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The Total Economic Impact™ Of IBM Optim Integrated Data Management Solutions

Multicompany Study

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The Total Economic Impact Of IBM Optim Integrated Data Management Solutions

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Executive Summary

In March 2009, IBM commissioned Forrester Consulting to examine the total economic impact and potential return on investment (ROI) that enterprises may realize by deploying IBM Integrated Data Management solutions. Optim is a suite of solutions that allows organizations to design, develop, deploy, operate, optimize, and govern enterprise data throughout its life cycle. This study illustrates the financial impact of companies using Optim for test data management, data privacy, data archiving including decommissioning in their enterprise data management life cycle.

In conducting in-depth interviews with four existing customers, Forrester found that these companies achieved tangible improvements in operational and capital cost efficiency, IT administration cost savings, increased data protection, as well as higher levels of end user productivity.

Purpose

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Optim on their organizations. Forrester's aim is to clearly show all calculations and assumptions used in the analysis. Readers should use this study to better understand and communicate a business case for investing in IBM Integrated Data Management solutions.

Methodology

IBM selected Forrester for this project because of its industry expertise in enterprise data management and Forrester's Total Economic Impact (TEI) methodology. TEI not only measures costs and cost reduction (areas that are typically accounted for within IT) but also weighs the enabling value of a technology in increasing the effectiveness of overall business processes.

For this study, Forrester employed four fundamental elements of TEI in modeling the financial impact of Optim solutions:

1. Costs and cost reduction.
2. Benefits to the entire organization.
3. Risk.
4. Flexibility.

Given the increasing sophistication that enterprises have regarding cost analyses related to IT investments, Forrester's TEI methodology serves an extremely useful purpose by providing a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

Approach

Forrester used a five-step approach for this study:

1. Forrester gathered data from existing Forrester research relative to IBM Optim solutions and the integrated data management market in general.

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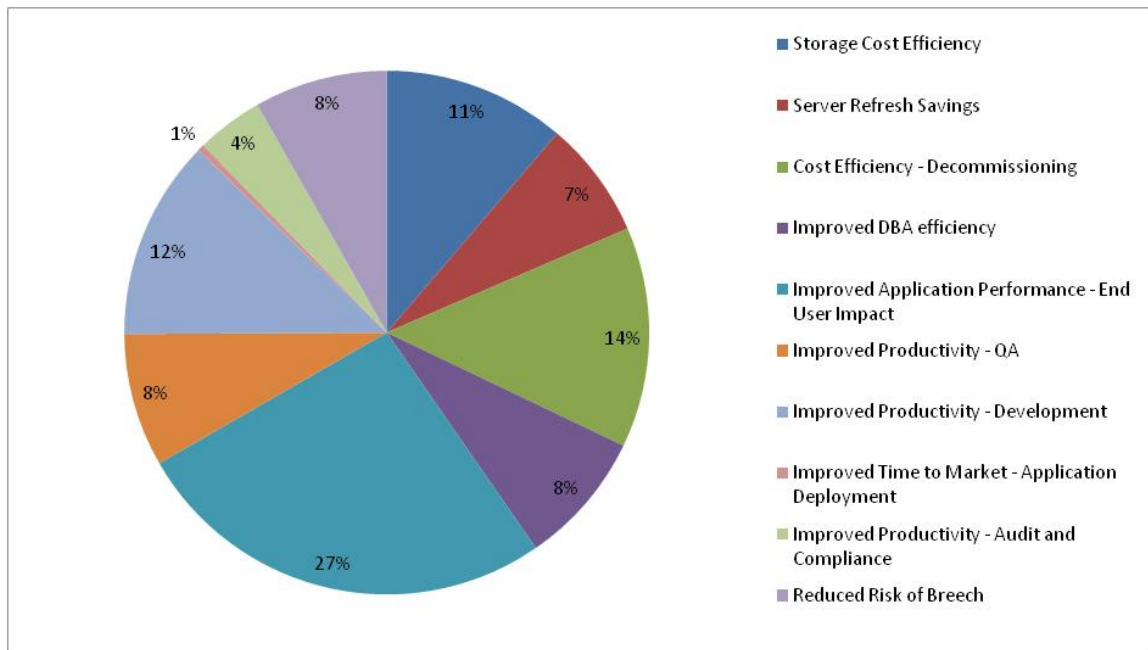
2. Forrester interviewed IBM Optim product management, marketing, and sales personnel to fully understand the potential (or intended) value proposition of Optim solutions.
3. Forrester conducted a series of in-depth interviews with four organizations currently using IBM Optim solutions across the enterprise data life cycle.
4. Forrester constructed a financial model representative of the interviews. This model can be found in the TEI Framework section below.
5. Forrester created a composite organization based on the interviews and populated the framework using data from the interviews as applied to the composite organization.

Key Findings

Forrester's study yielded three key findings:

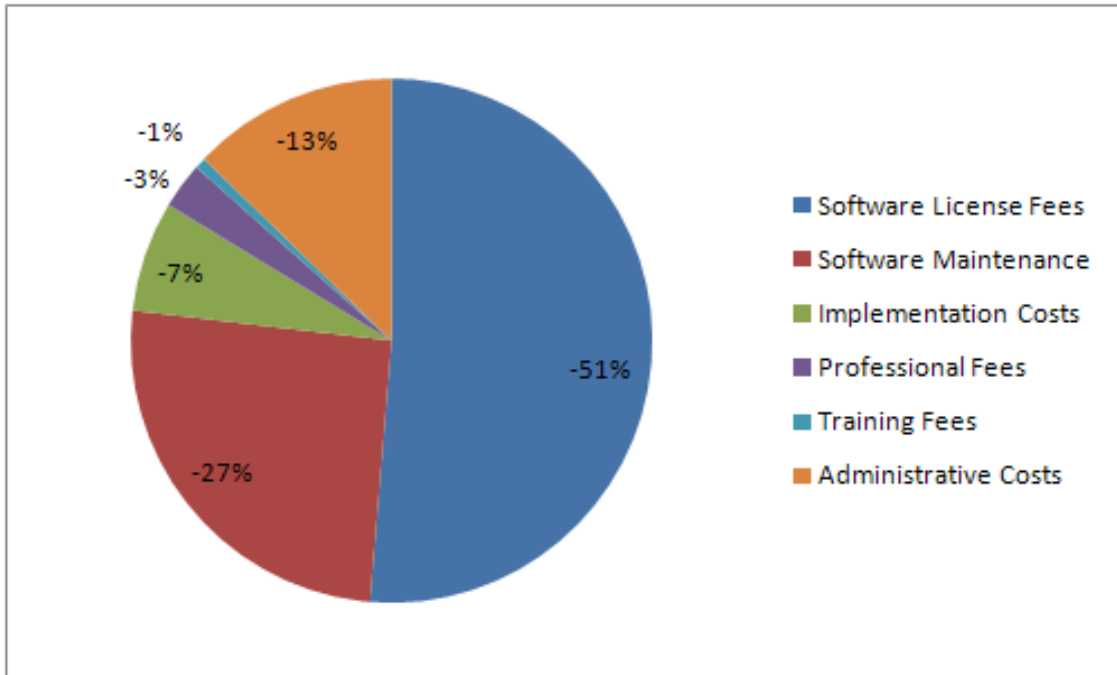
- **ROI.** Based on the interviews with the four existing customers, Forrester constructed a TEI framework for a composite organization (see Appendix A) and the associated ROI analysis illustrating the areas of financial impact. As seen in Table 1, the ROI for our composite company is 153% with a breakeven point (payback period) of 1 year after deployment.
- **Benefits.** Benefits included improved IT and end user productivity, reduced capital costs, and greater protection of enterprise data.

Figure 1: Total Three-Year Benefit Breakdown



- **Costs.** Costs include software license and maintenance fees, cost of implementation and external professional fees, as well as cost of training and administration.

Figure 2: Total Three-Year Cost Breakdown



Source: Forrester Research, Inc.

Table 1 illustrates the risk-adjusted cash flow for the composite organization, based on data and characteristics obtained during the interview process. Forrester risk-adjusts these values to take into account the potential uncertainty that exists in estimating the costs and benefits of a technology investment. The risk-adjusted value is meant to provide a conservative estimate, incorporating any potential risk factors that may later impact the original cost and benefit estimates. For a more in-depth explanation of risk and risk adjustments used in this study, please see the “Risk” section.

Table 1: Composite Company ROI, Risk-Adjusted Versus Non-Risk-Adjusted

Summary financial results	Original estimate	Risk-adjusted
ROI	180%	153%
Payback period (years)	0.9	1.0
Total costs (PV)	(\$876,725)	(\$876,725)
Total benefits (PV)	\$2,456,818	\$2,218,783
Total (NPV)	\$1,580,092	\$1,342,058
Internal rate of return (IRR)	126%	110%

Source: Forrester Research, Inc.

Forrester found that higher ROIs depended on the amount of data archived away from the production environment, the number of applications decommissioned, the type of existing legacy applications used to manage the data life cycle, as well as the potential exposure from data privacy breaches.

Disclosures

The reader should be aware of the following:

- The study is commissioned by IBM and delivered by the Forrester Consulting group.
- IBM reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.
- The customer names for the interviews were provided by IBM.
- Forrester makes no assumptions as to the potential return on investment that other organizations will receive. Forrester strongly advises that readers should use their own estimates within the framework provided in the report to determine the appropriateness of an investment in IBM Integrated Data Management solutions.
- This study is not meant to be used as a competitive product analysis.

IBM Optim Integrated Data Management Solutions: Overview

According to IBM, enterprise applications and databases are a critical part of any business. And every year, they grow in size and complexity — making them harder to manage, keeping firms from meeting service-level agreements, increasing maintenance costs, and exposing firms to legal liability as they attempt to protect data privacy and security.

IBM Optim gives firms the power to manage enterprise application data through every stage of its life cycle:

- **Archive.** Tier business transactions by age and status. Segregate historical information from current activity and safely remove it to a secure archive. Maintain the production database in a manageable size to simplify maintenance and speed disaster recovery.
- **Classify.** Apply business rules to govern active, inactive, and reference data. Define and implement policies — when data needs to be available, where it should be stored, how long it should be retained, and who can have access.
- **Assess.** Determine where application data is growing fastest and assess the impact of data tiering strategies. Identify and address potential problems before they affect business results.
- **Test data management.** Speed application deployment by streamlining the way you create and manage test environments. Subset and migrate data to build realistic and right-sized test databases. Eliminate the expense and effort of maintaining multiple database clones. De-identify confidential information to protect privacy.
- **Access.** Enable decision-makers to access the right data at the right time. Query and browse active, inactive, and reference data. Utilize familiar forms, screens, and panels. Generate standard and custom reports. Restore archived transactions if business processing becomes a requirement.
- **Store.** Store application data according to its evolving business value. Maintain active transactions in high-speed storage tiers. Relocate reporting data on secure "WORM" devices. Reclaim underutilized capacity and maximize the value of your existing storage infrastructure.

Data Growth - Overgrown databases can impair the performance of mission-critical ERP, CRM and custom applications - jeopardizing SLAs and increasing storage cost. Optim Data Growth Solution reduces the size of production databases providing universal access to the data while improving application performance, cutting hardware and software costs and maintaining adherence to data governance policies and regulations. As part of archiving, the solution supports application consolidation, retirement and decommissioning projects by retaining access to data without requiring the application allowing for the application to be completely retired.

Test Data Management - Application testing for quality and reliability has never been more important. Yet testing can be time consuming and expensive. Optim Test Data Management Solution is a comprehensive solution for creating right-sized test environments, providing support across multiple applications, databases and operating systems simultaneously providing the capability to extract and sub-set enterprise environments. The solution allows users to compare

results during successive test runs by first extracting a "before" copy, and then creating additional copies each time an application modification is made.

Data Privacy - Safeguarding the privacy of client data isn't just good business - in many cases, it's the law. De-identifying confidential data is one of the best ways to protect privacy and support compliance with regulations like HIPAA, DDP, PIPEDA, PCI DSS and others. Optim Data Privacy Solution protects the confidentiality of data in non-production environments through intelligent de-identification either in-place or through transformation from an existing data source, keeping the integrity of the data in tact across multiple applications, databases and operating systems.

Application Retirement - Consolidation and decommissioning projects often complement each other. By consolidating data and retiring (or decommissioning) redundant or legacy systems, you can improve operational management and reduce costs across your IT environment, including hardware, software, network infrastructure, power, staff resources and more. The IBM® Optim™ Data Growth Solution for Application Retirement provides proven database archiving capabilities that enable IT organizations to archive and safely remove historical reference data from the application or system being consolidated or decommissioned.

Optim Key Differentiators

Enterprise solution with heterogeneous support - Optim is a single, scalable solution that supports all major enterprise databases and operating systems – DB2, Oracle, Sybase, SQL Server, Informix, IMS, VSAM, Windows, UNIX, Linux and z/OS. It also supports the key business applications in use today – Oracle® E-business Suite, PeopleSoft® Enterprise, JD Edwards® EnterpriseOne, Siebel®, Amdocs® CRM and all of your custom and packaged applications.

Ensuring data integrity – Managing the information lifecycle by archiving data, creating test instances or finding and masking data requires the capability to propagate data elements to all related tables in the database and across databases to maintain referential integrity.

Data Accessibility - Decision makers must have access to data, whether it is current or historical. A comprehensive enterprise data management solution such as Optim will allow those decision makers to access the right information at the right time. Authorized business users must be able to query and browse all active, inactive and reference data. Reliable access makes it possible to generate reports and respond quickly to audit and discovery requests. If additional business processing becomes a requirement, you must be able to restore archived transactions.

Data Discovery – Optim solutions can automate business object discovery to gain new data insights, ensure accuracy and speed implementation for successful projects. This begins with an accurate representation of the business object to be archived. Business objects ensure future references to archived data maintain application context and referential integrity. These objects are defined with relationships which are made up from a combination of declared database and application enabled referential integrity.

Analysis

As stated in the Executive Summary, Forrester took a multistep approach to evaluating the impact that implementing Optim solutions can have on an organization, including:

- Interviews with IBM product management, marketing, and sales personnel.
- In-depth interviews with four organizations currently using Optim solutions.
- Construction of a common financial framework for the implementation of Optim.
- Construction of a composite organization based on characteristics of the interviewed organizations.

Interview Highlights

A total of four interviews were conducted for this study, involving representatives from the following IBM customers based in the US:

1. A global pharmaceutical company based in the Mid-Western US using Optim for archiving and test data management.
2. A US-based direct marketing organization using Optim for data archiving and test data management.
3. A North America-based financial services organization using Optim for data archiving and data privacy.
4. A global telecommunications provider using Optim for application decommissioning.

The four in-depth interviews uncovered several common themes that drove the analysis. These included:

- **Managing data growth.** Many of the organizations interviewed found that prior to the investment in Optim, they struggled to keep up with the demands of both storage and server resources within the production environment. In addition, database growth affected performance, upgrades, and backups. Organizations did not have an effective way of archiving applications and moving data away from more costly production resources without significantly limiting access.
- **Improving the test data application development environment.** In addition to effectively managing the growth of data, several of the organizations were challenged with improving the cost efficiency and business effectiveness of their test data environment. Prior to the investment in Optim, test data was performed on an ad hoc basis and lacked a standardized and rigorous process either for identifying defects and errors during the QA process or for reducing the overall cost of development.
- **Improving internal IT productivity, particularly database administrator productivity.** Managing an increasingly complex production data environment led many of the interviewed customers to see an opportunity to proactively improve IT efficiency in

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enterprise data management via the automation, simplification, and integration of their core activities.

- **Maintaining effective controls around data privacy.** With the growth in data and applications, organizations also saw a growing threat around loss of protection of customer data, especially in test and development environments, which were often a copy of the production environment.

The composite organization created from the results of the customer interviews represents a US-based global services organization that has deployed Optim solutions for test data management, data privacy, archiving, and decommissioning. Prior to investing in Optim, the organization used a variety of internally built legacy solutions to manage the enterprise data life cycle.

The representative organization currently has four primary user applications, including enterprise collaboration, CRM, supply chain, and HR/financials. With the investment in Optim, the organization is looking to archive four and decommission four secondary applications that are minimally used by users. A total of 7 TB of data is to be decommissioned.

TEI Framework

Introduction

From the information provided in the in-depth interviews, Forrester has constructed a TEI framework for those organizations considering implementation of Optim solutions. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision.

Composite Organization

Based on the interviews with the four existing customers provided by IBM, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas affected financially. The composite organization that Forrester synthesized from these results represents a North American services organization.

Framework Assumptions

Table 2 lists the discount rate used in the PV and NPV calculations and time horizon used for the financial modeling.

Table 2: General Assumptions

Ref.	General assumptions	Value
	Discount rate	10%
	Length of analysis	Three years

Source: Forrester Research, Inc.

Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with Finance to determine the most appropriate discount rate to use within their own organizations.

In addition to the financial assumptions used to construct the cash-flow analysis, Table 3 provides the salary assumptions used within this analysis.

Table 3: Salary Assumptions

Ref.	Metric	Calculation	Value
A1	Hours per week		40
A2	Weeks per year		52
A3	Hours per year (M-F, 9-5)		2,080
A4	Hours per year (24x7)		8,736

Source: Forrester Research, Inc.

Costs

Costs around IBM Optim for the interviewed organization include the cost of software, hardware, maintenance, implementation, and ongoing administration. The actual cost of the solution will vary depending on the number of development staff as well as the level of data integration undertaken by the organization.

License and Maintenance Cost

The cost of licensing represents a portion of the overall investment cost of the solution. License costs are priced according to the number of processor cores, the processor technology, as well as the number of client licenses. Based on interviews with the representative organization, the estimated license cost was \$450,000 at the time of purchase. Based on the interviews with the interviewed organizations, we assume that the annual software maintenance cost equates to roughly 20% of the license cost. This would have been enough to cover the cost of the production and development environment. Table 4 illustrates the cost of licensing and maintenance.

Table 4: License And Maintenance Cost

Ref.	Metric	Calculation	Per Period
A1	License fees		\$450,000
A2	Yearly percent		20.0%
At	Annual Maintenance	A1*A2	\$90,000
Ato	Software license fees		\$450,000

Source: Forrester Research, Inc.

Training Cost

The cost to train the individual stakeholders on the new IBM Optim platform was also cited by the interviewed organizations. Prior to implementing IBM Optim, the majority of the developers had been trained on the legacy platform and databases, and the organization had made an investment to retrain the developers on the IBM Optim platform. For the purpose of this analysis, we assume that each of the administrators will participate in training. The cost per developer includes the formal cost of training, the lost productivity from participating in the training session, as well as the indirect cost of informal training. Table 5 illustrates the total training cost.

Table 5: Training Cost

Ref.	Metric	Calculation	Per Period
B1	Number of people		5
B2	Cost per person		\$1,200
Bt	Training fees	B1*B2	\$6,000

Source: Forrester Research, Inc.

Implementation Cost

The cost to implement includes the cost of internal resources to plan and deploy as well as an external third party to aid in planning and implementation of the Optim platform. The representative organization invested roughly \$60,000 in internal efforts for the implementation. In addition, the organization invested 100 hours in external efforts, equating to roughly \$25,000 for implementation. Of the total implementation costs, roughly 20% was devoted to strategy and planning, while 80% was devoted to the actual implementation and testing of the solution. Tables 6 and 7 illustrate the total implementation cost.

Table 6: Implementation Cost — Internal

Ref.	Metric	Calculation	Per Period
C1	Number of people		4
C2	Hourly rate per person		\$60
C3	Hours		250
Ct	Implementation costs	$C1 * C2 * C3$	\$60,000

Source: Forrester Research, Inc.

Table 7: Implementation Cost — External

Ref.	Metric	Calculation	Per Period
D1	Number of people		2
D2	Hourly rate per person		\$125
D3	Hours		100
Dt	Professional fees	$D1 * D2 * D3$	\$25,000

Source: Forrester Research, Inc.

Ongoing Support Cost

In addition to the initial implementation costs, Forrester assumes that there are incremental costs to support the ongoing use of the Optim platform. Ongoing support costs include the IT and business labor necessary to support and manage data integration. For the purpose of this analysis, the composite organization allocates 1.5 IT staff members in year one, two, and three to handle the increasing level of data integration. Assuming a fully burdened cost of \$120,000 per year, we can calculate the total yearly cost of administration and support as equating to \$45,000. Table 8 illustrates the equation used.

Table 8: Ongoing Support — IT

Ref.	Metric	Calculation	Per Period
E1	Number of people		1.5
E2	Hourly rate per person		\$60
E3	Hours		500
Et	Administrative costs	$E1 * E2 * E3$	\$45,000

Source: Forrester Research, Inc.

Total Costs

Table 9 illustrates the total incremental costs of the IBM platform for the interviewed organization.

Table 9: Total Cost

Costs	Initial	Year 1	Year 2	Year 3	Total	Present Value
Software License Fees	(450,000)				(450,000)	(450,000)
Software Maintenance		(90,000)	(90,000)	(90,000)	(270,000)	(223,817)
Implementation Costs	(60,000)				(60,000)	(60,000)
Professional Fees	(25,000)				(25,000)	(25,000)
Training Fees	(6,000)				(6,000)	(6,000)
Administrative Costs		(45,000)	(45,000)	(45,000)	(135,000)	(111,908)
Total	(\$541,000)	(\$135,000)	(\$135,000)	(\$135,000)	(\$946,000)	(\$876,725)

Source: Forrester Research, Inc.

Benefits

The benefits from Optim were divided across archiving, decommissioning, test data management, and data privacy.

Controlling Data Growth And Decommissioning

For several of the interviewed organizations that had purchased the Optim Data Growth Solution one of the key areas of benefit was controlling the growth of storage costs within their environment by moving data away from the more costly production environment to less costly archived storage and servers as well as compressing archived data. One organization in particular noted that it had achieved storage cost savings of roughly 50% per year through using Optim Data Growth Solution for archiving, resulting in lower storage costs in production environments and reducing both the capital costs and support costs associated with archiving.

In order to construct the benefits for the composite organization, we assume that it has a total production storage environment of roughly 7,200 GB in year one, increasing to 11,250 GB by year three. Based on the interviews with the interviewed organizations, the model assumes that of the

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total storage in production, roughly 60% of the data can be archived in Year 1 with an additional 70% of storage freed through archive compression. Assuming an average cost per gigabyte of \$35 in production and \$15 in the archived environment, the storage cost efficiency savings equate to \$131,760 in year one, \$82,350 in year two, and \$102,938 by year three. Table 10 illustrates the calculation used.

Table 10: Storage Cost Efficiency

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
A1	Total storage environment (GB)		7,200	9,000	11,250
A2	Percent of data archived		60%	30%	30%
A3	Percent of archived storage freed through compression		70%	70%	70%
A4	Average cost per GB — production environment		\$35.00	\$35.00	\$35.00
A5	Average cost per GB — archive environment		\$15.00	\$15.00	\$15.00
Ato	Total (original)	$(A1 \cdot A2 \cdot A3 \cdot A4) + (A1 \cdot A2 \cdot (1 - A3) \cdot (LA4 - A5))$	\$131,760	\$82,350	\$102,938

Source: Forrester Research, Inc.

In addition to storage cost savings, another area of benefit noted by several of the interviewed organizations included the possible cost avoidance from deferring existing server hardware and software upgrades by archiving applications. With the rapid growth of applications within the environment, organizations were challenged to keep up with the growth of demand for server capacity and performance. Through archiving, organizations could defer the purchase of additional servers while maintaining acceptable levels of performance within the organization.

Over the longer term, organizations noted they could receive additional savings not quantified in this analysis including:

- Hardware: Networking (cables, routers, etc)
- Software (for storage)
- Infrastructure: Telecom
- Infrastructure: Power
- Infrastructure: Floor Space

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In order to construct this benefit, we assume that the composite organization had to refresh approximately 40 servers per year prior to the investment in Optim solutions. With the hardware costing \$8,000 and the labor for the refresh costing \$3,000, it is possible to calculate the baseline refresh cost to the organization. Based on the data received during the customer interview process, the model assumes that the composite organization can reduce the number of server refreshes by an estimated 20% per year. This equates to roughly \$88,000 per year as a result of avoiding possible server upgrades. Table 11 illustrates the calculation used.

Table 11: Server/Processor Refresh Savings

Ref.	Metric	Calculation	Value
B1	Cost of hardware (CPU)		8,000
B2	Cost of refresh		3,000
B3	Number of refreshes per year		40
B4	Percent avoided due to archiving		20%
Bt	Server/Processor Refresh	$(B1+B2)*B3*B4$	\$88,000

Source: Forrester Research, Inc.

In addition to the potential storage cost savings that several of the interviewed organizations noted, those organizations that leveraged the decommissioning component of Optim solutions found another area of benefit in the potential savings resulting from decommissioning legacy applications. Decommissioning through the use of Optim solutions allowed organizations to avoid the cost of supporting and maintaining those legacy applications while at the same time allowing access to the data contained in decommissioned applications independent of the original application.

In order to calculate this benefit, the model assumes that the composite organization can initially decommission small, medium, and large applications. The model assumes an average running cost of \$60,000, \$75,000, and \$120,000 per year, respectively, for each of the decommissioned applications prior to decommissioning. Based on data from the interviewed organizations, the model assumes that the average savings for small, medium, and large applications are 25%, 30% and 50%, respectively. Based on this information, we calculate a total cost efficiency of \$135,000. Table 12 illustrates the calculation used.

Table 12: Cost Efficiency — Decommissioning

Ref.	Metric	Calculation	Value
C1	Number of applications decommissioned per year — small		2
C2	Number of applications decommissioned per year — medium		2
C3	Number of applications decommissioned per year — large		1
C4	Average run cost — nondecommissioned application (small)		\$60,000
C5	Average run cost — nondecommissioned application (medium)		\$75,000
C6	Average run cost — nondecommissioned application (large)		\$120,000
C7	Estimated savings — small (2 applications)	25%	\$30,000
C8	Estimated savings — medium (2 applications)	30%	\$45,000
C9	Estimated savings — large (1 application)	50%	\$60,000
Cto	Total (original)	C7+C8+C9	\$135,000

Source: Forrester Research, Inc.

While capital cost savings represent the bulk of the return cited by the interviewed customers from investment in archiving and decommissioning solutions from Optim, the additional key benefit realized by the interviewed organizations included the efficiency savings for database administrators (DBAs). With the rapid growth in both storage and server costs prior to the investment, DBAs were challenged to keep up with the demands on their time in responding to increasing complexity within the environment. Optim allowed organizations to reduce the burden on DBAs, freeing up their time for more proactive planning and configuration activities.

In order to construct this benefit, we assume that the composite organization has six DBAs within its environment prior to the investment in Optim. The model also assumes that without the investment, the number of administrative staff will increase to 7.3 by year three, assuming 10% annual growth due to the complexity of the environment. The model also assumes that roughly 30% of the DBAs' time is spent within the production environment. But the resulting shift from archiving the decommissioned applications away from the production environment leads the model to assume a 40% reduction in DBA time as a result of the investment. The total annual savings equate to \$89,856 in year one, increasing to \$108,726 by year three. Table 13 illustrates the calculation used.

Table 13: Improved DBA Efficiency

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
D1	Total admin staff		6	6.6	7.3
D2	Hourly cost per admin		\$60	\$60	\$60
D3	% allocated to production		30%	30%	30%
D4	Estimated reduction		40%	40%	40%
Dt	Improved DBA management efficiency	$D1 * D2 * D3 * D4 * 2080$	\$89,856	\$98,842	\$108,726

Source: Forrester Research, Inc.

Another benefit mentioned during the interview process was the ability to access legacy applications not in the production environment. Several organizations struggled with how to maintain a high degree of access to legacy applications while at the same time controlling the costs associated with running and supporting those applications. Several organizations indicated that they continued to run support legacy applications in the production environment and also had applications that they decided to archive using internal manual processes. In most cases, accessing these archived applications was a cumbersome and time-consuming process, resulting in a tangible and negative impact on those end users who required access to the application data. With the investment in Optim, organizations were able to have a standard process for legacy decommissioned applications, improving the time to access those applications and reducing the impact on end users.

In order to calculate this benefit, the TEI model assumes that, on average, roughly 200 users access legacy archive applications within the environment. In our composite organization, most of these applications are accessed by call center employees, who interact directly with individual customers for service queries. The model assumes that it takes, on average, roughly 4 hours over the course of a week to access and retrieve data associated with these archive applications. Through an investment in Optim, the estimated time improvement for call center employees equated to roughly 20%. Assuming an hourly cost per user of \$40, the total estimated improvement equates to \$320,000. Table 14 illustrates the calculation used.

Table 14: Improved Application Performance — End User Impact

Ref.	Metric	Calculation	Value
E1	Number of users affected by application		200
E2	Average hourly cost per user		\$40
E3	Weekly time affected due to data access		4
E4	Estimated time improvement — call center		20%

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Eto	Total (original)	$E1 * E2 * E3 * E4 * 50$	\$320,000
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Source: Forrester Research, Inc.

Test Data Management

In addition to the benefits from archiving and decommissioning, several interviewed organizations saw tangible efficiency improvements through the use of Optim's Test Data Management solution, particularly within their quality assurance (QA) and development processes. Prior to the investment in Optim, organizations did not have an efficient way of creating test databases that accurately mirrored end-to-end business processes. In addition, several organizations noted an improvement, through the use of Optim, in identifying defects early in the development process, reducing the amount of rework that might arise later and, as a result, reducing the overall cost of development.

In the case of the QA process, the model assumes that, prior to the investment in Optim, the composite organization did not have a standard process for identifying development errors and defects early within the test data environment. Of the 20 developers within the environment, roughly 20% are allocated specifically to the QA process. Through the use of Optim tools, the model assumes a 20% reduction in time devoted to QA. At a cost for each developer of \$60 per hour, the total savings within the environment equate to \$99,840. Table 15 illustrates the calculation used

Table 15: Improved Productivity — QA

Ref.	Metric	Calculation	Value
F1	Total development staff		20
F2	Hourly cost per developer		\$60
F3	% allocated to QA		20%
F4	Estimated reduction		20%
Fto	Total (original)	$F1 * F2 * F3 * F4 * 2080$	\$99,840

Source: Forrester Research, Inc.

In the case of the development environment, the model assumes a similar efficiency saving from the use of test data solutions. In the case of test data management, roughly five DBAs are associated with creating test databases for production environments. By being able to identify defects and errors early in the development process, the composite organization can reduce the time spent on development by roughly 30%. Assuming a fully burdened cost per developer of \$60 per hour, this equates to total savings of \$149,760 per year. Table 16 illustrates the calculation used.

Table 16: Improved Productivity — Development

Ref.	Metric	Calculation	Value
G1	Total development staff		20
G2	Hourly cost per developer		\$60
G3	% allocated to TDM — production		20%
G4	Estimated reduction		30%
Gto	Total (original)	$G1 * G2 * G3 * G4 * 2080$	\$149,760

Source: Forrester Research, Inc.

Being able to improve the efficiency of the development process also allowed for improved time-to-market for application development projects. In the case of the composite organization the average development time prior to the investment in test data management solutions equated to roughly four months per project, with roughly five development projects produced per year. In addition, the average project cost for each of those five development projects equates to \$120,000 per year, with an average application ROI of 30%. Through the use of Optim solutions, the estimated time improvement for the application development project equates to roughly 20%, speeding the ROI from four months to three months. Assuming the organization can achieve benefits one month faster, we can calculate the added benefit of the time improvement by factoring in the cost of capital of 10%. This results in an improved time-to-market benefit of roughly \$5,200 per year. Table 17 illustrates the calculation used.

Table 17: Improved Time-To-Market — Application Development

Ref.	Metric	Calculation	Value
H1	Current development time (months)		4
H2	Number of projects delivered yearly		5
H3	Average application ROI		30%
H4	Estimated time improvement		20%
H5	Average project cost		120,000
H6	Cost of capital		10%
Hto	Total (Original)	$((H5 * (1 + H3)) / 12 * ((H1 * H4)) * H2 * H6)$	\$5,200

Source: Forrester Research, Inc.

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In addition to archiving, decommissioning, and test data management solutions, several of the organizations indicated that they used the privacy and data protection solutions within the Optim portfolio. For the interviewed organizations, creating stronger data privacy around enterprise data management affects them in two ways. First, it improves the speed with which they can complete internal audits around existing compliance regulations. Second, it improves privacy and protection, and reduces the likelihood of the exposure of potentially sensitive data by either internal or external threats.

In the case of improving productivity, the composite organization currently has roughly 30 audit and compliance staff, at an hourly cost of \$40; roughly 10% of the total staff is devoted to audit of the enterprise data environment. Through the use of standardized processes, the interviewed organizations estimate a 20% reduction in the time it takes to complete an audit. We calculate the estimated improvement in productivity resulting from the adoption of privacy solutions as roughly \$49,920 per year. Table 18 illustrates the calculation used.

Table 18: Improved Productivity — Audit And Compliance

Ref.	Metric	Calculation	Value
I1	Total audit and compliance staff		30
I2	Hourly cost		\$40
I3	% allocated to audit		10%
I4	Estimated reduction		20%
Ito	Total (original)	$I1 \cdot I2 \cdot I3 \cdot I4 \cdot 2080$	\$49,920

Source: Forrester Research, Inc.

In the case of the reduced risk of data breaches, we assume that the average cost to repair the data leakage equates to \$125 per record. Prior to the investment in privacy solutions, the number of data losses per year equated, on average, to 1,000. The use of data privacy solutions reduces exposure by 80%, resulting in a reduced risk of breach of \$100,000 per year. Table 19 illustrates the calculation used.

Table 19: Reduced Risk Of Breach

Ref.	Metric	Calculation	Value
J1	Average cost to repair data leakage		\$125
J2	Number of data losses		1,000
J3	Reduced exposure		80%
Ito	Total (original)	$J1 \cdot J2 \cdot J3$	\$100,000

Source: Forrester Research, Inc.

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Total Benefits

Table 20 illustrates the total three-year benefits as a result of the migration to the IBM Optim solution. Most benefits are reduced by 50% in the first year of analysis to factor in the time of planning, testing, and implementation of the Optim solution. Customers noted actual implementation time was three to four months. The total present value of the benefits equates to roughly \$2.4 million.

Table 20: Total Benefits

Benefits	Year 1	Year 2	Year 3	Total	Present Value
Storage cost efficiency	131,760	82,350	102,938	317,048	265,178
Server refresh savings	44,000	88,000	88,000	220,000	178,843
Cost efficiency — decommissioning	135,000	135,000	135,000	405,000	335,725
Improved DBA efficiency	44,928	98,842	108,726	252,495	204,218
Improved application performance — end user impact	160,000	320,000	320,000	800,000	650,338
Improved productivity — QA	49,920	99,840	99,840	249,600	202,905
Improved productivity — development	74,880	149,760	149,760	374,400	304,358
Improved time-to-market — application deployment	2,600	5,200	5,200	13,000	10,568
Improved productivity — audit and compliance	24,960	49,920	49,920	124,800	101,453
Reduced risk of breach	50,000	100,000	100,000	250,000	203,231
Total	\$718,048	\$1,128,912	\$1,159,383	\$3,006,343	\$2,456,818

Source: Forrester Research, Inc.

Risk

Forrester defines two types of investment risk associated with this analysis: implementation and impact risk. **Implementation risk** is the risk that a proposed technology investment may deviate from the original resource requirements needed to implement and integrate the investment, resulting in higher costs than anticipated. **Impact risk** refers to the risk that the business or technology needs of the organization may not be met by the technology investment, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates. Quantitatively capturing investment risk by directly adjusting the financial estimates results in more meaningful and accurate estimates and a more accurate projection of the ROI.

The following implementation risks are identified as part of this analysis:

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- Installation and testing could demand more time than originally anticipated.
- Timeliness of having to provide specific functionality to meet business requirements exists.
- Acquisition costs could be higher than originally anticipated for hardware and software.

The following impact risks are identified as part of the analysis:

- The amount of development savings may be lower than originally anticipated due to the time it takes to train and move to an integrated environment.

Steps For Measuring Investment Risk

Risk factors are used in TEI to widen the possible outcomes of the costs and benefits (and resulting savings) associated with a project. TEI applies a probability density function known as triangular distribution to the values entered. At a minimum, three values are calculated to estimate the underlying range around each cost and benefit estimate. The expected value — the mean of the distribution — is used as the risk-adjusted cost or benefit number. The risk-adjusted costs and benefits are then summed to yield a complete risk-adjusted summary and ROI. In this study, Forrester discovered that engaging with IBM was a relatively low-risk endeavor, as expressed by the interviewed organizations, and we applied a risk factor of 100% to the costs and 98% to the benefits to arrive at a risk-adjusted number. Table 21 provides a risk-adjusted breakdown of the costs incurred. Table 22 provides a risk-adjusted breakdown of the benefits received.

Table 21: Risk Adjustment, Costs

Cash-Flow Analysis (Original Estimates)						
Costs	Initial	Year 1	Year 2	Year 3	Total	Present Value
Software license fees	(450,000)				(450,000)	(450,000)
Software maintenance		(90,000)	(90,000)	(90,000)	(270,000)	(223,817)
Implementation costs	(60,000)				(60,000)	(60,000)
Professional fees	(25,000)				(25,000)	(25,000)
Training fees	(6,000)				(6,000)	(6,000)
Administrative costs		(45,000)	(45,000)	(45,000)	(135,000)	(111,908)
Total	(\$541,000)	(\$135,000)	(\$135,000)	(\$135,000)	(\$946,000)	(\$876,725)

Source: Forrester Research, Inc.

Table 22: Risk Adjustment, Benefits

Benefits	Year 1	Year 2	Year 3	Total	Present Value
Storage cost efficiency	87,782	54,864	68,580	211,226	176,669
Server/processor refresh	36,432	72,864	72,864	182,160	148,082
Cost efficiency — decommissioning	135,000	135,000	135,000	405,000	335,725
Improved DBA management efficiency	38,998	85,795	94,374	219,166	177,261
Improved application performance — end user impact	150,027	300,053	300,053	750,133	609,800
Improved productivity — QA	46,808	93,617	93,617	234,042	190,258
Improved productivity — development	70,212	140,425	140,425	351,062	285,387
Improved time-to-market — application deployment	2,438	4,876	4,876	12,190	9,909
Improved productivity — audit and compliance	23,404	46,808	46,808	117,021	95,129
Reduced risk of breach	46,883	93,767	93,767	234,417	190,563
Total	\$637,985	\$1,028,068	\$1,050,364	\$2,716,417	\$2,218,783

Source: Forrester Research, Inc.

Flexibility

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some future additional investment. Flexibility would also be quantified when evaluated as part of a specific project (and is described in more detail in Appendix A).

- Satisfy Information Governance Requirements – For several of the organizations interviewed, the use of Optim coupled with an effective data management strategy allowed them to realize flexibility in meeting governance requirements. One feature in particular, the ability to mask or transform data allowed organizations to set policies once and the benefits would be realized over time throughout the organization.
- Simplify IT Infrastructure - Reducing the complexity of the organizations IT assets was another long term goal cited by several organizations. Having the flexibility to optimize utilization of resources while being able to provide access to different data stores and

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applications, allowed organizations to better plan and predict their IT resources into the future.

- Increase the Business Value of Enterprise Applications- In addition to reducing operational costs by better predicting resource demand, organizations noted the ability of Optim to help IT meet existing application service levels.

While Forrester believes that organizations purchasing IBM Optim and using it in combination with an effective enterprise data management strategy can take advantage of these flexibility options, quantification (using the financial-industry-standard Black-Scholes or the binomial option pricing models) of the additional value associated with these options for this customer would require scenario development and forward-looking analysis that is not available at this time.

The value of flexibility is unique to each organization, and the willingness to measure its value varies from company to company (see Appendix A for additional information regarding the flexibility calculation).

TEI Framework: Summary

Considering the financial framework constructed above, the results of the costs, benefits, risk, and flexibility sections using the representative numbers can be used to determine a return on investment, net present value, and payback period. Table 23 shows the consolidation of the numbers for the composite organization.

Table 23: Cash-Flow Summary – Risk-Adjusted

	Initial	Year 1	Year 2	Year 3	Total	NPV
Total costs	(\$541,000)	(\$135,000)	(\$135,000)	(\$135,000)	(\$946,000)	(\$876,725)
Total benefits		\$637,985	\$1,028,068	\$1,050,364	\$2,716,417	\$2,218,783
Total	(\$541,000)	\$502,985	\$893,068	\$915,364	\$1,770,417	\$1,342,058
Return on investment	153%					
Payback period	1.0					

Source: Forrester Research, Inc.

It is important to note that the values used throughout the TEI Framework are based on in-depth interviews with four organizations and the resulting composite organization built by Forrester. Forrester makes no assumptions as to the potential return that other organizations will receive within their own environment. Forrester strongly advises that readers use their own estimates within the framework provided in this study to determine the expected financial impact of implementing Optim solutions.

Study Conclusions

Forrester's in-depth interviews with Optim customers yielded several important observations:

- Based on information collected in interviews with current Optim solutions customers, Forrester found that organizations can realize benefits in the form of improved operational and capital cost savings, improved IT and end user efficiency, as well as higher levels of data protection and application performance.
- Of the customers interviewed, several factors contributed to the difference in ROIs. These factors included the amount of data archived away from the production environment, the number of applications decommissioned, the type of existing legacy applications used to manage the data life cycle, as well as the potential exposure from data privacy breaches.

The financial analysis provided in this study illustrates the potential way an organization can evaluate the value proposition of Optim solutions. Based on information collected in four in-depth customer interviews, Forrester calculated a three-year risk-adjusted ROI of 153% for the composite organization with a payback period of 1.0 years. All final estimates are risk-adjusted to incorporate potential uncertainty in the calculation of costs and benefits.

Based on these findings, companies looking to implement Optim solutions can see cost savings and productivity benefits. Using the TEI framework, many companies may find the potential for a compelling business case to make such an investment.

Appendix A: Total Economic Impact™ Overview

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

The TEI methodology consists of four components to evaluate investment value: benefits, costs, risks, and flexibility. For the purpose of this analysis, the impact of flexibility was not quantified.

Benefits

Benefits represent the value delivered to the user organization — IT and/or business units — by the proposed product or project. Often product or project justification exercises focus just on IT cost and cost reduction, leaving little room to analyze the effect of the technology on the entire organization. The TEI methodology and the resulting financial model place equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization. Calculation of benefit estimates involves a clear dialogue with the user organization to understand the specific value that is created. In addition, Forrester also requires that there be a clear line of accountability established between the measurement and justification of benefit estimates after the project has been completed. This ensures that benefit estimates tie back directly to the bottom line.

Costs

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs in the forms of fully burdened labor, subcontractors, or materials. Costs consider all the investments and expenses necessary to deliver the proposed value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing costs associated with the solution. All costs must be tied to the benefits that are created.

Risk

Risk measures the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: the likelihood that the cost and benefit estimates will meet the original projections and the likelihood that the estimates will be measured and tracked over time. TEI applies a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the underlying range around each cost and benefit.

Flexibility

Within the TEI methodology, direct benefits represent one part of the investment value. While direct benefits can typically be the primary way to justify a project, Forrester believes that organizations should be able to measure the strategic value of an investment. Flexibility represents the value that can be obtained for some future additional investment building on top of the initial investment already made. For instance, an investment in an enterprisewide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, an embedded collaboration feature may translate to greater worker productivity if activated. The collaboration can only be used with additional investment in training at some future point in time. However, having the ability to capture that benefit has a present value that can be estimated. The flexibility component of TEI captures that value.

Appendix B: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Although the Federal Reserve Bank sets a discount rate, companies often set a discount rate based on their business and investment environment. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult their organization to determine the most appropriate discount rate to use in their own environment.

Net present value (NPV): The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

Present value (PV): The present or current value of (discounted) cost and benefit estimates given an interest rate (the discount rate). The PV of costs and benefits feed into the total net present value of cash flows.

Payback period: The breakeven point for an investment. The point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Return on investment (ROI): A measure of a project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.

A Note On Cash Flow Tables

The following is a note on the cash flow tables used in this study (see the Example Table below). The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1. Those costs are not discounted. All other cash flows in Years 1 through 3 are discounted using the discount rate shown in Table 2 at the end of the year. Present value (PV) calculations are calculated for each total cost and benefit estimate. Net present value (NPV) calculations are not calculated until the summary tables and are the sum of the initial investment and the discounted cash flows in each year.

Example Table

Ref.	Category	Calculation	Initial cost	Year 1	Year 2	Year 3	Total

Source: Forrester Research, Inc.