

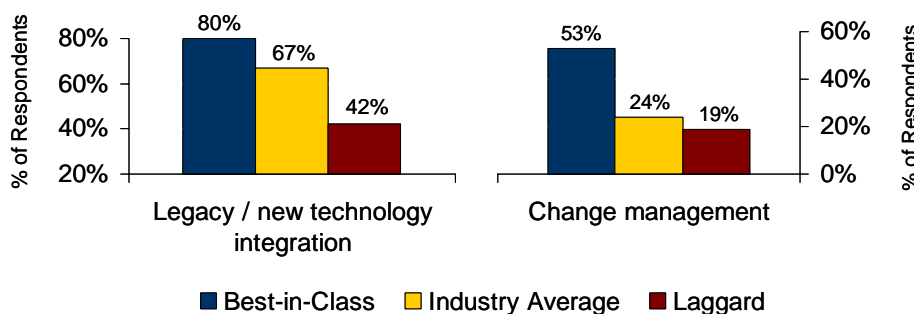
April, 2009

## Migrating from VB6 to .NET: The Challenge of Software Agility in a Volatile Economy

Given the unpredictable nature of today's market climate, many software-oriented companies are scrambling to cut costs and streamline their application development processes. With many of these organizations utilizing Microsoft Visual Basic 6.0 (VB6) as their primary development environment, the difficulty of achieving this agility is magnified by the recent (April 8, 2008) termination of all support for VB6. While some more resource-heavy organizations have the in-house domain expertise required to manage a migration from VB6 to the newer Visual Basic.NET, many others are faced with the decision to forge ahead with an unsupported development platform or offload some of the technical burden of migration onto an IT outsourcer or third-party consulting service. Aberdeen's April 2008 benchmark report, *IT Infrastructure Outsourcing: Reduce Costs without Sacrificing Service*, confirms that the need to reduce IT operating cost is the number one business pressure forcing companies to outsource key IT functions.

This Aberdeen Analyst Insight is derived from a dedicated survey that examined IT professionals at 130 discrete organizations during November and December of 2008. These organizations provided feedback on the strategies, tactics, and methods they employed to promote a smooth migration from VB6 to .NET. The research reveals that Best-in-Class companies were able to reduce time to market of their key applications, lower the cost of software development, and achieve heightened performance of those applications. Essentially, by leveraging a wide assortment of organizational capabilities, these companies were able to deploy their technologies faster, at a lower cost, and at a higher performance level.

**Figure 1: Key IT Functions Outsourced / Consulted**



Source: Aberdeen Group, April 2008

### Analyst Insight

Aberdeen's Insights provide the analyst perspective of the research as drawn from an aggregated view of the research surveys, interviews, and data analysis

### Recommended Actions

Strategic recommendations for organizations seeking to migrate their software development environment from VB6 to .NET:

- ✓ Deploy a cross-functional team to help manage the migration
- ✓ Examine third-party consulting or outsourcing services as an option for migration
- ✓ Leverage tools for automated orchestration and integration testing

## The Value of IT Outsourcing and Consulting

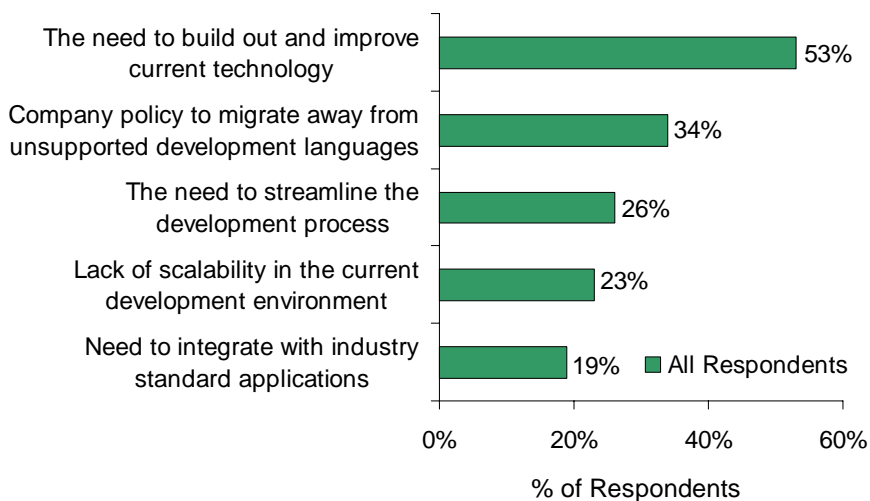
From data storage through application development and network management, IT outsourcing (ITO) and consulting services provide a broad range of solutions designed to help control costs and maintain high levels of service. Software migration on the other hand introduces a different set of challenges. Often times a company's developer workforce can become entrenched in one platform, making any transition all the more difficult from a management perspective. Aberdeen's [April ITO benchmark report](#) shows that the top performing companies have taken this leap and outsourced aspects of new technology integration and change management (Figure 1, above).

The data shows that Best-in-Class companies were almost twice as likely as laggards to outsource the integration of new technology into their existing infrastructure and more than twice as likely as all other companies to outsource change management - including software migration. By leveraging a wide spectrum of organizational capability such as close SLA (Service Level Agreement) management, these companies were able to achieve substantial reductions in IT operating cost and improvements in application uptime. These types of performance enhancements are a foundational element of maintaining IT agility and adaptability in this fluctuating economy.

## Building the Case for Software Migration

Aside from the sense of urgency created by Microsoft's termination of support for VB6, IT professionals look to migrate to a new development environment for several essential business reasons (Figure 2).

**Figure 2: Top Pressures Forcing Migration from VB6 to .NET**



Source: Aberdeen Group, December 2008

Several of the top pressures listed above are closely related to innovation. As companies look to make their technology more relevant and game-

### Survey Demographics

This study is based on feedback from IT professionals at 130 organizations. Demographics of those respondents are as follows:

#### Job Title / Function:

- √ IT Manager or staff - 67%
- √ Operations - 9%
- √ Business Dev. - 7%
- √ Senior Mgmt - 17%

#### Top Industries Represented:

- √ High-Tech / Software - 18%
- √ IT Consulting - 15%
- √ Financial Services - 11%
- √ Healthcare - 6%

#### Geography:

- √ Americas - 71%
- √ EMEA - 17%
- √ Asia Pacific - 12%

#### Company Size:

- √ 1 - 100 Employees - 36%
- √ 101 - 500 Employees - 19%
- √ 501 - 2500 Employees - 21%
- √ 2500+ Employees - 24%

changing in the marketplace, they need to know that they're building this technology on a stable, well understood platform. Scalability is clearly another vital issue given that maintaining a competitive position is directly tied to an organization's ability to exploit new business opportunities that may have been traditionally out of their scope of technical capability. Additionally, as more and more concerns related to GRC (Governance, Risk & Compliance) mount in the organization, companies are increasingly looking for technologies and platforms that lend themselves to close monitoring and compliance with both internal corporate policies as well as external industry and government mandates. Moving away from an unsupported development environment will help pave the way for faster, more efficient product development as well as provide a reliable platform to maintain close corporate controls.

### The Maturity Class Framework

Making a graceful switch from VB6 to .NET can be a daunting challenge but the data shows that top performing companies were able to maintain development continuity and, in doing so, deliver new applications faster and at a lower cost. Aberdeen used three key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations:

- **Time-to-market with new applications** - Measured as a weighted average reduction in the time required to complete and release new applications and new versions
- **Programming and development costs** - Measured as a weighted average reduction in the cost of programmers required to support software development
- **Application performance** - Measured as a weighted average increase in application runtime throughput

**Table 1: Top Performers Earn Best-in-Class Status**

Definition of Maturity Class	Mean Class Performance
<b>Best-in-Class:</b> Top 20% of aggregate performance scorers	<ul style="list-style-type: none"> <li>▪ 54% weighted average Y/Y reduction in the time-to-market with new applications</li> <li>▪ 19% weighted average Y/Y decrease in programming and development costs</li> <li>▪ 36% weighted average Y/Y improvement in application performance</li> </ul>
<b>Industry Average:</b> Middle 50% of aggregate performance scorers	<ul style="list-style-type: none"> <li>▪ 3% weighted average Y/Y reduction in the time-to-market with new applications</li> <li>▪ 3% weighted average Y/Y <i>increase</i> in programming and development costs</li> <li>▪ 8% weighted average Y/Y improvement in application performance</li> </ul>

"The initial decision to migrate from VB6 to VB.NET was made in order to take advantage of the technologies available in later platforms of Microsoft technologies and to ensure compatibility with later operating systems such as Windows Vista and Windows 7. Also, there is a significant aesthetic factor as to the look and feel of the migrated application that provides a more appealing work environment to end users.

While there have been challenges along the way, particularly around third party modules and controls used in the VB6 app that may not be available for .NET, the applications that have been migrated have seen substantial improvements. With a significantly enhanced feature set, these applications perform just as well if not better. Perhaps most importantly, we've seen a substantial improvement in the reliability of these applications as the .Net platform promotes and encourages far more robust and scalable development practices"

~ James Summerlin  
Software Engineer,  
Pro Data Management, Inc.

Definition of Maturity Class	Mean Class Performance
<b>Laggard: Bottom 30%</b> of aggregate performance scorers	<ul style="list-style-type: none"> <li>▪ 25% weighted average Y/Y increase in the time-to-market with new applications</li> <li>▪ 14% weighted average Y/Y increase in programming and development costs</li> <li>▪ 8% weighted average Y/Y decline in application performance</li> </ul>

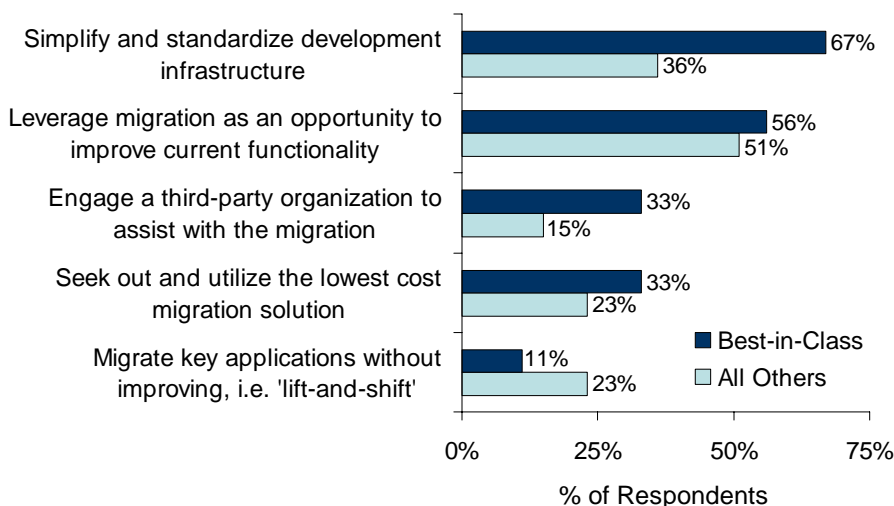
Source: Aberdeen Group, December 2008

The following sections describe the correlation between the Best-in-Class performance defined above, and the specific strategies and capabilities that top performers have defined and obtained in order to achieve the highest performance.

### Best-in-Class Strategies

From a strategic level, several organizational steps can be taken in order to address the challenges listed in Figure 2. Some of these strategic actions are focused internally on the workforce and some are more outward-facing. Aberdeen's research reveals that the top performing organizations, by a significant margin, are making efforts to standardize their development infrastructure in order to promote a higher degree of agility and adaptability (Figure 3).

**Figure 3: Best-in-Class Strategic Actions for Software Migration**



Source: Aberdeen Group, December 2008

Given the myriad development environments available today (C, C#, C++, Visual Basic, VB.NET, Java, PHP, Perl, Python, etc...) software complexity can prove to be a major barrier to productivity. Best-in-Class companies have taken strides to strip away superfluous complexity and standardize on

#### Fast Facts

Best-in-Class organizations have migrated or plan to migrate their development environments as follows:

- ✓ All of our applications - 50%
- ✓ Only core applications - 5%
- ✓ Only non-core - 10%
- ✓ Some core and some non-core applications - 35%

#### Fast Facts

Survey respondents were asked to describe the depth of their current VB6 development environment. Responses broke down as follows:

- ✓ Our entire environment is VB6 Based - 14%
- ✓ Only the core applications in our environment are VB6 based - 8%
- ✓ Only non-core applications are VB6 based - 12%
- ✓ Some core and some non-core applications are VB6 based - 66%

one development platform. Additionally, while software migration can be disruptive to an organization, it affords the opportunity to upgrade and advance the existing technology during the transition, ideally emerging with a stronger and more flexible infrastructure. Best-in-Class organizations have prioritized this approach to software migration, while the Industry Average and Laggard organizations have a greater emphasis on the "lift-and-shift" approach that involves no improvement during the transition. Another important consideration in this migration is the time, effort, and expertise required for an efficient transition. Best-in-Class organizations have taken action to engage a third party outsourcer or consultant to help alleviate some of the technical burden involved in the migration.

### Benchmarking Requirements for Success

Aberdeen Group analyzed the aggregated metrics of surveyed companies to determine whether their performance ranked as Best-in-Class, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories: (1) **process** (the approaches they take to execute their daily operations); (2) **organization** (corporate focus and collaboration among stakeholders); (3) **knowledge management** (contextualizing data and exposing it to key stakeholders); (4) **technology** (the selection of appropriate tools and effective deployment of those tools); and (5) **performance management** (the ability of the organization to measure their results to improve their business). These characteristics (identified in Table 2) serve as a guideline for best practices, and correlate directly with Best-in-Class performance across the key metrics.

**Table 2: The Competitive Framework**

	Best-in-Class	Average	Laggards
<b>Process</b>	Defined baselines for normal application performance		
	50%	32%	23%
<b>Organization</b>	Staff in place dedicated to assist with software migration		
	70%	35%	23%
<b>Knowledge</b>	In house domain expertise / knowledge of .NET architecture		
	80%	64%	62%
<b>Performance</b>	Procedures to monitor improvement in application performance		
	50%	35%	23%
<b>Technology Enablers</b>	Third-party consulting services to assist with migration		
	50%	21%	17%
	Code Conversion (Automated Porting) Tools		
	30%	8%	0%

Source: Aberdeen Group, December 2008

#### Fast Facts

For those organizations *not* migrating to VB.NET, the following environments are being targeted:

- √ C#.NET - 62%
- √ Other .NET language (C, C++) - 10%
- √ Java - 16%
- √ Other non-.NET language (Ruby, Perl, PHP, Python, etc...) - 12%

"Once a technology is phased out by the vendor, it becomes difficult to sustain the maintenance both on account of unavailability of skills and technology limitations."

~ Manager

Global IT Consulting Firm

## Capabilities and Enablers

Based on the findings of the Competitive Framework and interviews with end users, Aberdeen's analysis of the Best-in-Class demonstrates that successful software migration and use of solutions and strategies depends on a combination of specific capabilities and technology enablers. Aberdeen's research has identified several capabilities that Best-in-Class companies leverage in order to achieve their software development goals.

- **Process** - Central to an organization's ability to improve its technology is an understanding of the baseline performance or the status quo, and the ability to recognize problems as they arise as well as modules that need to be augmented. Best-in-Class companies are 72% more likely than all other organizations to have defined baselines for normal application performance.
- **Organization** - No company has unlimited resources and many organizations are loathe to redirect efforts to a project that isn't a direct revenue generator. However, by dedicating internal resources toward supporting a migration effort, organizations can place domain and department specific expertise - i.e. people familiar with the organizational dynamics and idiosyncrasies - in a position to facilitate a faster and more efficient transition. Best-in-Class organizations are more than twice as likely as all others to have a dedicated staff in place to assist with the software migration.
- **Knowledge Management** - Regardless of a company's migration strategy (i.e. internal migration or the use of an IT outsourcer or consultant) a solid understanding of the target environment is essential toward determining which applications will migrate and when. For many organizations, the decision to migrate is not an "all or nothing" proposition. Some core applications will need to shift to a new environment immediately, while others can be rolled in at a later date. In order to have confidence in these decisions, a solid knowledge of the target environment is necessary and the research shows that Best-in-Class companies are 27% more likely than all others to have in-house .NET domain expertise in place.
- **Performance Management** - In order to achieve the improvements in application performance that top performing companies reported, the ability to benchmark ongoing application performance and throughput is a necessary ingredient to that success. Product development and innovation becomes all the more difficult without visibility into how the applications are performing and what types of improvements are being generated. Best-in-Class companies are 63% more likely than all others to have implemented procedures to measure and monitor improvements in application performance.
- **Technology** - This document highlights several aspects of a Best-in-Class migration strategy, particularly from an internal management perspective, that help facilitate heightened

"Our key application, critical for core business, is written in VB6 and we are "living in fear" of what an update or such could do to the stability of this application. We are aware that all current, albeit essential work on this application is basically wasted but we have no option to abstain since the migration work is such an undertaking for a company such as ours (SMB-segment)"

~ CIO

European Wholesale  
Organization

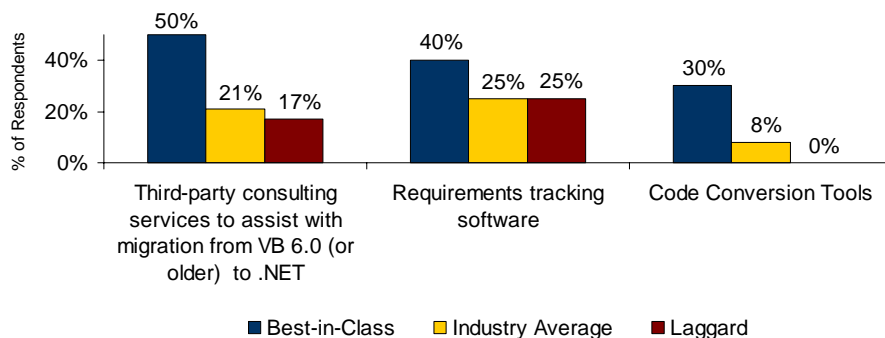
### Fast Facts

Top Best-in-Class functions outsourced onshore, offshore, or to a systems integrator:

- √ App. migration - 50%
- √ App. development - 50%
- √ App. integration - 42%
- √ Testing / QA - 17%
- √ App. Management - 16%

performance. Best-in-Class companies have also made efforts to incorporate several technologies and solutions to help augment this strategy. The research shows that Best-in-Class companies are six-times more likely than all other companies to use code conversion or automated porting tools in order to help accelerate part of the migration process. Additionally, Best-in-Class companies are leveraging a wide range of internal and external technology strategies to achieve substantial cost reductions and improvements in time-to-market. Some of these strategies are depicted below in Figure 4.

**Figure 3: Best-in-Class Technology Enablers in Use**



Source: Aberdeen Group, December 2008

## Recommended Actions

Whether a company is trying to move its performance in software migration from Laggard to Industry Average, or Industry Average to Best-in-Class, the following actions will help spur the necessary performance improvements:

### Laggard Steps to Success

- Implement a dedicated staff to assist with the migration.** Regardless of the scope of migration, transitioning key enterprise applications to a new development environment is not a trivial task. The impact of this migration can be substantial even for a small organization and assigning internal resources to assess the current environment and manage a new deployment will help mitigate this impact. According to the research, only 23% of Laggard companies have this staff in place. Building this organizational capability will help facilitate a more efficient migration and reduce the overall cost of implementation.
- Examine third-party outsourcing or consulting services as an option for migration.** While consulting and outsourcing services are not necessarily appropriate for every organization, engaging in discussion to help prepare for a potentially disruptive migration has proven useful for a number of companies participating

### Fast Facts

Best-in-Class companies achieved:

✓ A **26%** Y/Y average reduction in **software maintenance costs**

Compared with

✓ A **4%** Y/Y average *increase* for the Industry Average

✓ A **25%** Y/Y average *increase* for Laggards

"We simply don't have the resources internally to migrate within a reasonable timeframe. Current VB6 code is also sadly lacking in many respects; a migration could actually be a lifesaver in the longer perspective, but still has to be financed."

~ CIO

European Wholesale Organization

in this study. The data shows that more than half of Best-in-Class companies have engaged in some form of consulting services while only 17% of Laggards have taken the same steps. When utilized judiciously, these consulting services will help alleviate much of the technical burden of migration and help identify potential roadblocks ahead of time, allowing for a more proactive migration rather than a reactive approach.

### Industry Average Steps to Success

- **Deploy a cross-functional team to help manage the migration.** This recommendation ties in closely with the notion of utilizing a dedicated staff for migration but takes it a step further in order to fully understand how the migration will affect each area of the organization. Aberdeen's research shows that less than one quarter of Industry Average companies are leveraging a cross-functional team to assess the impact of software migration. How will the migration affect the sales team's ability manage their pipeline? How will the transition impact current and future partnerships vital to the growth of the company? These and other business-critical questions can be answered by utilizing representatives of each area of the business, eventually minimizing the organizational disruption from the migration.
- **Leverage tools for automated orchestration and integration testing.** Perhaps the most critical period in the process of software migration is the planning and assessment stage. Some companies struggle to manage a programming environment that encompasses three, four, even five or more languages. Technologies that automate and facilitate a stable testing platform can be a valuable element of the migration planning phase. The research shows that Best-in-Class companies are five times more likely than the industry average to leverage these tools.

### Best-in-Class Steps to Success

- **Examine third-party adaptor tools & services for legacy systems.** Brought on through organizational expansion or simply through a "don't fix it if it aint broke" philosophy for IT management, many companies are challenged with managing legacy equipment and software. Third-party service vendors have the deep domain expertise to help alleviate the challenges of managing these unsupported systems and many have tools available to further assist with this challenge. While Best-in-Class companies are certainly not immune to the difficulty of managing legacy systems, only 40% report that they currently use these third party adaptors. Leveraging these types of tools and services will not only aid in the migration away from VB6 but other unsupported, obsolete applications and systems, thus paving the way for further reductions in cost and speedier time-to-market.

### Fast Facts

Best-in-Class companies achieved:

- ✓ A **48%** Y/Y average improvement in the number of **defects discovered in development**

Compared with

- ✓ A **6%** Y/Y average improvement for the Industry Average
- ✓ A **19%** Y/Y average *decline* for Laggards

### Vendor Landscape

Key vendors of software migration consulting and outsourcing services include:

- ✓ Avanade
- ✓ ArtinSoft
- ✓ Infosys
- ✓ Micro Focus
- ✓ Satyam
- ✓ Sector7
- ✓ Syspro
- ✓ Wipro

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