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Research Report



Sponsored by Coherent Solutions, Inc.

January 2008

Staffing Alternatives in Distributed Software Development:

Attitudes, Perceptions and Key Decision-Making Criteria Among Midwestern Software Development Executives

Research Objective: Assess the attitudes and experiences of IT management towards the utilization of employees, U.S.-based contractors, and offshore contract resources for technology firms operating in a distributed software development environment. For this study, a distributed environment was defined as: "software development resources, including employees and contract resources, working from two or more distinct locations."

Introduction

Senior IT executives face mounting pressure to produce quality software deliverables despite an ever-increasing backlog of projects and mandates to maintain or reduce headcount and staffing expense. In this “do more with less” environment, outsourcing software development work to local or offshore vendors has emerged as a popular alternative to hiring employees for a number of reasons. Key among them is the cost savings and flexibility associated with the use of nonpermanent personnel. But outsourcing is not without its drawbacks, and IT managers’ attitudes regarding the importance of these factors helps shape their future staffing decisions.

Over the last decade or so, outsourcing software development work to places like India, China and Eastern Europe has gained popularity among IT executives principally because these regions offer a large population of highly qualified personnel, with hourly rates averaging about one-third the rates for U.S. contractors or the fully-loaded cost of full-time employees.

In their ongoing quest to attain aggressive departmental and corporate goals, software development leaders are carefully assessing the full breadth of staffing alternatives, which includes employees, U.S.-based outsourcing vendors and offshore resources. Ultimately, they seek the optimal balance of resources that produces a high volume of work, on-schedule, with high quality and within budgetary constraints.

Research areas studied included:

- Whether the staffing mix among different resource alternatives varies based on organizational size;
- Perceptions about the quality of work produced by employees versus outsourced personnel;
- Key factors influencing decisions about the utilization of each staffing alternative;
- Attitudes and trends in the utilization of offshore software development resources; and
- Trends in the relative popularity of the leading offshoring countries and regions.

Methodology

The target audience for this research included individuals who are responsible for making software development staffing decisions at technology companies where software development was integral to the firms’ core mission. Interviewees had titles including CEO, president, CTO, director or vice-president of IT, and director or vice-president of software development. Respondents’ headquarters were located in Minneapolis/St. Paul metropolitan area of Minnesota. Out of a pool of 250 randomly selected firms, telephone interviews were conducted with 49 individuals representing IT organizations with up to 500 full-time equivalents (FTEs). Among respondents, the average number of FTEs engaged in software development activities was forty (40).

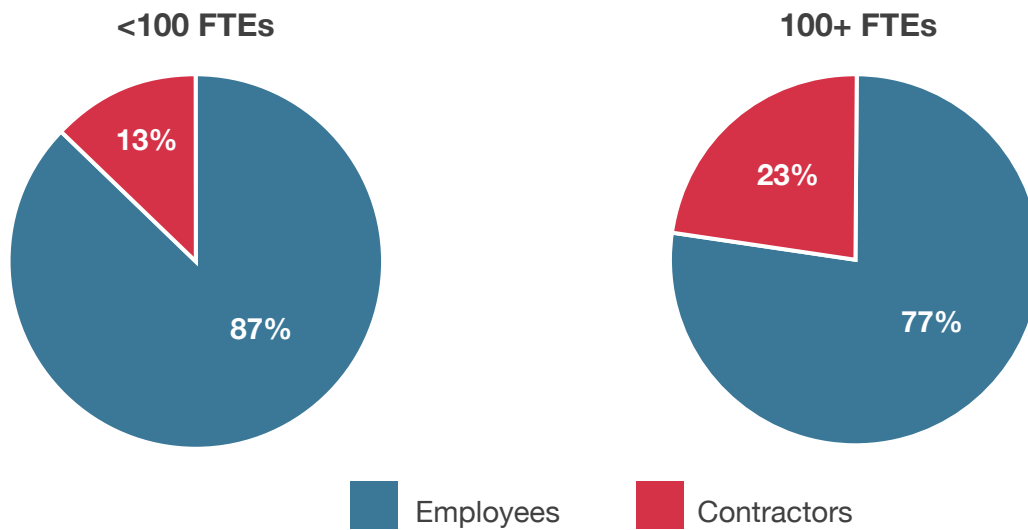
Interviews were conducted in September 2007. The sponsor of this research was not identified during the interviews.

Key Findings

Firms with larger software development organizations are somewhat more reliant on outsourcing than those with smaller software teams.

The size of a company's software development operations has some bearing on the extent to which they utilize outsourced resources. As Figure 1 depicts, smaller organizations, on average, utilize employees for a larger share of their development work than firms with larger development needs. Companies with 100 or more software development full-time employees (FTEs) consist of 23% contract personnel, while smaller firms use contractors for 13% of their software development resource needs.

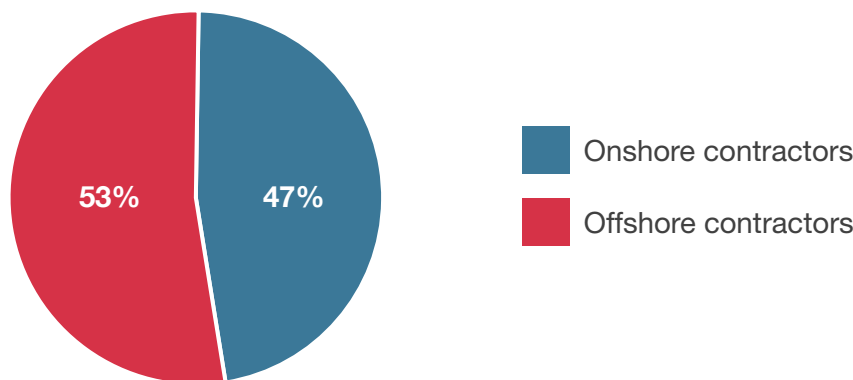
Figure 1. Software development resource distribution



Organizations are using more offshore personnel than onshore contractors

Regardless of the size of an organization's software development team, firms use more offshore resources than U.S.-based contract personnel. On average, 53% of outsourced software development resources are located offshore, while 47% are based in the U.S. (Figure 2).

Figure 2. Outsourced software development resource distribution

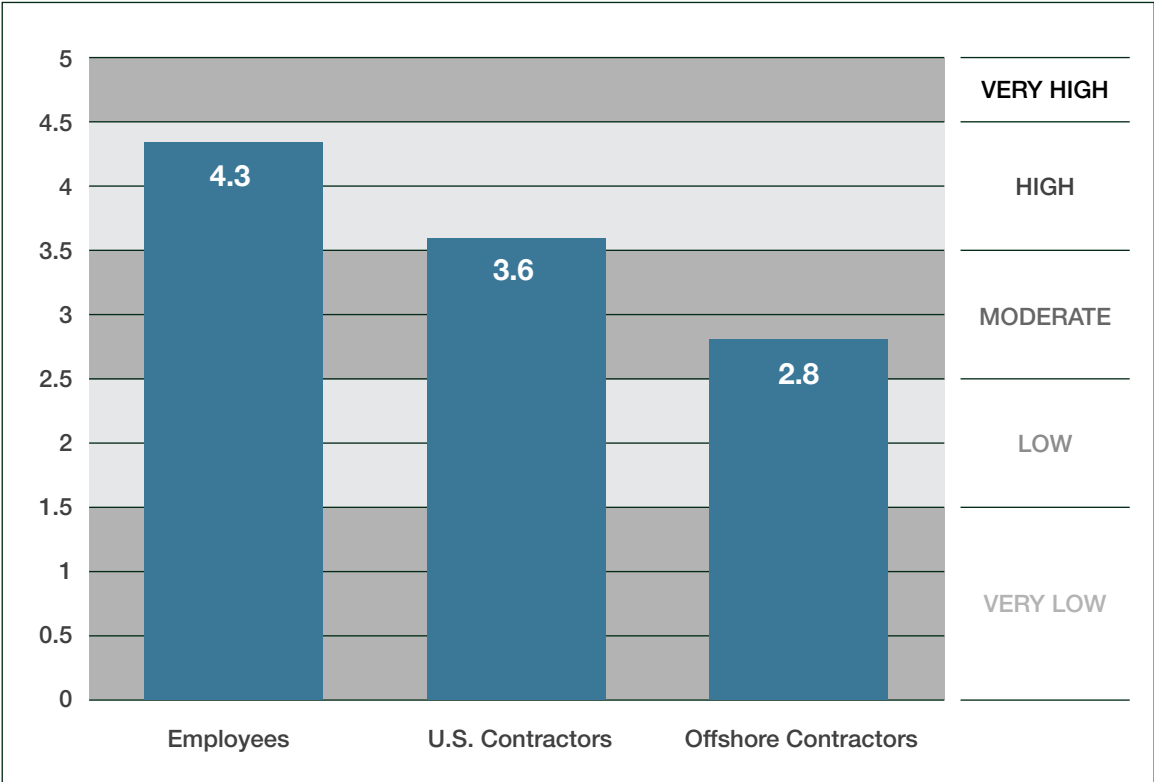


Employees are perceived to produce the highest-quality deliverables

Respondents were asked to rate their perception of the quality of deliverables produced by employees, U.S. contractor resources, and offshore resources over the previous 24-month period, using a 1–5 scale with 1 being “very low” and 5 being “very high.”

As Figure 3 shows, employees were perceived to produce the highest quality work, followed by U.S. contractors, then offshore outsourced resources, indicating the perception of a very direct inverse relationship between work quality and the personnel’s distance from corporate headquarters. The implication is that software development managers feel a strong loss of control over remote workers, and they believe that work quality suffers as a result.

Figure 3. Perception of quality of work produced

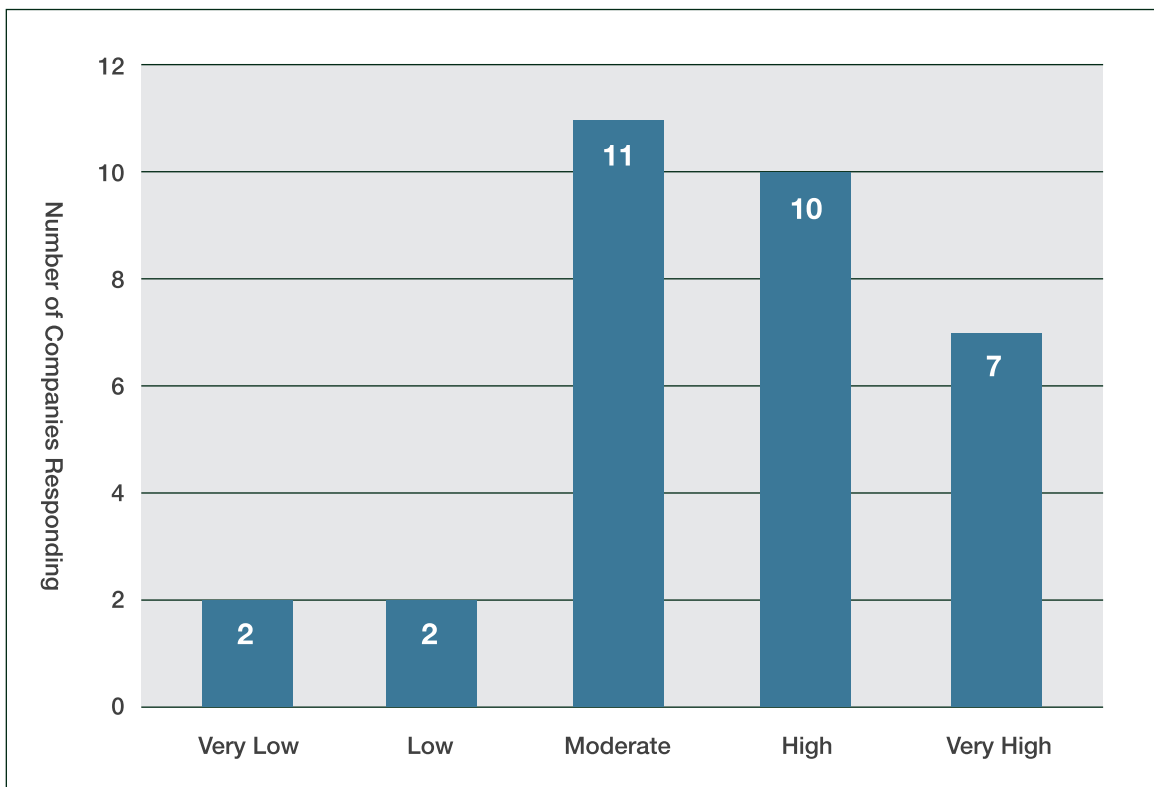


Distributed software development environments can be highly successful

Managers who have utilized distributed software development resources (which could include employees and/or contractors working from more than one location in the U.S. or offshore) during the most recent 24-month period were asked to rate their perception of the success of that experience, using a 1–5 scale with 1 being “very low” and 5 being “very high.” Sixty-five percent of managers indicated they had worked in this environment and, with an average rating of 3.6, respondents classified these projects as highly successful.

As Figure 4 depicts, among the 32 managers responding, only four (13%) characterized their level of success as low or very low, while 17 (53%) rated their efforts as highly successful or very highly successful.

Figure 4. Perceptions of success utilizing distributed software development



Cost is the least important factor in making outsourcing decisions

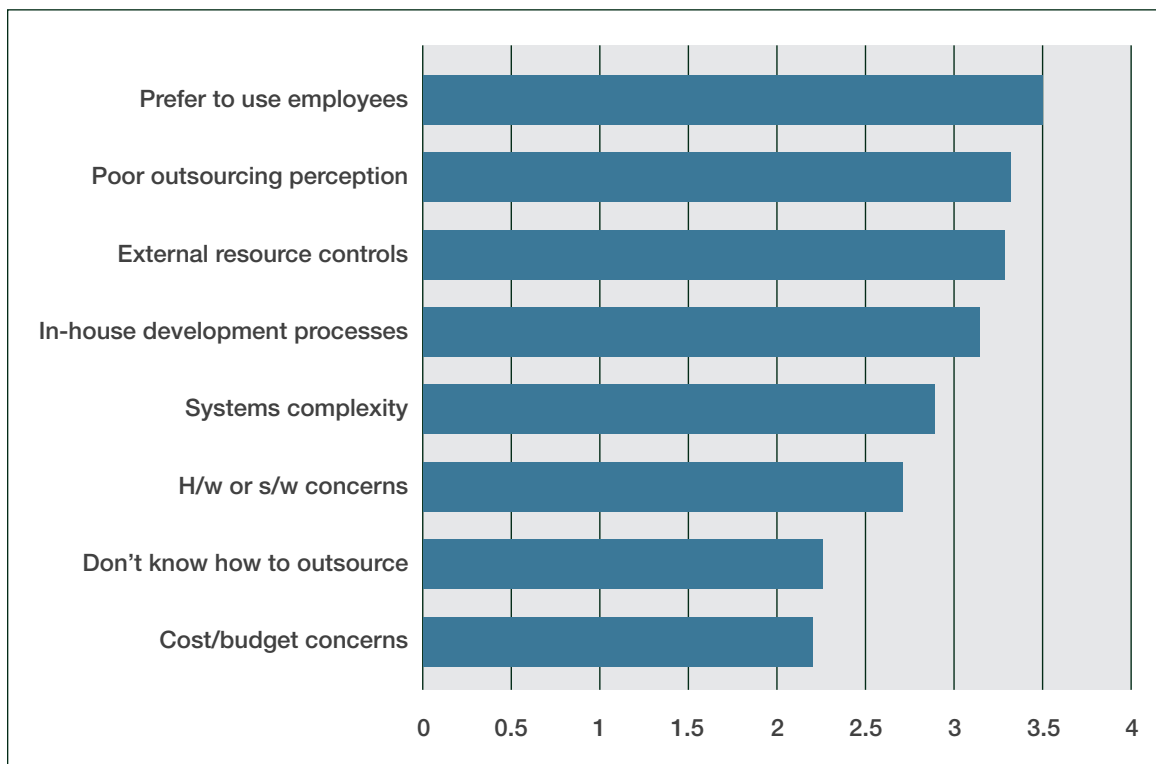
Software development executives were then asked to rate the importance of a series of factors in their decisions regarding outsourcing software development to either U.S. or offshore vendors, using a 1–5 scale with 1 being “very low” and 5 being “very high.”

Somewhat surprisingly, cost or budget concerns ranked dead last, making it the least important factor in deciding whether or not to outsource—apparently owing to IT managers’ improved ability to accurately forecast and budget for outsourced software development resources.

Not surprisingly, the leading factor in these decisions is that IT manager’s have a strong preference for utilizing employees rather than contractors. Similarly, a poor personal perception of outsourcing in general came in as the second-most-important factor.

The next-most-important factor was a general concern that managers believe they may have insufficient control over contract personnel to ensure successful projects, followed by worries that in-house development process and procedures were ill-defined, and therefore not conducive to effective outsourcing. Managers also believe their in-house systems are too complex for effective outsourcing, followed by fears that their internal hardware or software environment does not lend itself to successful outsourcing.

Figure 5. Most-important factors in making outsourcing decisions



IT managers are business-savvy in their offshoring decisions

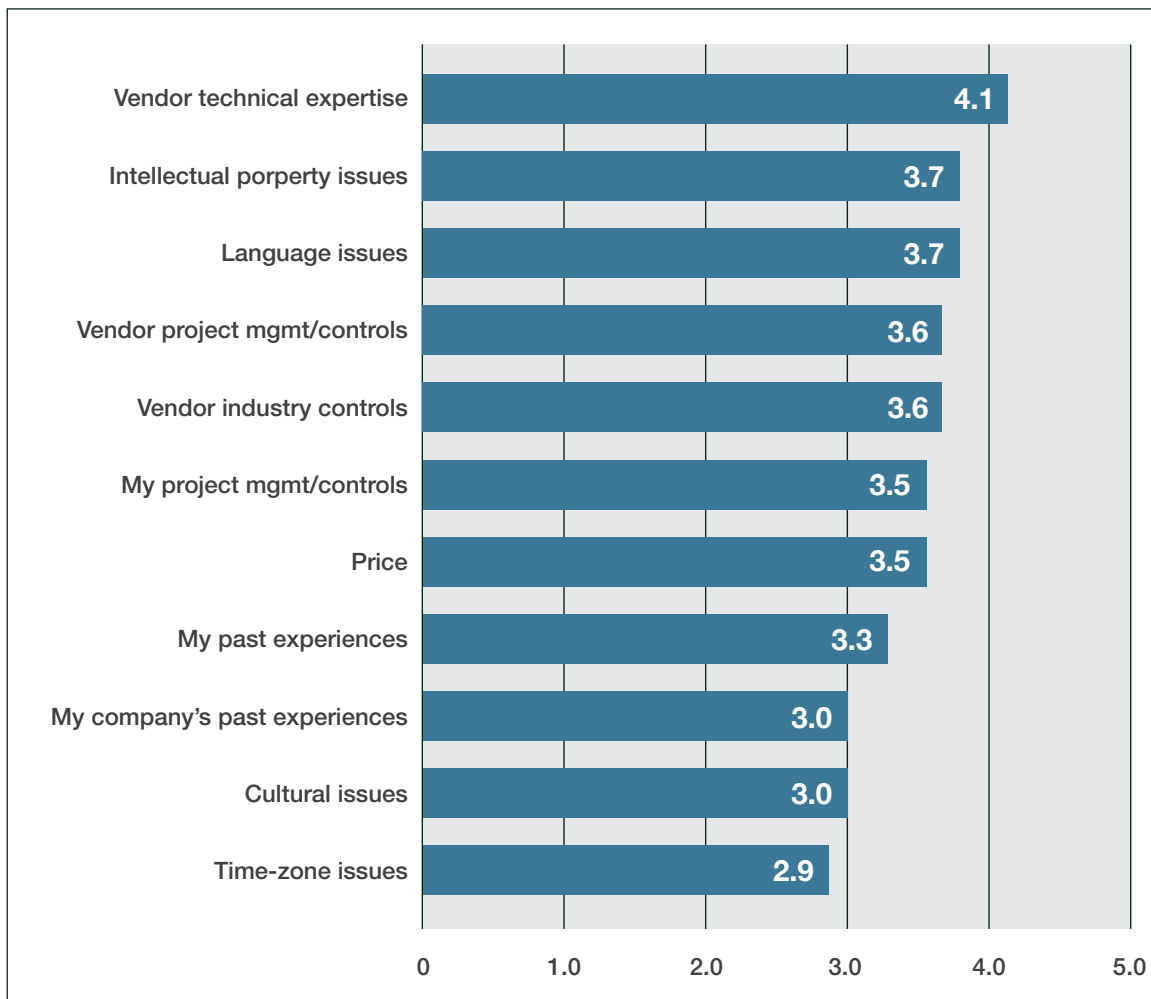
After learning participants' concerns with outsourcing in general, they were asked to rate the importance of a series of factors or considerations in terms of their importance in making decisions about utilizing offshore software development contractors. Again, respondents rated these factors using a 1–5 scale with 1 being “very low” and 5 being “very high.”

For many people in the IT industry, the top-of-mind considerations regarding offshoring tend to be cultural issues, concerns about time-zone differences, and language or communication worries. Such was not the case in this study. Although concerns about language barriers rated fairly high overall, cultural and time-zone issues ranked as the least important offshoring factors.

Overall, software development executives are much more focused on business-oriented, bottom line-impacting issues than societal concerns and personal biases. As shown in Figure 6, the offshore vendor's technical expertise ranked as the single most important factor in these decisions, followed by worries about the potential loss of intellectual property.

Offshore vendors' project management capabilities and project controls also ranked fairly high, with an average score 3.6, followed by the vendor's knowledge and experience in the company's industry. Many respondents were also concerned that their in-house project management and project controls may be insufficient for effective offshoring. Pricing ranked fairly low among offshoring considerations, presumably because most IT managers expect to receive highly attractive hourly rates from all offshore vendors.

Figure 6. Key considerations in making offshore outsourcing decisions

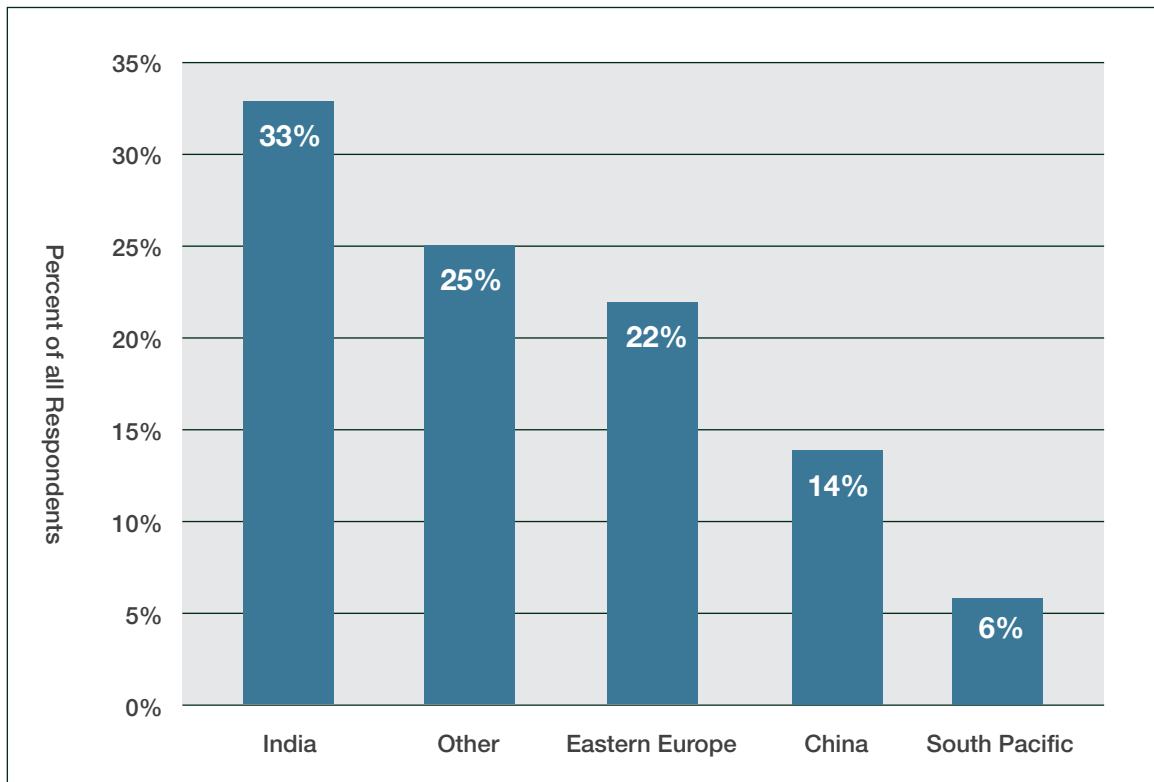


India has been the dominant global center for offshore outsourcing work

Participants were asked to indicate the offshore locations from which their firm has utilized contract resources in the past, from a list that included: India, China, South Pacific, Eastern European countries and Other.

India led the field with 33% of IT executives indicating they have utilized Indian outsourcing resources in the past. Eastern Europe has been the second-most-popular source for offshore resources, with 22% of companies having experience there. China and the South Pacific region placed third and fourth, respectively.

Figure 7. Most prevalent regions for previous outsourcing projects

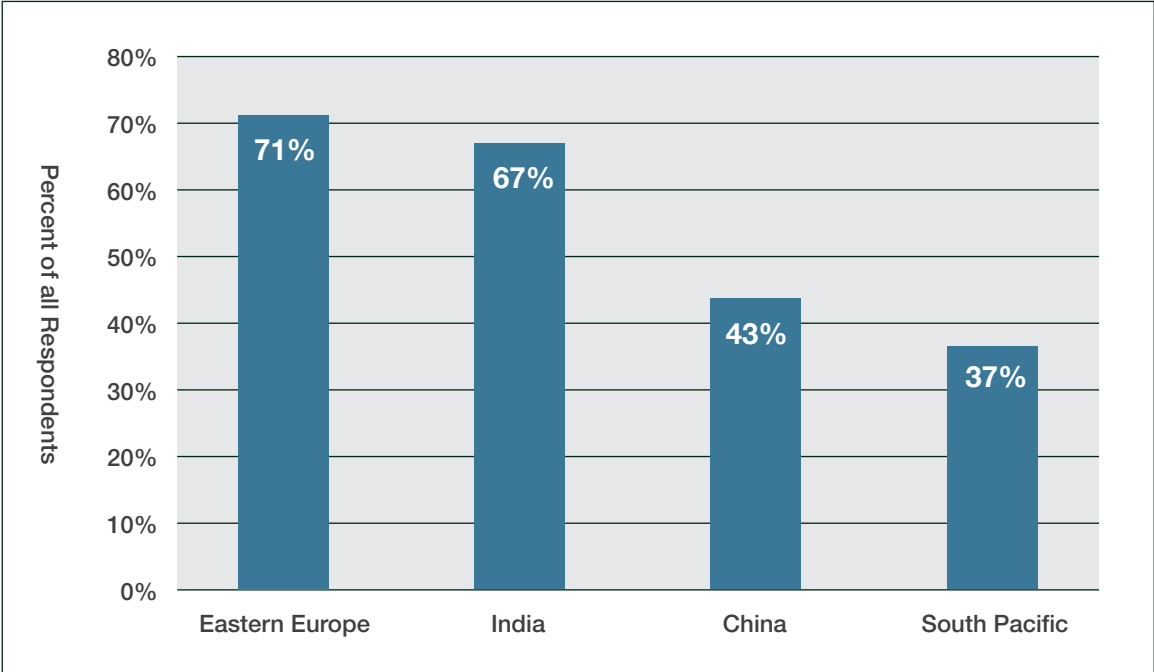


Eastern Europe will receive the highest consideration in future offshore software development outsourcing engagements

Software development executives were then asked to indicate, using the same list of locations, the countries/regions they would consider when making future offshore outsourcing decisions.

Eastern Europe ranked highest among these key offshoring centers (Figure 8), with 71% of participants indicating they would consider engaging resources based in this region for their future offshore outsourcing needs. India dropped to second place with 67%, followed by China with 43% and the South Pacific region with 37%. Israel and Ireland were the most frequently mentioned countries in the “Other” category, each with 6% of participants giving it future consideration.

Figure 8. Most prevalent regions for future outsourcing needs



Summary

Software development outsourcing has profoundly altered the IT staffing landscape, and most corporations today make at least some use of contract resources for ready access to their high-caliber personnel and for the flexibility they gain through nonpermanent staff. The abundance of well-qualified and highly affordable offshore personnel has opened new doors for IT leaders, but it also raises questions and concerns about their efficacy.

This study has revealed that managers prefer to use employees when possible, believing they offer a greater measure of project control and produce higher quality work than outsourced staff. Firms with larger IT departments rely more heavily on contractors than smaller organizations and, regardless of department size, software development executives are now utilizing more offshore outsourcing personnel than U.S.-based contractors. And irrespective of resource type, the vast majority of managers have been successful orchestrating projects involving personnel based in multiple locations.

Aside from their general bias towards hiring employees whenever possible, participants tend to believe that their specific environment is not very conducive to effective outsourcing. Concerns that their industry, their in-house systems and their development processes were sufficiently unique so as to complicate outsourcing were factors they considered when assessing outsourcing options. Major concerns with overseas contractors included loss of intellectual property and a general skepticism about the technical skills, industry knowledge, and project management controls needed to deliver successful outcomes. While India has historically been the dominant center for accessing affordable offshore IT talent, Eastern European countries have emerged as the leading contender for future offshoring engagements.

With an array of staffing alternatives at their disposal, software development executives must carefully examine their options, giving thoughtful consideration to the pros and cons of each staffing solution, including the relative costs and the short- and long-term strategic implications to their organization. In the decision-making process, IT managers' personal attitudes, knowledge, beliefs, biases and perceptions play critical roles in establishing the future direction for their organizations. Collectively, the strategies employed by these executives will indelibly shape the future of the global IT industry.

About Coherent Solutions

Since 1995, Coherent Solutions has helped over 100 technology clients successfully create and integrate an affordable outsourced software development capability—even those without a formal product development discipline or well-documented software. With permanent offices and highly experienced teams in both Minneapolis and Minsk, the company's high-touch relationship approach includes dedicated local personnel and a commitment to surpassing expectations and to redefining the software development outsourcing experience.

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