

September 20, 2004

Offshore Outsourcing And Agile Development

by Stephanie Moore and Liz Barnett

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Improving Customer Satisfaction, Not Just Cost Savings

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EXECUTIVE SUMMARY

IT organizations must optimize their processes to better support the business, reduce costs, improve quality, and improve time-to-market. Many have turned to offshore outsourcing or Agile application development processes to help address these challenges — but not both. Indeed, given Agile methodologies' intense developer/customer interaction and light documentation requirements, the two approaches seem diametrically opposed. However, companies that master the complexity of merging the two types of approaches can further reduce costs and also improve their ability to communicate with remote development resources, a challenge for all companies doing offshore outsourcing. The result? Companies doing offshore work can better meet their customers' needs, and Agile development teams can cut costs. But organizations blending these two approaches will face significant hurdles in terms of team communication, development culture, and customer participation. Not all Indian firms will be able to make the transition to Agile development, so there is a key opportunity for US and European firms investing in offshore sites.

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In developing this report, Forrester interviewed vendors investing in Agile processes for their offshore projects, such as ThoughtWorks, Valtech, and Cognizant Technology Solutions. We also spoke with end user organizations that are using these firms or are considering this approach.

Related Research Documents

"Adopting Agile Development Processes"
March 25, 2004, Trends

"Offshore Communications Plan Must Be Rooted In Outsourcing Strategy"
January 30, 2004, Planning Assumption

"Indian Outsourcing In The 21st Century: Benefits And Risks"
September 24, 2003, Planning Assumption

THE BENEFITS OF USING AGILE PROCESSES FOR OFFSHORE DEVELOPMENT

Companies using Agile development processes or offshore outsourcing understand how difficult these activities can be. Both require changes to the way development teams build software and the ways in which they communicate with their end users. Given the unique challenges of each approach, companies spend significant time and money developing processes and experience in order to be successful. While combining the two seems like a recipe for disaster, a few companies have found that, in reality, a combination of offshore and Agile techniques can bring measurable benefits to both camps.

Benefits Of Agile Processes

IT teams seek a number of benefits from Agile development, such as improvements in time-to-benefits, overall quality and efficiency, team morale, the relationship between IT and business staff, and responsiveness to change (see Figure 1).¹

Early Agile process adopters have begun quantifying the benefits they've achieved. One large financial services company found that after using eXtreme Programming (XP) for six projects, it cut its defect rates by 60% and increased its customer satisfaction rating by 30%. ThoughtWorks, a global IT services firm, has demonstrated the benefits of its Agile development projects at a 29% risk-adjusted ROI within 24 months.²

Benefits Of Offshore Outsourcing

The benefits of offshore outsourcing map directly to the faster, better, and cheaper challenges facing most application development organizations (see Figure 2).

Benefits of offshore outsourcing are easier to quantify. According to a 2003 *CIO Magazine* survey, lower cost was cited by 78% of the IT executives as “. . . the main reason for outsourcing offshore. The greatest savings were realized in the areas of labor costs (86%) and reduced project timelines/time-to-complete (37%). Other benefits experienced as a result of offshore outsourcing included increased IT department productivity (44%), competitive advantage (30%), and internal customer satisfaction (20%).”³

Why Blend The Two?

During the past 24 months, companies have begun to blend Agile development processes and offshore outsourcing to realize incremental gains. The benefits that accrue to teams already doing offshore or teams already doing Agile development are quite different, however, as are the teams' motivations for blending the two processes.

Figure 1 Benefits Of Agile Processes

Time-to-benefits	Instead of just focusing on improved time-to-market, teams now strive to deliver quantitative benefits to the organization much more quickly than in the past.
Overall quality and efficiency	Focus on testing is predominant. Test-driven development ensures that all requirements are sufficiently tested; short iterations allow for frequent checkpoints and user feedback to validate code against requirements.
Team morale	Agile teams are often self-organizing – they are told what is needed but not how they must deliver those requirements. They are required to follow any existing organizational standards guidelines and conventions so what they build fits with the organization's other systems. Team members collectively own the code and collaborate on each step of the development process.
Improved relationship between IT and business staff	Business staff play a full-time role on the team and are responsible for defining requirements and controlling the order in which requirements are delivered. They work alongside IT developers who estimate and produce the required software functions. Customers have a greater likelihood of getting what they want as they control the scope of each release.
Responsiveness to change	Agile processes assume that all requirements cannot and will not be specified at the start of the project. They therefore include activities to address a high rate of change and to respond to change in each short iteration.

Source: Forrester Research, Inc.

Figure 2 Benefits Of Offshore Outsourcing

	Benefit
Cost savings	Due to labor rates, companies can save between 15% and 40% by developing and supporting software internally.
Time-to-market	If managed well, is improved based on possible round-the-clock development and increased staff.
Overall quality and efficiency	CMM Level 5-assessed vendors use formal and mature software development processes.

Source: Forrester Research, Inc.

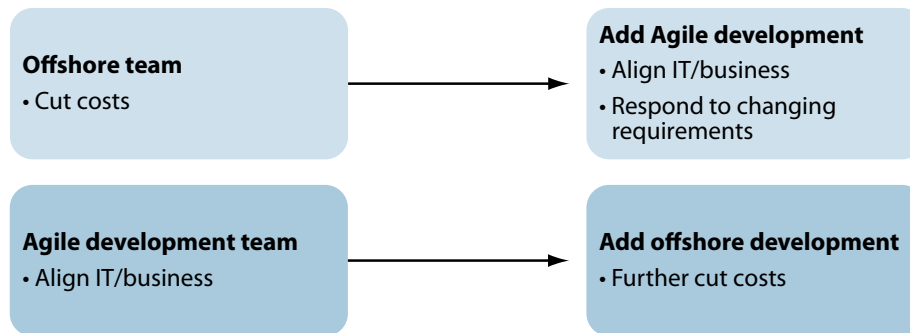
- **Injecting offshore into Agile development projects.** Companies already committed to Agile processes are typically the ones considering extending the processes to offshore engagements. Collocation used to be considered an Agile development requirement and, indeed, the cultural and geographic distance imposed by offshore outsourcing increases risk even further than just distributing an internal development team. However, offshore development offers opportunities to save money — over and above the benefits teams achieve with Agile development. In a minority of cases, resource constraints motivate a move to an offshore model (see Figure 3).
- **Injecting Agile processes into offshore projects.** Properly injecting Agile techniques into an offshore development project can add improved responsiveness and business/IT alignment to the list of offshore benefits — benefits that were heretofore virtually impossible to achieve. Offshore projects easily demonstrate how they can deliver high-quality software projects at lower cost. However, these benefits do not automatically enable improved business/IT alignment or responsiveness to changing business requirements. Rather, the formality of Indian vendors' development processes and the geographic and cultural differences that exist between the offshore vendors and their local counterparts further exacerbate these issues.

To make offshore relationships successful, IT teams have had to dramatically alter or improve their software processes. For example, end users have had to learn how to specify their requirements carefully and understand that changing those requirements midstream could cause massive cost and time overruns. Many end users struggle to deal with this rigidity. And their inability to deal with it can negate much of the savings the offshore model has to offer. This stringent model also causes mistrust and bad feelings between the IT organizations and the business community.

Agile processes can actually address these key issues by injecting into this equation the ability for teams to communicate in a rich way. Communication takes center stage, between the end user, the internal IT staff, and the offshore consultants. Short iterations force frequent reviews so end users can approve or reject functionality before too much time or money has been spent on that deliverable (see Figure 4).

Agile Development Instead Of Offshore?

Companies, particularly those with weak or inefficient software development processes, can reduce costs and improve service through integrated process optimization efforts. However, the effort required to change the behavior of an IT organization *and* its customers is usually considered more trouble and more risky than offshore outsourcing.

Figure 3 Incremental Gains Of Adding Either Offshore Or Agile Development

Source: Forrester Research, Inc.

Still, some development groups within IT organizations are adopting Agile development techniques to forestall a move to offshore outsourcing. Agile development indirectly saves organizations money because it produces higher-quality code that meets customer needs, but cost savings aren't typically the key benefit. In other words, IT organizations can't reduce headcount by 30% by implementing Agile development. The fact is that the savings derived from offshore outsourcing are hard savings that are visible/tangible to IT and business executives. However, given the difficulty of implementing distributed Agile development, and the lack of qualified vendors in this market, a successful internal Agile development group will likely be immune to offshore outsourcing efforts — at least in the short term.⁴

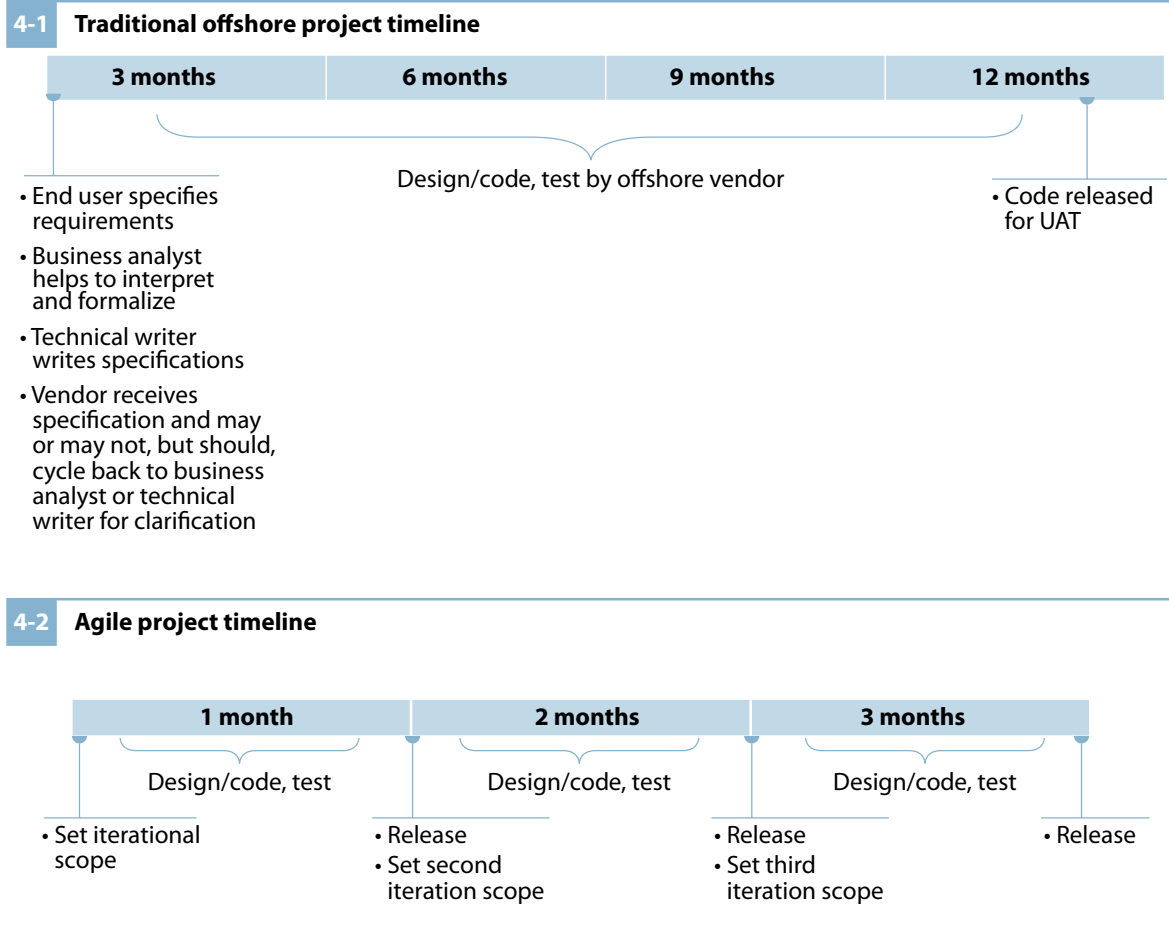
ENABLING OFFSHORE AGILE DEVELOPMENT

Communication among developers, especially Agile developers, is a massive challenge when teams and business users are not collocated and when part or all of the development team are in India. Indian teams do not typically ask a lot of questions, interface with end user clients, or work effectively with incomplete specifications or user requirements. They are used to the disciplined processes that have made them so successful but are antithetical to the dynamic nature of many of today's IT organizations.⁵

Agile development projects rely on constant communication and short iterations. Therefore, it's important that teams:

- Treat the project team as one integrated team, rather than onshore and offshore partner teams.
- Force the unit of work to be a single story, ensuring that the delivery cycle is short and that it's possible to receive quick feedback on questions from the client.

Figure 4 Dramatic Differences In Agile And Traditional Offshore Projects' Timelines



Source: Forrester Research, Inc.

- Staff a fully cross-functional team at the offshore site, including business analysts, project managers, developers, and testers. Do not just treat the offshore team as contract developers.
- Bring offshore team members to the onsite team and vice versa, especially during the first few iterations of the project.
- Provide the team with multiple means of communication, including instant messaging, wikis, and international telephones.⁶
- Try to stagger team hours such that there are at least a few hours of overlap for the onshore and offshore teams.

Another critical success factor is investing in a scalable software configuration management (SCM) environment that can manage code changes and releases across locations. Additional tools to support continuous integration, automated testing, and issue/backlog tracking may further boost the teams' effectiveness.

WHO'S DOING OFFSHORE AGILE DEVELOPMENT — AND WHY?

Companies have only just begun implementing offshore Agile development techniques, and there are only a few vendors with adequate experience. Most pure-play Indian vendors view Agile development methodologies as the antitheses of the right way to develop software. Agile techniques contradict the internal software engineering practices that have made the Indian vendors so successful. They are not structured enough and require too much client interaction. Indian firms also do not have the infrastructure (tools, processes, training curriculum, cultural training) required to support Agile development in an outsourced model. The few Indian firms that do some form of Agile development (Cognizant Technology Solutions and ITC Infotech India) have done so in response to customer demand rather than their own proactive vision.

Therefore, US and European consultants with offshore facilities are leading the move to offshore Agile development. Having mastered Agile processes on domestic projects, they now need to incorporate offshore locations to be price-competitive. To do this, they are carefully hiring Indian consultants, investing in technology and culture training, and slowly building a new offshore workforce. Thus far, vendors that have successful, distributed Agile development project references are ThoughtWorks and Valtech.

Early customer examples are impressive. Companies using Agile techniques on offshore projects have realized that not only is it possible to take Agile techniques to distributed teams, but that the cost savings represent incremental value on top of the core Agile process benefits. Examples include:

- **A large international online auction company.** Due to the dynamic nature of its business, this company uses Agile development techniques internally. Recently it decided to rebuild its auction site — moving from a legacy C++-based architecture to J2EE — to support increasing demand for scalability and frequent changes to the business. The company needed to do this quickly and economically. Thus, it engaged with Cognizant, a leading Indian offshore consultancy, to support the need for low-cost resources, and it used Agile development process so it could release frequent changes to the site.

Cognizant, which had minimal Agile development experience before this engagement, essentially integrated its traditional process-driven methodology with the client's Agile

approaches. It developed what it calls a “CMM-light” model to fit with the client’s Agile processes. It took Cognizant about two months to find the right internal staff (Cognizant used a special questionnaire to identify staff that were more likely be able to operate in an Agile environment), train them, and put the necessary infrastructure in place. Cognizant used the client’s Agile framework and materials for training purposes.

Working as three distributed teams — Cognizant onshore, client onshore, and Cognizant offshore — the combined project team releases new functionality to the Web every 15 days. In 16 months the teams delivered 24 individual projects, fed into 15 delivery cycles. On average the combined team changes 50,000 to 60,000 lines of code every two to three weeks; the relationship has been a success to date. The client has realized the cost and time-to-market benefits it required.

- **A US financial services and insurance company.** This company was originally seeking the cost savings inherent in an offshore model. Toward that end, it engaged a top-tier Indian vendor that used a traditional waterfall software development approach. Due primarily to communication difficulties, however, the client company did not receive the value it needed from the offshore relationship. Frequently, deliverables did not meet end user requirements and rework was necessary to meet requirements.

This problem occurred primarily because the client company did not specify its needs appropriately and the Indian vendor did not solicit specifications well. And neither side communicated well enough to overcome the underinvestment in the requirements and specification phases.

When a new development project came up, a pension plan system, the client company decided to investigate alternate methods for development and delivery. It still wanted and needed an offshore component, but it wanted to try a different development approach in the hopes of easing the communication issues that had derailed other offshore projects.

ThoughtWorks, a high-end Agile application development consulting firm with an Indian facility in Bangalore, India, bid on the project using its “distributed Agile” approach. The bid included a mix of onshore and offshore teams and was more competitive than the previous Indian firm’s bid. Not only was the bid less-expensive, it actually produced value to the business even more quickly by delivering the most important features first. Team members (from ThoughtWorks and the client) moved between the Indian and US sites to ensure that both groups operated as a single team. The result: The project has been completed and is now being maintained by the client. It was delivered on time and on budget. The project was done in about half the time

proposed by the incumbent Indian vendor while delivering more functionality than that vendor's bid. Given these results, the client company plans to do more offshore Agile development projects wherever appropriate.

These examples only represent a small number of the Agile development projects currently underway in IT organizations, and only a small fraction of the number of offshore projects. Still, as the pressures on offshore engagements build, offshore consultants will need to consider adapting new models and addressing the client management issues that are continuing to plague their projects.

WHO SHOULD CONSIDER DOING OFFSHORE AGILE DEVELOPMENT?

Using Agile processes on offshore engagements is not for everyone, or for every project. In fact, most of the offshore Agile process proponents stress that IT shops should be very careful in choosing which Agile projects to take offshore. The best candidates for offshore Agile development are:

- Companies that have experience with Agile development and want to gain further cost savings by using lower cost staff.
- Companies that require a process that is flexible and responsive to changing business user requirements but want to take advantage of offshore outsourcing benefits as well.

Companies that are experienced with traditional (a.k.a., waterfall) offshore projects will find it much more difficult to change to an offshore Agile process. If offshore development is delivering cost, quality, service, and productivity benefits, there's no need to move to offshore Agile development.

Be Particularly Focused On The Key Risks

Clearly, offshore Agile development poses a number of risks, and teams must go into this type of environment with their eyes wide open. Experienced consultants like ThoughtWorks and Valtech are only just starting to measure the ROI of an offshore Agile development project vis-à-vis their onshore Agile projects.

Highly complex or strategic projects do not lend themselves to offshore work, at least for the first few releases. Once major technology risks are addressed — which is one of the key benefits of Agile development, that risks are uncovered early in the project — then subsequent releases can incorporate offshore teams. The initial release(s) requires effective interactions among team members, and adding offshore teams and handoffs would introduce too much complexity.

Many offshore development leaders are not equipped to lead or participate in Agile projects. These consultants require training — technical and cultural — to move away from their traditional waterfall processes and adopt incremental iterative processes.

All of these risks can be addressed by staffing a project appropriately, prioritizing project activities effectively, and investing in different means of team collaboration. While it may be difficult for some offshore consultants to adapt Agile processes, their IT customers will be demanding that they adopt at least some Agile concepts and be more responsive to their changing businesses.

Mainstream Indian Vendors Will Have To Adopt Agile-Like Processes

Despite their objections, mainstream Indian vendors will have to adopt some Agile-like techniques to solve the communication challenges that exist today. As companies invest more time and money with Indian vendors, they expect more from them. They expect them to have effective relationships with their business users. They expect them to be able to ask questions and challenge clients. For Indian vendors to actually move up the value chain and compete with domestic IT services vendors for high-value business (the goal of every top-tier Indian vendor), they will have to learn to be more interactive with their IT customers and their business users. If they can't accommodate customer interaction needs, they will be relegated to the ranks of low-value, commodity IT services vendors.

RECOMMENDATIONS

OFFSHORE PROJECTS CAN GAIN FROM AGILE PROCESSES — BUT START SLOWLY

- If you're committed to offshore development, Agile processes can actually help mitigate many offshore-specific risks. This is particularly true in the area of business/IT alignment, a core issue with many offshore projects.
- If you're not yet sure whether an offshore model is a good fit, start with onshore Agile development first. Then, move to a distributed Agile model.
- If your offshore processes are already in place and are delivering sufficient benefits, then you may not need to — or want to — introduce Agile processes.
- Question vendors' ability to do offshore or distributed Agile development. Very few vendors today have the skills and the experience to undertake offshore Agile projects. US and European-based vendors ThoughtWorks and ValTech have demonstrated their ability to do this. Indian vendor Cognizant, too, has demonstrated its ability to work in an offshore Agile style. Indian vendors like ITC Infotech India are developing skills in this area and realize the benefits of offshore Agile development, so it, too, may eventually be able to satisfy clients' offshore Agile development needs.

ALTERNATIVE VIEW

OFFSHORE VENDORS WON'T MAKE THE STEP TO AGILE DEVELOPMENT

Companies using Agile processes may want to move some of their development offshore. But it's unlikely that many of the Indian firms will truly embrace these processes. Their successes have been built upon years of structured development techniques and are deeply embedded in their culture and training programs. So if Agile processes are to be successful in a truly distributed and international project, it'll take leading-edge US and European firms to make this happen. This will address only a small fraction of the offshore outsourcing market.

SUPPLEMENTAL MATERIAL

Note: A number of IT organizations did not wish to be cited by name.

Companies Interviewed For This Document

Cognizant Technology Solutions	Sapient
ITC Infotech India	ThoughtWorks
Rally Software Development	Valtech

ENDNOTES

- ¹ Use of Agile processes is taking off in corporate IT shops. Approximately two-thirds of large organizations working with Forrester are adopting (overtly or inadvertently) some form of Agile processes for their internal application development (AD) efforts. Both corporate IT and ISV development teams are finding that Agile processes deliver business value more quickly, help improve overall efficiency and quality, and enhance team morale. See the March 25, 2004, Trends “Adopting Agile Development Processes.”
- ² ThoughtWorks used Forrester’s Total Economic Impact (TEI)[™] approach to look at the costs, benefits, and risks associated with its consulting engagements. “The Total Economic Impact Of Using ThoughtWorks’ Agile Approach,” January 20, 2004, can be viewed at http://www.thoughtworks.com/library/forrester_tei.pdf
- ³ *CIO Magazine* administered an online survey on offshore outsourcing from May 7, 2003, through May 31, 2003. Of the 101 survey respondents, 56% were CIOs, CTOs, or vice presidents in charge of IT; 43% listed their title as director or manager of IT. Source: Lorraine Cosgrove Ware, “Weighing the Benefits of Offshore Outsourcing,” *CIO Magazine*, September 2, 2003. For more details on this survey’s results, see: <http://www2.cio.com/research/surveyreport.cfm?id=62>.
- ⁴ Media coverage of outsourcing has certainly grown, usually presenting it as a threat to corporate IT shops. One *BusinessWeek* article actually positioned Agile development as a strategy for IT to use as an alternative. We have not seen companies seeing the two options as mutually exclusive. For more information, see: Stephen Baker and Manjeet Kripalani, “Software,” *BusinessWeek*, March 1, 2004.
- ⁵ Indian firms have achieved CMM Level 5 and other certifications, demonstrating their strength in and commitment to disciplined processes. For example, Infosys and Wipro have melded together a mix of CMMI, P-CMM, Six Sigma, and ISO 9000 to create a culture focused on consistent and repeatable processes and value-added tools. See the August 6, 2004, Tech Choices “Low-Cost Global Delivery Model Showdown.”

- ⁶ Martin Fowler, an industry leader and consultant at ThoughtWorks, has written about best practices for offshore Agile development. “Different communication tools work for different kinds of problems. At the minimum make sure you have a wiki, instant messaging, and good telephone connections. Instant messaging is good for quick questions and answers, but a particular strength of IM is that it tells you when people are available at their desks. You do have to get into the habit of keeping your IM status fresh, but that information is always useful. If it’s more than a quick few messages then it’s best to switch to phones. Make sure that it’s easy to just pick up a phone. People shouldn’t be deterred by fears of the cost of phone calls, a phone call will usually save money on misunderstands.” The full article, “Using An Agile Software Process With Offshore Development,” Martin Fowler, September 2003, can be viewed at <http://www.martinfowler.com/articles/agileOffshore.html>.

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