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The future of IT application development.

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Introduction

Innovation. In recent years, it's been a hot topic for everyone from market analysts to politicians to arbiters of pop culture. As globalization continues to bring more and more players to the table, product and service innovation are increasingly important. But they're not enough. CEOs with an eye on creating lasting competitive advantage are looking to transform their companies at the core, through business model innovation. And it's an approach that pays off. Companies with an emphasis on business model innovation have demonstrated better financial performance, greater strategic flexibility and lower operating costs than their peers.

What does this mean for CIOs and other IT leaders? Now more than ever, CEOs are looking to IT to serve as a critical agent in helping to enable innovation and drive business value for the enterprise. Business leaders used to talk about the importance of IT and business alignment. Now they're taking it one step further—it's about total integration. And in the realm of application development, that means maintaining an obsessively business-centric focus and working hand in glove with lines of business within the enterprise to deliver differentiating innovation.

To meet the accelerating needs of the business, the operating model of today's application development organization is changing. And it will continue to change. In this white paper, we'll look at the following five aspects of application development and talk about how they are likely to evolve over the next five to ten years:

- *Delivery models*
- *Technology*
- *People*
- *Processes*
- *Governance*

Highlights

While alternative delivery models will continue to help development organizations drive down costs, they will be increasingly valued as a means of accessing a wider, more diverse talent pool and the latest technologies.

IT leaders will be establishing long-term strategic partnerships with a handful of trusted outsourcing vendors, rather than maintaining a wide pool of tactical service providers.

Delivery models: driving innovation through strategic resourcing

Enabling innovation may be more important than ever, but that doesn't mean that IT leaders will be provided with funds earmarked "innovation" anytime soon. In fact, many organizations continue to contend with shrinking IT budgets. Creative solutions for driving savings are in order, and in many cases, that will mean employing alternate delivery models to support application management and development.

Offshoring has traditionally been viewed as a simple cost play, but its value will continue to evolve beyond simple financial savings into a means of accessing a larger talent pool and leading-edge technologies. And although India has been the primary provider of offshore labor in the past, outsourced labor will be increasingly available from multiple geographies around the globe. Additionally, the type of work that is outsourced will continue to shift from technical programming toward consulting and business process outsourcing.

Although alternate delivery models can provide a critical resourcing tool, IT organizations have to invest time and effort into managing each vendor contract. To minimize the burden, many organizations will begin narrowing their focus to a smaller number of vendor relationships. Rather than maintaining a large pool of vendors to deliver basic, tactical services, IT leaders will be looking to establish higher-value strategic partnerships to last over the long term. In turn, vendors will need to offer the flexibility required to accommodate the changing demands of an enterprise over time.

Proactively assessing the application portfolio

To effectively leverage alternate delivery models, development organizations will first need to perform some internal analysis. Which applications truly help create differentiation in the marketplace? Which applications support more basic, transactional processes? Are the most valuable funds and staffing resources directed to the most strategic areas of the application portfolio? A systematic assessment of the application portfolio can help pinpoint mission-critical, differentiating applications and processes, and provide a clear roadmap for making strategic resourcing decisions.

Highlights

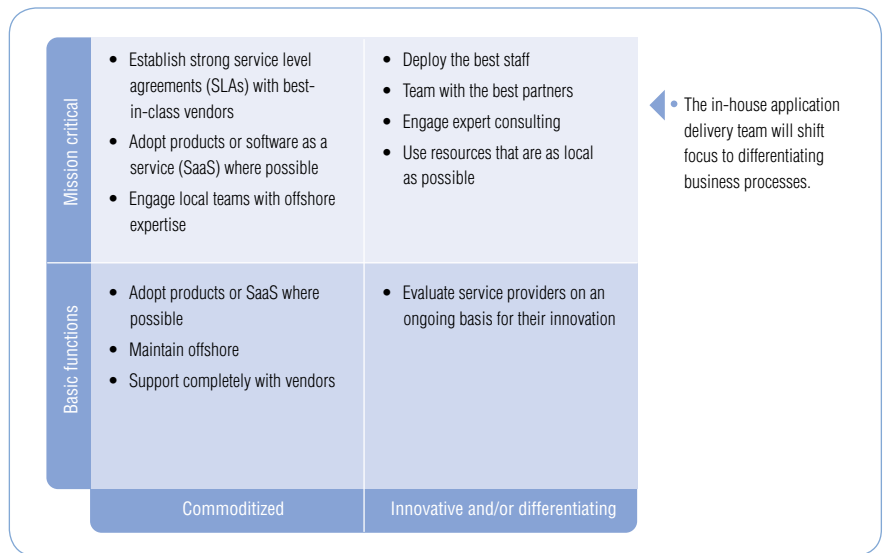


Figure 1
 A strategic view of delivery models across the application portfolio – A systematic approach to assessing your organization's application portfolio can help you determine the appropriate delivery models and levels of funding.

Systematic analyses of an organization's application portfolio and software development lifecycle can help determine which applications and processes are strong candidates for outsourcing and which demand hands-on, expert attention.

As Figure 1 illustrates, applications supporting basic, commoditized business processes are ideal candidates for management by low-cost, offshore vendors. Conversely, differentiating, mission-critical applications demand hands-on, local support from expert resources. Speed, efficiency and expertise in differentiating areas will only become more important as product development lifecycles continue to shrink and time to market becomes an increasingly critical component of business success.

Selective outsourcing within the systems development lifecycle

The systems development lifecycle can also be assessed to determine the optimal delivery model for specific tasks or processes. Development, testing and support functions will continue to be strong candidates for offshore outsourcing. And as iterative approaches to development become more dominant, organizations will have more opportunities to intelligently outsource subsets of the resources within a specific development increment.

Highlights

Iterative development approaches enable organizations to manage project resourcing more smoothly and leverage outsourcing as needed.

Already delivering on its ROI promise, SOA will continue to be widely adopted in application development.

As opposed to the more traditional “waterfall” approach – in which the majority of the planning and decision making occur in the initial stages of the development lifecycle – an iterative approach to development enables organizations to get a “mile-wide, inch-deep” view of the project’s overall requirements and make more informed decisions as the project progresses. Iterative development allows organizations to smoothly blend resources across the project lifecycle, making more effective, efficient use of business analysts, subject matter experts and developers. And it enables organizations to leverage global resources as needed to outsource basic, functional tasks.

Technology: changing the landscape of application development with SOA and Web 2.0

Unlike many heralded technology advances, service-oriented architecture (SOA) is fulfilling its promise, often delivering significant ROI within relatively short timeframes. And the rewards aren’t just financial. SOA allows organizations to cross over traditional line-of-business (LOB) barriers to deliver integrated, customer-facing services. For example, maintaining multiple accounts – savings, checking, credit cards and loans – with a financial institution used to be unwieldy. Even five years ago, most banking customers who wanted to check their account status online needed to log in to a separate interface for each account. Now, thanks to SOA, banks can offer faster, more effective service to their customers by providing interactive account information on a single Web page.

SOA will continue to be widely adopted as the architectural style for new application development investments. As the previous online banking example demonstrates, SOA enables companies to take disparate capabilities within their applications and transform them into services that can be leveraged for reuse in more customer-centric ways. And that means that IT staff will need to think in terms of building a business architecture, not just a technology architecture.

Accelerating the value chain with situational programming

Web 2.0, or the transition of Web sites from isolated information silos to sources of content and functionality, is changing the landscape of application development. The ubiquity and ease of use of the Web is driving a shift toward situational programming, in which applications are built with simplicity, efficiency and just

Highlights

With easy-to-use tools readily available on the Web, people without advanced technical skills are creating their own “mash-up” applications.

The trend toward situational programming will remove some traditional tasks from the development organization’s work queue, but it will also create unpredictability in terms of service usage volumes.

Companies worldwide need to consider the potential effects of the impending baby boomer retirement wave on their organizations.

enough functionality to solve the business problem at hand. In fact, the available resources – composable Web user interfaces, Web services and application assembly tools – are so easy to use that people without extensive IT skills can create these applications, called “mash-ups.” For example, a consumer might mesh branch location information from a retail chain’s Web site with functionality from a map-creating Web site to create a single interface that maps the chain’s store locations across the nation.

The traditional value chain for application development involves short periods of work interspersed among long periods of waiting. But as situational programming and mash-up applications become increasingly prevalent, requests that once clogged a development organization’s work queue are quickly performed by end users at their own desktops. Change requests that once took months to complete can be performed in hours, without IT staff involvement. It sounds ideal, but situational programming also creates challenges for IT organizations. With users leveraging common services in unpredictable ways and creating any number of new mash-up applications, organizations can suddenly end up with heavy volumes of usage in unexpected areas. If not properly managed, this can lead to serious performance issues.

Additionally, it is important to note that situational programming will not be appropriate for all projects. Organizations will still need to employ more structured, traditional development techniques to build robust, mission-critical applications.

People: shifting roles in the development organization of the future

The impending baby boomer retirement wave poses significant quandaries, especially for large organizations. Millions of boomers will retire in the next few years, introducing the prospect of a labor shortage. Plus, companies will suffer the loss of critical business knowledge and insight that drive business innovation and success. Development organizations must factor these losses into their plans for the future, whether by devising postretirement, part-time working arrangements or investing in global resources from geographies with a lower average age for IT workers, such as India or China.

Highlights

As enterprises continue to adopt SOA, common services areas will increase and LOB-specific areas will shrink, shifting organizational staffing needs accordingly.

With business users, analysts and customers performing traditional development tasks, IT staffs will increase their focus on activities such as enabling partnerships, maintaining contracts and establishing governance models.

In addition, the increasing adoption of SOA will create ripples in organizational staffing models. Currently, IT tends to have large groups focused on the needs of specific business silos. As SOA initiatives continue to identify and create common functionality across LOBs, these common services will be managed by enterprise groups, not LOB groups. And as LOBs shrink and common services areas grow within IT, personal domains and political influence within the organization will shift. CIOs will be placed in the delicate position of making these shifts occur smoothly over time and finding ways to reward employees who give up budget and influence.

Finally, the flow of development work to areas beyond the IT organization will change the nature of the roles within it. As business users, analysts and customers increasingly contribute to the delivery of application functionality (as previously discussed in the Technology section), development staffs will focus less on actual IT development and more on enabling partnerships, maintaining contracts and service levels, portfolio management, and governance. And development staffs will have more time to focus on marketplace-differentiating initiatives.

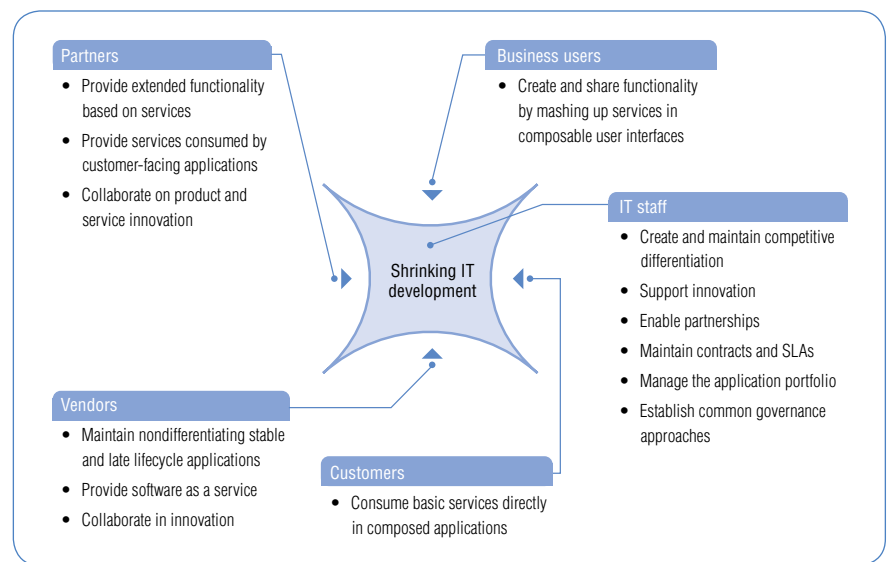


Figure 2

The changing flow of development work – As development work flows to areas beyond the IT organization, staff will be able to focus more on marketplace-differentiating activities.

Highlights

In the development organization of the future, collaboration will be king and staff members will need strong interpersonal skills.

As roles in the organization continue to evolve, it is likely that architects with broad LOB expertise and senior developers with strong business acumen will flourish.

Overall, in-house development staffs will assume more of a research and development focus, becoming more creative, consultative and, above all, collaborative. Now more than ever, companies are recognizing that good ideas don't have to come from a small group of similar people—they are frequently generated through input from a wide range of diverse contributors. In its studies on diversity and innovation, IBM has discovered that the more an organization collaborates internally and externally, and the more diverse those collaborations are, the more innovative that company will be. In the successful development organization of the future, the average staff member will have larger, more diverse internal and external networks, requiring strong skills as a communicator, facilitator, negotiator and catalyst.

Specific roles within the development organization will continue to evolve as well. Although it is likely that the total number of architects will increase, many staff members currently identified as architects will not make the cut in the future. Viewed as key players in aligning technological innovation with the business needs of the enterprise, architects will need broad LOB and technology know-how rather than limited subject matter expertise. And organizations will still need developers, but fewer of them. The developers that remain will be more senior, engaged with the business and focused on differentiating applications.

Processes: leveraging flexible, mature approaches to solution delivery

Based on the correlation between process maturity and project performance, leading IT shops have begun adopting mature but flexible approaches to solution delivery. Characterized by business alignment, common milestones and effective project management, these approaches will be increasingly widespread in the next five to ten years. Development teams will focus on incremental delivery, and measurement systems will be tied into project and portfolio reporting and analysis systems, providing management insight into risks and opportunities at all levels.

Employing an iterative approach

Evidence shows that as the size and duration of development projects increase, so does the likelihood of running over budget. Organizations will continue to embrace iterative development techniques (discussed previously in the Delivery

Highlights

Effective governance models that support strong relationships—both internally and externally—will become increasingly important in driving business value for the enterprise.

Governance: building a framework for strong internal and external relationships

Considering the continuing trends toward working with a wider internal and external collaborative network and employing global resources, establishment of an effective governance model will be more important than ever for development organizations. Strong relationships between IT, lines of business, vendors and suppliers are critical in delivering business value to the enterprise. In fact, over the next five to ten years, governance will be less about administrative procedure than about institutionalizing relationship management—in other words, maintaining a steady focus on developing strong business relationships based on mutual trust.

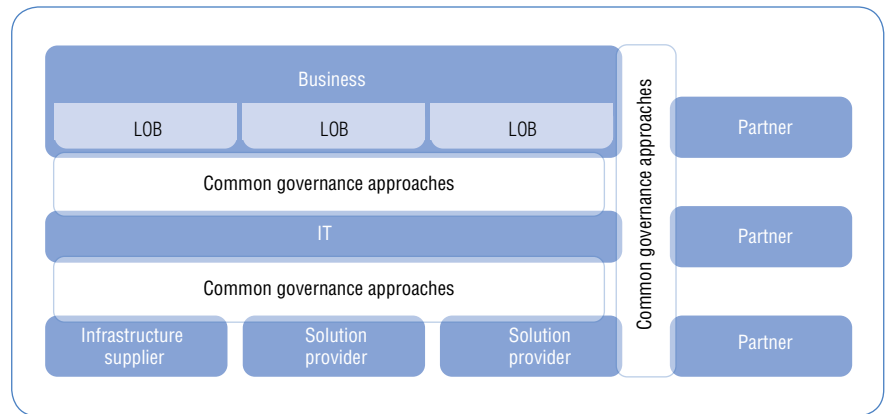


Figure 4
A common governance model – IT organizations need common governance approaches that enable business, IT, vendors, partners and suppliers to develop strong relationships.

As mentioned previously, development organizations will be shifting toward building higher-value, more strategic relationships with vendors and suppliers. And relationships take work. Studies show that when a contractual business partnership fails, chances are great that the failure is rooted in a poor or damaged relationship between the two parties, not in a poorly defined set of terms and conditions. Frequently, intangible expectations or assumptions that are not delineated in the contractual agreement are the cause of conflict. Strong communication and negotiation skills will be critical in establishing a mutual understanding of how parties will work together, what processes they will follow and exactly what they will deliver.

Highlights

Despite rumblings of a backlash, SOX compliance will remain a key focal point for IT governance.

CEOs know that taking the lead in the innovation movement is key to future success. As an IT leader, you can start preparing now.

The continuing influence of SOX legislation

Governance will continue to be strongly influenced by the U.S. Sarbanes-Oxley Act of 2002 (SOX), despite rumblings of a backlash. Companies have begun complaining about the costs of complying with the legislation, and lobbyists are putting pressure on the U.S. Securities and Exchange Commission (SEC) to help ease the burden. But despite the headline-grabbing rhetoric, a major overhaul of SOX seems unlikely in the near future, and SOX will remain a key focal point for IT governance models.

What you can do now to prepare

CEOs are embracing change. They know that marketplace forces and technological advances make it inevitable. They know that exponential growth lies ahead if they can grab the reins and lead the innovation movement. And they know that IT is essential to success.

So as an IT leader, what can you start doing now to prepare?

- **Delivery models.** *Begin assessing your organization's application portfolio and development lifecycle. Are your most strategically important applications receiving the most funding and the best staffing resources? Are lower-value applications absorbing too much of your budget and time? Could basic development tasks be off-loaded from your staff? Based on your assessment, develop a target delivery model for each part of your organization and a roadmap for getting there. When choosing vendors, try to select those with whom you think you can develop a long-term strategic relationship.*
- **Technology.** *Drive toward consistency in your technology architecture. Aggressively pursue service-oriented architecture as a key enabler of flexibility and accelerated delivery. Collaboration is critical—make sure you are continually reviewing and assessing new collaboration technologies for potential use.*
- **People.** *Estimate the effect that the upcoming boomer retirement wave will have on your organization and begin developing plans to manage it, whether through postretirement employment arrangements or an investment in global resources. Focus training budgets on developing core skills such as*



project management or enterprise architecture. Begin developing a target demographic for your organization and align your hiring practices with this model, allowing natural attrition and retirement to reduce the number of nonstrategic resources in the organization.

- **Processes.** *Aggressively adopt lean, iterative approaches and concepts. Employ standards as appropriate, including entity-relationship modeling, UML and the Unified Process lifecycle of Inception, Elaboration, Construction and Transition.*
- **Governance.** *Implement common governance processes between your organization and LOBs, vendors, suppliers and partners. Make sure that staff members handling vendor and supplier management have strong interpersonal and communication skills. Establish an appropriate set of metrics to measure vendor and supplier performance. Position the outcome of new projects and initiatives as the shared responsibility of LOBs and the development organization.*

For more information

To learn more about the future of application development, please contact your IBM representative or IBM Business Partner, or visit:

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