

# Forrester Consulting

MAKING LEADERS SUCCESSFUL EVERY DAY

November 2, 2009

## **Application Modernization And Migration Trends In 2009/2010**

Are You Leveraging, Or Missing, An Opportunity?

A commissioned study conducted by Forrester Consulting on behalf of  
BluePhoenix Solutions Ltd.

FORRESTER®



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## Executive Summary

In March 2009, BluePhoenix Solutions commissioned Forrester Consulting to survey the attitudes of firms in North America about their plans for application modernization and migration in the 2009/2010 time frame and beyond (see Appendix B for migration and modernization terminology definitions). The survey targeted more than 100 companies with budgeted plans to migrate a teleprocessing-monitor (TP-monitor), database (DBMS), language, or platform within the coming 24 months.

### Key Findings

Forrester's study yielded the following key findings:

- **Modernization budgets are remarkably strong.** IT leaders are budgeting to modernize and migrate their application assets to maximize their investments in existing application portfolios — 86% of firms allocated 10% or more of their IT budget for modernization.
- **Cost reduction is one of many migration drivers.** IT leaders are reeling from the cost and complexity of the legacy technology in their bloated application portfolios, and skills shortages will grow worse as Boomer retirement nears, making maintenance even more costly and complex. IT leaders need to migrate from redundant and obsolete technology to become more agile and refocus the resource savings on new innovation.
- **Firms seek a range of modernization services.** IT leaders also expressed interest in other modernization activities, including application assessments, application strategy planning, evolving applications toward service-oriented architecture (SOA), and outsourcing application support to the firm that migrates and tests its applications.

The key findings underscore the determination of IT leaders to reverse the trend of accumulating technology simply because it is new. Maximizing the value of existing software assets is now at the top of IT leaders' agendas. In fact, IT leaders plan to *increase* spending on migration from languages, DBMS, and platforms; application modernization other than migration; and retiring obsolete applications, paving the way to make their application portfolios leaner, more agile, and more responsive.

### Key Questions For IT Leaders

The operative questions for IT leaders around the world are:

- How well are you maximizing your existing software assets?
- How many resources are you wasting that would otherwise enable new projects and innovation?
- How will you respond to business demands that IT become leaner, more agile, and more responsive, now that low-hanging opportunities are exhausted?
- How will you prove the efficacy of your application management?
- How will business leaders react if they perceive that your application stewardship doesn't measure up to that of peer organizations?

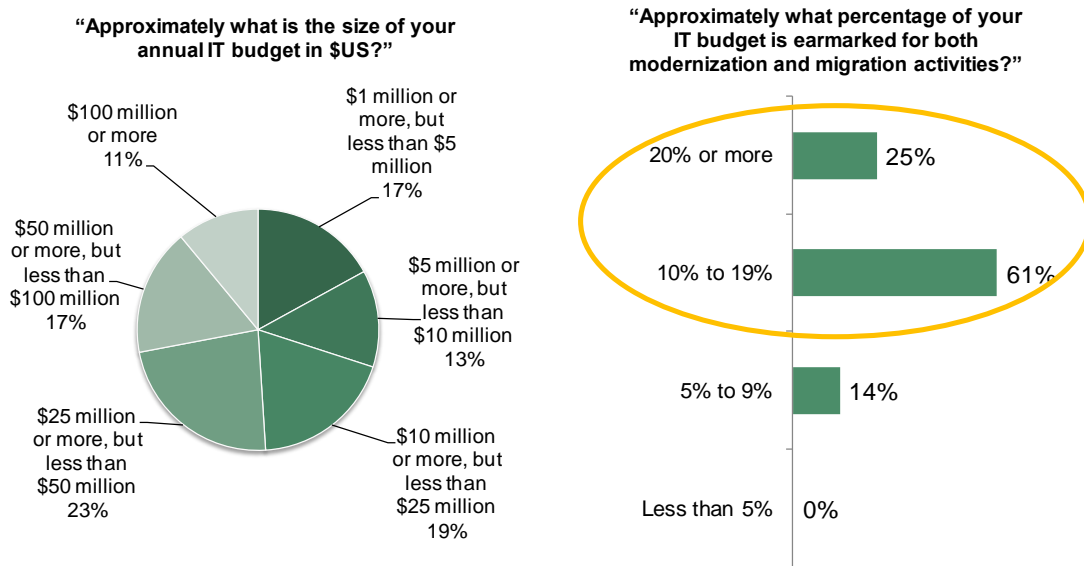
## Modernization Budgets Are Remarkably Strong

The survey data shows that application modernization budgets are quite healthy despite gloomy economic conditions, and the strength is apparent in firms of all sizes. The survey filtered out firms with IT budgets of less than \$1 million and segmented respondents in IT budget ranges of \$1 million to \$5 million, \$5 million to \$10 million, \$10 million to \$25 million, \$25 million to \$50 million, \$50 million to \$100 million, and more than \$100 million.

The segmentation of the survey population shows good balance across small, medium, and large firms — 51% have IT budgets of \$25 million or more, another 32% have IT budgets between \$5 million and \$25 million, while just 17% have IT budgets between \$1 million and \$5 million (see Figure 1).

One in four IT leaders surveyed has earmarked 20% or more of the IT budget for application modernization efforts in the 2009/2010 time frame, while 86% have budgeted 10% or more.

**Figure 1: Modernization Plans As A Percentage Of IT Budget**



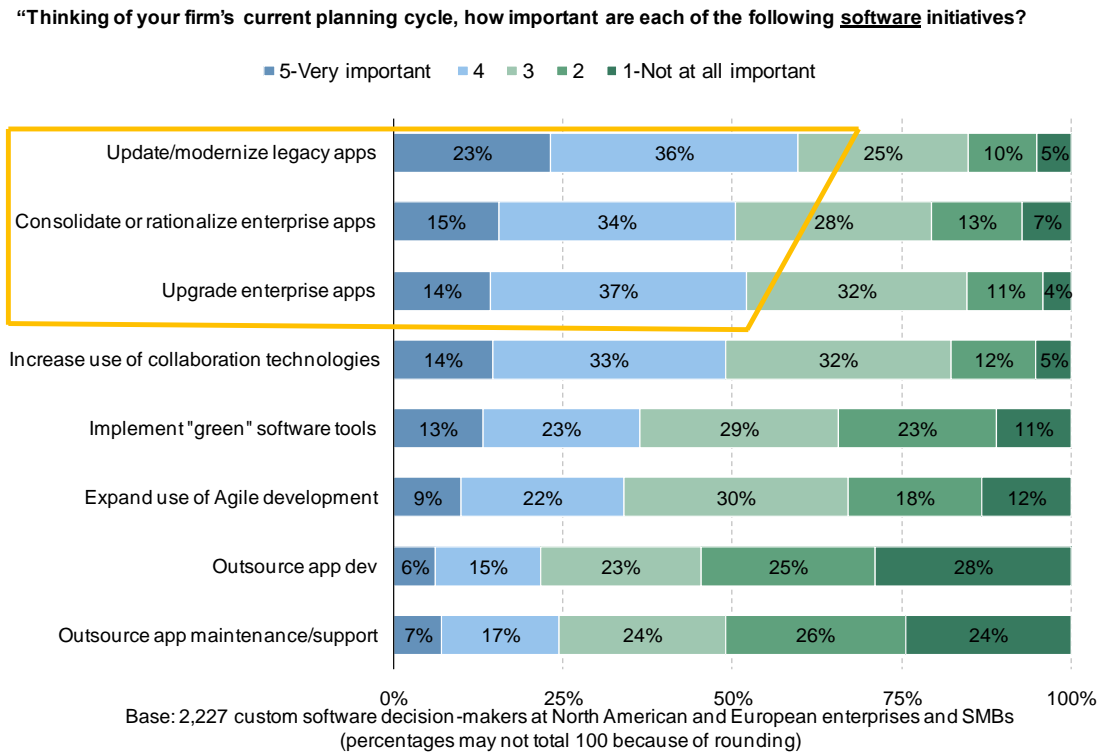
Source: "North American Migration Trends And Buying Habits," a commissioned study conducted by Forrester Consulting on behalf of BluePhoenix, February 2009

## Top Software Initiatives Are Modernize, Upgrade, And Consolidate

The top three software concerns named by IT decision-makers in the Enterprise Software Survey conducted this year by Forrester Research all point to their desire to slim bloated software portfolios. If we focus on the top three responses noted as “critical and very important” to respondents:

- **Modernizing legacy applications is cool again.** Fifty-nine percent of IT leaders place modernization as the top software issue — underscoring a fundamental change in IT leaders’ thinking (see Figure 2).
- **Packaged applications bloat has reached critical mass.** Forty-nine percent will consolidate or rationalize their enterprise applications, indicating that redundant applications are not restricted to custom applications.
- **And some need version upgrades.** Fifty-one percent plan to upgrade enterprise applications, reflecting the pent-up demand for new features that has been held down by the economy.

Figure 2: Top Software Initiative Is Modernization

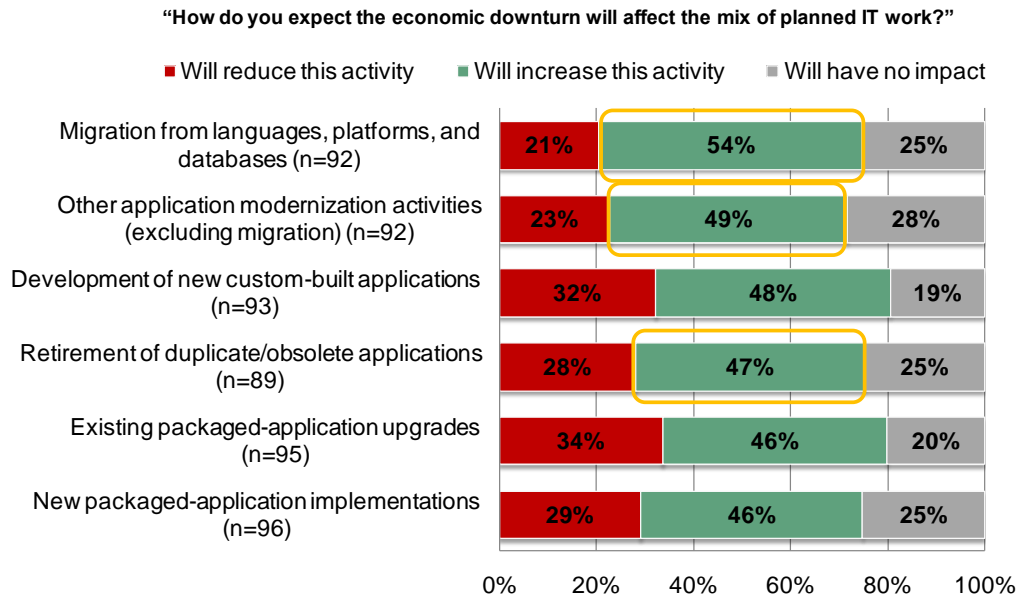


## Poor Economic Conditions Actually Favor Modernization

In poor economic times, conventional wisdom suggests that the priority of application modernization activity — which has been difficult to fund in good economic times — may fall even further behind the more visible business projects. However, the migration survey dispels that conventional wisdom. IT leaders actually plan to *increase* spending on these application modernization activities:

- **Migration.** Fifty-four percent of firms surveyed will increase spending to migrate from existing teleprocessing (TP) monitors, programming languages, database management systems (DBMSes), and hardware/software platforms (see Figure 3).
- **Modernization.** Forty-nine percent of firms surveyed will increase spending to modernize applications using techniques other than migration — which include integration at presentation, data or process layers, packaged application options, rewrites, etc.
- **Retirement.** Forty-seven percent of firms surveyed will increase spending to retire obsolete application and related technology.

Figure 3: Effects of Economy On Modernization Activities



Base: IT decision-makers with budgeted migration/modernization efforts for 2009/2010 who perform each type of IT work (percentages may not total 100 because of rounding)

Source: “North American Migration Trends And Buying Habits,” a commissioned study conducted by Forrester Consulting on behalf of BluePhoenix, February 2009

## Cost Reduction Is A Primary Driver Of Migration

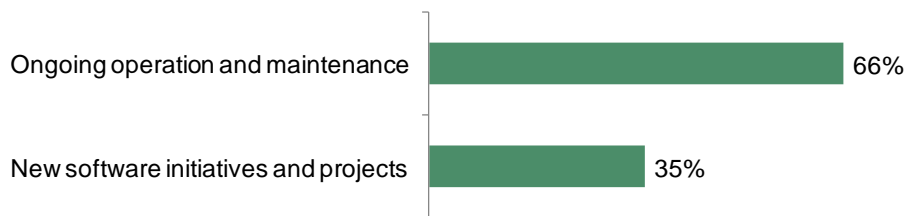
In the absence of a formal technology life cycle, adoption of new technology creates overly heterogeneous computing environments. Over the past four decades, companies have accumulated heterogeneous environments from several technology genres. Today's application portfolios are a mashup of technology genres — relational and pre-relational databases mixed with sequential, indexed, and virtual file systems; obsolete languages, platforms and data trapped in application silos — that require different tools, skills, and staff to maintain.

## Ongoing Operations And Maintenance Are Sapping IT Budgets

Left unchecked, heterogeneous technology increases the cost and complexity of ongoing operations and maintenance, leaving IT organizations too few resources for new software initiatives and projects (see Figure 4).

**Figure 4: Ongoing Operations And Maintenance Consume 66% Of The IT Budget**

“For 2009, approximately what percentage of your firm’s combined capital and operating budget for software will go to new initiatives and projects versus ongoing operations and maintenance?”



Base: 1,044 custom software decision-makers at North American and European enterprises and SMBs

Source: Forrester Research, Inc., Enterprise And SMB Software Survey, North America And Europe, Q4 2008

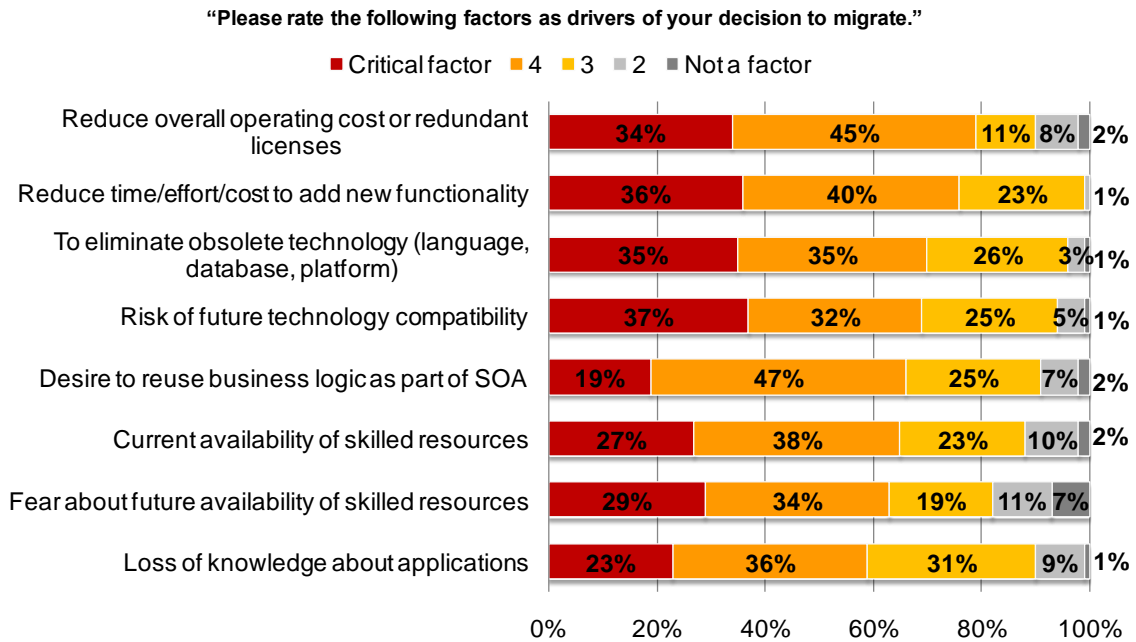
## Costs, Agility, Compatibility, And Skills Issues Drive Migration

Migration from obsolete technology or consolidation to a more homogeneous technology stack can help IT leaders streamline the waste from application portfolios. When asked about the factors that drive them to consider migration of their existing languages, DBMSes, and platforms, survey respondents rated several factors on a 5-point scale, from critical (5) to not important (1). Grouping the “critical” and “very important” responses together highlights the factors that are motivating respondents to migrate:

- **Cost reduction remains a primary concern.** With 79% of firms citing cost reduction as a motivating factor, clearly the redundant licenses and the excessive costs for lights-on IT have reached the point where they are intolerable (see Figure 5).
- **We aren’t doing enough innovative work for the business.** Wasted resources have an even darker side in the form of their *opportunity cost*; The opportunities were not pursued, because the resources needed were wasted on non-productive/less important work. Innovation suffers, and 76% of respondents want to reduce the time/effort/cost to add new functionality.

- **Our portfolios are bloated with redundant technology.** Redundancy keeps resurfacing in survey responses as an opportunity to exploit: 70% cited the need to eliminate obsolete languages, databases, and platforms.
- **Fears about future compatibility haunt us.** Respondents worry about how long they can count on vendors to keep legacy technology environments compatible with new advances in technology. Sixty-nine percent of respondents cite future technology compatibility as a motivating factor.
- **We badly want to reuse software assets through SOA.** Respondents acknowledge the value locked inside legacy applications and reject the concept of “throwing the baby out with the bath water” that is inherent in big-bang replacement scenarios. Sixty-six percent want to leverage SOA to reuse the business logic that is locked inside their applications.

Figure 5: Respondents’ Top Reasons For Migrating



Base: 100 IT decision-makers with budgeted migration/modernization efforts for 2009/2010

Source: “North American Migration Trends And Buying Habits,” a commissioned study conducted by Forrester Consulting on behalf of BluePhoenix, February 2009

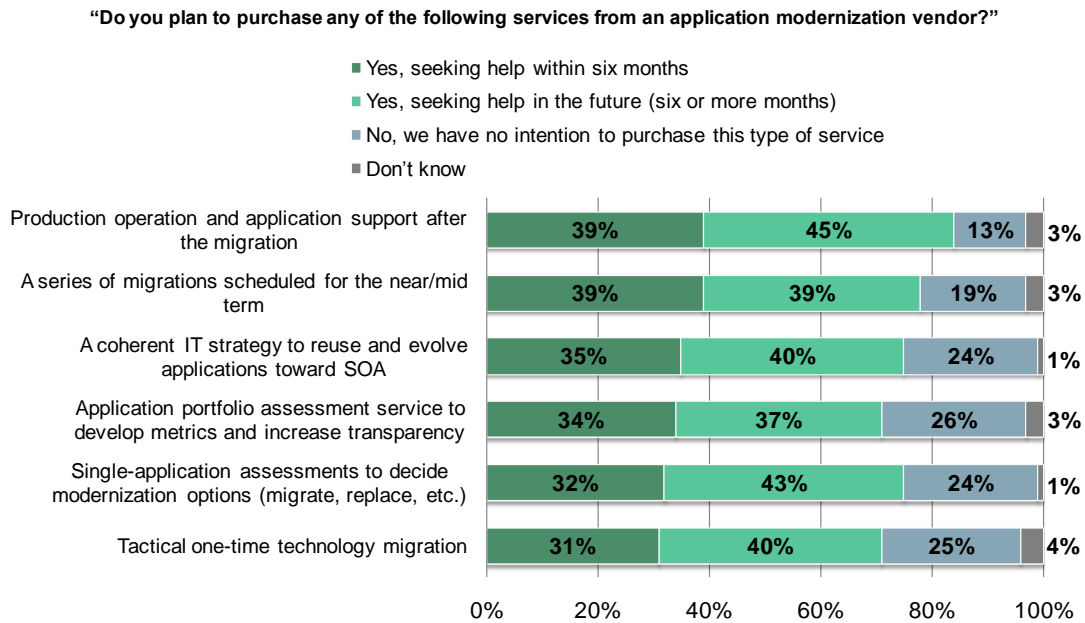
The last three drivers — each cited by between 59% and 65% of respondents — highlight fears about the current and future availability of skilled personnel. One respondent noted the difficulties in motivating new-development staff to do maintenance work. Other respondents noted that hiring industry-specific skills in combination with legacy skills was particularly troublesome. Whatever the current level of skills-supply in your region, retiring Baby Boomers will exacerbate skills shortages. Retirees who walk out the door with legacy application knowledge will create turmoil in the staffing marketplace. Practicing good workforce planning today may mitigate some of the adverse impact of skills shortages.<sup>1</sup>

## Firms Seek A Broad Range Of Solutions

The survey asked respondents to express their plans to purchase modernization services in the short term (within six months) and long term (six months or more). More than 30% of respondents expressed short-term interest in all of the services; however, grouping short-term and long-term purchasing plans together shows strong demand through 2010 (see Figure 6).

- Post-migration production support by migration vendors is in high demand.** Eighty-four percent of firms are interested in hiring migration firms to retain application support duties following successful migration for a period of one or more years following migration (see Figure 7).
- Pools of legacy will be shed through a series of migrations.** Seventy-eight percent of respondents plan a series of migrations, indicating they have several types of legacy technology to shed, versus 71% planning tactical one-time technology migrations.
- SOA isn't dead: Firms want help blending SOA and legacy.** Seventy-five percent of firms note that they seek help creating a coherent SOA strategy; clearly, reports of SOA's death are premature.<sup>2</sup>
- Respondents seek guidance through application assessments.** The popularity of single and multiple application assessments — 75% and 71% respectively — confirms that companies lack a basic inventory and descriptive metrics to guide the depth and sequence of modernization efforts. Application assessment is a growth area.

Figure 6: Other Modernization Services Of Interest

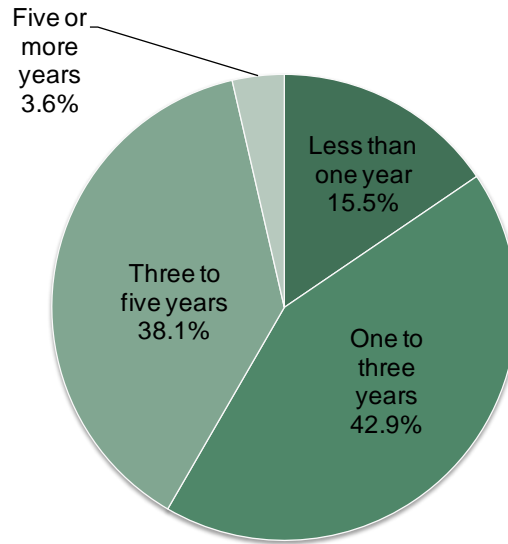


Base: 100 IT decision-makers with budgeted migration/modernization efforts for 2009/2010

Source: “North American Migration Trends And Buying Habits,” a commissioned study conducted by Forrester Consulting on behalf of BluePhoenix, February 2009

**Figure 7: Strong Interest In Postproduction Vendor Support**

“How long would you want a vendor to support your applications following the migration?”



Base: 84 IT decision-makers who have budgeted migration/modernization efforts for 2009/2010 and are seeking help with production operation and application support after the migration

Source: “North American Migration Trends And Buying Habits,” a commissioned study conducted by Forrester Consulting on behalf of BluePhoenix, February 2009

## Study Conclusions

Study of migration and modernization plans of North American firms points to very high levels of interest on the part of IT leaders to modernize their computing environments and yields several important observations:

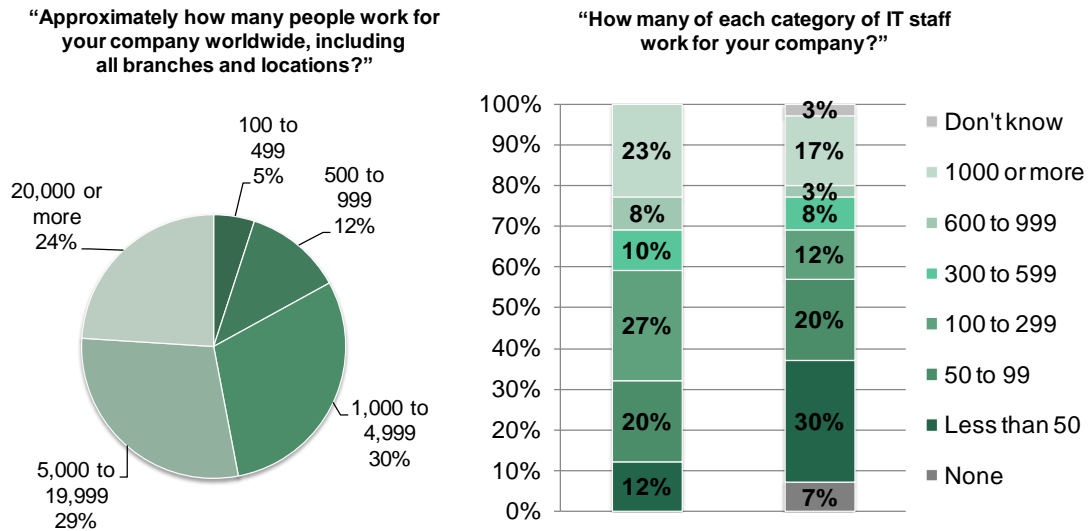
- **Strong modernization budgets help IT leaders prepare for economic recovery.** IT leaders are clearly focused on maximizing the value of their existing applications via modernization. Their top priorities are: 1) updating and modernizing legacy applications; 2) consolidating redundant packaged applications; and 3) upgrading older packaged applications. IT leaders recognize the waste in their existing portfolios and anticipate that streamlining the redundancy and waste will better prepare firms for the pending economic recovery.
- **Streamlining portfolios reduces costs and creates competitive advantage.** Cost reduction in IT isn't new, but there is new urgency around it for two reasons: 1) the cost of ongoing operations and maintenance has reached a point where it is no longer sustainable, and 2) most firms have already exploited the low-hanging fruit and are seeking other opportunities to reduce cost. Firms that streamline the waste and redundancy from their application portfolio will reduce complexity and cost, increase their agility, and gain a competitive advantage over firms that continue with business as usual.
- **Application assessments provide guidance for your modernization decisions.** When application portfolios were more homogeneous and monolithic, modernization often meant applying a single new technology to every application — when the only tool you have is a hammer, everything looks like a nail. Today's heterogeneous application portfolios require IT leaders to assess the metrics of individual applications, then choose from an array of possible modernization techniques. IT leaders should consider employing application assessments as a prelude to modernizing large application portfolios — to leverage the entire spectrum of available modernization services.
- **Don't waste resources by encouraging your staff to acquire throwaway knowledge.** IT staff spend years acquiring deep knowledge and skills for the technology and applications in their environments. Migration vendors acquire different knowledge: vast stores of arcane knowledge about the pitfalls, tips, and tricks that prevent problems when moving from one particular release level of a technology base to a different technology base. Migration vendors are in the business of renting that migration knowledge to those in need of it. Many organizations waste untold human resources, money, and time trying to acquire that knowledge, when they can instead rent it. For your internal staff it is throwaway knowledge; once you migrate your applications, you'll never use it again. The migration vendors will use it over and over again in other customer environments. Don't waste resources trying to accumulate throwaway knowledge. Rather, rent their knowledge and use your precious resources to manage, test, implement and/or guide the migration. It is your best path to migration success.

## Appendix A: Methodology

In January 2009, BluePhoenix Solutions commissioned Forrester Consulting to conduct a survey of 100 IT organizations in North America to evaluate their application modernization and migration plans for 2009/2010. Survey participants included a broad range of IT decision-makers: directors, vice presidents, and other executives from applications, operations, enterprise architecture, office of the CIO (oCIO), and program management office (PMO) functions. As another element of this commissioned research, Forrester Consulting also conducted in-depth interviews with 10 of these decision-makers to discuss the survey themes in depth.

Questions provided to the participants asked about confirmed, budgeted migration and modernization plans in the coming 24 months. Firms ranged in size from small and medium-size businesses (SMBs) to global corporations (see Figure A.1).

**Figure A.1: Staffing Across Survey Respondents**



Base: 100 IT decision-makers with budgeted migration/modernization efforts for 2009/2010

Source: “North American Migration Trends And Buying Habits,” a commissioned study conducted by Forrester Consulting on behalf of BluePhoenix, February 2009

Respondents were offered an executive summary of the survey results or a piece of Forrester syndicated research as a thank-you for time spent on interviews. The study began in January 2009 and was completed in March 2009.

## Appendix B: Modernization Terminology

The terms vendors use to describe the various application modernization options can be impossibly complex to decipher across vendors. Terms like transformation, migration, rationalization, re-engineering, and modernization have no consistent meaning across vendors.

The survey defined the terms it used for modernization and migration as follows:

- **Modernization:** to integrate (at presentation, code, or data layers), migrate, re-engineer, functionally improve, or outsource operations of applications.
- **Migration:** a subset of application modernization; more specifically, to move applications from an existing programming language, hardware platform, or database to a different language, platform, or database

However, throughout the industry, succinct and uniform definitions are a significant problem.

### Four Fates Taxonomy Simplifies Modernization Terminology

Modernization terminology needs simplification, and to be useful, the definitions must be uniform across vendors. However, it is naïve to assume that we could ever get all vendors to use a single lexicon — the existing terms are too entrenched in their marketing collateral, and the cost and effort to change may bring no direct benefit to them.

Instead, IT organizations can and should adopt a succinct taxonomy internally and then map vendor offerings to it. Forrester offers the following taxonomy as a starting point (see Figure A.2):

Figure A.2: Four Fates Modernization Taxonomy

Fates	Strategies	Choices	What it is/when to use it	
Leave it alone	Monitor and maintain	None	Monitor the application's health, and respond to changes in environment. The app's functionality and stability are "good enough" as is. Redeploy resources to higher-priority work.	
Modernize	Outsource operations	None	Use an external firm (onshore, near-shore, or offshore) to operate and maintain an app to reduce labor costs.	
	Integrate	Presentation layer	Enable remote access to applications via browsers (Web-to-host, RIA, portals). This is a noninvasive approach. It does not require change to the application source code.	
		Process layer	ESB, MOM, API, etc. Use this method when presentation layer changes don't suffice. This is invasive by definition.	
		Data layer	Data-as-a-service, ODBC/JDBC. This method involves accessing data on a different hardware or software platform.	
	Migrate		TP monitor	Standardize on one transaction processing monitor to reduce complexity and the need to maintain multiple skill sets.
			DBMS	Standardize on fewer DBMSes to reduce environmental complexity, eliminate duplicate licenses, and reduce skills dependencies.
			Language	Use this method to shed an obsolete language and reduce skills dependencies.
Platform			Use this method to consolidate to a single platform or shed a "burning" platform and reduce third-party licensing costs.	
Replace	Rewrite	Internally	Write a new application with internal staff to protect competitive advantage and retain intellectual property.	
		Externally	Write a new application with external staff for less-sensitive functions, very large development efforts, or when skills don't exist in-house.	
		Internal/external hybrid	Write a new application using a combination of internal and external resources to offset resource constraints or skill deficiencies.	
	Acquire	Purchase	Buy applications if you can to avoid spending internal development resources on commodity functionality.	
		SaaS	Lease functionality to avoid high implementation cost/effort and continual upgrades (assumes commodity functionality).	
		Open source	Jump-start development effort with predeveloped, shared-code codebase.	
	Hybrid	Acquire and rewrite hybrid	Part purchase, part rewrite to jump-start a large internal development effort when it is clear no package meets your needs completely.	
Retire	Eliminate	None	Unplug the application from production. This should be a mandatory part of every "replace it" effort and used to shed duplicate applications.	
	Freeze	None	Stop using the app for transactions, but leave it running for inquiry. This is a wasteful habit with large maintenance impact. Avoid it if you can.	

## Appendix C: Supplemental Material

### Related Forrester Research

“Modernization Decisions: Migrate, Rewrite, Or Replace A 40-Year-Old Assembler Application?” by Phil Murphy, October 2, 2009

“Application Life Cycles And Fates: Differentiate Between Strategic Intent And Tactical Necessities” by Phil Murphy, August 24, 2009

“The State Of Enterprise IT Budgets: 2009” by Andy Bartels, August 7, 2009

“Justifying Application Modernization: Industry Analogies Explain Choices In A Business Context ” by Phil Murphy, March 17, 2009

“Four Steps To Optimize Your Application And Project Portfolios In Volatile Economic Times” by Margo Visitacion and Phil Murphy, January 14, 2009

“US IT Spending Benchmarks For 2008” by Andy Bartels and Craig Symons, December 23, 2008

“Use Action-Oriented Categories To Guide Application Life-Cycle Investment Decisions” by Phil Murphy, October 17, 2008

“Application Modernization Taxonomy Clarifies Choices And Paves A Path For Progress” by Phil Murphy, October 17, 2008

“Develop Metrics Thoughtfully To Streamline Application Portfolios Successfully” by Phil Murphy, July 23, 2008

“The Application Management Continuum Offers CIOs A Contemporary Approach To Modernization” by Phil Murphy, July 14, 2008

“CIOs Must MAP A Strategic Application Plan” by Phil Murphy, February 4, 2008

“The Pending Legacy IT Skills Shortage” by Phil Murphy, July 30, 2007

“CIOs: Reduce Costs By Scoring Applications” by Phil Murphy, January 10, 2007

“Don't Tackle Legacy DBMS Conversion Programming Alone” by Phil Murphy, August 7, 2002

## Appendix D: Endnotes

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<sup>1</sup> Source: “Global Workforce Planning Through 2016: How Population Shifts Will Affect The Supply Of IT Skills,” Forrester Research, Inc., October 26, 2009.

<sup>2</sup> Source: “SOA Is Far From Dead — But It Should Be Buried,” Forrester Research, inc., May 11, 2009.