

Quantifying the value of investments in HP Application Lifecycle Management solutions

An ROI White Paper



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Executive Overview

Today, every business change is enabled by applications. Business agility requires IT agility. This puts IT on the front line of business change, elbow to elbow with line-of-business managers.

In this environment, business applications require constant modernization and replacement. This development touches almost all aspects of IT. It turns local, dedicated teams into virtual, distributed ones. It re-shapes applications from stove-pipe software to composite “systems of systems.” It enriches user experience and company brand via Web 2.0 and rich internet applications. And it changes release management from singular launches to multi-application “release trains.”

HP Application Lifecycle Management (HP ALM) ensures that, when every dollar counts, your IT investments produce the right business outcome. With HP, proficient ALM –

- Grants your business stakeholders visibility into and leverage over IT decisions;
- Provides for the complete application lifecycle – strategy, development and operations;
- Ensures consistent and ongoing application quality in the midst of new technologies and modernization practices, guaranteeing that every application successfully meets the crucial fundamentals required by your business – application quality, performance, and security.

This paper provides examples of the return on investment (ROI) an organization can realize when it effectively addresses these application fundamentals with HP ALM. These examples, coupled with an explanation of the HP ROI approach, are intended to help business managers develop an ROI analysis for their unique business situation, quantifying the business benefits of HP ALM in their environment.

Benefit Categories

HP Solutions benefit both line of business and IT functions. Return on investment (ROI) for application quality, performance, and security, managed by HP ALM, can be quantified in terms of cost reduction, risk mitigation, or time-to-value benefits, as suggested by the examples listed in Table 1.

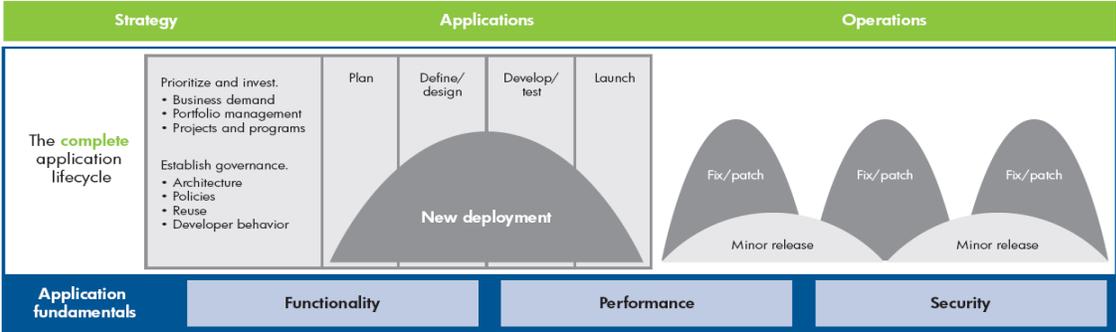
Table 1: Categories for Benefits

Cost Reduction	Optimize cost control by
	§ Facilitating standardized testing and quality processes that boost productivity
	§ Reducing the time and cost associated with security risk assessments
	§ Lowering hardware and software costs by accurately predicting system capacity and system performance
Risk Mitigation	Mitigate risk by
	§ Reducing the probability of deployments that do not meet customer quality and performance requirements
	§ Quickly and accurately pinpointing the root cause of application performance issues
	§ Providing real-time visibility into enterprise-wide application security status
	§ Improving the organization's ability to meet legal and compliance requirements
Time To Value	Improve time-to-value by
	§ Allowing the organization to manage the release process more effectively and make more informed release decisions with real-time key performance indicators (KPI) and reports
	§ Identifying the specific programs and tools that return value to the business quickly
	§ Reducing the time required to develop, deliver and refresh applications
	§ Detecting security defects early in the application software development lifecycle

Application Lifecycle Management Requirements

Historically, few IT organizations managed the quality of their applications with a business perspective in mind. Today, with IT managers under constant pressure to increase the “business value” of IT, this is no longer an option, but a necessity. New technologies, architectures, business trends, and end-user expectations have changed the nature of IT organizations and applications – creating an urgent need to rethink traditional application quality management practices and establish new disciplines to address and manage the application lifecycle.

Figure 1: The complete application lifecycle



Effective ALM manages all the key dimensions of application quality management and addresses the three crucial “pillars” of quality:

- Does the application provide the functionality needed to meet business requirements?
- Does the application function with sufficient performance to meet business requirements?
- Does the application deliver adequate security to meet business requirements?

Table 2: Application Lifecycle Management Requirements

Requirement	Description
Functionality	§ Optimize application quality, reliability, and availability
	§ Develop and deploy applications that better align with the needs of the business
	§ Reduce the number and duration of business critical outages
Performance	§ Reduce testing time, improve application stability, and reduce deployment risks by leveraging consistent, repeatable, and automated test processes
	§ Lower the number of application deployments that do not meet the performance requirements of the organization
	§ Accurately gauge system capacity and performance levels
	§ More quickly and accurately identify root causes of application performance issues

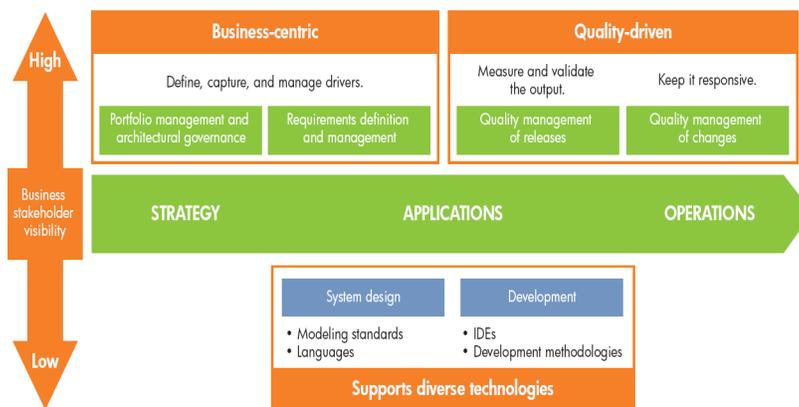
Requirement	Description
Application Security	§ Reduce the number and risk of security issues impacting business and/or customers
	§ Provide early detection of “vulnerabilities” in applications under development

The HP Approach to Application Lifecycle Management: A Comprehensive Solution

HP Application Lifecycle Management optimizes the application lifecycle by providing automated capabilities that enable companies to successfully master change and profit from it – rather than react to it. HP ALM focuses on strategic control points across the lifecycle, allowing HP customers to more effectively –

- Align IT objectives with business priorities and keep them aligned throughout the application lifecycle
- Reduce application development, delivery, and maintenance costs
- Improve operational efficiencies by measuring and reporting key performance indicators (KPIs)
- Share knowledge and best practices across departments and lines of business

Figure 2: HP ALM focuses on what matters to the business



Traditional application lifecycle management often neglects earlier and later phases that are vital to long-term application quality and operational success. The HP ALM approach is guided by the principle that application teams must look beyond just the construction of the application, and view and manage the complete application lifecycle: from portfolio prioritization, architecture, service, and security policies; to concept, delivery, ongoing management, and change in operations.

Table 3: Value Offered by Each of the Functional Components of the HP ALM Solution

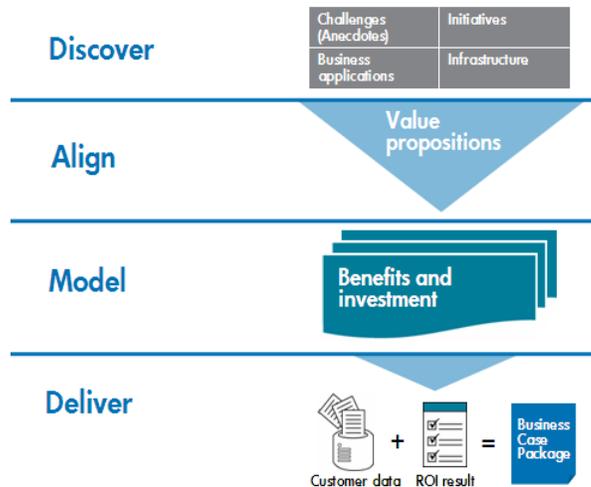
Component	Capabilities
HP Quality Center	HP Quality Center software provides automated software testing and quality assurance across a wide range of IT and application environments. It includes an integrated suite of role-based applications, a business dashboard, and an open, scalable, and extensible foundation—all designed to optimize and automate key quality activities.
HP Performance Center	HP Performance Center software provides the first lifecycle approach to optimizing application performance, helping provide your applications will scale to support the right number of users, transaction volumes, and performance levels.
HP Application Security Center	HP Application Security Center software enables your developers, quality assurance (QA) teams, and security experts to successfully conduct Web application security testing and remediation.

The remainder of this paper provides an overview of the HP ROI approach followed by examples of customer ROI-benefit scenarios that show the impact on business and IT for several functional areas of the HP ALM solution.

HP Software ROI Approach

The HP Software ROI approach is based on third-party, validated models and industry/customer research by leading IT consultancy IDC, and their ROI tool partner, leading ROI/TCO consultancy Alinean. The ROI Analysis process, models and metrics were developed by researching overall IT spending and KPIs worldwide in over 37 different industries, interviewing selected customers to determine specific realized and proven value, and in directly engaging with customers with the methodology and tools to further refine the modeling and value estimates. This work resulted in the definition of a customer-centric ROI framework and process as illustrated in Figure 2 and described below.

Figure 2: The HP ROI Model Approach



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1. **DISCOVER.** A credible Business Case/ROI must be anchored in a customer's "business reality." This schematic suggests four categories of discovery to hone in on. It is during this initial discovery stage that it is helpful to document challenges and specific problems. These challenges can be collected as "Business Value/ROI Anecdotes."¹
 2. **ALIGN.** The key to a successful ROI is converting this somewhat abstract understanding of a customer's business context and Business Value Anecdotes into a set of quantifiable value propositions. A value proposition is a specific, customer-centric statement of expected business or IT value – ideally, quantifiable in monetary terms.
 3. **MODEL.** Two types of models are crafted. The Benefits Model consists of a set of Benefit Worksheets. Each ROI-benefit scenario is a quantified value proposition representing the most granular unit of annualized business or IT value. HP has compiled a collection of ROI-benefit scenarios from our work to date that customers may find helpful in launching their ROI projects. Investment Models provide HP Software-related costs as well as any incremental staffing or infrastructure costs associated with the HP solution.
 4. **DELIVER.** The Benefit and Investment Models are packaged into an ROI Business Case Package.

A clear understanding of the business perspective helps ensure that a meaningful set of value propositions are characterized.

Value propositions fall into two distinct categories: business value and IT value. Business value propositions describe how the use of the HP ALM solution contributes to reduced business costs (for example, improved end-user productivity or headcount containment) or revenue protection (for example, higher availability of customer-facing or revenue-generating applications). Similarly, an IT value proposition demonstrates how HP ALM contributes to IT cost reduction. Often this is expressed in terms of headcount containment, reduction in contractor costs, or deferral of infrastructure capital expenses.

A properly stated value proposition should clearly connect an IT management process with a business objective and a measurable benefit. For example: "Automated application security testing mitigates risks by proactively reducing the number and duration of application security induced outages leading to reduced end-user minutes lost." Value propositions stated in this way can be transformed into ROI-benefit scenarios, the HP term for the most granular building blocks of IT or business value.

ROI-benefit scenarios provide a consistent way to quantify value propositions. Taken together, a set of ROI-benefit scenarios can be aggregated to represent the value of existing or planned HP ALM investments. ROI-benefit scenarios provide a consistent way to characterize value and incrementally quantify solution benefits. They can also be combined to look at higher-level ROI-benefit scenarios, such as IT service quality improvement, or visibility for decision making. The ROI result, or the total benefit to the business, can be calculated by quantifying the value and the investment associated with all of the relevant ROI-benefit scenarios. By breaking the problem down into smaller, more manageable ROI-benefit scenarios, the HP ROI approach simplifies ROI measurement and removes some of the uncertainty associated with collecting and analyzing ROI data.

¹ A Business Value Anecdote is a brief statement of a pain, or the observed or expected benefit of an HP solution from the customer's perspective.

Table 4: Key Components of an ROI-Benefit Scenario

Key Component	Description	Example
Pain Point	A customer challenge that can be addressed by an HP solution	Application defects raise the risk of business critical outages and hence regulatory or SLA non-compliance penalties
Value Proposition	A specific statement of business or IT value that links a specific BTO function with a business objective and a measurable benefit.	A unified, risk based and proactive approach to application quality management mitigates risks by reducing the number and duration of business critical application outages, thereby minimizing the likelihood of SLA non-compliance and regulatory penalties
Solution Benefit Summary	A description of the HP BTO solution that explains how the value proposition claim is achieved.	HP Quality Center provides risk-based quality management to objectively assess and prioritize the highest risk, highest priority requirements and hence align and optimize the overall testing effort with business needs
Calculation	The specific metrics, assumptions, and data values used to quantify the value proposition.	Average number of outages per year with an SLA impact; total downtime impact per outage (hours); total downtime hours for outages; total SLA penalties for downtime; expected percent reduction (conservative to optimistic) in SLA compliance penalties

Customer Data and Results

After discovering and assessing the current environment, the next step is to align how the HP solution can strengthen both IT and business processes to reduce costs, mitigate risks, improve time to value, or increase revenue. Quantifiable benefits can be estimated using ROI-benefit scenarios that transform high-level value propositions into benefits that can be measured.

The following real world customer examples explain how to build ROI-benefit scenarios for HP ALM. In each scenario, annualized savings values are calculated for three levels of projected improvement – conservative, probable, and optimistic. Using a range of projected improvement values empowers each company to customize results to best fit their business situation and expectations.

Company Profile

For these scenarios, the company profiled is a global electronics provider, specializing in semiconductors for consumer, telecommunications, automotive and industrial applications. The company, which recently posted annual revenues of over \$250 million, serves approximately 200 corporate clients and partners in over 20 countries and has over 25 regional IT environments worldwide, as well as a single central IT organization located at the firm’s headquarters in Europe.

The IT Organization supports approximately 45,000 internal users. Each year, on average, IT introduces 30 major application releases and 250 minor application releases.

Example A: HP Quality Management Risk Mitigation

IT managers realized that they needed to significantly lower costly downtime by reducing the number of critical application errors. “With so many geographically dispersed environments,” one IT manager said, “we don’t go a day without multiple application outages, at a number of sites. Application defects bring our systems down – making them inoperable and inaccessible.”

HP Quality Center software enables centralized and rigorous risk-based testing, including three-way traceability between requirements, tests and defects within a project. With the capability to catch application problems as early as possible in the application development life cycle, the likelihood of business critical application outages and the associated IT costs are reduced. In the event of an outage, HP Quality Center software reduces the time required to diagnose application issues by automatically reproducing defects and identifying problems with the built-in test execution recorder.

IT managers projected that with the implementation of HP Quality Center, their environments would significantly reduce costs by minimizing the number and duration of business critical application outages. Table 5 shows the annual cost reduction associated with the projected improvements. For this scenario, the probable percentage improvement was determined “most realistic.” This level projects a first year savings of \$1.5 million.

Table 5: ROI Example - Automated risk-based quality testing minimizes IT costs by reducing the number and duration of business critical application outages

Global Electronics Provider: ROI through automation of application quality testing						
Value Proposition	Risk based, automated quality testing minimizes IT costs by reducing the number and duration of business critical application outages, thereby reducing the level of effort associated with problem identification, resolution and rework.					
Solution Benefit Summary	The solution enables centralized and rigorous risk-based testing, including three-way traceability between requirements, tests and defects within a project. The solution enables sharing and reusing test assets across multiple projects, releases and cycles, and has the capability to share defects from cross project libraries.					
Applications	Business Critical Applications					
ROI Example				Expected improvement with HP Quality Center solution		
	Metrics	Assumptions	Before HP Software	Conservative	Probable	Optimistic
	Total average number of outages per year		11000	60%	70%	80%
	PROJECTED average number of OUTAGES a year with HP Quality Center			4400	3300	2200
	Total average number of IT hours required to resolve an outage		3.00	60%	70%	80%
	PROJECTED average number of IT HOURS required to resolve an outage w/ HP QC			1.20	0.90	0.60
	Total IT Resolution Hours for Outages		33000	5280	2970	1320
	Average Hourly Burdened Labor Rate required to resolve outages	\$48.70				
	Total Outage Resolution COST		\$1,607,100	\$257,136	\$144,639	\$64,284
	Total projected annual BENEFIT			\$1,349,964	\$1,462,461	\$1,542,816

Example B: HP Performance Management Time to Value

IT knew that, to improve its “bottom line,” and enhance the value of IT to the business, it would need to execute performance test scenarios more efficiently. “I’d lost count of how many major and minor application upgrades were deployed, and then couldn’t handle the requirements,” an IT Director said. “We need to centrally test faster and more efficiently, and get things out the door. And then, when we do

deploy systems, we need to be confident that they're scalable and can sustain the stress of high loads. If they don't, we lose revenue."

By providing an accurate picture of end-to-end system performance before the application goes live, HP Performance Center software increases productivity in the test environment and reduces the risk of deploying systems that do not meet performance requirements. The solution provides actionable information to resolve performance problems – which shortens the test lifecycle and accelerates the delivery of high-quality applications.

IT felt strongly that HP Performance Center software would “completely fix” the existing issues in the performance testing environment. Therefore, IT elected to use the optimistic percentage improvement values – resulting in a potential benefit of \$3.0 million in the first year, as shown in table 6.

Table 6: ROI Example - Proactive, automated load and performance testing improves time to value by decreasing the duration of the test lifecycle

Global Electronics Provider: ROI through automation of load and performance testing					
Value Proposition	Proactive, automated load and performance testing with efficient trouble-shooting improves time to value by decreasing the duration of the test lifecycle through improvements in the operational efficiency and productivity of the testing and development teams.				
Solution Benefit Summary	The solution increases productivity in the test environment and reduces the risk of deploying systems that do not meet performance requirements by providing an accurate picture of end-to-end system performance before going live. The solution isolates application performance problems and reduces the mean time to resolution (MTTR) of the application performance bottlenecks. It provides actionable information to resolve performance problems. As a result the test lifecycle duration is shortened, and the delivery of high-quality applications is accelerated.				
Applications	Business Critical Applications				
ROI Example			Expected improvement with HP Performance Center solution		
	Metrics	Before HP Software	Conservative	Probable	Optimistic
	Number of NEW applications and MAJOR upgrades per year	30			
	Total duration of the new / upgraded application test cycle (in days)	45	24%	30%	36%
	PROJECTED duration of the new/major release test cycle in days with HP PC		34.2	31.5	28.8
	Total days per year in test cycle	1350	1026	945	864
	Total business operating efficiency value per day per new / upgrade application	\$4,000	\$4,000	\$4,000	\$4,000
	Total Opportunity Cost (New/Major upgrades)	\$5,400,000	\$4,104,000	\$3,780,000	\$3,456,000
	Number of application updates and minor upgrades per year	250			
	Total duration of the minor update / upgrade test cycle (in days)	15	24%	30%	36%
	PROJECTED duration of the minor update / upgrade test cycle in days with HP PC		11.4	10.5	9.6
	Total days per year in test cycle	3750	2850	2625	2400
	Total business operating efficiency value per day per minor update / upgrade application	\$800	\$800	\$800	\$800
	Total Opportunity Cost (Minor upgrades/updates)	\$3,000,000	\$2,280,000	\$2,100,000	\$1,920,000
	Total OPPORTUNITY COST	\$8,400,000	\$6,384,000	\$5,880,000	\$5,376,000
	Total projected annual BENEFIT		\$2,016,000	\$2,520,000	\$3,024,000

Example C: HP Application Security Management Process Efficiency

For protection, the company employed manual tests (run by independent “security specialists”) to simulate attacks on its production-ready applications. This type of testing was time-consuming and expensive. In

addition, security issues, if found, were discovered late in the application development process. As a result, repair was costly and disruptive.

HP Application Security Center provides automated application security testing throughout the full software lifecycle. With ASC, security testing can be conducted as part of an organization’s standard QA cycle without the need of additional specialized resources. In effect, all QA practitioners become security-enabled via ASC. As a direct result, security vulnerabilities are identified early in the life cycle – lowering costs and ensuring security throughout the life of the application.

In this scenario, IT management felt that the conservative percentage improvements – measuring the potential reduction in the costs associated with testing activities such as test script creation, test execution, investigation, test reporting and script maintenance – were the most applicable. As a result, as shown in table 7, the projected savings in the first year would be \$3.3 million.

Table 7: ROI Example: - Automated application security testing reduces costs by supporting the entire application life cycle and identifying security risks early in the development process

Global Electronics Provider: ROI through automation of application security testing					
Value Proposition	Automated application security testing throughout the software lifecycle reduces costs by minimizing the time and effort associated with test script creation, test execution, investigation, test reporting and script maintenance.				
Solution Benefit Summary	The solution delivers a comprehensive suite of products and services that support the entire web application life cycle. These products identify vulnerabilities early in the software life cycle and help customers save time and money and ensure security throughout the life of the application. These products are designed to foster collaboration among developers, quality assurance and security professionals.				
Applications	All Business Critical Applications				
ROI Example			Expected Improvement associated with HP Application Security Center		
	Metrics	Before HP (as is)	Conservative	Probable	Optimistic
	Expected percentage improvements associated with HP ASC Solution				
	Test Script Creation		48%	60%	72%
	Test Execution		40%	50%	60%
	Investigating Security Resolutions		60%	75%	90%
	Results and Defect Reporting		60%	75%	90%
	Test Script Maintenance		8%	10%	12%
	IT Activity Cost Profile				
	Test Script Creation	\$1,546,758	\$804,314	\$618,703	\$433,092
Test Execution	\$488,088	\$292,853	\$244,044	\$195,235	
Investigating Security Resolutions	\$2,152,021	\$860,808	\$538,009	\$215,202	
Results and Defect Reporting	\$1,553,654	\$621,462	\$388,414	\$155,365	
Test Script Maintenance	\$1,058,671	\$373,977	\$952,804	\$931,630	
Projected Annual COSTS	\$6,799,192	\$3,553,414	\$2,741,970	\$1,930,824	
Projected Annual BENEFIT		\$3,245,778	\$4,057,222	\$4,868,668	

Consolidating Results

ROI-benefit scenarios, such as those shown in the above examples, can be combined to provide an overall ROI analysis for a specific customer implementation; merging the specific aspects of an inclusive HP solution. In this case, the solution is HP Application Lifecycle Management.

The total savings from multiple ROI-benefit scenarios are aggregated to give a cumulative view of the benefits provided by the full implementation. For example, in this case, the savings from our several ROI-benefit scenarios can be summed to show a combined business and IT benefit over a period of three years.

The table below illustrates how the company could summarize the financial analysis of the three ROI-benefit scenarios. For each ROI-benefit scenario, the cash flows over a three-year period were consolidated into a Net Present Value (NPV) using a discount rate of 10 percent, and assuming an estimated 10 percent

increase in annual benefits. The annualized savings values indicated reflect the company-selected levels of projected improvement – conservative, probable or optimistic – described in the ROI-benefit scenarios.

Table 8: Consolidating results from ROI-Benefit Scenarios for HP ALM

Consolidated ROI benefits from the HP Application Lifecycle Management (ALM) Solution						
Scenario	Value Category	Value Proposition	NPV (Three Years)	Year 1	Year 2	Year 3
1	IT Outage Effect - Risk Mitigation	Risk based, automated quality testing minimizes IT costs by reducing the number and duration of business critical application outages, thereby reducing the level of effort associated with problem identification, resolution and rework.	\$3,988,530	\$1,462,461	\$1,608,707	\$1,769,578
2	Time to Value - Operating Efficiency Benefits	An integrated data center automation platform providing enterprise-wide visibility reduces costs by displacing software and support costs associated with maintenance of redundant products, custom in-house developed solutions, custom integration, multi-int	\$8,247,273	\$3,024,000	\$3,326,400	\$3,659,040
3	Process Efficiency - Application Security Testing for Full Software Lifecycle	Automated application security testing throughout the software lifecycle reduces costs by minimizing the time and effort associated with test script creation, test execution, investigation, test reporting and script maintenance.	\$8,852,122	\$3,245,778	\$3,570,356	\$3,927,391
		Cumulative Benefits Total	\$21,087,925	\$7,732,239	\$8,505,463	\$9,356,009

Summary

HP Application Lifecycle Management provides enhanced return for every IT dollar spent by addressing the complete application lifecycle and by linking the outcome of IT to the strategy of the business. With HP ALM, IT effectively addresses the fundamentals of every application – quality, performance and security – establishing the optimum foundation for broader ALM initiatives.

Quantifying the benefits of HP ALM can be done systematically, using an approach and methodology that HP has designed and refined over the years with your peers. The examples presented in this paper may serve as a starting point for an HP ALM ROI analysis in any business organization. For more information on the HP ROI approach or the HP ALM solution contact your local HP representative.

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