

Delivering Availability to the Adaptive Enterprise

Measuring the ROI of Mission Critical Services



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Introduction

As businesses work to become more adaptive, and IT organizations more agile, availability takes on an even more critical role in enabling IT executives to address their priorities and meet their objectives. If the right resources in the IT infrastructure are not available on demand, rapid provisioning and scaling of services is not possible, and the business cannot respond quickly to new changes.

This heightened focus on availability raises crucial questions. For example, how can IT deliver the required levels of availability, using either existing internal resources or mission critical services provided by a technology vendor? And how can IT measure and report the return on investment in availability?

This paper discusses how availability serves as a building block of the adaptive enterprise and as an enabler of change and IT operational efficiency. The paper also explores methodologies to measure the return on investment in the mission critical services that help IT organizations increase service levels and maintain availability. Those methodologies include Return on IT Investment (RoIT) best practices gleaned from IT leaders worldwide. Lastly, it provides insights into the methods used by HP to help customers transform their business and derive measurable business value from their IT investment.

Meeting the challenges of the adaptive enterprise

The adaptive enterprise is one in which business demand is constantly matched by IT supply. An adaptive enterprise can "anticipate change in its environment and respond rapidly in ways that customers welcome and competitors are unprepared to counter."¹ Information can be quickly collected, analyzed, and acted upon; decision-making processes enhanced; business performance improved; and profits increased.

To help enable the adaptive enterprise, IT must meet a number of challenges. For example, IT must work to eliminate operational inadequacies that can inhibit innovations in business practice and processes. Budgetary limitations are another factor, and there is intense concentration on ROI. "As the economy resists any sustained bout of good news, most discussions of information technology continue to center on how to get the biggest return for the least investment."² This creates another challenge: how best to measure ROI on the massive investment many businesses make in technology solutions.

¹ IDC, "Enabling Business Agility: Hewlett-Packard's Adaptive Enterprise Strategy," May 2003.

² *CFO Magazine*, "Grinding Away on ROI," June 16, 2003.

Top priorities for IT executives

IT leaders are acutely aware of these issues. In March 2003, Gartner polled 620 CIOs and IT executives worldwide to discover their top five objectives.³ Here are the results.

- Providing IT guidance to senior corporate executives
- **Demonstrating the business value of IT**
- **Improving the internal governance of IT operations**
- **Taking steps to reduce total IT costs**
- Developing or enhancing corporate IT architectures

Of these objectives, three issues—demonstrating IT business value, improving internal IT governance, and reducing IT costs—are related to increasing, measuring, and reporting business benefits and ROI. Yet in a survey of 130 IT executives conducted by the Kellogg School of Management, 82 percent of the respondents reported that estimating IT benefits is a major challenge.⁴

New approaches for delivering value and measuring ROI

To meet these challenges, forward-looking business and IT executives recognize that new thinking is in order. They are embracing innovative strategic approaches that can enable them to rapidly adapt to changes in the business environment. It is no longer common business practice to develop a detailed five- or ten-year strategy, thoughtfully rolled out over time. Rather, most businesses recognize the need to launch incremental, shorter-term strategies, which can then be modified over time as needed to address dynamic business requirements.

The success of such strategies depends in part upon an IT infrastructure—technology, processes, and people—that is aligned with business objectives and timelines. Success also relies on adopting more flexible, responsive, and timely methods to evaluate and report ROI. According to *CFO Magazine*, examples of such new approaches to ROI and IT management “run from detailed scorecards to inventive reporting structures.”⁵ Gartner, for example, has developed a comprehensive methodology, called Total Value of Opportunity (TVO), that provides a framework for determining the overall business value to be created by IT-enabled business initiatives.⁶

³ Gartner, Worldwide poll of 620 CIOs and IT executives, March 2003.

⁴ Kellogg School of Management, Northwestern University, Spring 2003.

⁵ *CFO Magazine*, “Grinding Away on ROI,” June 16, 2003.

⁶ Gartner, *Strategic Analysis Report*, “TVO Methodology: Valuing IT Investments via the Gartner Business Performance Framework,” March 2003.

The business impact of downtime

Equally significant is the growing awareness of the underlying IT issues that affect both agility and ROI. Examples of such issues include increased service level demands and the need for an always-on, service-oriented IT infrastructure. According to McKinsey, “Service-oriented architectures will enable companies to introduce new business practices and processes more rapidly and at lower cost.”⁷

The nature of these architectures raises the crucial issue of availability. The need for real-time provisioning of resources—such as servers, network, and storage—means that the enterprise also requires real-time availability. This increases the need to understand the overall business impact of downtime. What is the full business impact if a shipping company suddenly cannot track packages, or the cash registers fail at a retail chain, or a bank’s ATM network goes down? In a business world of rapid and continual change, the stakes are higher than ever before.

Delivering business value through IT

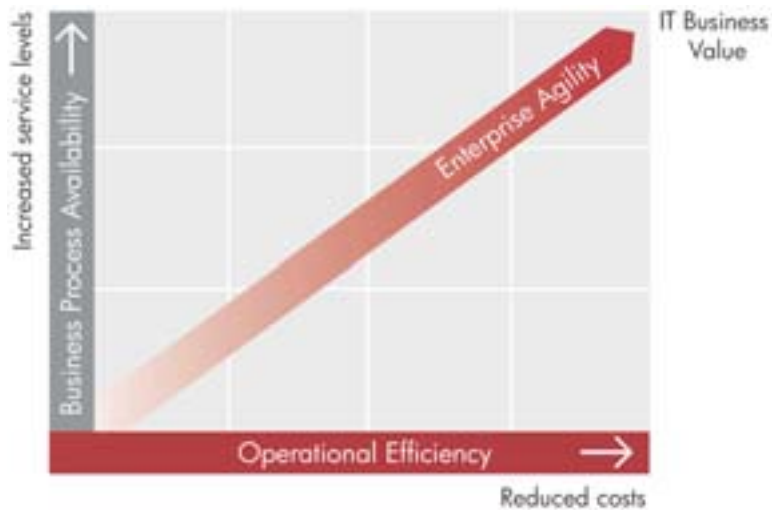
According to IDC, “Organizations will realize a number of key business improvements and value from adopting an adaptive enterprise strategy.”⁸ The adaptive enterprise can streamline business operations and provide a tighter link between IT departments, business units, and customers. Other benefits include reduced costs of infrastructure management and decreased capital costs of infrastructure procurement.

In order to experience these benefits, the business needs an IT organization and underlying infrastructure that is agile, flexible, and responsive. IT must strive to become a strategic solution provider, committed to enabling key business initiatives with reliable, cost-efficient services. The new focus must be on service management rather than technology management; on customers instead of users; and on the integration of people, process, and technology. As IDC observes, “The point at which agility occurs is the point at which workforce, process, and technologies intersect”⁹—and this is essential to maintaining an always-available IT infrastructure.

⁷ The McKinsey Quarterly, 2003, Number 4.

⁸ IDC, “Enabling Business Agility: Hewlett-Packard’s Adaptive Enterprise Strategy,” May 2003.

⁹ IDC, “The Agile Organization: Adaptive Workforce, Adaptive Processes, Adaptive Technologies,” IDC #26639, February 2002.



The growing importance of availability

An always-available IT infrastructure enables enterprise agility, rapid provisioning of new services or resources, and scaling of established services. Businesses today must move quickly; they cannot waste time. Downtime is unacceptable and, as business processes, suppliers, and customers become even more dependent on IT resources, the business impact of downtime will only intensify.

Additionally, a highly available infrastructure provides a stable, reliable, secure foundation upon which change can be enabled. When rapid change is imposed on an IT infrastructure that is not designed to handle it, every change introduces risk that can potentially destabilize the environment. Disciplined change management processes are vital; they provide a methodology that allows the IT organization to embrace change.

While stability and availability are critical, they are not sufficient to reap the benefits of agility. IT must also gain operational efficiency in order to provide the capital required for investments in technology and services that deliver incremental capabilities. The question for IT executives is: How to provide an always-on environment that connects and supports people and processes, and increases IT business value? Part of the answer is in adhering to proven best practices for maintaining highly available IT services. The acknowledged industry standard for IT best practices is the Information Technology Infrastructure Library (ITIL).

Increasing availability through ITIL best practices

ITIL provides a comprehensive, consistent, and coherent set of best practices for IT Service Management processes, to achieve business effectiveness and efficiency in the use of information systems. Companies can use ITIL-based best practices to transform their IT organizations into trusted, respected service providers that are strategically aligned with business realities—and deliver business value while diligently managing costs. Best practices help IT executives analyze, design, integrate, manage, and evolve customer-focused, process-driven services; meet quality, agility, and cost targets; and achieve availability and service level requirements. Moreover, IT service quality can be measured and improved, providing even greater value to the business.

A number of ITIL best practices have a significant impact on availability and on the perceived business value of IT. Those areas include Availability Management, Capacity and Performance Management, Change Management, Configuration Management, Cost Management, Problem and Incident Management, Service Level Management, Contingency Planning, and Software Control and Distribution. These best practices are integral to the successful delivery of mission critical services that increase and maintain availability. According to Gartner Dataquest, mission critical services typically cover multiple elements of the infrastructure, including hardware, software, and network components.¹⁰ They help IT deliver value throughout the enterprise.

As with any other cost component of the IT environment, the ROI of mission critical services needs to be evaluated in terms of availability, efficiency, cost reduction, and other benefits. IT executives must determine which benefits of mission critical services should be measured and reported. Many companies look to the provider of their mission critical services for help in answering these questions.

Measuring the value of mission critical services

To measure the benefits delivered by mission critical services, it is important to identify the proper metrics. Giga Information Group identifies two types of metrics for evaluating technology investments: *activity* metrics and *value* metrics.¹¹

Activity metrics typically characterize workload and performance; they can help executives better manage the IT organization. In the case of mission critical services, activity metrics would include such factors as the number of customer queries addressed, average response and problem resolution times, the number of downtime incidents and downtime minutes, and the number of knowledge transfer

¹⁰ Gartner Dataquest, "North American Customers Reveal Preferred Services for Mission-Critical Systems," September 2003.

¹¹ Giga Information Group, "Key Metrics for Strategic Planning," August 6, 2002.

sessions. These metrics are good indicators of the activities involved in managing availability, and can also help IT management identify and track important trends. However, they do not quantify the financial benefits of availability, which are more effectively measured using value metrics.

Value metrics can be tangible or intangible, and run the gamut from time-to-market improvements to increases in customer satisfaction. To evaluate the ROI of mission critical services, value metrics could include improved service levels, downtime cost avoidance, greater operational efficiencies and cost avoidance, growth in overall computing power relative to service costs per unit of computing power (such as tpmC), and increased capabilities.

The benefits of mission critical services

HP sees three major areas—downtime cost avoidance, operational cost avoidance, and increased capabilities—where mission critical services deliver benefits that positively impact return on investment in these services. By assessing the economic and strategic value of these three factors and comparing the total value to the investment in mission critical services, it is possible to determine an ROI.

- **Downtime cost avoidance**—the elimination of costly unplanned downtime through proactive and reactive availability services
- **Operational cost avoidance**—the optimization of the investment in staffing and the utilization of internal resources, by leveraging mission critical services and experts in select IT management areas
- **Increased capabilities**—new business capabilities and improved project success, enabled by mission critical services

The following examples illustrate methods to effectively measure the IT financial and business value of all three areas.

Measuring downtime cost avoidance

The potential monetary value of downtime cost avoidance can be derived by comparing the availability experience of a specific mission critical service level with the expected availability experience of the next-best (lower level of service) alternative. To calculate the potential cost of downtime for a given level of service, it is necessary to understand or estimate the organization's expected cost of an hour of IT downtime. Once that is understood, potential downtime risk can be calculated by multiplying the number of hours of downtime experienced by the company's expected cost per hour.

Similarly, it is possible to calculate the potential cost of downtime for the next-best alternative, using estimated downtime experience and cost per hour. To establish the avoided downtime cost, the cost for the first service level is compared with the cost of the next-best alternative.

To adjust for the fact that future downtime and cost per hour of downtime are estimates, the avoided downtime cost can then be adjusted by a factor—such as 50 percent in this example—to accommodate the uncertainty.

Sample calculation of downtime cost avoidance

	Availability	Annual unplanned downtime (hours)	Estimated cost per unplanned downtime hour	Total downtime risk
Current service level				
Application A	100.000%	0.000	\$1,100,000	\$0
Application B	99.996%	0.349	\$595,000	\$207,655
Application D	99.960%	3.494	\$150,000	\$524,100
Total	99.989%			\$731,755
Next-lower level of service				
Application A	99.850%	13.104	\$1,100,000	\$14,414,400
Application B	99.850%	13.104	\$595,000	\$7,796,880
Application D	99.850%	13.104	\$150,000	\$1,965,600
Total				\$24,176,880

Downtime cost avoidance (discounted at 50% for risk mitigation) =
 $\$24.2 - \$0.7 = \$23.5 \times 50\% = \11.8 million in downtime costs avoided

Calculating operational cost avoidance

Mission critical services from an IT vendor may yield operational cost avoidance when the vendor provides skilled on-site experts who are trained to deliver proactive IT management services based on IT best practices such as the ITIL standards. When compared with the costs of performing these management tasks in-house, significant cost savings can be experienced. The magnitude of the savings is dependent upon the relevant efficiency of the IT vendor compared with in-house resources.

It is possible to calculate the economic benefit of providing key IT management tasks using outside resources versus in-house resources, by first estimating the number of hours required for company personnel to perform each of these functions and then multiplying that by the average hourly salary rates of the in-house personnel who would be performing them. The total cost for all functions can then be compared with the investment made in an external service provider to perform the same functions. Operational costs are avoided when the service provider can perform the services more efficiently and for less cost. This can free up IT budget and resources to be deployed on other strategic projects.

Sample calculation of operational cost avoidance

Service management category	Equivalent in-house person hours	In-house resource	Burdened hourly salary	Annual cost saved
Business/IT Alignment	438	Program manager	\$64.27	\$ 28,150
Change Mgmt.	3,493	IT director	\$68.58	\$239,550
Problem Mgmt.	4,736	Systems administrator	\$56.94	\$269,668
Release Mgmt.	8,652	Systems administrator	\$56.94	\$492,645
Service Level Mgmt.	3,111	Project manager	\$64.27	\$199,944
Availability Mgmt.	6,084	Performance/ availability specialist	\$56.94	\$346,423
Total benefits	26,514 hours saved			\$1,576,380
FTEs	15 (equivalent to 5 FTEs from IT vendor)			

Evaluating increased capabilities

As part of any major IT-enabled business initiative, mission critical services provide availability of critical applications that impact business success. While availability alone does not determine the ultimate business results of a specific initiative, it is usually a critical component for success and can have a significant impact on a company's ability to achieve objectives such as the following:

- Launching new applications more rapidly
- Enabling a new function that provides a competitive advantage
- Delivering additional revenue streams
- Improving performance and user productivity
- Reducing required assets and improving asset utilization

- Increasing inventory turns
- Streamlining the supply chain
- Improving flexibility
- Increasing scalability

In fact, Gartner’s TVO methodology includes availability—along with nine other “foundation” IT capabilities such as reliability, scalability, capacity, and performance—in a list of key IT capabilities that can be selected and rated for their impact and importance to the business metrics for a given IT initiative. TVO provides a “visible chain of evidence” that links specific IT capabilities to the business metrics.¹²

Measuring the business value of any investment in IT services is not a one-time event. It is an ongoing process of continually evaluating priorities and objectives as well as the results that the services provide. Next we look at an example of such a process, based on the experience HP has gained through more than 25 years of delivering mission critical services to thousands of companies worldwide.

Implementing a continual process for value delivery

Following ITIL financial management best practices, the most effective methodologies for measuring any IT investment emphasize process. IDC recommends that companies establish a clear process to account for benefits from IT investments; conduct regular reviews of progress and benefits achieved; and assess the effectiveness of the evaluation process.¹³ This approach is very effective in evaluating mission critical services, using a closed-loop process that allows continual alignment, measurement, and improvement.

Continuing alignment of services with business objectives



¹² Gartner, *Strategic Analysis Report*, “TVO Methodology: Valuing IT Investments via the Gartner Business Performance Framework,” March 2003.

¹³ IDC, “Enabling Business Agility: Hewlett-Packard’s Adaptive Enterprise Strategy,” May 2003.

This process must also enable IT to communicate the value of the services investment to the business. As IDC observes, “Maybe the greatest challenge facing CIOs and other IT professionals today is not reduced budgets or delivering ROI, but simply their ability to effectively communicate their expertise to the business in order to better align technology with the enterprise.”¹⁴ Gartner’s TVO methodology emphasizes the importance of communication and reporting by providing methods for analyzing and reporting on an IT initiative in the areas of financial impact, value expectations, business impact, benefit realization, and monitoring value delivered.¹⁵

HP’s methodology is an ongoing, ITIL-based process called Value Based Delivery. This process delivers mission critical services in support of key business and IT objectives. It is structured to align the value of mission critical services with the business—and to communicate to the business accurately and efficiently.

Aligning with business objectives

A critical first step for any service provider is to understand the customer’s business objectives and the impact of those objectives on IT. A few examples include adding new manufacturing capacity, improving customer service through a one-to-one marketing program, or integrating the supply chain systems of two newly merged companies. Based on these business objectives, critical success factors for IT become evident, such as implementing new ERP functionality, developing or implementing a web-based CRM system, or combining supply chain applications to handle two different lines of business.

Planning a course of action

Creating a plan to assist IT in meeting the objectives requires an analysis of the strengths and weaknesses of the current infrastructure. For example, does the infrastructure have the capacity to handle the new application or a spike in demand? If not, what needs to be changed? Is there new hardware to support? Can existing hardware be better utilized? Can IT ensure that a new application has 24x7 access to data distributed on the SAN? How can a critical application be upgraded without downtime? The answers to such questions help identify any elements of the IT infrastructure that must be improved—and what services and technologies are required to ensure success. From this analysis, a joint plan of action for services delivery is agreed upon by the service provider and IT management. HP refers to this as an account support plan.

¹⁴ Jason Stamper, “Doom and Gloom,” *Computer Business Review Online*, January 17, 2003, as quoted by IDC in “Heart of the Technology Story: Communication Driving IT Value,” IDC #29851, August 2003.

¹⁵ Gartner, *Strategic Analysis Report*, “TVO Methodology: Valuing IT Investments via the Gartner Business Performance Framework,” March 2003.

Since the plan should set goals for specific improvements and added capabilities, it is important to establish a baseline measurement of the current situation. This allows any improvements to be measured—and the value quantified—according to precise metrics. Those metrics might include measurements such as the availability experience, the number of changes introduced without negative impact to functionality or performance, costs of support per amount of computing power, or staff productivity based on number of systems supported per staff member.

Delivering service and measuring value

Proactive and reactive mission critical services are delivered in accordance with the plan, to support the IT initiatives and implement the planned improvements. ITIL best practices are followed to improve efficiency and effectiveness. As services are delivered, the metrics chosen for measuring success are tracked on an ongoing basis to facilitate the formal review process.

Communicating value

Periodic and formal progress reviews are critical to determine whether the services are providing the expected value. Effective reviews can facilitate change, as adjustments to the plan can be made if new requirements are identified or if specific services are no longer needed.

The level of reporting can be tailored to the needs of the IT organization, and can include activity as well as value metrics. Reports should always reflect relative improvements or changes in the agreed-upon metrics.

In addition to providing for ongoing changes and adjustments, the reporting step of the value-based delivery process provides assistance to the IT organization in communicating to business and IT executives the business and financial impact of the investment in mission critical services—in business terms—and helps to demonstrate the real return on the IT investment.

Conclusion

In today's high-stakes business world, the pace of change shows no signs of abating. Service level demands continue to escalate, resources must be provisioned or scaled more rapidly, and the business impact of downtime is an ever more pressing concern. As an enabler of change and IT operational efficiency, availability is key in helping IT meet fast-changing business needs and objectives, and deliver increased—and measurable—value to the enterprise.

For IT executives, the heightened focus on availability makes it crucial to choose the right service providers. Executives should look for service providers that utilize ITIL best practices to help their customers improve service levels and maintain availability. The service partners should focus on aligning their services with key IT initiatives and business objectives, delivering services according to industry-standard best practices, and measuring progress against the objectives using agreed-upon metrics. Lastly, service providers should employ a methodology that allows IT to communicate the benefits delivered by the services, in terms of not only meeting IT goals but also satisfying business objectives.

This approach will enable CIOs to provide the business with tangible evidence that the IT organization is aligned with business objectives and timelines, and serves as a valuable partner in success.