

# Offshoring Software Product Development to India

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The current product development process deployed at most independent software vendors (ISVs) is undergoing a fundamental change.<sup>1</sup> ISVs face an extremely harsh operating environment, a shrinking local talent pool, and rising complexity in technology and customer requirements. As a result, many software companies are looking to globalize their product development operations.

Recently, there has been a dramatic increase in the number of development centers located in offshore locations such as India. For example, two years ago, SAP's Bangalore center accounted for a mere 1 percent of total development spend. Today, this center accounts for over 8 percent of development spend and is projected to grow to 15 percent in the next two years. Interestingly, despite announcements from most large ISVs of significant layoffs in their international development, almost all of the same companies have announced a doubling of their capacity in India.

Despite these statistics, many ISVs continue to significantly under-use the opportunity provided by an offshore platform. In the sections that follow we outline the benefits of distributed development, describe the impact and value proposition of an Indian development base, and detail the key requirements for success in offshoring product development.

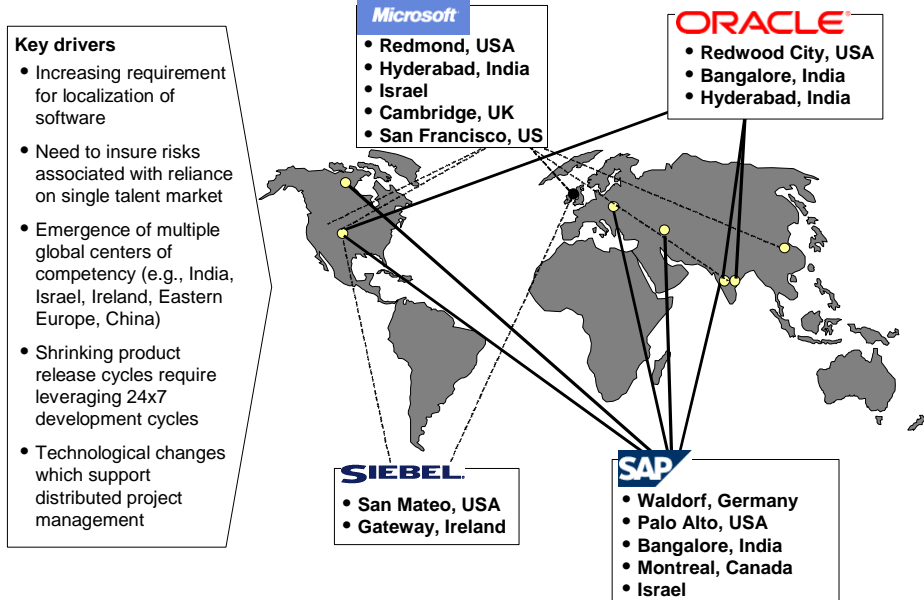
## **THE CASE FOR GLOBALLY DISTRIBUTED DEVELOPMENT**

Software companies are increasingly distributing software development globally instead of concentrating in local markets. Microsoft has set up development centers in India, China, Israel, and the U.K. in addition to its two locations in the U.S. Similarly, other leading ISVs such as Oracle, Siebel and SAP have established development centers in multiple international locations (Exhibit 1).

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<sup>1</sup> ISVs are defined as companies whose dominant revenue stream is software but are not part of larger firms in other sectors.

## GLOBALY DISTRIBUTED DEVELOPMENT



Locating development centers in multiple places around the globe enables companies to leverage a 24/7 development cycle. Globalization of development also helps to diversify the talent pool and mitigate the risks associated with reliance on a single talent market. Additionally, proximity to target markets such as Asia and Europe facilitates the localization of software.

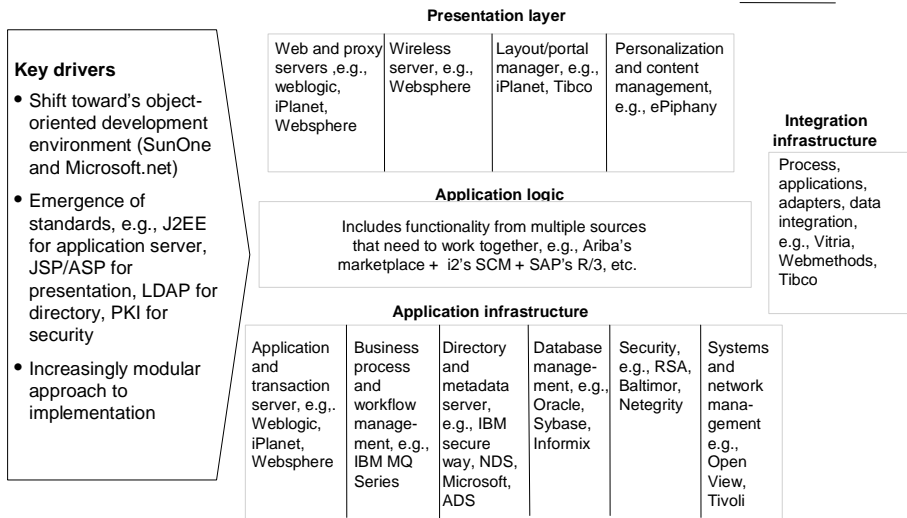
In addition to the economic advantages of offshore development, technological changes have also facilitated the development shift (Exhibit 2).

- ¶ Software architecture is becoming increasingly component-based with a rising number of object-oriented development environments (e.g., SunOne and Microsoft.net).
- ¶ The emergence of common standards is facilitating the use of standardized third-party components. (These common standards include J2EE for application servers, JSP/ASP for the presentation layer, LDAP for directories and PKI for security.)
- ¶ An increasingly modular approach is being adopted for the implementation of software development. This end has been furthered by the use of new tools that support distributed project management and make it easier for multiple global competency centers to operate around the world.

Exhibit 2

**SOFTWARE ARCHITECTURE IS INCREASINGLY BECOMING COMPONENT-BASED ...**

INTERNET APPLICATION EXAMPLE



Software companies are increasingly fundamentally rethinking the product development process, from defining the concept to the launch, support and maintenance of the product, while setting up offshore development. (Exhibit 3).

Exhibit 3

**FUNDAMENTAL CHANGES ARE BEING CONSIDERED BY MARKET LEADERS ALONG THE PRODUCT DEVELOPMENT SUPPLY CHAIN**

	From . . .	. . .To
<b>Define concept</b>	<ul style="list-style-type: none"> <li>• Role of off-shore development limited to providing localization related inputs to the concept</li> </ul>	<ul style="list-style-type: none"> <li>• Offshore development drives definition for non-domain/market specific products</li> </ul>
<b>Develop specifications</b>	<ul style="list-style-type: none"> <li>• Market research conducted globally in multiple 'test' markets</li> <li>• Specs developed by main center</li> </ul>	<ul style="list-style-type: none"> <li>• Offshore development center plays lead role in defining the engineering specifications, through active deployment of onsite team</li> </ul>
<b>Develop product</b>	<ul style="list-style-type: none"> <li>• Product modules developed internally through a globally distributed development team</li> <li>• SI partners leveraged for non-core modules, e.g., adapters and APIs, typically located offshore</li> </ul>	<ul style="list-style-type: none"> <li>• 3<sup>rd</sup> party components used where appropriate.</li> <li>• ODC has complete end-to-end ownership of some products that do not require domain expertise</li> </ul>
<b>Test product</b>	<ul style="list-style-type: none"> <li>• White box testing and Beta testing done largely internally through an off-shore located Q&amp;A team</li> <li>• Black box and unit testing often done through offshore facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Entire testing/auditing of the product completed offshore through a mix of own centers and vendors/SI partners</li> </ul>
<b>Launch product</b>	<ul style="list-style-type: none"> <li>• Product launch in home market</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing penetration of local and regional markets, leveraging offshore centers</li> </ul>
<b>Support and maintain product</b>	<ul style="list-style-type: none"> <li>• Support (level 1 and 2) provided typically by SI partner</li> </ul>	<ul style="list-style-type: none"> <li>• All levels of support and maintenance provided by ODC in conjunction with onsite teams</li> </ul>

Previously, the role of offshore development historically was limited to providing localization-related inputs. But today, market leaders are using offshore

development centers to actually drive the definition of non-domain/market specific products. For example, the Palm Pilot version of Adobe Acrobat was entirely conceived and delivered out of Adobe’s development center in India. Similarly, software companies are increasingly looking at offshore development centers to support and maintain their products, thus moving away from more expensive systems integrators (SIs).

## THE VALUE PROPOSITION FOR DEVELOPMENT IN INDIA

A key decision for companies wanting to globally distribute product development is where to locate centers and what projects to send offshore. An ISV must factor in the relative costs of setting up an offshore development center (ODC) in a particular location, the size and depth of the talent pool, and compatibility with local language and culture.

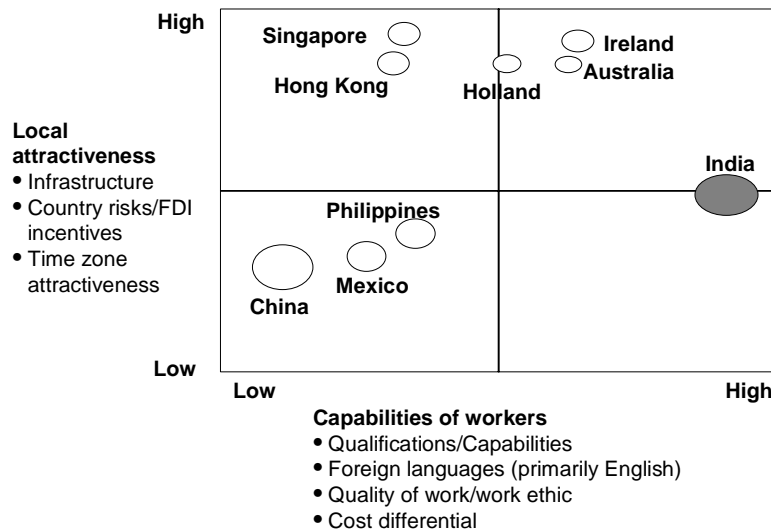
When compared to other leading destinations such as Ireland and China, India emerges as an attractive option (Exhibit 4).

Exhibit 4

### INDIA IS AN ATTRACTIVE OFFSHORING LOCATION

India is attractive relative to other offshore locations

○ Size of circle corresponds to number of qualified workers



Source: McKinsey analysis; MSDW reports

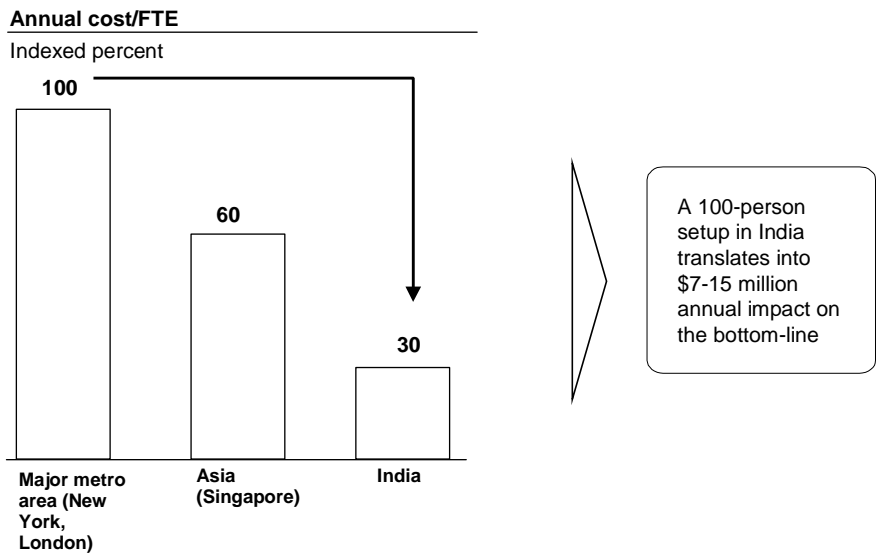
The case for locating offshore resources in India is driven by a strong economic value proposition.

- ¶ **Dramatic cost savings.** Fully loaded costs for offshore work in India are 30-50 percent lower than those in the U.S. and Europe, after factoring in increased expenses for telecommunication, infrastructure, and

integration. Many ISVs have captured sizeable savings by offshoring development/maintenance for mature products. For example, a 100-person setup in India can result in net savings of US \$7-15 million per annum (Exhibit 5).

Exhibit 5

### OUTSOURCING TO INDIAN VENDORS CAN RESULT IN SIZEABLE GAINS



Note: FTE-Full Time equivalent  
Source: McKinsey study

- ¶ **Faster time to market.** Indian offshore development allows companies to reduce the time required for conceptualization through marketing of the product. Time reductions result from 24/7 development cycles, rapid ramp-up through access to a large pool of resources and faster learning curves in some areas resulting from past experience.
- ¶ **High quality.** Most IT services companies in India have a successfully tested methodology and have in-built quality standards for their development processes. For example, 22 out of the 37 SEI CMM level 5 certified software companies are in India. In addition, 140 ISO 9001 certified software development companies also exist in India.
- ¶ **Large technical talent pool.** India has the second-largest IT talent pool in the world. Over 120,000 trained IT professionals are being added to the Indian talent pool yearly compared to 25,000 in the US. 62 percent of this Indian technical workforce has more than four years of experience and over 70 percent has an engineering degree.

¶ **Opportunity to leverage Indian platform for additional activities.**

An Indian center and its high quality technical talent can also be used for other IT-related activities such as core R&D, developing value-added applications around the core product, and for localizing products to access regional markets.

Despite these significant advantages, many top 20 ISVs have only been using India for a small part of total R&D effort or for lower value-added services such as support and maintenance of products. Moreover, nearly 50 percent of the next 30 largest ISVs do not have any development presence in India. This relatively low usage of Indian development by many leading ISVs is driven by some common myths (see side bar, “What’s Keeping Them Away?”).

The number of companies ignoring these myths are increasing. After successful initial forays into India, leading ISVs such as Microsoft, Oracle, Novell, Adobe, SAP, and i2 have dramatically scaled up Indian operations. Microsoft and Cadence have set up their largest development centers outside of the U.S. in India. Oracle plans to increase its Indian staff by 100 percent to over 2,000 people.

## WHAT'S KEEPING THEM AWAY?

Many software companies have under-leveraged India as an offshore development location. We explored their reluctance to exploit the opportunity and discovered that many of their reasons are based in misconceptions.

**Myth # 1:** The Indian talent pool can only be used for low value-added elements of the product development chain.

**Reality:** Some leading ISVs are developing entire products or large components of products in India with significant cost, quality, and time advantages. For example, Motorola has moved its entire product development to India, and even part of product management and specifications development has been shifted. Baan used its Indian ODC to manage over 40 percent of Baan 5 development.

**Myth # 2:** Offshore development centers (ODCs) in India focus only on mature products with long cycle times.

**Reality:** New "fast release" technology-intensive products and components are being developed in India, driven entirely by the offshore development process. This approach needs to be evaluated based on the product maturity (level of documentation, process knowledge/stability, and historical data available) and the interaction requirement (level of dependence or linkage with other products and domain capability required). Typically companies tend to offshore high-maturity and low-interaction requirement projects such as Parametric's Indian development. However, companies with a strong and stable development process can and do offshore lower-maturity products (e.g., Adobe). And once companies gain some Indian experience, they often set up ODCs to cater to higher interaction requirement projects, as exemplified by the SAP Financial Services Module.

**Myth # 3:** An Indian center can only play a marginal role with impact limited to a small proportion of development resources and spend.

**Reality:** Indian centers are core to the development efforts undertaken by several leading ISVs. For example, 14 percent of Novell's worldwide R&D is carried out in India and there are plans to increase this figure to 20 percent in the next 2-3 years. Similarly, Adobe has located 8 percent of its worldwide development resources in India with plans to increase this to 20 percent over the next 2 years.

**Myth # 4:** The benefits of using India are limited to cost and availability advantages.

**Reality:** While costs and availability are the more attractive benefits of product development from India, there are significant other advantages that attract ISVs to India. First, offshoring to India is being used to build new products such as wrappers and products that enhance the sales of core applications. For example, Sanchez is looking at building connectors to over 100 applications. Second, companies such as Cadence are using India for localization and customization to improve penetration of Asian geographies. Finally, companies like GE are looking at India for fundamental research and new concept/product development.

**Myth # 5:** Infrastructure challenges in India can constrain productivity and performance levels.

**Reality:** Infrastructure has not proven to be a limiting factor for companies operating out of India. Software companies have managed to work around the three main concerns of telecom reliability, power shortage, and security. Companies have managed to achieve 99.99 percent telecom reliability by building adequate redundancy and multiple access technologies. For example, SAP's Indian team works directly on servers based in Germany. Additionally, captive power generation units can be used as a back-up to the national power grid. The issue of network and physical security has been largely overcome as most leading Indian vendors have built facilities that mirror the security set-ups of their clients.

## THE KEYS TO SUCCESSFUL OFFSHORE DEVELOPMENT

Software companies can choose between two basic models to offshore software development. The first is to set up a full-fledged captive offshore development center (ODC) and the second is to selectively offshore through a partner. The best model often proves to be a combination of captive ODC and a network of partnerships.

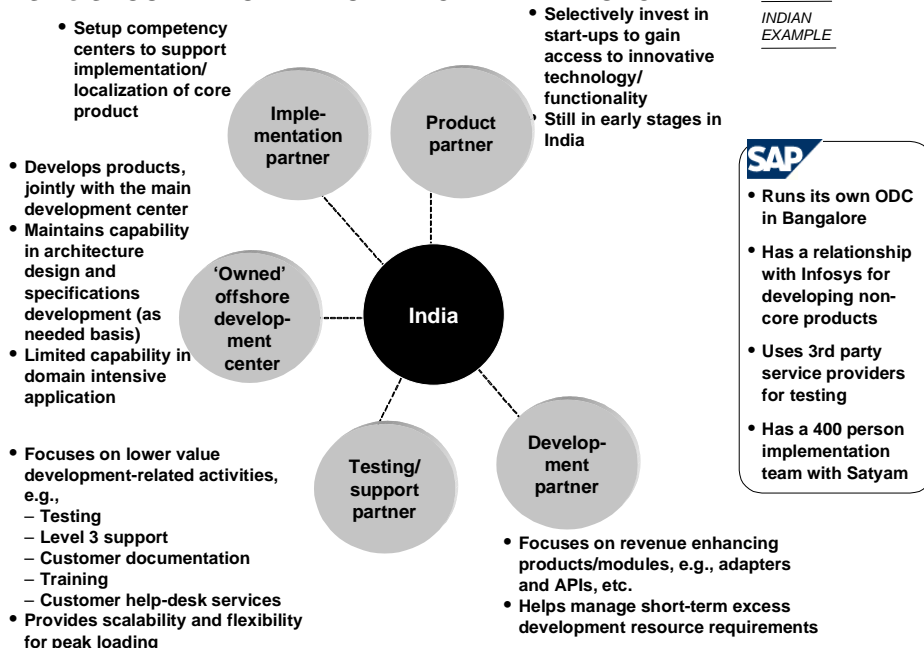
Beyond selecting the right model, success in product offshoring hinges on three additional key factors. First, it is important to adopt the right offshoring approach to fully leverage the offshore location. Secondly, companies need to ensure they establish a well-designed offshore development strategy. Third, software companies must follow best practices with respect to their own set-up as well as that of the vendor/partner.

### Fully leveraging the offshore platform

Most ISVs have traditionally looked at offshore locations as low cost, body-shopping bases. To fully leverage the advantage of an offshore platform, companies should instead look at the offshore location as an integral part of their software development effort. This means that the ODC should work together with the main development centers to create new products, localize existing products effectively, and identify and build capabilities in newer technologies (Exhibit 6).

Exhibit 6

#### ISV'S SHOULD ADOPT A MULTIFACETED APPROACH



## **Establishing a well-defined offshore development strategy**

Crafting an effective strategy for global development involves taking four steps:

- ¶ **Set aggressive aspirations.** Contrary to the conventional “let’s start small” approach, it is critical to set high aspirations upfront for the captive ODC. This is important to build excitement around the initiative and attract the right kind of software and managerial talent to the venture.
- ¶ **Ensure a strong champion exists.** A strong supporter at a senior level ensures that senior management stays the course as the ODC builds up and keeps the success of the ODC on the agenda. This champion should typically have his or her incentives aligned with the ODC’s success.
- ¶ **Handpick the landing party.** The start-up team of senior managers who set up the ODC must be carefully selected to ensure commitment, adequate culture transfer and integration with the parent organization. The team should be comprised of strong performers who have powerful incentives to move to the ODC and a clear path for continued professional growth
- ¶ **Focus the ODC on high-end activities.** Lower skill/value activities are typically better outsourced to development and support partners who have specialization and scale advantages. The ODC should typically focus on core development activities that are well integrated with the main development center. Engaging the ODC in high value-add core development work in current technologies will also significantly aid in attracting and retaining high quality talent.

## **Following best practices in offshore development**

Four best-practice approaches can help offshore development be successful:

- ¶ **Utilize world-class human resources practices.** A key success factor for achieving the ODC’s desired aspirations is to adopt the global organization’s HR and talent management practices. This includes the following:
  - World-class management processes and policies to attract, motivate and retain high-level talent, in areas such as training, compensation, and benefits
  - Change management mechanisms to manage transition and cultural integration

- Recruitment from top technology institutions.
- ¶ **Establish world class physical and network infrastructure.** It is important to invest upfront in world-class equipment and a resilient communications network to ensure adequate connectivity. For example, SAP Labs India works directly on servers in Germany through real time connectivity and daily merges to maintain the version control in distributed product development. A secure environment with top-quality physical and network security is also required to protect data and physical infrastructure.
- ¶ **Execute partner management well.** ISVs should ensure that the partner/vendor selected fulfills the key criteria of quality management practices, strong HR systems and world class physical and network infrastructure. Detailed plans should be prepared for transitioning activities to partners, and a staged approach should be followed. Establishing strong governance and management is also critical to protect intellectual property.
- ¶ **Use best-of-breed project management systems.** Upfront planning and appropriate team structure is required for effective project management. A program management office can also be set up. There should be strong focus on training vendor teams and maintain carefully defined review and change management mechanisms.

## CONCLUSIONS

Offshoring software product development to India offers a significant opportunity to ISVs to capture greater efficiencies in the software development process. Benefits include cost savings, time to market, quality improvements, and access to a large talent pool among others. The experiences of several large ISVs demonstrate the potential to successfully use an India-based ODC for core development and to leverage a network of partnerships for product support and maintenance. As a result, software companies should consider moving to a greater use of India for product development.

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