lot more discipline and formality in the way we want to do things. What I discovered after talking to people, is that Offshoring companies have thought about it and they actually understand the business model probably better than you might expect.5

4 Extract from an interview with an offshore vendor

5 Extract from an interview with a software development company
Offshore software development costs are evaluated as averaging 70% of the costs for the same development in the United States. Although, this does not represent total offshoring costs, as companies need to add the cost of managing the offshore relation, communication cost, and travel expenses, among others. Total savings can vary, depending on many variables, such as location, project size, process and technology. But these savings are estimated as between 30% to 50% at the most.

**Exhibit 2: Offshoring cost savings comparison**

![Diagram showing cost savings comparison](image)

*Includes taxes and insurance.

**For offshore development, this includes communication costs.

- Development based entirely in India
- Development based entirely in the United States

**Source:** Morgan Stanley Dean Witter; Deutshe Banc; International Data Corporation; McKinsey Analysis

There are many cases of American corporations with cost savings along these figures. In 2001, Lehman Brothers set up two dedicated offshore development centers in India, in partnership with two selected vendors. For a three year period, the total savings expected is 40%, and now it is considering creating its own proprietary center for mission-critical software development and infrastructure maintenance. Also worried about cost cutting, the financial services industry made their first strategic movement into offshoring three years ago. Goldman Sachs, Merrill Lynch, Bank of America, and Deutshe Bank were the pioneers and the ones with a better position to capture the value from offshoring. Other industries, like Telecom, in which IT spending is 20% of the total budget, quickly followed the financial industry in an attempt to capture the savings. BellSouth, AT&T, Verizon, WorldCom and Qwest had to go offshore to reduce capital and operating costs, when the whole industry faced a big downturn in the year 2000.
The primary driver is cost. And whoever tells you anything different, believe me, this is not reality. If you do not get them cost savings first, forget about anything else.  

Time-to-market is the third fundamental reason to offshore. Industries such as IT and financial services, where time matters, need to speed up the products to market and need additional resources with a high degree of flexibility. Companies going offshore for time-to-market reasons are seeking two types of approaches, depending on the industry and the product development phase they are in. Some companies find the advantages of offshoring as they can work on writing the specs and software modifications during their normal working day and hand it over to the offshore location that will work over night to deliver it the next morning. This is especially useful in areas like IT support departments that can work when the systems are not in full use, or also in big corporations who need support around the clock.

Our product development has been faster and our quality has been better because of the 24-hour development cycle.

Customer satisfaction is at its highest point ever. They love the 24-hour support.

---

6 Extract from a recorded presentation from an IT offshore vendor


For example, at the Netherlands-based Baan, bug fixing is handed off from Barneveld (Netherlands) to Grand Rapids (United States) to Hyderabad (India). Customer’s problems are routed to the appropriate daytime center, and work on the bug begins.9

The second approach to the “time to market” advantage is during a time when an additional workforce is necessary to speed up a product development. Whether pressured by competitors or by customer demand, companies need to introduce products with reduced amounts of time and can not afford to have a flexible workforce in their original location. Offshoring allows extremely high flexibility in workforce allocation.

In these particular times, lack of skilled resources is ranked among the top reasons to offshore. Main drivers of that shortness of resources are the growing and evolving companies’ IT needs and the high level of specialization in the industry.

During the fast growth in the 1990s, there was an enormous gap between the amount of work to be done and the people available to do it. This resulted in a boom in staff augmentation, or body shop, services.10

But what are the reasons that some companies don’t want to go offshore? Among the most common reasons for not offshoring are lack of management skills, security issues or resistance from internal IT staff.

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9 Erran Carmel. “Global software teams”. Prentice Hall PTR. 1999

Exhibit 3: Main reasons for not offshoring or doing more offshore?

Source: Forrester Research, Inc. “Unlocking the savings in Offshore”. February 2003

Interestingly enough, although cost is found to be one of the main offshore drivers for companies that had already decided to offshore, when asked about vendor selection criteria, cost is one of the last factors listed. Companies rank expertise (technical, process or industry), financial stability, same language abilities, customer reference, local presence, or similarity with company’s project among the important parameters for selecting a vendor.

This confirms, generally speaking, that companies acknowledge the fact that once a certain amount of savings is captured by taking business offshore, they are conscious of the importance of turning their offshoring experience into a successful venture.
Exhibit 4: Vendor Selection Criteria: Importance of selected factors when choosing an offshore vendor

<table>
<thead>
<tr>
<th>Factor</th>
<th>29%</th>
<th>35%</th>
<th>41%</th>
<th>24%</th>
<th>18%</th>
<th>Very important</th>
<th>Somewhat important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developer skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English language skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer references</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A U.S. presence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience with our type of software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>47%</td>
<td>47%</td>
</tr>
<tr>
<td>Process certification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12%</td>
<td>41%</td>
</tr>
<tr>
<td>Lowest cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24%</td>
<td>35%</td>
</tr>
<tr>
<td>A top-tier vendor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24%</td>
<td>41%</td>
</tr>
<tr>
<td>Prior experience with the vendor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12%</td>
<td>36%</td>
</tr>
</tbody>
</table>

3. OFFSHORING SUCCESS FRAMEWORK

With the intention of assisting companies that plan to go offshore, a completely new framework is created, thanks to the shared savvy of the interviewees, and the literature reviewed. The aim of this new framework is to help companies transform that opportunity into a successful venture.

In order to assess the success factors in offshoring, a variety of considerations are organized in categories and presented together in a comprehensive framework. The purpose of the Offshoring Success Framework is to help companies better understand their situation prior, during, and after the offshoring process.

The framework starts by assessing the success factors at a strategic level, in order to check the alignment of the offshoring venture with the strategy of the company. Internal factors should also be assessed to confirm that the organization is mature enough to carry on an offshoring project. At an operational level, factors are checked to warranty the success in the implementation of the tactics.

Outcome factors are needed to control the metrics of the whole process; it is reported that setting goals and measuring them is a success factor itself. Finally, in every step of the process, meaning before, during, and after, context factors should be checked. Context factors are constantly changing, and companies should be flexible enough to modify their strategy and operations according to that variability.

Offshoring success factors are difficult to determine and almost impossible to rank in order of importance. Each company has found its own balance of factors, and depending on the project, the customer and the supplier, some factors will be dominant. But, each case is found to be different.
Exhibit 5: Essential Offshoring Success Framework

The factors listed below describe the importance of each single factor based on customer and supplier vision, as well as analysts and literature review. Factors are grouped into the five categories according to their origin: Strategic, Internal, Operational, Context and Output factors.

### STRATEGIC FACTORS

Sourcing strategic factors relate all the parameters linked to the firm’s business strategy that a company needs to take into account when considering an offshoring venture. Parameters evaluate the offshoring opportunity at a strategic level, and are considered key factors to assess the readiness of a company to offshore.

1. **Competence**: Assesses how relevant IT is to the core competencies of the company, in other words how strategic or important are IT services to the company. Companies with key IT components need to keep the control in-house, offshoring only the non-strategic components or processes. In case a company is committed to offshore a critical process, some authors suggest a “multisourcing”
strategy, in which a company would break the systems into pieces and offshore to different suppliers to diversify risk even if this adds managing costs.

For the most part, firms want to outsource non-strategic capabilities while retaining strategic capabilities. While few clients would intentionally outsource strategic IT activities, they can mistake what is really strategic. Because business processes are so tightly linked with IT, firms can struggle to define bundles that are clearly non-strategic. In addition, capabilities that are non-strategic today may become strategic again tomorrow. Outsourcing a capability inevitably depletes the knowledge associated with that capability.\textsuperscript{11}

The line of what is core or what is not core is shifting. As an example, for many years, the airline industry considered IT strategic and did not want to outsource. When they realized how little value were providing to customers, by keeping IT systems like seat reservations in-house for, they decided to offshore. To be successful, offshoring has to be considered as a part of the long-term strategy and the organization has to be able to put in place all the resources and incentives to implement the strategy. Different management teams have to embrace the initiative as a part of a long-time strategy.

2. **Innovation**: Assesses the infusion of new concepts, ideas, and adoption of best practices from outside the enterprise and leverages it into new processes and products. Experience has shown many companies that by offshoring, they increased the quality of their processes and the quality of their internal software development. To work with an offshore supplier requires making explicit information that normally is implicit. Processes such as documentation, quality assurance or writing specs are among the most benefited.

\textsuperscript{11} Jeanne Ross, George Westerman. "Architecting new outsourcing solutions. The promise of utility computing" October 2003
They [supplier] gave us some methodology classes which I think improved our discipline and our way of specifying requirements, which I think is actually tremendous. They are much more aware of tools that are already out there.\textsuperscript{12}

Companies that decide to fully offshore may, in the long run, lose the creative capacity in IT. In other words, they will miss the opportunity of providing new services, based on the exploitation of the existing IT infrastructure. A company's innovative performance may be impaired if it does not have the ability to keep the innovation and management team in-house or has an agreement with the supplier that guarantees a certain degree of innovation.

Companies need to position their IT capabilities in a manner that will ensure competitive readiness. At a higher level in the organization, managers tend to think that tasks sent offshore are low-profile ones, and that all the knowledge is kept in-house when in fact, this is not necessarily the case.

\textit{In 69\% of the cases, the distant site or sites were either assuming high-level design responsibility or full product "ownership," responsibility for the release's definition all the way through design and development. Global software teams were working on the company's flagship product or one of its primary products in 47\% of the cases. In some of these cases, it was the distant site that initiated ("visioned") the product itself and then went on to design and develop the product.}\textsuperscript{13}

\textsuperscript{12} Interview with a software development company

\textsuperscript{13} Erran Carmel. "Global Software Teams". Prentice hall PTR. 1999
3. **Cost savings**: Assesses the alignment of cost control (business focus) with the IT strategic focus and convenience of an offshoring operation. Cost control factor at a strategic level can be formulated in three different ways: 1) subcontracting responsibilities for operating and maintaining legacy systems at a fixed cost with the supplier assuming any deviation, or 2) reducing absolute costs, or 3) doing both at the same time. In any of the ways, the business goal has to be coordinated with the IT goal and aligned with the overall company’s strategy.

When assessing cost, it is key to evaluate the impact in cost reduction in personal cost but also to change some of the fixed costs into variable costs, as a tool for managing growth and scalability.

---

*Demand spikes are typically managed by using contractors or consultants that are significantly more costly than in-house personnel. Given this significant increased cost for external resources, it often makes good fiscal sense for an organization to keep a buffer of personnel and staff to handle small increased demand variations.*

*When costs of contracting external personnel becomes equal to or less than in-house costs, the need for a buffer strictly to manage costs is removed.*\(^{14}\)

---

If companies are thinking of building their own facilities abroad, major incentives and savings can be achieved from local governments by placing direct investments into many offshore supplying countries.

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*India allows the retention of all earnings for software-related industry activity to remain tax free until 2009.*\(^{15}\)

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\(^{14}\) Stuart Morstead and Greg Blount. *"Offshore ready"*. 2003. ISANI Press
As said previously, companies have to assess total cost in the long run before planning a move into offshoring. Known as the “hidden costs of offshoring,” several costs which normally are not estimated are incurred by a company before and during an offshoring operation.

With any outsourced service, the expense of selecting a service provider can cost from 0.2 percent to two percent in addition to the annual cost of the deal. These selection costs include documenting requirements, sending out RFPs and evaluating the responses, and the legal fees of negotiating a contract. On top of that, some companies hire an outsourcing adviser to guide them in the entire process, and this can take from six months to a year, depending on the nature of the relationship.

The transition period is one of the most expensive stages of an offshore endeavor. It takes from three months to a year to completely hand the work over to an offshore partner. Company executives should be aware that during this period of time expenses will be higher than savings.

Laying-off employees as a result of your offshore contract poses other sometimes unanticipated costs. To begin with, you have to pay many of those workers severance and retention bonuses if you want them to share their knowledge with their replacements. Layoffs can also cause major morale problems among in-house "survivors," which need to be accounted for in the cost-benefit analysis.

INTERNAL FACTORS

The Internal Factors category relates all the parameters linked to the tactical execution of the sourcing strategy, referring to parameters depending on in-house capacities or decisions. This set of parameters evaluates the offshoring implementation requirements at an operational level only, and considers key factors to assess the deployment of long-term offshore venture.

1. **Relationship management**: Assesses the ability to manage a relationship with external suppliers. Companies should have a certain degree of expertise in dealing with outsourced suppliers, especially if they are abroad. Companies that sent employees to the offshoring countries to help monitor the relationship, report more major successes than those managing the relationship from their own country.

> Expatriates will play an increasingly important role in offshore outsourcing initiatives as the geographic reach, frequency and importance of these projects continue to increase. Enterprises can improve the short- and long-term effectiveness and cost efficiency of offshore outsourcing initiatives by working with human resource professionals to develop an expatriate strategy based on the international "maturity" and business and sourcing strategies of the enterprise.\(^{16}\)

Offshoring requires a change in the relationships between buyers and vendors of outsourcing services. Managing an offshoring relationship normally requires new organizational skills, new capabilities and new attitudes. Enterprises moving to offshore increasingly rely and depend on their IT vendors. As customers moved from purely buying technology to accessing technology through services, traditional approaches to IT management are becoming obsolete. Pure customer-vendor contracts should be left behind in favor of more trustful long-term relationships. When volumes become important, new types of agreements such as joint-ventures, alliances and partnerships are listed among the most beneficial for managing the new sourcing strategy.

\(^{16}\) Steve Bittinger. *“Expatriates help reduce risks in offshore outsourcing”*. 23 October 2003. Gartner Group
2. **Process definition:** Assesses the level of process definition achieved of the functions that a company is willing to outsource offshore. One of the benefits of offshoring is that companies are forced to better define their processes prior to the outsource. Consequently, the higher the level of process definition, the better the chance to succeed. When it comes to IT, it is recommended to start by offshoring the most isolated applications or modules, in order to get protected from any failure that can affect the rest of your applications.

*Firms that have learned how to conceptualize their business in terms of process or service components can benefit from outsourcing those components that offer no unique or competitive capabilities. In addition, firms that conceptualize processes and services as components can preserve management resources by establishing standardized metrics to monitor component effectiveness.*

Sometimes, no matter how well defined your processes are, there are some limitations in offshoring. The systems are highly interlinked and it is difficult to co-share IT's management, especially among different suppliers. Offshoring interlinked systems requires a major degree of coordination among suppliers, a higher intervention from the customer side, and in general, a higher total outsourcing cost.

*However, much of IT is not divisible or capable of "ring-fencing." Current information systems, for example, are increasingly integrated or interconnected, and problems can occur at the interface of responsibility between different vendors or between the vendor's domains and the customer's domain.*

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17 Jeanne W. Ross *Architecting new outsourcing solutions: The promise of utility computing* CISR., October 2003

3. **Organizational buy-in:** Assesses the organizational buy-in at the workforce level prior to a decision to offshore. If offshoring generates massive lay-offs, a company can face other types of problems such as motivation, or even boycott. One solution is to use offshoring as an alternative way to grow or accelerate processes without laying-off people. Another solution can be to move your internal resources up in the value chain by assigning them project management task and specification writing.

> Amid uncertainty, some groups in the organization become paralyzed, others jockey for surviving positions, others falter under "change fatigue," and others quickly attempt to quantify their value (often too late). Unlike domestic outsourcing, in which affected IS professionals might conceivably be transferred to the payroll of the outsourcing vendor, offshore outsourcing typically displaces groups of people after the hand-over period. Such dislocation weakens organizational productivity and performance.¹⁹

Offshoring creates uncertainty at an executive level as well. So, companies have to be sure that there is full support to the initiative at that level and take the necessary actions in that direction. Full commitment from all the executives, including the CEO, is a must.

Demoralization can be a common reaction of the employees affecting the productivity level and even the quality of work. Companies with success reported that being transparent and communicating regularly had been key to build trust and stability and to fight against demoralization and employees resistance.

---

¹⁹ Diane Morello “The Organizational Implications of Offshore Outsourcing” Gartner Group, 24 October 2003
OPERATIONAL FACTORS

The Operational Factors category relates all the parameters linked to the tactical execution of the sourcing strategy. The parameters in the operational section are mainly related to internal decisions such as contracting. This set of parameters evaluates the offshoring implementation requirements at the operational level only, and considers key factors to assess the deployment of a long-term offshore partnership.

1. **Scalability:** Assesses the size of the offshoring ventures as a critical mass, which is considered necessary to fully capture the benefits of offshoring. This parameter is measured in absolute numbers and not as a percentage of the total company. Generally speaking, only companies with fairly large IT development centers should consider offshoring to capture the cost-advantage.

   *If it is not big, you can’t do it. If it is not a $5 M a year project, you really can’t offshore effectively.*

   *If you do small projects, it doesn’t save you any money, it just doesn’t because the way you save money in outsourcing offshore is by sending people to India not by having Indian people sitting in your office doing work. In small projects, you realized you didn’t make any savings because you had 50% of the project done here and 50% done offshore. You need large scale development.*

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20 Extract from an interview with a vendor

21 Extract from an interview with a software development company
Though outsourcing is largely a scale game, offshoring is driven by the impressive wage-cost differential between local onshore economies and the economies of the offshore countries. In some European countries, labor savings alone range from 45 to 65 percent depending on the type of the work.

The exhibit below represents the potential accumulated savings when a company decides to move offshore. Savings breakdowns normally range from 5 to 10% due to re-engineering operations, 15 to 20% due to scale, and another additional 10 to 20% due to the differences in salaries that the offshore model provides.

*Exhibit 6: Offshoring savings origin*

*Source: Aditya Bhasin, Vinay Couto, Chris Disher, and Gil Irwin “Business Process Offshoring: Making the Right Decision” Booz Allen Hamilton. 29 January 2004*
2. **Legal agreements**: Assesses the related legal issues of legal contract definition.

The legal agreement level sets the risk mitigation level and has to include service-level agreements, efficiency incentives and annual reviews. Contract writing is a fundamental aspect of any offshoring venture; it is recommended to include local performance metrics and linking payments to project milestones.

\[
\text{One of the critical mistakes companies often make is to go straight to contract negotiation without first establishing a sufficiently detailed statement of work or requirements document that both parties understand and agree to. The process can break down as assumptions take over.}^{22}
\]

In the event a vendor fails to deliver, the company may have to sue for consequential damages. For this, the parties must agree on what legal system the contract will be governed under. For example, it can take 10 to 15 years to settle a legal dispute related to contracts in India.\(^2^3\) Many issues raise different concerns in an overseas arrangement, including intellectual property protection, confidentiality and covenants of non-competition, which need to be contractually enforced.

Although in software intellectual property issues are not considered extremely important, these also need to be calibrated in that parameter. Companies, such as software developers, have to pay special attention to IP rights when offshoring core IT capacities although suppliers have a good reputation in managing customer’s IP rights.

Regulations change from country to country, but normally, countries like the United States protect the customer and give the ownership and the IP rights of the “work made for hire”. The

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23 Debashish Sinha, Rita Terdiman “Potential risks in Offshoring Sourcing”. Gartner Group. 05 September 2002
recommendation is to sign a contract with the offshore company local subsidiary, as any litigation will be based in the country where the customer’s company has its headquarters.

Contracts and payments are recommended to be written also in customer’s currency, or at least have the currency exchange insured.

When a company is facing a venture such as offshoring, they are dealing with lots of uncertainty, and as markets change and conditions do also, it is recommended to include exit clauses in the event that the company needs to. Along these lines, a separate contract for each single service is the way to go, as this gives the customer the freedom to assess independently service-level agreements. To sign independent contracts helps to re-negotiate conditions and to discuss fees separately.

Most customers establish a master services contract to be the umbrella over all work with an offshore provider. Under the master contract are secondary contracts that set out the statements of work, SLAs [Service Level Agreement], and milestones. If application work is being outsourced, these secondary contracts list the applications, the time to fix, the time for callback, and such.24

A final recommendation in this parameter, as a condition for success and to maintain negotiating power, is not to sign for exclusive agreements unless a strong strategic partnership is being pursued.

3. Offshore location: Assesses the related factors of the supplier’s location. There are many factors such as onshore-offshore balance, communication language, the time zone and the cultural fit.

Also becoming extremely important is the onshore factor, also known as the global delivery system. Main offshoring companies offer to locally support customers at their facilities and force suppliers to establish branches in customer’s country. An optimal balance for onshore-offshore is

24 Sourcing Interest Group “Offshore outsourcing: Part II: implementation”. 2003
considered to be 20:80 although this rate is achieved at a maturity stage only. When companies start an offshoring relationship, they should expect to start by 40:60.\textsuperscript{25}

It is reported that the ability to normally communicate with the supplier is absolutely key for a successful offshoring venture. Companies reporting major success insist on the importance of being able to communicate fluently with the supplier, not only at the project management level, but also at developer’s level. That is, among other reasons, probably the fact that explains the success of India as a main U.S. and U.K. supplier.

\begin{quote}
In general, the presence of an English-speaking population is a key factor in the choice of location of offshore services, as the commonality of language helps to ensure that quality and performance criteria can be fulfilled. Without a shared language, errors are much more likely to occur, thereby undermining the benefits of offshoring\textsuperscript{26}.
\end{quote}

Time zone has also to be considered depending on the nature of the business or the process that companies offshore. As an example, 12 hours difference can be a good time difference for some types of support services, as offshore teams can work fixing bugs overnight while customer’s employees rest and systems don’t work. If companies need to establish regular real-time communications such as video conference or telephone on regular basis they would rather choose a location with a maximum of 6 hours time difference. Time difference is also important under the perspective of travel time. The closer the supplier is, the better the chances of visiting the supplier, thus, increasing the coordination level. Particularly in the early stages, it is important to promote frequent exchange visits and travel fatigue can work against productivity.

\textsuperscript{25} Extract from an interview with a vendor

\textsuperscript{26} McKinsey Global Institute. "Offshoring: is it a win-win game?" August 2003
We decided to be based in Delhi as there were many direct flights from everywhere.\textsuperscript{27}

Although the majority of interviewed companies considered it secondary, the cultural difference seems to have an impact on projects where a large number of customer’s employees are involved. No clear relation or conclusion is yet established though, as neither the interviewees nor the literature express a clear opinion.

\section*{CONTEXTUAL FACTORS}

The Contextual Factors category relates all the external parameters depending on third party and uncontrolled market factors. This set of parameters evaluates the offshoring implementation risks that a company can hardly be protected against.

1. \textbf{Geo-political:} Assesses the geopolitical risks, market trends and changes in the business context. Some of the countries that work as offshoring providers may face political or legal regulation changes that can affect the overall offshoring strategy.

\textsuperscript{27} Interview with a major offshore user
The company picked is based in Sri Lanka and has facilities in Hyderabad. There is a civil war going on in Sri Lanka, right now there is a cease fire but war is constant. I told the CEO I didn't want our team to be there, I want our team to be in Hyderabad, India. As we got this project going, India and Pakistan almost went into a nuclear war which might have had an impact on the project... Yeah, it is a risk you take.\(^{28}\)

When analyzing the geo-political factor, companies should look at the history of the country, review any political tension or recent wars (including the presence of terrorism), and assess some economic factors such as currency stability and inflation. For example, the existing tensions between India and Pakistan or eventual changes in the currency floating system of the Chinese government are issues which must be analyzed.

2. **Mass media resistance**: Assesses the external environmental pressure created by media on sending jobs offshore. The general level of acceptance at a specific moment in time can damage/benefit the image of the company, and so then the success of the project.

One example of that is the decision made on November 2003 by Governor Joe Kernan of Indiana, which canceled a $15.2 million contract with Tata Consultancy Services (TCS), with an already approved proposal $8.1 million less than those of its competitors.

\(^{28}\) Interview with a software development company.
Like many unemployed programmers, Kerrigan blames the sour labor market on offshore outsourcing -- the migration of tech jobs to relatively low-paid contractors or locally hired employees in India, China, Russia and other developing countries.

The hemorrhaging of tens of thousands of technology jobs in recent years to cheaper workers abroad is already a fact of life -- as inevitable, U.S. executives say, as the 1980s migration of Rust Belt manufacturing jobs to Southeast Asia and Latin America.

But a new wave of technology outsourcing -- involving tasks that involve greater skills -- could be cutting to the industry's bone, threatening to prolong the three-year U.S. economic downturn.\(^\text{29}\)

Many magazines and newspapers from the U.S. had already published alarming articles regarding the offshoring issues. As an example, Business Week published "American legislators are accusing India of stealing jobs", The Economist published "America's pain, India's game" and more recently, Time magazine's cover story in its March 2004 edition was "Are too many jobs going abroad"

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\(^\text{29}\) Associated Press, CNN. "Tech Jobs leave U.S. for India, Russia. Who's to blame?" 14 July 2003
3. **Regulations**: Assesses all the facts related with the regulatory environment of the offshore strategy. Include local regulations of the offshore location as well as the customer’s own country. Examples for this are all the regulations and restrictions in moving hardware, software licenses or international tax benefits.

> More than in Mr. Clinton’s day, employers are fixated on cutting labor cost. Sending work abroad has become a popular way to do that, so Mr. Kerry’s proposals aim to make offshore outsourcing less attractive. His proposal to end the deferral of taxes owed on profits earned abroad would throw up an obstacle to this exodus.\(^\text{30}\)

**OUTPUT FACTORS**

The Output Factors category relates all the parameters linked to the control of the execution and the overall goal achievement. This set of parameters evaluates the offshoring results against pre-established basic performance metrics. Setting up goals and measuring them is considered by many companies a success factors itself.

Output factors are limited to the IT department both on the business and technical side, but do not include impact evaluation on overall company performance.

> Metrics are the key to assessing value in a business process outsourcing relationship. Choose metrics that measure business activity and service delivery to ensure cost-efficiency, service stability and innovation.\(^\text{31}\)

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\(^\text{30}\) Louis Uchitelle “*A Kerry team, a Clinton touch*” New York Times, 28 March 2004

\(^\text{31}\) Audrey L. Apfel “*Developing Metrics for Ensuring BPO Success*” Gartner. 21 July 2003
1. **Productivity:** Assesses the productivity factor of the IT department. It measures the work done per every dollar spent. When a company decides to offshore it needs to measure the returns on the investment. Cost savings are difficult to measure because IT department needs change one year after another, what companies really want to achieve through offshoring is to “get more done for less”.\(^{32}\)

\[
\text{Though process maturity increases productivity 20-50\% per CMM level, most companies avoid investing on-shore.}
\]

\[
\text{Better programmers are 500\% more productive than inexperienced programmers}
\]

\[
\text{Experienced teams and individuals are more productive.}^{33}\]

A simple way to measure the productivity factor is using the following method: Estimate the cost of the project off-shored, considering that the work was developed in-house in the same period of time and with the same quality standard (including all cost, rental space, headcount ...). Subtract the total of the costs paid to the offshoring company and the added internal cost to support the outsourcing effort to the total in-house estimated cost and divide it by the total costs for the offshoring as shown in the *increment of productivity formula* below:

Assuming that:

\[
\Delta P = \frac{P_o - P_i}{P_i}
\]

\(^{32}\) Extract from and interview from an offshore user

\(^{33}\) Bob Suh “*Perspectives on Global delivery*” Accenture. 25 February 2004. MIT Sloan presentation
\[ P_o = P_{\text{offshore}} \quad P_i = P_{\text{in-house}} \]

And that:

\[ \text{Productivity} = \frac{\text{work}}{\text{cost}} \]

In order to better assess the productivity improvement achieved as an influence of the offshoring company we need to assess proportionally to the budget allocated to the off-shored company. In other words, the influence of outsourcing 10% of our IT budget to an offshore supplier is not the same as if we outsource 90% of it. A set of variables is put in place and gathered into the productivity improvement equation.

\[ \Delta P = \frac{TC_i \cdot (I_{i1} - I_{i2}) + TC_o \cdot (I_{o1} - I_{o2})}{TC_i \cdot I_{i2} + TC_o \cdot I_{o2}} \]

<table>
<thead>
<tr>
<th>Fraction of development in a Non-Offshoring situation</th>
<th>Fraction of development in a Offshore situation (total or partial)</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house ( I_{i1} )</td>
<td>( I_{i2} )</td>
<td>( TC_i )</td>
</tr>
<tr>
<td>Offshore ( I_{o1} )</td>
<td>( I_{o2} )</td>
<td>( TC_o )</td>
</tr>
</tbody>
</table>

\( I_{i2} \) and \( I_{o2} \) should range from \( 0 \)-\( 1 \) and add \( 1 \), same situation for \( I_{i1} \) and \( I_{o1} \)

As an example, if we want to assess the quality increase achieved, we will compare a hypothetical situation in which nothing was off-shored, with the current situation where a fraction
or total of the IT budget is off-shored. The table below shows the values that substitutes the variables in the equation.

<table>
<thead>
<tr>
<th>Fraction of development in a Non-Offshoring situation</th>
<th>Fraction of development in a Offshore situation (total or partial)</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house</td>
<td>$I_{i1} (=1)$</td>
<td>$TC_i (=10)$</td>
</tr>
<tr>
<td>Offshore</td>
<td>$I_{o1} (=0)$</td>
<td>$TC_o (=8)$</td>
</tr>
<tr>
<td></td>
<td>$I_{o2} (=0.4)$</td>
<td></td>
</tr>
</tbody>
</table>

$I_{o1}$ and $I_{o2}$ should range from 0-1 and add 1, same situation for $I_{i1}$ and $I_{i2}$

$$\Delta P = \frac{10 \times (1 - 0.6) + 8 \times (0 - 0.4)}{10 \times 0.6 + 8 \times 0.4}$$

$$\Delta P = 0.09$$

The example shows that if a company decides to offshore 40% of its IT budget to an offshoring supplier where total cost is 20% less, that company should expect to win a 9% productivity improvement in its overall software development.

A set of examples is given to have an idea of the positive influence of offshoring to the overall IT department productivity:
<table>
<thead>
<tr>
<th>% offshore</th>
<th>TC in-house</th>
<th>TC offshore</th>
<th>ΔP</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>7.5</td>
<td>0.03</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>7.5</td>
<td>0.05</td>
</tr>
<tr>
<td>30</td>
<td>10</td>
<td>7.5</td>
<td>0.08</td>
</tr>
<tr>
<td>40</td>
<td>10</td>
<td>7.5</td>
<td>0.11</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
<td>7.5</td>
<td>0.14</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
<td>7.5</td>
<td>0.18</td>
</tr>
<tr>
<td>70</td>
<td>10</td>
<td>7.5</td>
<td>0.21</td>
</tr>
<tr>
<td>80</td>
<td>10</td>
<td>7.5</td>
<td>0.25</td>
</tr>
<tr>
<td>90</td>
<td>10</td>
<td>7.5</td>
<td>0.29</td>
</tr>
<tr>
<td>100</td>
<td>10</td>
<td>7.5</td>
<td>0.67</td>
</tr>
</tbody>
</table>

The productivity can be set as a goal at the beginning of the venture and then measured in relative terms (goal versus achieved). Companies uniquely concerned about cost can easily translate the productivity factor into total dollar savings by simply using the subtraction part of the formula.
2. **Quality**: Assesses the quality of software development; although there are many ways of measuring software quality such as those promoted by the PMI (Project Management Institute), ISO (International Standard Organization) and RUP (Rational Unified Process), this parameter is based on the CMM (Capability Maturity Model) established by the SEI. It is a fair indicator of the quality level a company will obtain, although it is important to keep in mind that an important part of the quality level is the level of service, expressed in terms of communications, relationship and overall customer satisfaction.

\[ eSCM \text{ v1.1[CMM]} \text{ is aimed at providing an independent, third-party certification for services providers. External agents (trained and authorized by Carnegie Mellon) will carry out certification. They will conduct the internal evaluation. Carnegie Mellon will issue a certificate of capability to successful service providers after a rigorous review of this evaluation data.}^{34} \]

A similar process to the productivity metric can be established to estimate the overall quality improvement of the company. The quality of the project off-shored will be determined by the CMM level of the supplier. If many suppliers are contracted we should calculate the arithmetic mean of the CMM level (proportional to the budget allocated). Again, the difference between our internal CMM-level, or the estimated one, and the CMM level of the off-shored companies divided by our CMM-level will assess the quality improvement.

\[ \Delta Q = \frac{Q_o - Q_i}{Q_i} \]

\[ Q_o = Q_{\text{offshore}} \quad Q_i = Q_{\text{in-house}} \]

---

In order to better assess the quality improvement achieved as an influence of the offshoring company we need to assess proportionally to the budget allocated to the off-shored company. In other words, the influence of outsourcing 10% of our IT budget to a CMM -5 level company is not the same as if we outsource 90% of it. A set of variables is put in place and gathered into the quality improvement equation.

\[
\Delta Q = \frac{CMM_i \cdot (I_{i2} - I_{i1}) + CMM_o \cdot (I_{o2} - I_{o1})}{CMM_i \cdot I_{i1} + CMM_o \cdot I_{o1}}
\]

<table>
<thead>
<tr>
<th>Fraction of development in a Non-Offshoring situation</th>
<th>Fraction of development in a Offshore situation (total or partial)</th>
<th>CMM level</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house</td>
<td>$I_{i1}$</td>
<td>$I_{i2}$</td>
</tr>
<tr>
<td>Offshore</td>
<td>$I_{o1}$</td>
<td>$I_{o2}$</td>
</tr>
</tbody>
</table>

$I_{i2}$ and $I_{o2}$ should range from 0-1 and add 1, same situation for $I_{i1}$ and $I_{o1}$

As an example, if we want to assess the quality increase achieved, we will compare a hypothetical situation in which nothing was off-shored with the current situation, where a fraction or total of the IT budget is off-shored. The table below shows the values that substitutes the variables in the equation.
<table>
<thead>
<tr>
<th>Fraction of development in a Non-Offshoring situation</th>
<th>Fraction of development in a Offshore situation (total or partial)</th>
<th>CMM level</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house</td>
<td>$I_{i1} (=1)$</td>
<td>$CMM_i (=3)$</td>
</tr>
<tr>
<td></td>
<td>$I_{i2} (=0.6)$</td>
<td></td>
</tr>
<tr>
<td>Offshore</td>
<td>$I_{o1} (=0)$</td>
<td>$CMM_o (=5)$</td>
</tr>
<tr>
<td></td>
<td>$I_{o2} (=0.4)$</td>
<td></td>
</tr>
</tbody>
</table>

+ $I_{i2}$ and $I_{o2}$ should range from 0-1 and add 1, same situation for $I_{i1}$ and $I_{o1}$

\[ \Delta Q = \frac{3 \times (0.6 - 1) + 5 \times (0.4 - 0)}{3 \times 1 + 5 \times 0} \]

\[ \Delta Q = 0.26 \]

The example shows that if a company with an in-house CMM-3 level off-shores 40% of its IT budget to a company with a CMM-5 level, company should expect to win a 26% of quality in its overall software development.

A set of examples is given to have an idea of the positive influence of offshoring to the overall IT department quality:
<table>
<thead>
<tr>
<th>% offshore</th>
<th>CMM in-house</th>
<th>CMM supplier</th>
<th>ΔQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>3</td>
<td>5</td>
<td>0.07</td>
</tr>
<tr>
<td>20</td>
<td>3</td>
<td>5</td>
<td>0.13</td>
</tr>
<tr>
<td>30</td>
<td>3</td>
<td>5</td>
<td>0.20</td>
</tr>
<tr>
<td>40</td>
<td>3</td>
<td>5</td>
<td>0.27</td>
</tr>
<tr>
<td>50</td>
<td>3</td>
<td>5</td>
<td>0.33</td>
</tr>
<tr>
<td>60</td>
<td>3</td>
<td>5</td>
<td>0.40</td>
</tr>
<tr>
<td>70</td>
<td>3</td>
<td>5</td>
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</tr>
<tr>
<td>80</td>
<td>3</td>
<td>5</td>
<td>0.53</td>
</tr>
<tr>
<td>90</td>
<td>3</td>
<td>5</td>
<td>0.60</td>
</tr>
<tr>
<td>100</td>
<td>3</td>
<td>5</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Similarly to the productivity metric, quality can be set as a goal at the beginning of the venture and then measured in relative terms (goal versus achieved).
3. **Workforce flexibility:** Assesses the capacity of the company to manage the demand with its established vendors. The parameter measures the ability of the company to increase/decrease resources according to its needs. By winning in flexibility, the company is winning in competitive advantage and lots of non-easy to measure benefits, such as customer satisfaction, speed to market and employees' satisfaction, if lay-off does not occur due to the fluctuation.

In order to calculate workforce flexibility, we assumed that the demand behaves like a normal distribution, and a commonly used measure of dispersion is the standard deviation, which is simply the square root of the variance. The variance of the demand is calculated by taking the arithmetic mean of the squared differences between each value and the mean value. So the variance of the resources equals the workforce flexibility.

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Description</th>
<th>Mathematical equivalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>WF</td>
<td>Workforce Flexibility</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>N</td>
<td>Number of different workload inputs within the period</td>
<td>The number of values x in the set of data</td>
</tr>
<tr>
<td>(x_i)</td>
<td>Workforce occupied in a moment of time (number of employees)*</td>
<td>One value in the set of data</td>
</tr>
<tr>
<td>(\mu)</td>
<td>The average of employees occupied during the project</td>
<td>The mean (average) of all values x in the set of data</td>
</tr>
</tbody>
</table>

*This value is weighted by dividing the workforce assigned by the number of days assigned. Example: 200 employees employed 100 days equals 2, and 100 employees employed 100 days equal 1.

\[
WF = \sqrt{\frac{1}{N} \sum_{i=1}^{N} (x_i - \mu)^2}
\]
Low values mean scarce increments or decreases of the workforce along the period (normally one year), while high values mean the opposite. The table below shows us two examples and the result of the workforce flexibility (WF) factor given two hypothetical situations.

<table>
<thead>
<tr>
<th></th>
<th>Situation A (Low demand variation)</th>
<th>Situation B (High demand Variation)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of days</td>
<td>Workforce</td>
</tr>
<tr>
<td>Period 1</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>Period 2</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Period 3</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Period 4</td>
<td>50</td>
<td>125</td>
</tr>
<tr>
<td>Period 5</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>350</td>
<td>600</td>
</tr>
</tbody>
</table>

*Exhibit 7: Situation A (low variation) - Graphical representation of Situation A*

\[
WF_A = \sqrt{\frac{1}{N} \sum_{i=1}^{N} (x_i - \mu)^2} = 0.52
\]
Exhibit 8: Situation B (High variation) - Graphical representation of Situation B

\[ WF_B = \sqrt{\frac{1}{N} \sum_{i=1}^{N} (x_i - \mu)^2} = 1.21 \]

The Workforce flexibility for situation A is 0.52
The Workforce flexibility for situation B is 1.21

To be consistent with the previous parameters, quality and productivity, the increment of workforce flexibility is calculated with the following logic: Estimate the workforce flexibility of the project off-shored, subtract the workforce flexibility of the same project in-house and divide it by the in-house workforce flexibility. This is shown in the increment of workforce flexibility formula below:

\[ \Delta WF = \frac{WF_{o} - WF_{i}}{WF_{i}} \]

\[ WF_{o} = WF_{\text{offshore}} \quad WF_{i} = WF_{\text{in-house}} \]
\[ \Delta WF = \frac{WF_i \ (I_{i2} - I_{i1}) + WF_o \ (I_{o2} - I_{o1})}{WF_i \ I_{i1} + WF_o \ I_{o1}} \]

<table>
<thead>
<tr>
<th>Fraction of development in a Non-Offshoring situation</th>
<th>Fraction of development in a Offshore situation (total or partial)</th>
<th>Workforce Flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( I_{i1} )</td>
<td>( I_{i2} )</td>
<td>( WF_i )</td>
</tr>
<tr>
<td>Offshore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( I_{o1} )</td>
<td>( I_{o2} )</td>
<td>( WF_o )</td>
</tr>
</tbody>
</table>

\( I_{i2} \) and \( I_{o2} \) should range from 0-1 and add 1, same situation for \( I_{i1} \) and \( I_{o1} \)

\( WF_i \) should be different than 0 for the equation to work; this means that the company should have a minimum of flexibility before, otherwise the value of \( \Delta WF \) will be 0. In case there is no flexibility \( WF_o \) value should be taken as the total increase.

As an example, if we want to assess the workforce increase achieved, we will compare a hypothetical situation in which nothing was off-shored with the current situation, where a fraction or total of the IT budget is off-shored. The table below shows the values that substitutes the variables in the equation.

<table>
<thead>
<tr>
<th>Fraction of development in a Non-Offshoring situation</th>
<th>Fraction of development in a Offshore situation (total or partial)</th>
<th>Workforce Flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( I_{i1} ) (=1)</td>
<td>( I_{i2} ) (=0.6)</td>
<td>( WF_i ) (= 0.2)</td>
</tr>
<tr>
<td>Offshore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( I_{o1} ) (=0)</td>
<td>( I_{o2} ) (=0.4)</td>
<td>( WF_o ) (= 1.21)</td>
</tr>
</tbody>
</table>

\( I_{i2} \) and \( I_{o2} \) should range from 0-1 and add 1, same situation for \( I_{i1} \) and \( I_{o1} \)

\[ \Delta WF = \frac{0.2 \ (0.6 - 1) + 1.21 \ (0.4 - 0)}{0.2 \times 1 + 1.25 \times 0} \]
\[ \Delta WF = 2.02 \]

The example shows that if a company with a small degree of workforce flexibility decides to offshore 40% of its IT budget to an offshoring supplier with a high level of workforce flexibility (1.21), that company should expect to win a 200% flexibility when managing its workload.

So far, we have worked with three parameters: productivity increase, quality increase and workforce flexibility. There is a possibility of establishing a combination of the three factors and come up with an aggregated number that gives companies a global indication on performance. As quality improvements can be transformed into productivity (every CMM-level represents 20% more productivity than the inferior level), we can fudge the two first parameters into one. The combination of the three parameters is open to be developed by companies, depending on the weight they want to assign to the different parameters.
4. INDUSTRY ANALYSIS

To better understand the offshoring industry, Porter’s Five-forces model is applied with the purpose of determining the industry’s attractiveness and profitability. Results of the model help understand market dynamics and how customers and vendors react to changes in competitive forces from their different resources and competencies.

The scope of the following analysis is limited to the industry structure level, not including market segments, particular companies or geographical regions.

**Buyers:** the bargaining power of customers is considered high for several reasons. Despite the fact that customers are not highly concentrated, large customer’s purchases represent a major portion of the sellers’ total revenue, making volume important. The service purchased is fairly undifferentiated, making it easy to switch to other suppliers. In addition, buyer information is vastly available, which makes it easy for buyers either to buy or to move to a captive model (backward integration) in which the customer manage their own facilities.

The combination of a moderate to high price sensitivity, one of the main drivers of the industry, and the availability of existing substitute services, in addition to all the facts mentioned above, defines the buyer power in the industry as high.
Exhibit 9: Porter's Five-forces model applied to the IT offshoring industry

- **Very unattractive - Low barriers of entry**
  - Easy to scale
  - Low capital investment
  - Service distribution is readily available
  - Increasing threat of new entrants from different markets
  - Low customer loyalty

- **Mildly attractive - Profitable with declining margins**
  - Low exit barriers
  - Low fixed allocated cost per value added
  - Competition is mitigated due to market growth

- **Attractive - Low bargaining power**
  - IT professionals are generally available
  - Infrastructure supply is almost commodities
  - No threat of forward integration

- **Mildly unattractive - Many substitutes available**
  - Customers can build their own captive centers
  - Customers can in-source services

- **Threat of new entrants**
  - Potential entrants

- **Bargaining power of suppliers**
  - Suppliers

- **Bargaining power of buyers**
  - Buyers

- **Threat of substitute products or services**

- **Rivalry among existing firms**

- **Unattractive - High bargaining power**
  - Moderate to high price sensitivity
  - Highly available substitutes
  - Undifferentiated service
  - Backward integration available
**Potential entrants:** The industry is highly threatened by new entrants, as barriers of entry are not high enough to avoid new competitors entering the market. Although it is necessary to build certain economies of scale to run the business efficiently, specialization can lower these economies to very reasonable numbers. New entrants can achieve that scale by building centers of 400 to 500 developers. Big Indian companies are trying to raise entry barriers by building strong brands around quality processes. This certainly will help them to sustain a competitive advantage for a short period of time. Customer loyalty is considered low despite the knowledge transfer cost of switching vendors. The learning curve applies to vendors when they get into a new account, as they have to learn the particularities of the industry and the customer.

Initial capital requirements are low as the needed infrastructure is normally rented or paid based on consumption. IT vendors tend to build their operating centers in technology parks where space and communications are easily available and paid almost as an utility. Employees are hired according to demand as well. Companies established in countries where labor contracts are flexible have a competitive advantage, as cost comes mainly from salaries. Additional cost from marketing the service and the cost of the onshore operations are non-productive overhead.

Service distribution is readily available thanks to new technologies. For example, work is delivered through the net, and bandwidth is the only infrastructure needed, which is also highly available for companies in the majority of countries.

Established government policies play a role in fostering the industry clustering, incentivizing the industry through tax holidays, infrastructure and legal advantages. On the customer side, government can play a role in lowering incentives, also through taxation on works done abroad. Generally speaking, the influence from the government is moderate.

In summary, new entrants can threaten the industry profitability and make it unattractive.

**Suppliers:** The bargaining power of suppliers is very low as supply is mostly made up of commodities. The main suppliers are the universities that train developers and the technical personel that the industry relies upon. Universities have limited or no bargaining power.
Despite that fact, a shortness of skilled people in a given area can force an increase of salaries and a competition to retain talented people. Not being able to supply the demand of talented people forced some Indian companies to raise salaries and become less competitive against vendors from different regions.

The next larger group of suppliers is the infrastructure ones. Specialized real-estate agents, in combination with governments, offer fully-equipped spaces to vendors with little or no value of differentiation other than location. Commodities such as hardware, bandwidth and power supply are extremely difficult to differentiate, although in certain places, reliability can be the differential. In some of the utilities there are substitutes, and the best example is power supply. Many vendors installed their own power generators to be independent from unreliable power suppliers. In some places, the market of utilities can be extremely regulated and concentrated.

There is no threat of forward integration by suppliers relative to the threat of backward integration by firms. Volume is relatively important and does not much influence the supplier’s strategy.

Generally speaking, cost of inputs, relative to selling price of the service, are important if we talk about human capital but are insignificant if we talk about infrastructure.

In summary, suppliers make the offshoring industry very attractive.

**Substitutes:** The threat of substitute services is always present. Buyers, when trying to achieve a certain scale in their offshore operations, are always tempted to capture more of the value by installing their captive model. Another substitute can be the traditional outsourcers, if they decide to scale down cost and become more competitive, even in the same country. Substitutes will also come by similar services at a lower level from different markets or even different technologies. In-house, onshore development is another substitute that can threaten the industry easily.

In summary, suppliers make the offshoring industry mildly unattractive.

**Rivalry among existing firms:** The intensity of competitive rivalry increases as new competitors enter the market. By nature, this is a truly global industry and rivalry not only exists at a company level, but also at country level.
Competition is based on quality, price and capacity. Location is the only important factor that competitors can differentiate, although the degree of differentiation that the country gives is not sufficient to distinguish it from competitors.

The competition effect is mitigated due to the market growth and demand of new services that allow new entrants in the market.

Neither the fixed allocated cost per value added, nor the exit barriers are high in the offshoring industry.

So far a profitable industry, with declining margins.

\[
\text{An industry's profit potential is largely determined by the intensity of competitive rivalry within that industry}^{35}
\]

---

5. MARKET DEMAND

U.S. businesses are the main beneficiaries of the offshoring services, accounting for almost 70% of the total market. Europe and Japan account for the remainder of the market, with U.K. as the major contractor in Europe. When it comes to capturing the value of offshoring, the U.S. and U.K. have the 3L common advantages on their side: Language, Labor and Legal. First, both countries have the English language as their natural business language, as many of their vendors do. Secondly, both countries have a very flexible job regulation, allowing companies to easily eliminate jobs. And lastly, both countries have a legal system with many commonalities as India, the main supplier for U.S. and the U.K.

Exhibit 10: IT Offshoring demand distribution by country


Besides the 3L factor, the U.S. is a market leader because of the total IT volume and the fact that U.S. companies have a tradition in outsourcing their IT departments. Market competition forced many companies to look for a more efficient manner in which to manage their resources. They also had to find, through an outsourcer, the economies of scope and scale that companies couldn’t find by themselves. Offshoring is the second natural step for companies to capture the savings and the advantages of the outsourcing model.
Financial services, consumer packaged goods, healthcare and retail are the leading industries that already decided to send offshore their IT departments. As promising industries we find government and IT product development. The major obstacle for government is to be able to solve political and media issues, while IT development firms’ obstacle is to solve some IP and creativity concerns.

Clearly, the offshoring industry has focused largely on banking, finance, and insurance. Those are the big outsourcers because they have both transaction processing requirements and they have large IT requirements. The CIO of Morgan Stanley once told me, “Look we are basically an IT department surrounded by a couple of bankers”. Whenever you are selling anything, Software, Telco and Finance are the first three industries for any new ideas. Because, Telco capital is intensive and a large leverage for savings, they are software creative and they eat their own dog food and finance because it all passes through billings and returns are so great in any IT activities. In terms of Europe, the top three countries are U.K., Germany and France although it is going to be difficult to ramp up in Germany and France due to the inflexible labor laws.\(^{36}\)

The European outsourcing market is still heavily centered on the United Kingdom, Germany and France. Meanwhile, the rest of the European countries are more reluctant to open their processes, practices and knowledge to external outsourcers. Some reasons, besides the 3Ls, can be found as an explanation as to why other European markets have not yet been successful. Scale is one reason. For example, countries like Italy, Spain, Netherlands, and Belgium don’t have very many companies with the capacity to offshore large groups of people, as laying-off the workforce is not an option. A second reason is that the value proposition is not equally appealing for all the countries, especially when average salaries are competitive compared to the full cost of some offshore vendors.

\(^{36}\) Extract from an Interview with a vendor.
I see three fundamental reasons why offshore did not succeed among Spanish companies. The first one is the language. Actually, very few people are able to communicate fluently in English. Secondly, there is not such a gap between what a fully-loaded offshore programmer costs and what a local outsource vendor costs. Finally, I do not see companies with the willingness to start a venture in that direction.\textsuperscript{37}

EU legislation (regulation) regarding offshoring is expected to promote Central and Eastern European accession countries as IT suppliers of European companies. This achieves a double goal by growing the economies in those countries and by keeping the outsourcing industry within the EU. The human component is the main inhibitor to offshoring adoption.

\textit{The transfer of employees to the outsourcing provider is always complex and sensitive, and causes staffs concern. Often these employees see this transfer as a dehumanization of the relationship between management and staff. It is essential that companies carefully handle change management in any BPO rollout.}\textsuperscript{38}

Companies in Europe expect to work with suppliers that understand their business and can demonstrate expertise in vertical and process specific services. Companies also face offshoring with the idea of “do more with less” as an attempt to get more value and reduce costs.

\textsuperscript{37} Extract from an Interview with an outsourcing vendor

\textsuperscript{38} The Yankee Group. European Outsourcing on track to double. 16 June 2003
Close analysis of European IT outsourcing deals shows that initial cost reductions do not always lead to lower costs in the longer term. The true value of outsourcing lies in access to better services and capabilities\(^{39}\).

Continental Europe is a very difficult place to do outsourcing, when you get to France, Germany, and Spain, the labor laws are so difficult that puts a lot of restriction on outsourcing. However, the recent movements in the industry are putting a lot of pressure on the governments in Europe. We have an office in France, [in which] we had been trying for year to do outsourcing, but we do not have one outsourcing contract yet\(^ {40}\).

Within the minor markets we can find Korea, Hong Kong and Taiwan. Although these countries are starting to pull demand, total volume and cultural resistance are expected to remain low.

So far, application maintenance, custom application development and system administration represent the bulk of offshoring. Infrastructure maintenance, system analysis and architecture planning fall behind, in a second group of less demanded services. IT strategy is not yet seen by customers as a consolidated product to be off-shored.

Customers are continuously sophisticating their demands to include higher value, adding project-based services such as application implementation (ERP, CRM, SCM), enterprise application integration and data warehousing/business intelligence, as well as application management and business process outsourcing.

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\(^{39}\) Gartner Group. Quality, not cost, is the real payoff from IT outsourcing. 12 March 2003

\(^{40}\) Extract from a recorded presentation of an offshoring vendor
6. MARKET SUPPLY

The most popular offshore location is India, but other competitive options involve different trade-offs such as quality, cost and cultural fit. China, Russia, Israel, and Ireland are other examples of the trade off. The matrix cost versus quality of supply summarizes the different offshoring options according to the mentioned trade-offs. It is remarkable how India is able to stand alone in the quadrant of high quality and low cost.

Exhibit 11: Cost-quality supply matrix (by country)

![Cost-quality supply matrix](image)

Source: The McKinsey Quarterly- (This graph is U.S. biased)

Although many countries see the IT service industry as their major driving force behind future economic growth, most will be primarily successful only in certain niche markets, rather than supplying all types of markets and services.

A comprehensive study to determine the offshore location as a function of cost, environment and people also presents India as the most attractive alternative (reports are oriented for U.S.-based companies). In the cost category, cost of labor, cost of management and infrastructure, as well as tax and treasury impact are the included factors. In the Environment category, economic and political risks are assessed, while country infrastructure, cultural compatibility and IP
protection are measured. Finally, the People category deals with issues such as language, BPO or IT experience, size of labor market, employee retention, language barriers and literacy rates.

Exhibit 12: Cumulative comparison based on people environment and cost factors

![Bar chart showing cumulative comparison based on people environment and cost factors across different countries.

Source: A.T. Kearney “Where to locate” 2003 - (This graph is U.S. biased)

China may focus on hardware systems and embedded software, while forming alliances with India for application services... Ireland and Israel are recognized as having a market niche in packaged applications and high-end systems. In the same way, the EU accession countries will need to specialize to be competitive.  

The following table shows the differences in average salary cost of a CIO and a programmer in different countries in 2003 and its short term expected market evolution.

41 - “New EU states have potential for ‘Nearshore’ Outsourcing” Gartner Group
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$363,440</td>
<td>$74,486</td>
<td>Consumer will not be the driver of the economy as salaries will drop dramatically</td>
</tr>
<tr>
<td>Japan</td>
<td>$84,286</td>
<td>$30,338</td>
<td>Recession finally ends</td>
</tr>
<tr>
<td>England</td>
<td>$72,806</td>
<td>$38,450</td>
<td>Acceptance of Euro as a currency</td>
</tr>
<tr>
<td>France</td>
<td>$67,450</td>
<td>$37,250</td>
<td>Continental Europe becomes one market</td>
</tr>
<tr>
<td>Germany</td>
<td>$65,090</td>
<td>$39,879</td>
<td>Continental Europe becomes one market</td>
</tr>
<tr>
<td>Spain</td>
<td>$60,200</td>
<td>$32,400</td>
<td>Continental Europe becomes one market</td>
</tr>
<tr>
<td>Poland</td>
<td>$23,800</td>
<td>$8,990</td>
<td>Market for IT talent will mature to support Eastern Europe</td>
</tr>
<tr>
<td>India</td>
<td>$16,480</td>
<td>$6,390</td>
<td>Homegrown software companies become world players</td>
</tr>
<tr>
<td>Russia</td>
<td>$24,560</td>
<td>$7,540</td>
<td>Domestic and foreign investments slowly rebuild disappeared industrial infrastructure</td>
</tr>
<tr>
<td>Malaysia</td>
<td>$12,876</td>
<td>$6,930</td>
<td>Becomes alternative to India for low-cost coding</td>
</tr>
<tr>
<td>China</td>
<td>$12,082</td>
<td>$5,852</td>
<td>Need to build infrastructure for the new middle class that will drive growth</td>
</tr>
<tr>
<td>Philippines</td>
<td>$11,490</td>
<td>$6,490</td>
<td>Invest heavily in infrastructure</td>
</tr>
<tr>
<td>Thailand</td>
<td>$3,507</td>
<td>$1,760</td>
<td>Invest heavily in infrastructure</td>
</tr>
</tbody>
</table>

Source: Janco Associates, CIA Factbook, Baseline Research - Data from some countries do not include total cost
Offshore capacity is evolving beyond India, as companies mitigate geopolitical risk and the business continuity risk associated with over concentration in a single location. Beyond risk factors, multi-location sourcing supports various "follow-the-sun" policies to be able to provide round-the-clock support and services. Although we understand that wage inflation is relatively muted in India, it is potentially an issue going forward, especially as Indian vendors take on more value-added work. However, given that the offshore model’s development is based in cost advantage, we expect other offshore centers to develop, undercutting India and expanding the range of offshore delivery centers. Eastern European countries look well-positioned to serve the continental European market.\footnote{Vivek Doval. “Offshore Outsourcing Gaining Momentum”. Bear Stearns. 26 November 2003}

To define the maturity of a market, different indicators can be used, but the piracy rate is a good indicator of the market structure, companies’ protection and overall country stability. It is interesting to see that China, Russia and India rank among the top ten countries in piracy practices, and at the same time, they rank among the top ten countries in offshoring suppliers. Some regulations need to be set in place if those countries want to be established as world centers for software development. Data presented in the following table considers only enterprise software:
Table 4: Piracy Rates (by country)

<table>
<thead>
<tr>
<th>Country</th>
<th>% Piracy rate</th>
<th>Country</th>
<th>% Piracy rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>97</td>
<td>South Korea</td>
<td>57</td>
</tr>
<tr>
<td>China</td>
<td>92</td>
<td>Poland</td>
<td>54</td>
</tr>
<tr>
<td>Indonesia</td>
<td>88</td>
<td>Taiwan</td>
<td>52</td>
</tr>
<tr>
<td>Russia</td>
<td>87</td>
<td>Italy</td>
<td>46</td>
</tr>
<tr>
<td>Bolivia</td>
<td>81</td>
<td>South Africa</td>
<td>45</td>
</tr>
<tr>
<td>Thailand</td>
<td>79</td>
<td>France</td>
<td>40</td>
</tr>
<tr>
<td>Greece</td>
<td>64</td>
<td>Japan</td>
<td>38</td>
</tr>
<tr>
<td>India</td>
<td>62</td>
<td>Germany</td>
<td>23</td>
</tr>
<tr>
<td>Brazil</td>
<td>59</td>
<td>U.K.</td>
<td>22</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>58</td>
<td>USA</td>
<td>21</td>
</tr>
</tbody>
</table>

Source: Centre for New and Developing Markets. London Business School

EU OFFSHORE MARKETPLACE

The European IT offshore market is fiercely competitive and local providers are coming under pressure from other offshore vendors, who come from other regions, seeking to increase market share in Europe. Eastern Europe and Baltic countries can offer a competitive alternative to traditional marketplaces, such as India, especially for European customers. These marketplaces offer the competitive advantage for their European customers of having a better cultural fit, in addition to being in the same time zone, thus making near-shoring more acceptable.

Companies such as Exigen (U.S. headquartered) has already started operations in Latvia and Lithuania to better serve its own European customers. Also, large service providers, such as Accenture, have well-established business process centers in Eastern Europe. These countries include Poland, the Czech Republic and Hungary.

Hungary seems to be mature for hosting offshoring services, in part because GE has become one of its largest investors over the past years. In October 2002, GE opened a facility that employs more than 500 people in its customer service and back-office operations to support GE units across Western Europe.
When viewed from the perspective of a multinational that operates in Europe, Central European countries offer cultural similarities, language skills, lower hurdles for adhering to European Union data privacy regulations, and high levels of engineering and other technical capabilities.\textsuperscript{43}

INDIA OFFSHORE MARKETPLACE

Export revenues of India’s software services market reached $7.5 billion in 2003, up from under $500m in the mid-1990’s\textsuperscript{44}. This positioned India as the first software supplier in the offshoring market. Main customers are U.S. (70%) and U.K. companies. India has the competitive advantage of combining a talented IT workforce and the ability to use business English, as well as having the right infrastructure for dealing with big corporate customers.

According to a recent survey done by the Indian National Association of Software and Service Companies, almost two out of five Fortune 500 companies currently outsource some of their software requirements to India\textsuperscript{45}.

India has been able to organize the software industry around big companies and facilitate with major U.S. companies to settle their own operations. Both Indian companies and American companies with operations in India understood the importance of opening facilities next to the customer as well.

Main External Service Providers (ESP) based in India are:

\textsuperscript{43} A.T. Kearney “Where to locate”

\textsuperscript{44} “NASSCOM-McKinsey Report”. NASSCOM. 2003

\textsuperscript{45} Inigo Amorabieta, Kaushik Bhaumick et altri “Programmers Abroad: A primer on Offshore software development” McKinsey Quarterly 2001, Number 2.
Table 5: ESP headquartered in India

<table>
<thead>
<tr>
<th>ESP (in Revenue Order)</th>
<th>Total Revenue (Estimate)</th>
<th>Approximate Worldwide Head Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tata Consultancy Services</td>
<td>$1.02 billion (05/31/2003)</td>
<td>23,400</td>
</tr>
<tr>
<td>Infosys Technologies</td>
<td>$754 million (05/31/2003)</td>
<td>15,500</td>
</tr>
<tr>
<td>Wipro Technologies</td>
<td>$690 million (05/31/2003)</td>
<td>19,780</td>
</tr>
<tr>
<td>Satyam Computer Services</td>
<td>$459 million (05/31/2003)</td>
<td>9,759</td>
</tr>
<tr>
<td>HCL Technologies</td>
<td>$333 million (06/30/2002)</td>
<td>9,600</td>
</tr>
<tr>
<td>Patni Computer Systems</td>
<td>$188 million (12/31/2002)</td>
<td>5,600</td>
</tr>
</tbody>
</table>

*Source: Gartner Group*

Indian firms are making significant strides in their process capabilities. For instance, Infosys' knowledge management practices are renowned, as is Wipro's technical and management expertise. Other companies, such as Ramco have developed in-house process platforms to increase productivity and flexibility of their software development.

Table 6: ESP, headquartered in the United States, with significant revenue from Indian resources

<table>
<thead>
<tr>
<th>ESP (in Revenue Order)</th>
<th>Total Revenue (Estimate)</th>
<th>Approximate Worldwide Head Count</th>
</tr>
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<tbody>
<tr>
<td>Covansys</td>
<td>$382 million (12/31/2002)</td>
<td>4,860</td>
</tr>
<tr>
<td>Cognizant Technology solutions</td>
<td>$230 million (12/31/2002)</td>
<td>6,500</td>
</tr>
<tr>
<td>Syntel</td>
<td>$164 million (12/31/2002)</td>
<td>2,794</td>
</tr>
</tbody>
</table>

*Source: Gartner Group*

Another competitive advantage India has is the pace at producing new engineers one year after another. While the U.S. universities graduated 100,000 engineers and computer scientists in 2001, Indian colleges produced 167,000 engineers the same year – 67 percent more.
The Chinese software industry is small and yet underdeveloped, compared with India’s software industry. In the year 2000, with an extremely fragmented industry, $400 million was the estimated revenue from the software exports, equivalent to 6% of a total services output of $7.2 billion. The Chinese software industry’s orientation is focused on making products for the domestic market and not in providing offshore services. Offshoring customers for China are countries such as Japan, Korea and Taiwan.

The Chinese opportunity to go offshore comes from one of its competitors, as China can be the perfect supplier and partner for Indian companies. China can complement a lack of resources in India and perform the low-end programming jobs, while learning from India’s process methodologies and its marketing skills. Whatever the case, the chances are that India will have to partner with Chinese firms in order to get access to the Chinese market.

An important difference between the Chinese and Indian software sectors is the former’s close links to domestic users, notably industrial and commercial users. This has fostered intensive learning in the area of product development for a large and rapidly growing domestic market. India’s software sector, lacking such a dynamic domestic user sector until very recently, has thrived on exporting software services.

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47 Ted Tschang. “China’s Software Industry and its implications for India”. OCDE
Table 5: Offshoring Chinese capacities compared to India

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<thead>
<tr>
<th>Aspect of Capability</th>
<th>China</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Process</td>
<td>Weak at individual and organizational level (relative to India).</td>
<td>Strong in software process, continually climbing the value chain.</td>
</tr>
<tr>
<td>Management</td>
<td>Weak management in many firms</td>
<td>Strong management in top firms.</td>
</tr>
<tr>
<td>Revenue Model</td>
<td>Product sales, with systems integration as additional revenue generator. Few offshoring services.</td>
<td>Based on services to foreign companies. Some product development.</td>
</tr>
<tr>
<td>Individual Technical skills</td>
<td>Strong</td>
<td>Strong</td>
</tr>
<tr>
<td>Marketing</td>
<td>Weak marketing capabilities. Weak international marketing capabilities in services.</td>
<td></td>
</tr>
</tbody>
</table>

Source: “China’s software industry and its implications for India” Ted Tschang-OCDE and varied sources

Many government officials would like China to follow the model of Indian software outsourcing and leverage its abundant pool of cheap programming talent and growing English language capabilities to provide software services for global corporations. China has already attracted a handful of Indian software companies to locate in urban centers like Shanghai and Beijing. Over time, they might induce these companies to make large investments and to outsource their cheaper work to China. This would support the development of management and technical capabilities in the Chinese software industry, while allowing India to focus on higher value-added activities.48

China still has a ways to go, as companies willing to offshore have doubts on areas such as IP protection and political risk. China is ranked second internationally, behind only Vietnam, with a 92% business software piracy rate. China's government authorities appear to understand the importance of intellectual property protection, and first movements have been made to crack down on software piracy. In 2000, State Council Document 18 outlined harsh penalties for piracy, some of them including jail time and equipment confiscation, as well as financial fines.

As a result of those actions, some companies such as Microsoft, HSBC and Motorola have already committed to invest in R&D software facilities, recognizing China's advantages over India in providing Asian language capabilities (including Japanese).

RUSSIAN OFFSHORE MARKETPLACE

The Russian offshore market, in 2002, was at least $350 million produced by multiple small sized application development firms. Indeed, the typical size of a Russian software development company is less than 50 developers.

Companies of this size have limited acceptance among large enterprises, so they are targeting the immature SMB (Small and Medium Business) market. They are also pursuing a double strategy of niche and limited geographical markets.

Russian companies backed by the government through the recently formed NSDA (National Software Development Association) will be able to develop better marketing strategies and establish onshore facilities, considered key to compete in the offshoring market.
Russia cannot hope to compete with India in terms of size of skill base, range of skills, experience levels or process maturity. The challenge will be whether Russian enterprises can capture market share and compete successfully with the many countries that are entering the offshore market. This will depend upon their ability to build a niche market based on service offerings or geographic penetration.\footnote{Gartner Group. “Russian Offshore Services: Finding the ideal positioning” 17 May 2002}

Russian offshore players have the United States and Western Europe as their primary market areas, followed by Eastern and Northern Europe, and Canada. Current customers of Russian suppliers are IBM, Dell, Boeing and Citibank.

Russia’s competitive advantages are its large pool of highly talented engineers and its proximity to Europe. Major drawbacks are language barriers and employee retention.

IT infrastructure and telecommunications are not reliable enough for a country that wants to compete in the offshoring market. A history of political instability and corruption also limits the possibilities of the country as a major supplier.

NEARSHORE MARKETPLACE

There is a niche market for a group of countries with a similar value proposition but with the advantage of being in a much closer location. The nearshore model, to a certain extent, also leverages the labor arbitrage, but takes advantage of the similar time zones, better cultural fit, and proximity. Nearshore locations are complementary and alternative sourcing options to onshore an offshore locations and enjoy certain international trade agreements with client’s location. For
example, Canada shares the same time, culture, language, legislative structure and is a part of NAFTA.

Driven by security concerns and project specific needs, Canada and Mexico are the two preferred choices for U.S. companies seeking to lower cost but unwilling to take unnecessary risks or deal with inconvenient trips, associated with offshoring to Asia or Eastern Europe

Locations Emerge: Offshore delivery capabilities are being created in new markets ..... In addition, enterprises are beginning to adopt a portfolio approach to supply markets as a risk mitigation strategy. Consequently several new low-cost markets are emerging, including China, Hungary, Poland, Czech Republic, Philippines, Brazil, Argentina and Russia. This in addition to the "near shore" markets such as Canada, Mexico and Spain.50

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50 "Global IT and business process sourcing trends in 2004" Neo IT. December 2003
7. MARKET TRENDS

The offshoring industry is changing very fast as a result of four external pressures: 1) both global and local fierce competition among vendors, 2) the aggressive role that some governments are taking to grow and retain the industry within their borders, 3) the economic pressure on companies (especially U.S.) and the fact that the final customer still wants to capture more value from offshoring, and 4) the critical mass of qualified suppliers competing heavily.

Three major trends are identified, due to the above mentioned external pressures:

**Switching roles among agents**: Traditional agents in the play such as customers, outsourcing local companies and offshoring companies are changing their roles and blurring the frontiers between customers and vendors. A similar phenomenon is experienced among the incumbent outsourcing vendors and the offshoring vendors, as traditional offshoring vendors (Tata, Wipro, Infosys, Patni) are invading the natural space in the value chain of incumbent outsourcing vendors (EDS, Accenture, Cap Gemini) and vice versa.

*Exhibit 13: Switching roles among agents in the IT offshoring industry*
If offshoring vendors traditionally occupied the low-end part of the value chain, now they realized that the profits were in the other extreme. Thus, they start to move up the value chain into the natural space of the traditional outsourcing vendors. In addition to that, offshoring vendors realized that it is indispensable to sell expertise and domain knowledge to customers that day-by-day are getting less reluctant to offshore, have the processes better defined, and require more expertise from the vendor side.

Exhibit 14: Strategic movement of the outsourcing and offshoring companies

Offshoring vendors decided to move up the value chain by acquiring specialized consulting firms with the local business knowledge in the customer’s country. As a complement, and for better serving their customers, they feed the onshore model with local employees who have vertical expertise and project management skills. An example of this is the strategic acquisitions that Wipro did with Nervewire (financial services) and AMS’s Energy Practice (oil and gas).
Wipro Ltd. is aggressively looking at acquisitions of companies in the enterprise, finance and IT consulting arena this year. The company is eyeing the domestic as well the overseas market for prospective companies, according to Mr Azim Premji, chairman, Wipro Ltd. Mr Premji was speaking on the sidelines of the Union bank of India's press meet.

“A combination of evolution and acquisitions will make Wipro a global company and we are moving in that direction. Our target markets and target companies are primarily in the IT consulting companies, which bring very strong domain knowledge or certain functions in specialized areas like retail or finance insurance,” said Mr Premji.51

Traditional customers, who use traditional outsourcing vendors, are pushing them to go offshore as they know that the work can be done substantially cheaper offshore. In order to retain the customer, outsourcing vendors are forced to open their captive facilities offshore and move down the value chain. Although traditional outsourcing vendors are able to attract workforce in the offshoring country due to its reputation, sometimes they struggle in their daily operations due to the “cultural fit” factor. In the lower part of the value chain, outsourcing vendors need to fight again the well-established offshore suppliers.

Traditional customers that use third-party vendors, normally offshoring companies, realized that they have developed enough capacities to manage the relationship with an offshoring development center. And now, they are figuring out how to capture even more value from the offshoring by establishing their own captive centers. Captive centers are now more possible than ever as the infrastructure is ready, the people trained and the capacities available. The following

51“Wipro sets eyes on India, overseas IT, finance firms”
http://www.wipro.com/newsroom/newsitem2001/newstory160.htm (04/16/04)
are examples of this: GE Capital, America Online and Procter & Gamble, all of which run wholly owned centers with proprietary processes and equipments.

Exhibit 15: Matrix of benefits of global ownership models

Source: “The captive ownership option in offshoring: Challenges and Opportunities”-Neo IT- February 2004

Companies committed to move to the captive model face a tremendous opportunity of transforming their traditional IT cost centers into profit center or strategic business units that can help generate additional revenues. British Airways, Conseco, Citi and Deluxe Corporation are successful examples of companies turning captive models into profit centers.

Another factor that supposedly will fuel the creation of the captive centers is the fact that the offshore countries did not develop a strong IP or data confidentiality regulation. Industries such as banking and healthcare are especially sensible to data confidentiality issues and spur the captive center trend.
If you look at the last six to twelve months, all of the players on Wall Street, I can tell you case after case after case, every single one is going to the captive model, and pulling out their existing relationships with the vendors today and pulling it back in-house. That is a major trend in the industry today, and I think this is going to get more aggressive.  

From ITO (IT Outsourcing) to BPO (Business Process Outsourcing): ITO companies are shifting their strategy to adapt to the customer’s needs. Customers, after realizing the value of offshoring, are now thinking in terms of sending offshore entire business processes and totally ignoring the software or tools used in the delivery of the service.

For example, if you are an insurance company instead of offshoring the IT management and development of the accounts payable department, what you do is offshore the whole department to your IT/BPO vendor.

The trend to move from ITO to BPO is seen by IT offshoring companies more as a survival and required strategy than as a business opportunity. Companies that will not be able to make that move will not be able to fully satisfy their customers and will become less competitive.

If you are an IT offshoring company, and you don’t get into BPO, your days are numbered. As an IT offshoring company, almost everyone now, puts BPO on their mission statement because they do not have a choice, it is a defensive measure.

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52 Interview with an Offshoring consultant

53 Extract from a recorded presentation from a vendor
In order to serve that new market opportunity, scale becomes even more important than in the traditional IT offshoring business. Offshoring vendors, who want to maintain competitiveness and profit, need to find volume in each of the processes that they will offer to their customers. To achieve the minimum scale, companies cannot rely on their organic growth and are forced to grow through acquisitions.

Oracle, a company that already has 2,000 software developers in India, is planning to move accounting and payroll operations. This will require a shift of some customer service tasks also on the horizon. As a result, this collectively adds up to more than 2,000 new jobs that will move to India.

**Industry consolidation:** As a consequence of the last trend and as the industry is growing and achieving maturity, some consolidations are happening as a way to achieve scale in the whole value chain. This trend can now be observed in some of the largest Indian companies who have already started to acquire smaller vendors. Chinese companies are also going through a merger and acquisition tornado.

> We have completed 55 acquisitions so far, and when we look at the companies we acquired, we realized that they acquired other companies in a very short time frame. All together, we counted more than 200 companies we bought. It is an important trend in the industry, it is what we call supplier consolidation, and it is happening in a very fast way.\(^{54}\)

Although some voices are raised against the formation of strategic alliances in the offshoring industry, some of biggest competitors are setting major alliances in place. According to some experts, alliance formation is seen as a first step toward industry consolidation.

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\(^{54}\) Extract from a recorded presentation from a vendor
Mr N.R. Narayana Murthy, Chief Mentor at Infosys Technologies, who was also present at the press conference, commented on the collaboration between Wipro and Infosys for providing IT solutions to Union Bank, saying, "I call this collaborative competition. Wipro has tremendous expertise in hardware. We have the country's best banking software. We have, over the past two years, been working with Wipro in suggesting solutions to banks. In a way, we are fierce competitors at one level and good collaborators at another."\textsuperscript{55}

Acquisitions happen in many of the supplying markets and even across the borders. Indian companies are acquiring companies in China at the same time that Chinese firms are consolidating, in order to achieve visibility to foreign customers.

\textit{A major trend is the consolidation of the industry. In Services companies, this is all about scale. There were not that many mergers and acquisitions in the past but now they're are all buying as a way to grow. India started earlier for many different reasons and China has now many consolidations going on. China is new in the outsourcing and there are no visible players. Customers, either in America or Europe have no idea of what to expect [when offshoring in China], and they want to have a very visible player.}\textsuperscript{56}

As a final example, IBM will likely pay between $150 million to $200 million for the third-largest back-office services firm in India. Daksh already provides call center services to 13 U.S. companies, including Amazon.


\textsuperscript{56} Extract from an interview with a vendor.
8. CONCLUSIONS

The IT offshoring phenomenon provides a good model for understanding the challenges that business and industries as a whole will face in the 21st century. Characteristic elements of this industry are global markets and global players, a high level of technology components, and a fast transformation that requires constant changes in the business models.

Players are acting in a truly global environment where governments, multinationals, and vendors interact and global services are delivered across borders. Legislation has become obsolete and there is no global authority or global law that can regulate the business. Information and money flows change hands electronically as services are being delivered. Thus, software is developed in a distributed and collaborative work environment, in which global teams co-ordinate their tasks in different time zones, where technology is the only standard.

The whole industry is built upon technology. All the different elements of the value chain are technology based, and all the players are heavily dependent on the good management of the technology. Players also need to be aware of the latest technologies and services, in order to optimize their overall performance. Once reliability is not an issue anymore, privacy and security are the two issues that will threaten the technology and the system, but solutions will come along as the industry demands it.

A fast growing market doesn’t necessarily mean large profits in that industry. As revenue increases, so does competition, and margins obviously shrink. In addition, the industry is experiencing a commoditization of services, leading to some form of utility computing. Companies are forcing vendors to figure out technology resource demands and be responsible for the provision of sufficient computing capacity on short notices. These include scale of servers, networking capacity, storage, or up-to-date software. This approach also forces vendors to charge customers based on usage.

With that scenario in place, companies have to make their best choice and take part in the game as their competitors force them to. In today's economic environment, where IT budgets are suffering deep cuts, offshoring represents a tempting alternative. But, as one interviewee suggested, offshoring can be a success or a disaster. The fundamental question companies should
answer before offshoring, is whether it meets the overall business objectives such as strategy alignment, innovation and cost reduction. If it does, then a company should look at the operational capacities for managing the initiative and also look at the organizational capabilities. Finally, each company has to build its own set of metrics to constantly evaluate the performance of the offshoring venture in order to promote it, correct it or replace it.

On the vendor side, Europe is the big promising market with very low penetration. But vendors should be warned that Europe is very difficult to penetrate, due to three factors, that we call the 3Ls. These 3Ls are the obstacles that vendors will face when entering the market: Language, Labor and Legalities. In some countries, they will need to reset the value proposition as the labor arbitrage will not be attractive enough. In addition, Asian vendors will need to fight against local Eastern European vendors, because the European Union will encourage European companies to buy locally.

Finally, this is a decisive moment as major industry trends gain momentum. These trends include consolidation, broader service definition and shifting roles among the players. Profitable growth opportunities exist both on the supply and demand side. Winners will be the ones who identify the profit pools, and dynamically align their business models to the global forces that impact the offshoring industry.
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<td>Glenn Snyder</td>
<td>Edocs</td>
<td>VP of Engineering</td>
</tr>
<tr>
<td>Henry Ancona</td>
<td>PegaSystems</td>
<td>COO</td>
</tr>
<tr>
<td>Jamie Bedard</td>
<td>Aberdeen Group</td>
<td>CEO</td>
</tr>
<tr>
<td>Jeanne W. Ross</td>
<td>CISR (MIT)</td>
<td>Principal Research Associate</td>
</tr>
<tr>
<td>Ludamila Kopeikina</td>
<td>Equanex Corporation</td>
<td>President</td>
</tr>
<tr>
<td>Michael Cusumano</td>
<td>MIT</td>
<td>Sloan Distinguished Professor</td>
</tr>
<tr>
<td>Miguel Alonso</td>
<td>Entel- Spain</td>
<td>Business Development Manager</td>
</tr>
<tr>
<td>Mike Pyle</td>
<td>PegaSystems</td>
<td>Senior VP of Development</td>
</tr>
<tr>
<td>Naren Patni</td>
<td>Patni Computer Systems</td>
<td>Chairman and CEO</td>
</tr>
<tr>
<td>Robert Corace</td>
<td>Vmoplus</td>
<td>Chief Client Partner</td>
</tr>
<tr>
<td>Rory Cowan</td>
<td>Lionbridge</td>
<td>CEO</td>
</tr>
<tr>
<td>Xiaofeng Jin</td>
<td>Acronssoft- China</td>
<td>CEO</td>
</tr>
<tr>
<td>SD Shibulal</td>
<td>Infosys</td>
<td>Co-founder and director</td>
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## 12. LIST OF PRESENTATIONS ATTENDED

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<th>Speaker</th>
<th>Company</th>
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<tr>
<td>Anita Manwani</td>
<td>Agilent Technologies</td>
<td>Vice President and General Manager of Global sourcing</td>
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<tr>
<td>Bob Suh</td>
<td>Accenture</td>
<td>Managing partner for global Technology &amp; Outsourcing business</td>
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<td>Professor Emeritus</td>
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<td>Joe Saliba</td>
<td>CGI</td>
<td>President, U.S. and Asia Pacific</td>
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<tr>
<td>John Ellis</td>
<td>Optics for hire</td>
<td>President</td>
</tr>
<tr>
<td>John McCarthy</td>
<td>Forrester Research, Inc</td>
<td>Analyst</td>
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<tr>
<td>John Plansky</td>
<td>Wipro</td>
<td>Chief Executive, Security Practice</td>
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<td>Marv Adams</td>
<td>Ford Motor Company</td>
<td>Vice President &amp; CIO</td>
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<td>Raj Malhotra</td>
<td>Spryance</td>
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<td>Renee Fry</td>
<td>Governor Mitt Romney's Office</td>
<td>Chief of Staff for Economic Development</td>
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<td>Robert Reich</td>
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<td>Former Secretary of Labor</td>
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<tr>
<td>Sanjay Saini</td>
<td>MGH- Massachusetts General Hospital</td>
<td>Vice Chairman for Health System Affairs</td>
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<tr>
<td>SD Shibulal</td>
<td>Infosys</td>
<td>Co-founder of and Director</td>
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<td>Stephen Baxter</td>
<td>ERG</td>
<td>Senior Vice President</td>
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13. GLOSSARY OF TERMS

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<th>Acronym</th>
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<td>BPO</td>
<td>Business Process Outsourcing</td>
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<td>CISR</td>
<td>Center for Information Systems Research</td>
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<td>CMM</td>
<td>Capability Maturity Model</td>
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<td>ESP</td>
<td>External Service Provider</td>
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<td>IP</td>
<td>Intellectual Property</td>
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<td>Rational Unified Process</td>
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<td>Service Level Agreement</td>
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<td>SMB</td>
<td>Small Medium Business</td>
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<tr>
<td>WF</td>
<td>Workforce Flexibility</td>
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- Allie Young, Claudio Da Rold. “IT services megaforce: The services money trail”. Gartner, Inc. 20 June 2001
- Allie Young, Nicole France. “The services value chain defined”. Gartner, Inc. 16 October 2003
- Amar Gupta, Satwik Seshasai. “Global outsourcing of professional services”. MIT Sloan School of Management. January 2004
- Carly Fiorina “Be creative, not protectionist” 13 February 2004.
- Claudio Da Rold, Nicole France, Ian Marriot, Gianluca tramacere, Alan Mac Neela, Roger Arthur Cox, Dean Blackmore, Cathy Tombohm, Khalda Parveen Peter Redshaw, Robert De Souza, Peter Duck. “Europe’s IT services market splits leaders from followers”. Gartner, Inc. 19 May 2003.
- Claudio Da Rold. “How to survive and thrive as the IT services market matures”. Gartner, Inc. 02 December 2003.
- Claudio Da Rold. “IT service market is at a crossroads: A split is forecast”. Gartner, Inc. 09 October 2000.
- Claudio Da Rold. “Service providers must change their business models”. Gartner, Inc. 28 October 2002.
- Claudio Da Rold. “Six examples of specialized IT services providers”. Gartner, Inc. 02 December 2003.
-Claudio Da Rold. “Tectonic shifts in the IT service market”. Gartner, Inc. 26 March 2001
-Cynthia Moore. "Technology key to ESP success in utilities' enterprise architecture”. Gartner, Inc. 17 September 2003
-David Hope-Ross, Jane B. Disbrow, Brian Wood. “Choose the right business application software solution”. Gartner, Inc. 04 August 2003
-Debashish Sinha, Rita Terdiman. “Potential risks in offshore sourcing”. Gartner, Inc. 05 September 2002
-Diane Morello. “Offshore management challenges spur IS change in 2004” Gartner, Inc. 21 November 2003
-Diane Morello. “Offshore outsourcing rattles IT profession in U.S., Europe”. Gartner, Inc. 05 December 2002
-Earl, Michael J. “The risk of IT outsourcing” Sloan Management Review. Spring 1996 Vol. 37, Iss. 3; pg. 26, 7 pgs
-Ellie Babaie, Robert De Souza, Kathryn Hale, Rika Narisawa, Jacqueline Heng. “World wide forecast for IT services”. Gartner, Inc. 01 December 2003
-Ellie Babaie. “Worldwide IT services market definitions guide, 3Q03”. Gartner, Inc. 13 January 2004
-Frances Karamouzis. “A look at India for offshore sourcing options” Gartner, Inc. 29 July 2003
-Frances Karamouzis. “The impact on people when going offshore for IT services”. Gartner, Inc. 18 July 2003
-Gartner Dataquest. “BPO market to grow to $173 billion in 2007”. 03 June 2003
-Gartner Dataquest. “ERP by industry”. 14 November 2003
-Gartner Dataquest. “Europe’s software market suffers in tough times”. 22 July 2003
-Gartner Dataquest. “SMB's show preferences for security services”. 05 November 2003
-Gartner Dataquest. “Worldwide forecast for IT services”. 01 December 2003
-Geraldine Cruz, Susan Cournoyer, Robert L. Goodwin, Cinthyra Moore, Jeffrey Roster. “When vertical strategies are essential to the services value chain”. Gartner, Inc. 17 October 2003
-Geraldine Cruz. “Evolutionary steps toward BPO may ease organizational pains”. Gartner, Inc. 18 July 2003
-Ian Marriott, Andrea Di Maio. “New EU states have potential for nearshore outsourcing”. Gartner, Inc. 09 February 2004
-Ian Marriott. “Offshore outsourcing can benefit Europe in the long term”. Gartner, Inc. 28 July 2003
-Ian Marriott. “Russian offshore services: Finding the ideal positioning” Gartner, Inc 17 May 2002
-Ian Marriott. “Smaller businesses can profit from offshore outsourcing”. Gartner, Inc. 13 November 2003
-Ian Marriott. “Thames water benefits from offshore sourcing in India”. Gartner, Inc. 12 March 2003
- Jane Siegel “IT services qualification center and the eServices capabilities model”, SEI. 19 November 2001
- Jeff Schulman. “Mapping our enterprise architecture framework to ESPs”. Gartner, Inc. 17 September 2003
- Joseph Feiman. “Why you should care about global IT”. Gartner, Inc. 10 June 2002
- Kathryn Hale, Bruce M. Caldwell, Michele Cantara, Robert DE Souza, Ron Siliman, Eric Goodness, Rebecca S. Scholl. “Q03 Update IT services forecast scenarios 2002-2005”. Gartner, Inc. 24 July 2003
- Landry Frece. “European outsourcing on track to double”. Yankee group. 16 June 2003
- Lewis M. Clark, Martin Lee. “Six performance metrics client issues for IT services providers”. Gartner, Inc. 19 August 2003
- Lewis M. Clark. “Performance metrics are key for IT professional services vendors”. Gartner, Inc. 22 August 2003
- Linda R. Cohen. “How to source and procure strategically”. Gartner, Inc. 08 August 2003
- Lorrie Scandino, Lisa Stone. “IT service market isn't positioned to deliver sustained value”. Gartner, Inc. 24 November 2003
- Lorrie Scandino. “New IT services buying patterns will alter service delivery”. Gartner, Inc. 16 October 2003
- Lorrie Scandino, Christopher Ambrose. “Criteria to evaluate government outsourcing providers”. Gartner, Inc. 29 August 2003
- Lorrie Scandino. “A blueprint for successful sourcing”. Gartner, Inc. 01 May 2003
- Max P. Michaels. “Outsourcing Overseas” Effective Executive, November 2003
- Michael Cusumano. “Business models that last balancing products and services”. Center for e-business@MIT. December 2003
- Neo IT. “Moving up the value chain” June 2003
- Neo IT. “Onshore versus offshore outsourcing: significant differences require unique approaches”. October 2003.
- Nicole France, Claudio Da Rold, Allie Young. “Services value chain reshapes IT services industry”. Gartner, Inc. 20 October 2003.
- Peter Dukem. “Make business the focus for outsourcing service levels”. Gartner, Inc. 11 March 2003
- Ravi Datar. “BPO in Asia/ Pacific: Buyers’ preferences in service provider selection”. Gartner, Inc. 18 November 2003
- Rebecca Scholl, Ravi Datar. “IT service providers in India are getting serious in the BPO game”. Gartner, Inc. 29 May 2002
- Rita Knox. “Added benefits of global IT: Paying forward”. Gartner, Inc. 21 May 2002
- Rita Terdiman. “Offshore outsourcing can achieve more than cost savings”. Gartner, Inc. 24 May 2002
- Roger Cox, Ian Marriott, David Seabrook. “Trust and control the key to optimal outsourcing relationships”. Gartner, Inc. 09 April 2003
- Roger Cox, Jonathan Clift. “Quality, not cost, is the real payoff from IT outsourcing”. Gartner, Inc. 12 March 2003
- Roger Cox, Martin Stacey. “Better outsourcing relationships save you money.”. Gartner, Inc. 07 March 2003
- Sujay Choohan, Rebecca S. Scholl. “Reaping the benefits of offshore BPO”. Gartner, Inc. 21 July 2003
- Susan Cournoyer, Geraldine Cruz, Robert L. Goodwin, Venecia K. Liu, Cinthiya Moore, Jeffrey Roster, Rishi Sood. “Vertical market forecast update: 2H03 indicates bipolar trends”. Gartner, Inc. 10 September 2003
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