A Forrester Total Economic Impact™ Study Prepared For IBM

Measuring The Total Economic Impact Of IBM InfoSphere Information Server

Multicompany Case Study

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TABLE OF CONTENTS

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Executive Summary

In August 2010, IBM commissioned Forrester Consulting to examine the total economic impact and potential return on investment (ROI) enterprises may realize by deploying IBM InfoSphere Information Server as part of their overall information architecture integration strategy. InfoSphere Information Server is a data integration platform that helps organizations understand, cleanse, transform, and deliver trusted information for critical business initiatives across the enterprise. InfoSphere Information Server is designed to support heterogeneous IT environments with a wide range of projects such as enterprise application consolidation, business intelligence, enterprise data warehousing, data governance, and master data management to ultimately unlock the value of trusted information across the enterprise. For more information about InfoSphere Information Server, please see page 25.

This study illustrates the financial impact of adopting InfoSphere Information Server, which includes capabilities to:

- Understand your information with InfoSphere Foundation Tools for data discovery, designing optimal data structures, and governing data over time
- Cleanse information with InfoSphere QualityStage for clear identification and matching of duplicate or redundant information
- Transform information with InfoSphere DataStage for efficient ETL (extract, transform, and load) functions between multiple platforms and targets
- Deliver information with InfoSphere Change Data Capture for the low impact capture and timely delivery of data changes across the enterprise
- Re-usable, repeatable connectivity to enterprise applications with InfoSphere Information Server Packs

For this analysis, Forrester examines the impact of these integrated products on both IT and business processes within a US-based global services-based organization.

InfoSphere Information Server Improves Efficiency and Access to Trusted Data Leading to More Agile and Confident Decision Making

Our interviews with four InfoSphere Information Server customers and subsequent financial analysis found that a representative organization based on these companies we interviewed experienced the risk-adjusted ROI, costs, and benefits shown in Table 1. See Appendix A for a description of the representative organization.

Table 1
Representative Organization — Six-Year Risk-Adjusted ROI[1]

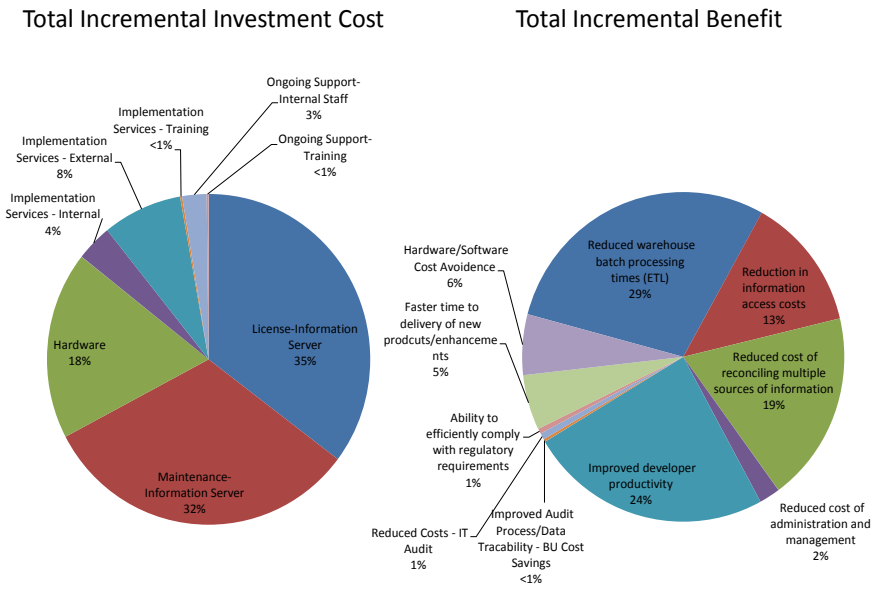
ROI	Payback period	Total benefits (PV)	Total costs (PV)	Net present value (NPV)
123%	23 months	$9,791,587	$4,382,727	$5,408,860

Source: Forrester Research, Inc.

- **Benefits.** The representative organization experienced the following benefits that represent those noted by the interviewed companies:
  - Faster delivery of trusted actionable information.
  - Reduced risk to existing business processes.
  - Improved efficiency of IT data integration processes through higher data quality.

  These benefits helped contribute to increased agility and confidence in the organization's decision making capabilities.
- **Costs.** The representative organization experienced the following investment costs in moving to the InfoSphere Information Server platform:
  - Incremental cost of software and hardware.
  - Incremental services cost.
  - Incremental cost of support.

Figure 1
Total Incremental Costs And Benefit Breakdown



(percentages do not total 100 because of rounding)

Source: Forrester Research, Inc.

Factors Affecting Benefits And Costs

Table 1 illustrates the risk-adjusted financial results that were achieved by the representative organization. The risk-adjusted values take into account any potential uncertainty or variance that exists in estimating the costs and benefits, which produces more conservative estimates. The following factors may affect the financial results that an organization may experience:

- Speed to adopt and migrate away from manual to automated process.
- Development savings may be lower than originally anticipated due to the time it takes to train and move to an integrated environment.
- Realization of benefits may be delayed due in part to testing and retirement of legacy systems.

Disclosures

The reader should be aware of the following:

- The study is commissioned by IBM and delivered by the Forrester Consulting group.
- Forrester makes no assumptions as to the potential ROI 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 InfoSphere Information Server.
- 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.

TEI Framework And Methodology

Introduction

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ framework for those organizations considering implementing InfoSphere Information Server. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision.

Approach And Methodology

Forrester took a multistep approach to evaluate the impact that InfoSphere Information Server can have on an organization (see Figure 2). Specifically, we:

- Interviewed IBM marketing/sales/ product management personnel and Forrester analysts to gather data relative to InfoSphere Information Server and the marketplace for InfoSphere Information Server.
- Interviewed four organizations currently using InfoSphere Information Server to obtain data with respect to costs, benefits, and risks.
- Designed a representative organization based on characteristics of the interviewed organizations (see Appendix A).
- Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interviews as applied to the representative organization.

Figure 2
TEI Approach

Source: Forrester Research, Inc.

Forrester employed four fundamental elements of TEI in modeling IBM InfoSphere Information Server's service:

- Costs.
- Benefits to the entire organization.
- Flexibility.

- Risk.

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

Analysis

Interview Highlights

A total of four interviews were conducted for this study, involving representatives from the following companies (IBM customers based in the US and Europe). As part of the analysis, Forrester agreed to customer anonymity, which is typical for these types of multi-company case studies:

- A global consumer products company based in the US with approximately 23,000 employees. The organization is using InfoSphere solutions Information Server for data migration, cleansing, and auditing as part of an enterprise-wide effort for a global consolidation on to SAP.
- A Europe-based communications provider of mobile broadband services with roughly 6 million customers. The organization is using InfoSphere Information Server to consolidate and standardize data management across several siloed departments.
- A Europe-based financial services organization using Information Server to improve overall data quality and enhance overall governance with metadata identification and tracking tools.
- A North American healthcare provider with over 70 billion in annual revenue. The organization uses InfoSphere Information Server to improve data integration and data quality as part of an overall business transformation initiative to consolidate various source SAP systems onto a common data platform.

The four interviews uncovered several common themes that ultimately drove the analysis:

- All organizations saw information management as a critical, long-term challenge, requiring a long-term strategic solution to meet the increasing demands of accessing structured information while driving cost efficiencies within data, migrations, integration and management.
- Organizations noted that improving information management required a unified investment in people, process, and technology to drive success. As a result, most organizations saw the investment from a five- to ten-year time horizon to measure the gains across the organization.
- Prior to their investment in a long-term information management strategy, organizations struggled with the need to bring multiple sources of accurate structured information together and provide accurate and actionable information across the organization. Information access was not seen as reliable, and the process to retrieve and act on information was costly and time-consuming.

- The introduction of InfoSphere Information Server gave organizations the ability to reconcile multiple sources of information, reduce the cost of access and delivery of information, and provide the organization with the means to improve the decision-making capabilities both internally and externally to the organization.
- The investment in InfoSphere Information Server was also coupled with the need to create a flexible and scalable platform moving forward to better react to the rapid growth in structured data. Prior to the investment, organizations noted that they were at a serious disadvantage in being able to proactively plan for and provide the resources to react to the growth in information.
- All organizations saw the growing need to effectively respond to increasing demands for accurate and trusted data from multiple constituents, including regulators, business users, clients, and partners. As a result, organizations saw the need for trusted and actionable data allowing the organization to keep the partners and consumers satisfied, with increasing demands from internal employees.

Representative Organization

For this TEI study, Forrester has created a representative organization to illustrate the quantifiable costs and benefits of implementing InfoSphere Information Server. The representative company is intended to represent a global services organization with 15,000 employees and is based on characteristics of the interviewed customers.

The data integration for the representative company has the following characteristics:

- Prior to the investment in InfoSphere Information Server, the organization had primarily a mainframe infrastructure environment with distributed data centers over eight locations within North America and Europe. The primary enterprise-wide data-driven applications supported by the IT organization included SAP for financial, ERP, and HR functions; a legacy CRM platform that the organization planned to integrate into the existing SAP infrastructure; as well as several custom applications for billing and customer management.
- Over the past 10 years, the organization had grown primarily through the acquisition of companies. As a result, the IT organization had been struggling to integrate different data environments around a single data governance strategy. Most of the basic ETL functions were performed manually, involving high levels of FTE time and long batch windows. Data duplication and inconsistencies within individual data warehouses had grown with the growth of application data.
- The level of structured data is expected to grow by 30% to 50% per year based on the prior year's growth. At the time of the investment in InfoSphere Information Server, the organization estimated it had 30 TB of structured data under management across both SAP and non-SAP applications.
- The growth in data was correlated with increasing demands on application development staff. At the time of the investment in InfoSphere Information Server, the organization had roughly 25 application development staff located in North America and offshore. The organization is hiring at a rate of two FTEs per year to keep up with increasing demand.

Framework Assumptions

Table 2 provides the model assumptions that Forrester used in this analysis.

Table 2
Model 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.

The discount rate used in the PV and NPV calculations is 10%, and time horizon used for the financial modeling is six years. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with their respective company's finance department to determine the most appropriate discount rate to use within their own organizations.

Costs

This section highlights the incremental cost impact to the representative organization from the investment in IBM InfoSphere Information Server. These costs include the incremental cost to purchase and run the solution as well as the implementation training.

- Incremental cost of increasing investment in IBM InfoSphere Information Server:
  - $1,760,000— InfoSphere Information Server software licensing fees.
  - $1,608,000: annual software maintenance over 5 years (approx 20% of license).
  - $590,000: cost of implementation.
  - $925,002: cost of hardware.
- Incremental cost of administration and training: $130,000.

Total Costs

Table 3 illustrates the total incremental costs of InfoSphere Information Server for the interviewed organization.

Table 3
Total Costs — Non-Risk-Adjusted

	Initial cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
License — InfoSphere Information Server	$400,000	$1,120,000	$240,000					$1,760,000
Maintenance — InfoSphere Information Server			$200,000	$352,000	$352,000	$352,000	$352,000	$1,608,000
Hardware	$475,000	$0	$90,000	$90,000	$90,000	$90,000	$90,000	$925,000
Implementation services — internal	$90,000	$90,000	$0	$0	$0	$0	$0	$180,000
Implementation services — external	$200,000	$200,000	$0	$0	$0	$0	$0	$400,000
Implementation services — training	$10,000	$0	$0	$0	$0	$0	$0	$10,000
Ongoing support — internal staff	$0	$120,000	$0	$0	$0	$0	$0	$120,000
Ongoing support — training	$0	$10,000	$0	$0	$0	$0	$0	$10,000
Total costs	$1,175,000	$1,540,000	$530,000	$442,000	$442,000	$442,000	$442,000	$5,013,000

Source: Forrester Research, Inc.

Benefits

The second component of this analysis looks at the potential benefits associated with an organization investing in different components of the InfoSphere Information Server platform. As a result of the interview process, the representative organization indicated that it received benefits from across the organization associated with the migration to the InfoSphere Information Server.

Reduced Warehouse Batch Processing Times to Improve Organizational Productivity

One area of benefit noted by several interviewed organizations was around the reduction in warehouse batch processing times resulting from the use of Information Server's ETL capabilities (InfoSphere DataStage) coupled with its capabilities for understanding data (InfoSphere Foundation Tools), real-time delivery of data (InfoSphere Change Data Capture), and application connectivity (InfoSphere Information Server Packs for SAP) to drive overall efficiency in reducing the batch window process. One organization noted that it had begun to hit its limits with regard to stability and performance within manual coding and development within their legacy mainframe environment. The company's

weekly batch processing was taking 15 to 45 hours and was very unstable, requiring a lot of on-call supervision. The length of the batch window and the lack of stability affect IT operations and support staff and increase the cost of processing structured data. With InfoSphere Information Server, the organization noted that it was able to reduce warehouse update batch processing times significantly. The stability of the environment and job maintenance improved significantly, eliminated the need to "alter" generated code, and allowed the organization to take on more processing-intensive data-integration tasks to help increase their overall productivity.

To calculate this benefit, we assume that the organization completes, on average, 150 batch runs per year within the SAP environment and 125 batch runs for other applications with an average batch processing time of 30 hours. If we assume the hourly operational cost associated with the run equates to $300 per hour, we can calculate the cost associated with batch processing prior to the investment in InfoSphere Information Server. Based on the findings from the interviews, we estimate a 30% annual reduction in average processing time, resulting in an annual savings of $405,000 within the SAP environment and $337,500 for other application data. Tables 4 and 5 illustrate the calculation used.

Table 4
Reduced Warehouse Batch Processing Times — SAP, Non-Risk-Adjusted

Ref.	Description	Calculation	Value
A1	Estimated number of batch runs — SAP		150
A2	Average batch processing time (hours)		30
A3	Cost per hour		$300
A4	Estimated improvement		30%
A5	Estimated annual savings	A1*A2*A3*A4	$405,000

Source: Forrester Research, Inc.

Table 5
Reduced Warehouse Batch Processing Times — Non-SAP, Non-Risk-Adjusted

Ref.	Description	Calculation	Value
A1	Estimated number of batch runs — non-SAP		125
A2	Average batch processing time (hours)		30
A3	Cost per hour		$300
A4	Estimated improvement		30%
A5	Estimated annual savings	A1*A2*A3*A4	$337,500

Source: Forrester Research, Inc.

Reduction in *Information Access Costs to Expedite Results to End Users*

Another benefit uncovered during the interview process resulting from the use of InfoSphere Information Server's understand and transform capabilities (InfoSphere Foundation Tools, InfoSphere DataStage) was around reduced information access costs. A common driver for choosing InfoSphere Information Server for data integration was the ability to search and uncover information from multiple sources of structured data. Prior to the migration to InfoSphere Information Server, the time it took to perform complex queries on structured data was prohibitive and, in many cases, did not yield the data the end user organization was expecting. By having a more automated data integration process, an organization that performs multiple types of queries on its existing data reduces the time it takes to perform queries on data and the impact on the end user.

To calculate this benefit, we assume that the organization has, on average, 7,500 access queries for existing structured data. Roughly 30% of those queries are classified as extended queries or those that require information from multiple siloed locations. Assuming that the time it takes to perform an extended query is 1 hour, and the cost per hour is $300, we can calculate the current cost to perform extended queries. As a result of an investment in InfoSphere Information Server, the time it takes to perform extended queries is reduced, resulting in a 50% cost savings in performing extended queries. Table 6 illustrates the calculation used.

Table 6
Reduction In Information Access Costs — Non-Risk-Adjusted

Ref.	Description	Calculation	Value
B1	Number of access queries		7,500
B2	Percent of extended queries		30%
B3	Average length of extended queries (hours)		1
B4	Cost per hour		$300
B5	Estimated time reduction		50%
B6	Estimated savings	B1*B2*B3*B4*B5	$337,500

Source: Forrester Research, Inc.

Reduced Cost Of Reconciling Multiple Sources Of Information to Increase Accuracy and Trustworthiness of the Data

In addition to the time to perform complex queries, another area of efficiency benefit noted by organizations was the reduction in time it took to reconcile multiple sources of information for the end user environment. Prior to the investment in InfoSphere Information Server, the end user organization was responsible for having to reconcile conflicting sources of information, increasing the time and cost it takes to deliver the most accurate information available.

To calculate this benefit, we assume that roughly twelve FTEs are responsible for reconciling multiple sources of information. After the introduction of InfoSphere Information Server, the process of identifying and reconciling disparate sources of information was made easier, assuming a 40% reduction in the number of FTEs. Table 7 illustrates the calculation used.

Table 7
Reduced Cost Of Reconciling Multiple Sources Of Information — Non-Risk-Adjusted

Ref.	Description	Calculation	Value
C1	Annual FTE		12
C2	Annual salary		$100,000
C3	Estimated reduction		40%
C4	Total benefits	C1*C2*C3	$480,000

Source: Forrester Research, Inc.

Reduced Cost Of Administration And Management

Another recurring theme from each of the organizations interviewed was the rapid rise in structured and unstructured data that results in a steady increase of the cost to manage and administer the data environment. This would include the cost of IT operations and administration associated with having to manage the rapid growth of structured data, as well as the cost of planning and reconciling multiple sources of information. Organizations noted that the use of InfoSphere Information Server's understand, cleanse, transform, and deliver capabilities (InfoSphere Foundation Tools, InfoSphere QualityStage, InfoSphere DataStage, InfoSphere Change Data Capture) allowed for reduced administration costs across the data life cycle, specifically around reconciling of multiple sources of disparate data.

To calculate this benefit, we assume that prior to InfoSphere Information Server, roughly five FTEs spend 30% senior administration time for data reconciliation. Assuming a fully burdened annual salary of $120,000, we can calculate savings assuming a 30% time reduction. Table 8 illustrates the calculation used.

Table 8
Reduced Cost Of Administration And Management — Non-Risk-Adjusted

Ref.	Description	Calculation	Value
D1	Total senior FTE		5
D2	Percent of time spent for managing data reconciliation		30%
D3	Annual salary		$120,000
D4	Estimated reduction		30%
D5	Total savings	D1*D2*D3*D4	$54,000

Source: Forrester Research, Inc.

Improved Developer Productivity

In discussions with the interviewed organization, the organization noted that the migration to InfoSphere Information Server allowed for developers to become more efficient by leveraging reuse of connectivity and transformation objects, reducing the overall cost of project deployment. Cost reduction was one of the key drivers for the organization in migrating to the new platform; it recognized that continuing to use custom development was much more costly as the organization migrated away from the mainframe environment for its core systems. The organization noted that it had realized a 30% reduction in development costs as a result of migrating to InfoSphere Information Server.

To calculate this benefit, we assume that the organization has allocated 25 developers to work involving data integration with, on average, 30 projects per year, with an annual salary of $100,000. Based on the interviews with InfoSphere Information Server customers, we can assume an improvement in developer productivity resulting in an estimated 25% reduction in cost. Table 9 illustrates the calculation used.

Table 9
Improved Developer Productivity — Non-Risk-Adjusted

Ref.	Description	Calculation	Value
E1	Total FTE resources — development		25
E2	Total number of development projects		30
E3	Annual salary		$100,000
E4	Estimated reduction		25%
E5	Total savings	E1*E3*E4	$625,000

Source: Forrester Research, Inc.

Legacy Platform Cost Savings through Standardization on a Single Data Integration Platform

In addition to savings on capital costs of hardware, several organizations noted that migrating to and consolidating multiple legacy platforms around a single IBM platform allowed the organization to achieve economies of scale across different aspects of the data life cycle. Meanwhile, this is offset by an increase in the lower total technology cost of ownership by leveraging standard technology investments across multiple projects.

To calculate this benefit, the model assumes that the impact of standardizing on the InfoSphere Information Server platform allows the representative organization to consolidate disparate departmental licenses as well as replace existing legacy point solutions within the environment, leading to a reduction in annual maintenance costs. The model assumes a 60% reduction in the annual spend due to replacement of data integration point solutions with the InfoSphere Information Server platform. Table 10 illustrates the calculation used.

Table 10
Legacy Platform Cost Savings — Non-Risk-Adjusted

Ref.	Description	Calculation	Value
F1	Annual license and hardware spend		$280,000
F2	Estimated reduction		60%
F3	Annual savings	F1*F2	$168,000

Source: Forrester Research, Inc.

Improved Audit Process/Data Traceability to Increase Process Efficiency and Data Governance

InfoSphere Information Server provided many of the organizations with help in understanding the complexity and impact of making changes to the data integration process. In particular, the use of its capabilities in understanding data (InfoSphere Foundation Tools) was critical in reducing the time and effort to manage and document common business terminology and understand the traceability of data sources. Prior to the investment in InfoSphere Information Server, several organizations maintained business metadata in Excel spreadsheets. Keeping these spreadsheets up to date and reflective of the current state of the business was costly and time-consuming for IT and end user auditability requirements.

In order to improve the auditability and traceability, InfoSphere Information Server's capabilities for understanding data (InfoSphere Business Glossary, which is an element of InfoSphere Foundation Tools) was cited as a key component in allowing the organization to manage and track document complexity within its environment. Specific key performance indicators (KPIs) are documented through the use of InfoSphere Information Server, whereas before, KPI information was stored without a standardized process. Documenting these helps business and IT have a shared understanding of the environment. Furthermore, the ease of use of this tool makes its exposure to business users very simple, and therefore, the organization is planning to have its governance committees involved in the quarterly checkpoints.

To measure the impact of this benefit, the model specifically focuses on the improved process efficiency of traceability and audit within data integration projects. Prior to the investment in InfoSphere Information Server, the process of documenting and communicating key KPIs internally and externally was time-consuming and prone to multiple interactions across individual subject matter experts, business and data analysts, as well as IT architects. This information was kept in different documents, which made it hard to maintain. With the use of InfoSphere Information Server, the representative organization reduced the overall cost of administration and management of business metadata and KPIs, and the overhead associated with educating users about these terms and their relationship to the underlying technical assets. Tables 11 and 12 illustrate the different metrics used to drive these benefits.

Table 11

Improved Audit Process/Data Traceability — Business Unit Cost Savings, Non-Risk-Adjusted

Ref.	Description	Calculation	Value
G1	Number of staff		15
G2	Cost per staff (hourly)		$80
G3	Baseline hours		40
G4	Percent improvement		15%
G5	Total savings	G1*G2*G3*G4	$7,200

Source: Forrester Research, Inc.

Table 12
Reduced Costs — IT Audit, Non-Risk-Adjusted

Ref.	Description	Calculation	Value
H1	Number of staff		50
H2	Cost per staff (hourly)		$60
H3	Baseline hours		60
H4	Percent improvement		10%
H5	Total savings	H1*H2*H3*H4	$18,000

Source: Forrester Research, Inc.

Ability To Efficiently Comply With Regulatory Requirements to Alleviate Legal Investigation Costs

In addition to improving the efficiency of overall data discovery, several organizations noted the positive impact on the speed to comply with regulatory requests for information. Organizations noted that legal discovery investigations were expensive and time-consuming, increasing the cost of discovery with the growth of structured and unstructured information.

To calculate this benefit, we assume that the organization currently has roughly eight FTEs responsible for providing compliance and regulatory data to external sources. Based on the discussions within interviewed organizations, we assume that each FTE can save roughly 10% of their time, or a total of 250 hours, as a result of being able to search for unstructured content. Assuming the cost per hour is $50, we can calculate the total savings resulting from improved discovery around regulatory requirements. Table 13 illustrates the calculation used.

Table 13
Ability To Efficiently Comply With Regulatory Requirements — Non-Risk-Adjusted

Ref.	Description	Calculation	Value
I1	Number of hours saved		250
I2	Cost per hour		$50
I3	Total savings	I1*I2	$12,500

Source: Forrester Research, Inc.

Faster Time-To-Delivery Of Trusted Information To Reduce Time-to-Market for New and Existing Products or Services

In addition to efficiency improvements, a final theme noted by interviewed organizations was the use of InfoSphere Information Server to deliver trusted actionable information to end business customers. In particular, the use of InfoSphere Information Server's understand and cleanse capabilities (InfoSphere Foundation Tools and InfoSphere QualityStage) allowed organizations to identify key discrepancies with disparate sources of information.

To calculate this benefit, the model assumes that, historically, the time it takes to ramp up the development teams on a data integration project is six months. The representative organization assumes that the time difference to deploy in a standardized versus non-standardized environment equates to a 30% savings. Based on these assumptions, we can calculate the time-to-market savings by being able to take advantage of faster access for both new products and existing products. Table 14 illustrates the calculation used.

Table 14

Faster Time-To-Delivery Of Trusted Information — Non-Risk-Adjusted

Ref.	Description	Calculation	Value
J1	Number of departments		6
J2	Percent of departments involved in product rollout		40%
J3	Average product per department		1
J4	Baseline cost of go-to-market		$400,000
J5	Baseline cost — enhancements		$160,000
J6	Baseline time, go-to-market — new product (months)		6
J7	Baseline time, go-to-market — enhancements (months)		3
J8	Average annual return — new products		60%
J9	Average annual return — enhancements		30%
J10	Estimated improvement in time		30%
J11	Total savings — new products		$115,200
J12	Total savings — enhancements		$37,440
J13	Total savings		$152,640

Source: Forrester Research, Inc.

Total Benefits

Table 15 illustrates the total six-year benefits as a result of the migration to the InfoSphere Information Server platform. The total benefits equates to roughly $14.1 Million ($9.9 million in PV terms).

Table 15

Total Benefits — Non-Risk-Adjusted

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Reduced warehouse batch processing times (ETL)	$371,250	$742,500	$742,500	$742,500	$742,500	$742,500	$4,083,750
Reduction in information access costs	$168,750	$337,500	$337,500	$337,500	$337,500	$337,500	$1,856,250
Reduced cost of reconciling multiple sources of information	$240,000	$480,000	$480,000	$480,000	$480,000	$480,000	$2,640,000
Reduced cost of administration and management	$27,000	$54,000	$54,000	$54,000	$54,000	$54,000	$297,000
Improved developer productivity	$312,500	$625,000	$625,000	$625,000	$625,000	$625,000	$3,437,500
Improved audit process/data traceability — BU cost savings	$3,600	$3,600	$7,200	$7,200	$7,200	$7,200	$36,000
Reduced costs — IT audit	$9,000	$9,000	$18,000	$18,000	$18,000	$18,000	$90,000
Ability to efficiently comply with regulatory requirements	$9,375	$12,500	$12,500	$12,500	$12,500	$12,500	$71,875
Faster Time-To-Delivery Of Trusted Information	$76,320	$76,320	$152,640	$152,640	$152,640	$152,640	$763,200
Legacy Platform Cost Savings	$84,000	$84,000	$168,000	$168,000	$168,000	$168,000	$840,000
Total benefits	***$1,301,795***	***$2,424,420***	***$2,597,340***	***$2,597,340***	***$2,597,340***	***$2,597,340***	***$14,115,575***

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. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to implement InfoSphere Information Server and later realize additional uses and business opportunities. Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix B).

Several organizations noted the ability to choose key components of InfoSphere Information Server to match the products and services to the needs of the organization. While the bulk of this analysis illustrates the direct costs and benefits from an investment in InfoSphere Information Server, organizations may choose to model the investment as a set of flexibility options that could be leveraged over time.

Risk

Forrester defines two types of risk associated with this analysis: implementation risk and impact risk. "Implementation risk" is the risk that a proposed investment in InfoSphere Information Server may deviate from the original or expected requirements, 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 investment in InfoSphere Information Server, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

Quantitatively capturing implementation and impact risk by directly adjusting the financial estimates results in more meaningful and accurate estimates and a more accurate projection of the ROI. In general, risks affect costs by raising the original estimates, and they affect benefits by reducing the original estimates. The risk-adjusted numbers should be taken as "realistic" expectations, as they represent the expected values considering risk.

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

- Installation and testing for improving data integration takes longer than originally anticipated.
- Acquisition costs could be higher than originally anticipated for InfoSphere Information Server.
- The administrative cost to support the InfoSphere Information Server environment could be higher than originally anticipated.

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

- The amount of structured and unstructured information integrated through InfoSphere Information Server could be lower than originally anticipated.
- Migration of data administration and development staff could take longer than originally anticipated, leading to reduced administration cost savings.
- The amount of excess capacity reclaimed and the level of data growth reduced could be lower than originally anticipated, leading to reduced consolidation savings.

- The effectiveness of timely, trusted data could be lower than originally anticipated, leading to reduced benefits within customer service.
- The quality and usefulness of critical data may be much lower than anticipated, and an additional investment in the cleansing capabilities of InfoSphere Information Server that may impact data quality, such as InfoSphere Server's QualityStage or InfoSphere Information Analyzer modules, or other data quality technologies and services, may be required.

Table 16 shows the values used to adjust for risk and uncertainty in the cost and benefit estimates. The TEI model uses a triangular distribution method to calculate risk-adjusted values. To construct the distribution, it is necessary to first estimate the low, most likely, and high values that could occur within the current environment. The risk-adjusted value is the mean of the distribution of those points. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

Table 16
Cost And Benefit Risk Adjustments

Costs	Low	Most likely	High	Mean
Cost impact — low risk	100%	100%	106%	102%
Cost impact — high risk	100%	100%	112%	104%
Benefits	**Low**	**Most likely**	**High**	**Mean**
Benefit impact — low risk	94%	100%	100%	98%
Benefit impact — high risk	94%	100%	100%	98%

Source: Forrester Research, Inc.

Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

Financial Summary

The financial results calculated in the Costs and Benefits sections can be used to determine the ROI, NPV, and payback period for the organization's investment in InfoSphere Information Server. These are shown in Table 17 below.

Table 17
Cash Flow — Non-Risk-Adjusted

Cash flow — original estimates									
	Initial	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Total**	**PV**
Costs	$1,175,000	$1,540,000	$530,000	$442,000	$442,000	$442,000	$442,000	$5,013,000	$4,279,679
Benefits		$1,301,795	$2,424,420	$2,597,340	$2,597,340	$2,597,340	$2,597,340	$14,115,575	$9,991,416
Net benefits	($1,175,000)	($238,205)	$1,894,420	$2,155,340	$2,155,340	$2,155,340	$2,155,340	$9,102,575	$5,711,737
ROI	133%								
Payback period	22 months								

Source: Forrester Research, Inc.

Table 18 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 16 in the Risk section to the costs and benefits numbers in Tables 3 and 15.

Table 18
Cash Flow — Risk-Adjusted

Cash flow — original estimates									
	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total	PV
Costs	$1,206,500	$1,581,200	$540,600	$450,840	$450,840	$450,840	$450,840	$5,131,660	$4,382,727
Benefits		$1,275,759	$2,375,932	$2,545,393	$2,545,393	$2,545,393	$2,545,393	$13,833,264	$9,791,587
Net benefits	($1,206,500)	($305,441)	$1,835,331	$2,094,553	$2,094,553	$2,094,553	$2,094,553	$8,701,604	$5,408,860
ROI	123%								
Payback period	23 months								

Source: Forrester Research, Inc.

IBM InfoSphere Information Server: Overview

InfoSphere Information Server is a market-leading data integration platform that helps enterprises understand, cleanse, transform, and deliver trusted information to critical business initiatives. The platform provides everything needed to integrate heterogeneous information from across your systems, including capabilities to understand, cleanse, transform, and deliver information governance, data quality, data transformation, and data synchronization capabilities to ensure that information is consistently defined, accurately represented, reliably transformed, and regularly updated on an ongoing basis.

InfoSphere Information Server enables collaboration between business and IT professionals to ensure that strategic initiatives such as business analytics, master data management, application consolidation, and migration projects as well as data warehousing projects utilize trusted information that is accurate, complete, insightful, and available in real time. It is designed to deliver the following key benefits:

- **Aligned business and IT objectives.** Improve alignment between line of business's LOBs' need for complete, accurate, and timely data — upon which they are making critical business decisions — and the IT team's ability to deliver this data in an efficient, cost-effective manner on an ongoing basis.
- **Complete metadata integration and data lineage insight.** Provide insight into the origins and evolution of specific pieces of data to ensure accuracy and confidence of data reliability when used to make business decisions as well as improve reuse.
- **Support for continuous data quality.** Ensure high-quality, complete data on an ongoing basis to respond to constantly changing data and the need for reliable information in downstream applications.
- **Linear scalability and infrastructure optimization.** Grow with your expanding data needs, optimize change management by reducing need to rearchitect, and utilize existing infrastructure.
- **Broad connectivity to nearly all data sources.** Support access to essentially all heterogeneous data sources and major enterprise applications that need to be integrated and used for business decisions.
- **Tools to support developer and business user productivity.** Improve data integration developers' ability to design, execute, and manage a data integration platform quickly, completely, and reliably on an ongoing basis, which also helps support business user productivity.
- **Tools to support acceleration and success of data integration projects.** Accelerate data integration projects and directly capture business requirements while helping establish and enforce enterprise standards for consistency and reuse.

Appendix A: Representative Organization Description

For this TEI study, Forrester has created a representative organization to illustrate the quantifiable costs and benefits of implementing InfoSphere Information Server. The representative company is intended to represent a global services organization with 15,000 employees and is based on characteristics of the interviewed customers.

The data integration for the representative company has the following characteristics:

- **Prior to the investment in IBM InfoSphere Information Server, the organization had primarily a mainframe infrastructure environment with distributed data centers over eight locations within North America and Europe.** The primary enterprisewide data-driven applications supported by the IT organization included SAP for financial, ERP, and HR functions; a legacy CRM platform that the organization planned to integrate into the existing SAP infrastructure; as well as several custom applications for billing and customer management.
- **Over the past 10 years, the organization has grown primarily through the acquisition of companies.** As a result, the IT organization had been struggling to integrate different data environments around a single data governance strategy. Most of the basic ETL functions were performed manually involving high levels of FTE time and long batch windows. Data duplication and inconsistencies within individual data warehouses had grown with the growth of application data.
- **The level of structured data is expected to grow by 30% to 50% per year based on the prior year's growth.** At the time of the investment in InfoSphere Information Server, the organization estimated it had 30 TB of structured data under management across both SAP and non-SAP applications.
- **The growth in data was correlated with increasing demands on application development staff.** At the time of the investment in InfoSphere Information Server, the organization had roughly 25 application development staff located in North America and offshore. The organization is hiring at a rate of two FTEs per year to keep up with increasing demand.

In purchasing InfoSphere Information Server, the representative company has the following objectives:

- **Improve data governance.** The investment in InfoSphere Information Server allowed the organization to gain greater visibility into its existing data assets as well as to standardize on a common set of data integration tools.
- **Improve operational efficiency.** With rapid data growth, the organization struggled with controlling administrative and operational costs around data integration and management. Traditional data integration functions and overall data management were consuming a greater and greater share of senior IT staff, leaving little time to shift from reactive to proactive functions. As a result, costs were increasing while IT staff efficiency was decreasing.
- **Improve the way end users act on information.** Prior to the investment, end users were spending valuable time ensuring that data contained within enterprise applications was the most updated and accurate. Improving data quality and reducing the burden was a key goal in adoption of InfoSphere Information Server.

Appendix B: 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.

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: 1) the likelihood that the cost and benefit estimates will meet the original projections, and 2) 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 C: 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 respective 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 at 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 Framework Assumptions section) 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.

Table [Example]
Example Table

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

Source: Forrester Research, Inc.

Appendix D: Endnotes

[1] Forrester risk-adjusts the summary financial metrics to take into account the potential uncertainty of the cost and benefit estimates. For more information on risk, please see page 22.