

Architecture in Turbulent Times

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Applies to:

Enterprise Architecture

Summary: This article aims to show architects a way to understand key forces on the business of IT, what they can do to add value, and the key areas of focus and technologies that will help them deliver value back to the business. (15 printed pages)

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Introduction

The current economic condition in which we reside (as of this writing) has given rise to particularly challenging times for information-technology (IT) professionals. Events in the financial sectors and other corresponding industry sectors have had a substantial impact on technology products and services. Although there is much debate by economists on the length, depth, and impact of the economic crisis, we can safely assume that it will not go away in the foreseeable future (see [Forrester; October 15, 2008](#)). Its duration is enough to affect business and IT priorities significantly for the next fiscal year or two.

Despite the economic slump, businesses that continue to invest and innovate will have significant competitive advantage both during and after it. Furthermore, organizations that look past the immediate challenges and toward the opportunities that the economic condition presents will have longevity and sustainability well after it. A great example of this is growth by acquisitions. Making key technology assessments and acquisitions can change the position of a company in the market, reduce risk, and increase stockholder value.

"With the pace of innovation heating up, any enterprise that fails to replace 10 percent of its revenue stream annually is likely to be out of business within five years."

The Economist magazine, 2003

IT will be at the center of this innovation; it is a key enabler for companies. IT decision makers such as architects will find themselves in high demand, and their expertise is one that will be used to its full extent. An architect poses the technical know-how to make complex and holistic decisions that affect millions of dollars for an organization.

This article will focus on how the economy affects both architecture in the enterprise and the architect who is a technical decision maker in many companies. By exploring the economic condition along with forces that are imposed on companies, key technology focus areas will emerge. Those technology areas will lead to specific technologies that will satisfy business demands.

Shifting Demands for Architects

With this new economic condition, companies will start to realign their IT decision makers in accordance with their priorities as a business. Creating alignment with the business and architects is imperative. The architect is at the center of most major IT decisions, by either making the decision or being an advisor to the decisions in question. This realignment will naturally shift the priorities for architects. The exciting, new, strategic technology projects will fade away, and the more tactical projects will prevail.

This can be seen with the current trends and activities in the market, such as:

Doing more with less. Large corporations have stated that their IT budgets will be cut by as much as 50 percent or more, but that they will continue to have the same service-level agreements (SLA) as they did in the past.

Trimming existing project costs. In the same vein as “doing more with less,” trimming project costs are immediate and tactical activities that will determine the course of specific IT and business directions. Specifically, big service-oriented architecture (SOA) projects will become more pragmatic and actionable, instead of ambitious and multiyear initiatives.

Mergers and acquisitions (M&A). As market conditions become more climactic, industries will consolidate. IT systems have proliferated through every aspect of the business. Typically, companies have various implementations of similar process and technologies; nevertheless, they are different. More than ever, architects are needed who can understand and provide insight into technologies in the M&A decision-making process.

Revitalizing the skills base. People are an asset; they represent the whole of a company. IT decision makers have an opportunity to revitalize their leadership and technical acumen in these tough times to make better decisions, grow the business, and take advantage of the economic crisis as a time of innovation.

New approaches to outsourcing. While leveraging tried-and-true methods, there are new enabling technologies that will provide value to companies. These include Platform as a Service (PaaS) and Software as a Service (SaaS) vendors. As an example, Microsoft provides a wide variety of services—from its Azure cloud-services infrastructure, with hosted data storage, workflow, and application development, to SaaS solutions such as Dynamics CRM Live.

For architects, business as usual will change; they will have to leverage their diverse skill set to address the demands of the industry and their company. The skills that architects will leverage are the following:

Motivation and inspiration—Sometimes, complex IT decisions that have elusive return on value require additional persuasion for the enterprise to buy in. Architects will leverage this skill to rally the enterprise for the right causes.

Negotiation—There will be times at the decision-making table when an architect must negotiate to get things accomplished. Most architects are individual contributors and do not have organizational power, so an ability to negotiate is key.

Critical thinking—Being able to think quickly and on one’s toes often is required for architects, especially in times when making the right decision is critical for one’s business.

Problem solving—Architects will need to find new and innovative approaches to solving traditional problems. With various forces on their business, the problems of the past

have changed and will require quantitative and qualitative ways to evaluate and solve problems.

Big thinking—Even more so now, IT personnel will need to look more holistically, given pressures on cost control and return-on-investment (ROI) needs. Avoiding tunnel vision and being able to look at a problem from multiple angles to test one's own rationale represent a skill set that architects possess and will be able to demonstrate to the rest of the IT organization.

Business savvy—Having a deep understanding of the business is key to making the right IT decisions; to do so, architects will use their business savvy to communicate and learn from their business leaders and subject-matter experts (SMEs). Understanding the industry in which one works is essential; it helps architects understand how the technology decisions that are made affect the business objectives and how it does within the industry.

Process orientation—Thinking in terms of process is essential for an architect; this is the native language for the business. Thinking in terms of a business leader is essential. Additionally, building repeatable and reusable processes as both as artifacts from the work they do to how they work themselves.

The skills that were mentioned—such as process orientation, business savvy/technical acumen, and critical thinking—will aid architects in better understanding how their specific company operates. Each company is different in how it interrupts the industry and correspondingly reacts to that understanding.

To understand the priorities of an organization, we must take a step back to understand what influences the direction that our companies take. There are direct and indirect influences—or forces—that determine the course of a company. These forces can change as time progresses, so that predicting them can be very difficult. Business SMEs often understand these forces very well, as they keep their eyes and ears on them to qualify their decisions. Architects must do the same.

IT has become less of a function of strategic value to companies—no longer a necessary evil or cost center, but a real differentiating factor in the business of a company. Architects who have an understanding of forces will provide inherent alignment with the goals and objectives of a company.

Forces can be grouped into three high-level groups. These groups include the following:

External—Forces that are outside the organization forces and cannot be controlled

Business—Purely business-related forces that can be derived from the inside or outside

Internal—Forces that originate from the specific culture and operating model of a company

CIOs, COOs, and IT architects will take into consideration these forces, as they drive technology decisions, initiatives, projects, and purchasing. Understanding these forces will enable architects to snap to the business priorities and imperatives with more ease and less uncertainty.

Figure 1 shows more detail on the industry forces and their effect on companies:

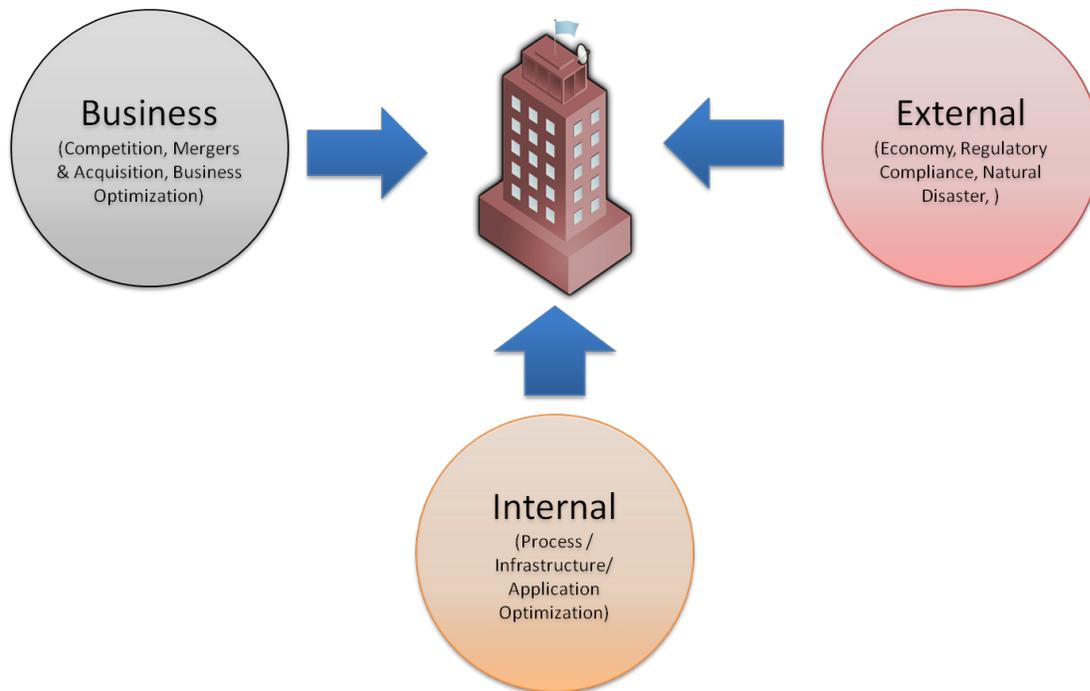


Figure 1. Industry forces on enterprises

External forces are events or circumstances in the broader market that affect an organization. Unlike business forces, these often are uncontrollable external events that eventually will need to be addressed by the business.

The following are usually the drivers for business forces:

Faltering economy—There is no doubt that the faltering economy has affected businesses dramatically. Gartner predicts that worldwide IT growth will drop significantly—from what was first forecast as 8.9 to 7.3 percent (2008 prediction) to the current forecast of 5.8 to 2.3 percent (see [Gartner; December 31, 2008](#)).

Regulatory compliance—The need to fulfill compliance requirements has always been a requirement of companies. However, there is now increased pressure, fueled by the economic crisis. Governments will mandate a combination of green IT, security and privacy, auditing, and industry-specific regulations. Interestingly, 43 percent of technology leaders think that the 2008 election will affect IT decisions going further (see [CDW IT Monitor; September 10, 2008](#)).

Natural disasters—Companies are increasingly dependent on IT-systems availability and information integrity. This dependency, combined with the sprawl of natural disasters, forces architects to evaluate how systems were built. There is and will continue to be a need for business-continuity planning, data-replication strategies, and disaster-recovery mechanisms.

Business forces are forces that relate directly to the business; they affect how the business operates and makes decisions. The following list shows the major business forces that will affect us in these times of uncertainty:

Increased competition—Businesses are increasingly more competitive, as the market tightens up. Increased competition forces architects to focus on mission-critical solutions for the business that they support. Furthermore, Gartner furthers this by

stating that enterprises do not want to disclose that they are aggressively cutting their IT budgets for competitive reasons (see [Gartner; December 31, 2008](#)).

Increased M&A—In an economy such as the current one (as of this writing), it is common practice that there be significant acquisitions. We have seen this in the financial sector, but it will have a ripple effect across industries. M&A activities will spur a wealth of IT activities. Architects will play a major part in technology-portfolio evaluations, trade-off analysis of systems, architecture-gap analysis, security analysis and evaluation, and integration analysis.

Business-optimization activities—With increased pressure from competition and modest projections, the theme of most companies will be to do more with less. Architects will need to look at enabling technologies to measure, track, and analyze business activities.

Internal forces are the result of both external and business forces. These are the forces on which many architects act directly; they are much closer to the business of IT:

Process improvement—Given some of the business-optimization needs of companies, process improvement and streamlining will occur. Architects should look at both:

- Efficiencies in the systems that measure, track, and analyze processes.
- Playing a part in optimizing the process itself to adapt to changing conditions. Forrester's Gene Leganza states, "Enterprise architects need to work across development, support, and operations teams to drive decisions" (see [Forrester; October 28, 2008](#)).

Infrastructure optimization—Both infrastructure and application optimization are direct results of "doing more with less." As budgets are squeezed and server budgets dwindle, architects will need to evaluate infrastructure efficiencies. More often than not, there are opportunities to consolidate, virtualize, centralize, and repurpose infrastructure investments.

Application portfolio management—Not only will the infrastructure need to be evaluated, but the applications will, too. Applications often can be elusive and not completely visible to architects or senior, technical decision makers. With pressure from both cost and regulatory perspectives, it is critical that applications be well understood and managed.

How Architects Can Add Value

As discussed earlier, the role of an architect is a unique one. Architects are some of the more unbiased technology decision makers, and they have a holistic view of solutions in an enterprise. In times of uncertainty, this can be a great asset to organizations. This skill set will be used now more than ever in a faltering economy.

We find that the cutting of budgets for IT does not correlate directly to IT not being important. It does show the need to streamline and improve IT. So, in essence, it means more IT activities. For architects, it means a realignment of architectural priorities.

Shifting of Priorities

Architectural priorities have changed, and the activities that an architect once made a high priority have now changed their course. What was once strategic to the organization is now labeled as risky or nice to have. Prudent low-risk initiatives are now in order. In the coming years, architects will engage in mission-critical, high-return-on-investment (ROI), low-total-cost-of-ownership (TCO) activities.

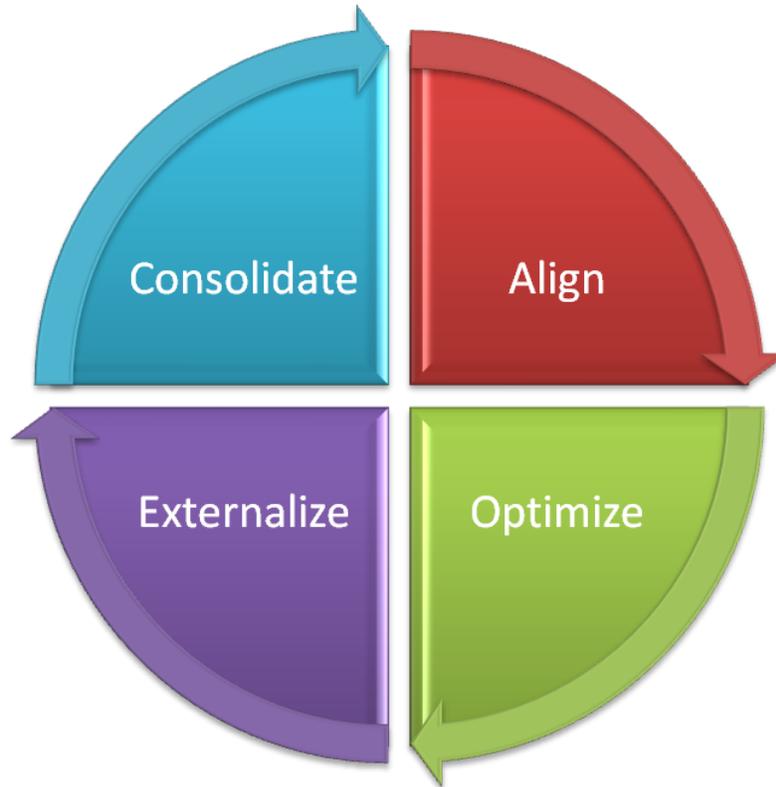
Table 1 shows examples of the IT priorities that are expected to change in the coming years:

New priorities	Less-relevant priorities
<p>Optimization of current portfolio – With market consolidation and realignment over the course of the past couple years companies will try to understand their assets better and how to leverage them in a struggling economy.</p>	<p>New Projects – There is a decreasing amount of new projects being initiated due to the overwhelming amount of internal optimization needed.</p>
<p>Cost Reducing Programs – Technical decision makers and Architects are pressured to do more with less. Initiating programs that look at cost reductions will be a major property for architects.</p>	<p>Large-scale SOA projects – With widespread failures of large SOA projects architects are reconsidering their approach to SOA in their enterprise. While SOA will continue it will be pragmatic and tactical.</p>
<p>Mergers and Acquisitions (M&A)- M&A is a fact of life for most companies but in recent years there has been an accelerate number of acquisitions. A number of pre and post M&A projects will occur during this time.</p>	<p>Web 2.0 projects – Some activity will happen here for niche areas however the experiments on if this technology paradigm is viable will be deemed non mission critical.</p>
<p>Compliance – Around the world new regulations will emerge to control all aspects of how IT operates. Examples of regulations that are likely to emerge include:</p> <ul style="list-style-type: none"> • Privacy • Fraud • Payments • Green Manufacturing and IT • Process Management • IT Architecture and Management 	<p>Server replacements – In a mode of reducing costs Infrastructure Architects will review depreciation cycles of their server and desktops. Likely to happen is the consolidation of servers and the lifetimes of servers and desktops will be extended thus reducing the amount of projects for new hardware appropriations.</p>
<p>Value Add Customer-facing projects – Furthering the reach of the company past traditional methods to add value to both the customer and the company. A key area of growth is the mobile phone space. Mobile applications will continue to grow and integrate services to the mobile phone.</p>	

It is clear from Table 1 that priorities have shifted from large-scale, sometimes risky IT investments to tactical activities and projects that have a near-term ROI. Dynamic, dexterous architects will have few or no problems adapting to this change.

Four Key Architectural Imperatives

The following imperatives are what architects should keep in mind in these times of uncertainty.



These comprise four overarching imperatives:

Align—Find direct links to business imperatives.

Optimize—Do more with what you have.

Externalize—Move IT assets outside of the IT operating environment, if they do not add value.

Consolidate—Reduce unnecessary redundancies.

Align

Pressure from many forces on businesses will force IT alignment with business objectives. Now more than ever, companies are striving for this alignment. Architects will need to invest in better qualification of architecture decisions to ensure that value is added to the business. This qualification often is elusive and difficult to ascertain.

Understanding what areas to look at is critical. In the following list, you will find the major areas in which you can start to quantify architecture decisions. This is not a comprehensive list, but a starting point for architects to gather these key information points:

Key metrics—All architects struggle with ways of quantifying their efforts, especially higher-level ones (such as enterprise architects). Instead of defining IT-specific metrics, architecture organizations will need to operate more like a business. By

doing so, they will need not only to demonstrate their effectiveness, but also to quantify it.

Assessments—Repeatable and consistent ways of evaluating solutions for their business fit is a must. These assessments should drive how decisions are made, and they illustrate how architectural trade-offs occurred. Assessments include architecture-viability assessments, architecture trade-off analysis, architecture decisions documents, and standards RFP assessments.

Requirements management—Why should architects care about requirements? Simply put, it drives not only the functionality, but also the architecture. Capturing functional and nonfunctional requirements in reusable ways will help align architectures to the business. This is the fastest, easiest way to get such alignment.

Architecture management—The next area of concern is to look at what has already been built and how it fits into the existing and new imperatives of the business. Architecture management links into standard processes, such as application portfolio management and PMO processes.

Optimize

As IT budgets shrink and the “big bang” projects dissolve, eyes will turn to optimization of existing solutions. Driving to get more value from what the enterprise already has will be a key imperative. Architects will need to evaluate current solutions by determining how they are used, whether they are running optimally, whether they are redundant, and whether they fit the use that the business intended.

These questions are very difficult to answer. To answer them, a great deal of information is required that might or might not be captured. There is a strong dependency on process. If the company has lax processes around software development and architectural processes, the quality or the information itself might be absent.

Key activities that will aid architects in obtaining this information are:

Portfolio management. Reviewing the IT portfolio of applications will allow architects to either inventory existing systems or review the systems that have been cataloged. When choosing to optimize the business, portfolio management is very important; it surfaces all of the key aspects of a solution and tells us information such as:

- How the solution links back to the business and (sometimes) a business process or capability.
- Scorecarding of the solution across all other solutions.
- Overall cost of the solution.
- Links to how the solution is supported.

Application life-cycle management (ALM). Whereas portfolio management looked holistically across the enterprise, ALM is much more focused. ALM improvements can include process optimizations to streamline efforts, new tools to automate and accelerate application development, and key information-gathering points to support architecture efforts and quantify business value.

Revisiting architecture and development tooling. Optimizing the tooling that is used in the actual development and architectural planning will be essential for companies. In times of slowed project work, it is optimal to retool.

Optimizing solutions. Not only will there be process improvements, but those solutions that we evaluated and classified in portfolio management will need to be optimized in some way. This will open up opportunities for architects to be creative

with solutions. With a wave of new innovations in social computing, context-aware architectures, cloud-based architectures, and SaaS (to name a few), there are ways to introduce lower risk, cost, and support for your company.

Externalize

As companies classify solutions through methods such as portfolio management and ALM, they will be able to determine which applications add strategic value. This will drive business decisions for those solutions. Several options are available to these companies; it will be up to architects to help IT and business leaders determine the best course of action. A trend since the very beginning of IT is the notion of externalizing IT assets. We saw this with traditional outsourcing, application service providers (ASPs), and managed services providers (MSPs).

A Figure 2 shows, the concept of externalizing services, applications, or entire business processes is not entirely new but, instead, evolved:

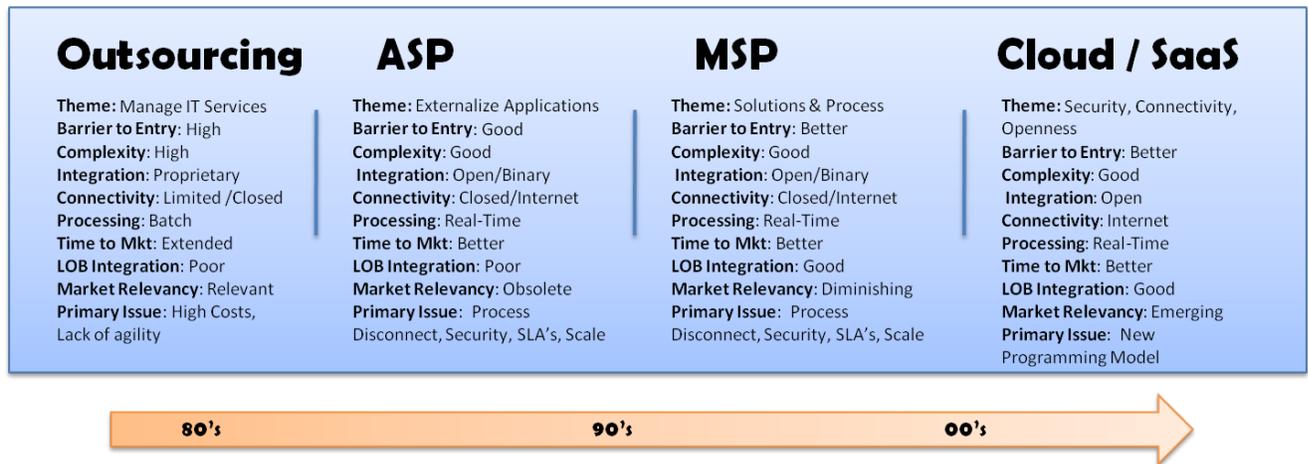


Figure 2. Evolution of externalized services

For each solution, it is clear that there are distinct benefits and drawbacks. Some, such as ASP models, are just rendered obsolete, while outsourcing still strives in key problem areas such as the mainframe. What is most evident is that these technologies and methods are evolving.

There is no better time to start to think about externalizing IT services. Independent solution vendors (ISVs) and platform providers such as Microsoft (with its Live Services and Azure Cloud Services) solve traditional technology problems.

As with all technology solutions, if they are done correctly, SaaS and cloud-based solutions will provide companies with significant benefits:

Accelerated technology adoption—The barrier to entry on access to new technologies is as easy as a subscription—a relatively small investment in prototype solutions on innovative technologies that in the past would have software licensing, procurement, deployment issues, and support staff training (among others) associated with them.

Complexity—SaaS specifically enables companies to reduce the complexity in the solutions in which they would traditionally build or buy. Combining the power of strong Internet, security, and XML standards with SaaS-vendor solution expertise reduces many of the technical complexities that once loomed.

Lower total cost of ownership (TCO)—By reducing the number of staff, acquisition of physical servers, software licenses, and overall operational costs, the TCO of solutions or entire IT services can be lowered.

Agility—Allowing companies to speed up the delivery of solutions on modern technologies and reducing the complexities of line-of-business (LOB) application integration will make companies much more agile than ever before.

Consolidate

Pressure from all sides will force architects to think about doing more with less. This will include reducing the complexity and redundancy in the enterprise. As architects optimize their enterprise through portfolio management, ALM, and tool rejuvenation, they will look at ways to optimize and consolidate applications.

Key areas in which consolidation will occur are:

IT infrastructure. The hardware backbone of an enterprise often is the first to be consolidated—sometimes, the easiest of all consolidation efforts with mainstream and ever-evolving virtualization solutions. While it is easy to virtualize, there is careful planning needed, as it could lead to the same problem that you have with server sprawl.

IT services. Collaboration, VOIP, e-mail, business intelligence, portals, system monitoring, and project-management systems (to name a few) are all IT services that can be streamlined by creation of standards, consolidation of multiple vendors, or moving them outside of the firewall to a service provider.

Solution architectures. Companies often find redundancies in solutions across LOBs or functional areas. Consolidating solutions will be key to lowering costs and complexity within the organization.

Process. Process management often is overlooked, but it can be a valuable exercise to consolidate disconnected and redundant processes. This streamlines your architectural efforts by providing repeatable and predictable measurements.

Through these four architectural imperatives, weathering the turbulent economic storm will be tolerable. Benefits for architects are huge. Not only will they be tightly aligned to the business, but they also will be seen as true business partners in IT. Architects will be able to add significant value in reducing TCO.

Key Technology Areas in Which to Invest

Enabling technologies will be needed to execute against the Align, Optimize, Externalize, and Consolidate strategies.

The key enabling technologies include the following, as shown in Table 2:

Table 2. Descriptions and benefits of key enabling technologies

		Description	Key benefits
Align	Portfolio management		
	Microsoft Office Project Portfolio Server 2007	Solution for identifying, selecting, managing, and delivering solution portfolios that best align to the business	Architects will be provided vital information on: Solution-alignment dashboards.

		strategy of an organization.	Scenario planning. Solution prioritization. Governance processes.
	Microsoft Office Project Server 2007	Used less by architects, but still relevant, as it pertains to the software-development life cycle (SDLC). It provides reporting, integration with PMO processes, and integration with Microsoft Visual Studio for architecture and development process support.	Architects will find valuable data points that will aid in how efficient solutions are for the business by identifying: <ul style="list-style-type: none"> Total cost of architectures. Resource support. Number of developers. Ongoing support and development. Collaboration with project resources.
	Microsoft Office SharePoint	Portal and application services that are provided by Microsoft Office SharePoint are used not only as a platform for Office Project Portfolio Server and Office Project Server, but also for custom reporting, dashboards, and integration into Office clients such as Microsoft Office Excel for detailed analysis.	Using Office SharePoint as a repository for business and technical information provides not only centralization, but also an open platform for information management. Benefits include: <ul style="list-style-type: none"> Enterprise content management (ECM). Low-cost information-management system. Workflow engine (WF). Integration with Office. Tight integration with Office Project and portfolio management. Tight integration with Visual Studio 10. Pragmatic execution of IT solution management.
	ALM		
Optimize	Microsoft Visual Studio	A fully packed development-management and coding tool that has links to ALM, architecture, and project management. Key integration with Visual Studio extensions, adapters into Office SharePoint Server/Office Project Server and Microsoft Visual Studio Team	Visual Studio is an essential tool for architects to find detailed information on solutions for possible consolidation, optimization, and retirement. It provides information such as: <ul style="list-style-type: none"> Architecture models.

		System 2008 Team Foundation Server provides an enterprise with a connected SDLC.	Architecture design descriptions. Detailed code descriptions.
	Microsoft Operations Framework (MOF) 4.0	A freely available process framework that delivers practical guidance for everyday IT practices and activities—helping developers, architects, and project managers establish and implement reliable, cost-effective IT services.	MOF provides a reference guide, process framework that will allow architects to find gaps and discrepancies in the IT life cycle. It includes: Community-generated processes for planning, delivering, operating, and managing IT. Governance, risk, and compliance activities. Management reviews. Microsoft Solutions Framework (MSF) best practices. Checklists and templates.
	Enterprise Architecture Toolkit (EATK)	A solution accelerator that aids architects with a series of add-ons to existing products, including the following: Office SharePoint Office 2007	Architects will find the EATK to be a great way to provide immediate value back to the business, with a pragmatic series of tooling that enables faster turnaround of architectural decisions. It includes the following: Architecture portal Architecture templates Productivity integration Architecture best practices
	Visual Studio Partners		Leverage Microsoft’s partner ecosystem to enhance the base products.
Externalize	Cloud services (PaaS)		For all of these services, companies can leverage the platform as a service in the Cloud. This will reduce costs, in certain situations.
	Microsoft Exchange Hosted Services	A hosted enterprise-messaging solution that is based on Microsoft Exchange Server 2007.	

	Office SharePoint Online	Microsoft-hosted Office SharePoint portal. It provides a highly secure, central location in which employees efficiently can collaborate, find organization resources, and manage content and workflow.	
	Office Communications Online	Microsoft-hosted Office Communications Suite. It provides instant-messaging services and presence awareness in a secure environment.	
	Microsoft SQL Data Services (SDS)	Provides an on-demand data-storage and query-processing utility services. Built on robust Microsoft SQL Server technologies and Microsoft Windows Server, it provides highly available, standards-based, and secure Web services that are easy to program and provision.	
	Microsoft Azure Services Platform	A cloud-services operating system that serves as the development, service-hosting, and service-management environment for the Azure Services Platform.	
	Software as a Service (SaaS)		
	Dynamics CRM Live Services	Microsoft-hosted Dynamics CRM product that provides centralized customer information and streamlined business processes that are connected with familiar Microsoft Office tooling.	Customer-relationship management (CRM) services in the Microsoft data centers can reduce the cost of ownership of a common and commoditized practice of customer-relationship management.
Consolidate	Virtualization		
	Hyper-V	Microsoft next-generation hardware virtualization technology. It is fully integrated with Windows Server 2008.	Tight integration with the Windows Server platform. Low cost of acquisition, and comparable to other virtualization technologies.

Office SharePoint	In the context of optimization, offers architects ways of building new solutions or processes in an application-server environment.	Using Office SharePoint to optimize is ideal; not only does it stand as a portal and ECM environment, but it also is service-enabled. These services can be used to build Microsoft .NET applications and to complement and create centralization services for applications, such as: <ul style="list-style-type: none"> Content aggregation. Security. Calculation services. Integration services. Workflow services.
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Infrastructure architecture

Microsoft Operations Framework (MOF) 4.0	A freely available process framework that delivers practical guidance for everyday IT practices and activities—helping developers, architects, and project managers establish and implement reliable, cost-effective IT services.	It provides a reference guide, process framework that will allow architects to find gaps and discrepancies in the IT life cycle. MOF includes: <ul style="list-style-type: none"> Community-generated processes for planning, delivering, operating, and managing IT. Governance, risk, and compliance activities. Management reviews. Microsoft Solutions Framework (MSF) best practices. Checklists and templates.
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Microsoft System Center	Provides physical and virtual IT environments across data centers, client computers, and devices.	Microsoft System Center is the Microsoft operations-management suite.
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Microsoft Infrastructure Optimization (IO) Model	A technology-maturity model for enterprise. It provides enterprises with a road map of technology for key stages in their maturity.	The Microsoft IO Model provides an accelerated maturity process (AMP) for organizations as a way to simplify technology decisions, based on the maturity of the organization.
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Conclusion

In the fragile economic state in which we find ourselves currently (as of this writing), enterprises can differentiate themselves with technology innovation and optimization. Those that capitalize on market conditions as an opportunity to streamline, consolidate, and acquire IT assets and/or entire businesses will have longevity well past the economic crisis.

This article has aimed to show architects a way to understand key forces on the business of IT, what they can do to add value, and the key areas of focus and technologies that will help them deliver value back to the business.

Resources

Microsoft Azure Services Platform:

<http://www.microsoft.com/azure/>

Microsoft Office Project Portfolio Server 2007:

<http://office.microsoft.com/en-us/portfolioserver/FX101674151033.aspx>

Microsoft Office Project Server 2007:

<http://office.microsoft.com/en-us/projectserver/default.aspx>

Microsoft Office SharePoint Server Developer Center:

<http://msdn.microsoft.com/en-us/office/aa905503.aspx>

Microsoft Operations Framework 4.0:

<http://technet.microsoft.com/en-us/library/cc506049.aspx>

Microsoft System Center:

<http://www.microsoft.com/systemcenter/en/us/overview.aspx>

Microsoft Visual Studio Developer Center:

<http://msdn.microsoft.com/en-us/vstudio/default.aspx>

About the author

Mike Walker is a principal architect for Microsoft who is responsible for building the strategy for managing, delivering, and communicating the Microsoft position on enterprise architecture. He is responsible for driving Microsoft's worldwide Enterprise 2.0 and Enterprise Architecture strategies in key industry segments.

Mike joined Microsoft in early 2006. His background is as a financial-services enterprise architect and strategist, specializing in business transformation around technology, strategic infrastructure planning, portfolio management of technology projects, and solution architecture. As a thought leader, Mike combines this experience with a strong focus on strategic execution.

Visit Mike Walker's blog: <http://blogs.msdn.com/MikeWalker>