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The Total Economic Impact™ Of Migrating To IBM WebSphere Business Integration Server Express

Single Company Analysis — Manufacturing

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Executive Summary

In July 2004, IBM commissioned Forrester Research, Inc. to examine the financial impact and potential return on investment (ROI) an enterprise might realize by integrating IBM WebSphere Business Integration Server Express into their environment. To determine the impact, Forrester examined the specific costs, benefits, flexibility, and risk elements that a European manufacturing organization experienced when it integrated WebSphere Business Integration Server Express into its environment. The organization is a European provider of components to the automotive industry with yearly sales of $140 million and approximately 950 employees.

Purpose

The purpose of this study is to provide readers with a ***framework*** to evaluate the potential financial impact of integrating WebSphere Business Integration Server Express within their own organizations. Forrester's aim is to clearly show all calculations and assumptions that go into the analysis. This study should be seen as a guide to better understand and evaluate the different costs and benefits associated with such an investment.

Methodology

IBM selected Forrester for this project because of its expertise in business integration platforms and Forrester's Total Economic Impact™ (TEI) analysis 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. 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 four-step approach for this study. First, Forrester interviewed IBM marketing and sales personnel to fully understand its value proposition. Second, Forrester conducted in-depth interviews with a representative from a manufacturing organization. Third, Forrester constructed a financial ROI model representative of the data collected in the interview. Fourth, Forrester created this study, which examines the estimated ROI and represents the findings derived from the customer interview and analysis process, as well as Forrester's independent research.

Key Findings

Table 1 represents summary ROI analysis based on data received from the interviewed organization. How these financial metrics are calculated is explained in subsequent sections.

Table 1: Summary Financial Results — Interviewed Organization

Summary financial results	Unadjusted (best case)	Risk-adjusted
ROI	105%	86%
Payback period	5 months	6 months
Total costs (PV)	109,956	112,521
Total cost savings (PV)	225,697	209,146
Total net savings (NPV)	115,741	96,625

Source: Forrester Research, Inc.

Disclosures

The reader should be aware of the following disclosures associated with this study:

- The study is commissioned by IBM and delivered by the Forrester Consulting group.
- IBM and the interviewed organization reviewed and provided feedback to Forrester, but Forrester maintained editorial control over the study and its findings and did not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.
- The customer name for the interview was provided by IBM.
- Forrester makes no assumptions as to the potential ROI that other organizations will receive within their own environment. Forrester strongly advises that the reader use their own estimates within the framework provided in the study to determine the appropriateness using IBM WebSphere Business Integration Server Express.
- This study is not an endorsement by Forrester of IBM or WebSphere Business Integration Server Express.
- The study is not a competitive product analysis.

Brief Description Of IBM WebSphere Business Integration Server Express

According to IBM, WebSphere Business Integration Server Express helps medium businesses quickly and easily integrates their applications to better serve customers, partners, and suppliers. It can be rapidly deployed, can scale as your business grows, can deliver lower total cost of ownership, and is easy to install and use. The following highlights several of the new features/functionalities offered by IBM WebSphere Business Integration Server Express:

1. Business process integration that includes rules-driven transformation, back-end integration, message transformation, and brokering.
2. Easy-to use tools to create and manage complete life cycle of processes.
3. Easy implementation of business logic independent of application specific information.
4. Flexible choice of 23 prepackaged adapters that offer easy connectivity to a wide range of applications.
5. On-ramp process template for rapid implementation of business processes.
6. Improved business agility.
7. Ability to monitor and manage processes for historical analysis using Web-based dashboard.
8. Ability to change and modify processes on the fly.
9. Easy-to-use tools to manage life cycle of business processes, including rules-driven transformation, relationship mapping, and data transformation.

Summary Findings

Developing a TEI model involves a multistep process. First, Forrester interviewed a business unit of a financial services technology provider that had recently migrated away from a Point-to-Point environment toward WebSphere Business Integration Server Express. Data provided by the organization allowed Forrester to project a three-year ROI between 86% to 105%. Forrester used the interview process to understand the distinct cost and value statements that the business unit saw as a result of its upgrade to WebSphere Business Integration Server Express. Forrester then constructed a representative model based on those individual cost and value statements. The representative model makes up the main body of this study and should be used by readers as a guide when determining the ROI for their own organizations.

In discussions with the business unit, several key drivers of benefits were uncovered:

- The migration away from a legacy Point-to-Point solution toward WebSphere Business Integration Server Express allowed the organization to separate query reporting from their existing ERP solution. This provided the organization with improved flexibility and scalability into the future.

- WebSphere Business Integration Server Express provided labor efficiencies around the management of the query reporting system, allowing for reduction in risk and greater access to real-time data.

Description Of Organization

This section illustrates a sample ROI analysis for the interviewed manufacturing organization. This model was created as a result of discussions with the organization to determine the underlying costs and cost savings of migrating to WebSphere Business Integration Server Express. Data contained within this model is based on information received from the interview participant and represents preliminary interview findings. Since this model examines just one customer of IBM, data and the financial ROI should not be seen as validation of the potential return that a given organization may achieve from investing in WebSphere Business Integration Server Express. Organizations must use their own data to determine their own potential return.

The interviewed business unit has the following characteristics:

- The organization is a European manufacturing company that provides components to the manufacturing industry.
- The organization had previously used a Point-to-Point interface to connect its ERP application to disparate databases. The reporting tool was embedded as part of the ERP application.
- In the first part of 2004, the organization saw increasing delays with extraction of business data to the ERP application. In addition, the organization was looking for a way to integrate its HR and procurement functions to the ERP application.

Based on this information, it is possible to construct a financial model that examines the costs and benefits of migrating toward Websphere Business Integration Server Express.

Costs Of Migrating To IBM WebSphere Business Integration Server Express

The costs associated with upgrading to WebSphere Business Integration Server Express were primarily incurred within the IT organization. Costs included license, maintenance, integration, as well as additional server hardware costs around the platform.

The license cost was calculated on a per-processor basis. As the organization purchased WebSphere Business Integration Server Express designed for smaller organizations, the license cost varied considerably from the non-Express product. For the purpose of this analysis, Forrester assumes that the organization purchased a one processor license for WebSphere Business Integration Server Express for roughly $20,000. No discounting is incorporated into this pricing. However, readers can adjust the accurate level of discounting to suit their own unique circumstances.

Table 2: License Cost

Ref.	Metric	Estimate	Calculation	Value
A1	Cost of license (per processor)	$20,000		
A2	Number of processors	1		
A3	Discount applied	0%		
A4	Total cost		A1*A2*(1-A3)	$20,000

Source: Forrester Research, Inc.

In addition to license, the cost of maintenance is another modeled cost. Maintenance is calculated as a yearly percentage of the overall license cost. For the purpose of this analysis, Forrester assumes that the cost of maintenance to be 20%. As with licensing, no discounting is incorporated.

Table 3: Maintenance Cost

Ref.	Metric	Estimate	Calculation	Value
A4	Total license cost	$20,000		
B2	Yearly maintenance	20%		
B3	Discount applied	0%		
B4	Total yearly cost		A4*B2*(1-B3)	$4,000

Source: Forrester Research, Inc.

Another cost incorporated into this is the initial integration cost of the product into the company's environment. In the case of the interviewed customer, integration was performed by a third-party organization. The organization estimated the cost of the original integration was roughly equivalent to the license cost of WebSphere Business Integration Server Express. This cost does not reflect future potential integration costs to tie other applications to the existing WebSphere Business Integration Server Express solution, since this analysis just focuses on the integration of the ERP solution.

Table 4: Integration Cost

Ref.	Metric	Estimate	Calculation	Value
D1	Cost of services	$25,000		
D2	Total cost		D1	$25,000

Source: Forrester Research, Inc.

In addition to direct costs associated with WebSphere Business Integration Server Express, the organization noted that it had to purchase an additional server to run the integration platform. The organization noted that the purchase consisted of a small, one-processor machine running OS/400. Costs for the hardware itself as well as yearly maintenance are included within this model.

For customers where the purchase of the server hardware is separate from the investment in WebSphere Business Integration Server Express, the cost of server hardware may not factor into the overall Return on Investment calculations. Without the inclusion of the server cost into the analysis, the three year ROI would be 304% non risk adjusted and 266% risk adjusted. It is important to note, in the case of the interviewed organization, server costs are included in the final financial analysis.

Table 5: Server Cost

Ref.	Metric	Estimate	Calculation	Value
C1	Per server cost (single processor)	$35,000		
C2	Number of processors	1		
C3	Total server cost		C1*C2	$35,000
C4	Yearly maintenance	20%		
C5	Yearly maintenance cost		C3*C4	$7,000

Source: Forrester Research, Inc.

Total three-year costs are illustrated below.

Table 6: Total Three-Year Cost

Ref.	Category	Initial Investment	Year 1	Year 2	Year 3	Total	PV
A4	License	$20,000				$20,000	$20,000
B4	Maintenance		$4,000	$4,000	$4,000	$12,000	$10,893
C3+C5	Server hardware OS	$35,000	$7,000	$7,000	$7,000	$56,000	$54,063
D2	Third-party integration	$25,000				$25,000	$25,000
F1	Total cost	$80,000	$11,000	$11,000	$11,000	$113,000	$109,956

Source: Forrester Research, Inc.

Benefits And Savings Of Migrating To IBM WebSphere Business Integration Server Express

The organization's representative identified the following benefits from migrating away from a legacy Point-to-Point solution to WebSphere Business Integration Server Express:

- Cost avoidance resulting from separating the reporting and query capabilities from the existing ERP solution,
- Cost savings from improved labor efficiencies around the reporting process.

For the first benefit, the representative noted that it had been using an embedded query and reporting tool to run enterprisewide reports. This functionality was currently integrated into the existing ERP solution. However, the organization felt that the current reporting capabilities were limited and wanted to separate the reporting capabilities from the ERP application itself, allowing for future independence from the existing application. As a result of the investment in WebSphere Business Integration Server Express, the organization was able to avoid a future investment in additional licenses for the ERP solution. The organization directly tied this cost avoidance to the use of the integration platform.

To calculate this benefit, Forrester assumes that the organization would have had to purchase an additional 60 query licenses if it had continued with its legacy Point-to-Point solution. Based on organization data,

per license cost was estimated to be roughly $2,500. This equates to a total license cost of roughly $150,000. Table 7 illustrates the calculations used as part of this analysis.

Table 7: License Cost Avoidance

Ref.	Metric	Estimate	Calculation	Value
A1	Cost of additional license	$2,520		
A2	Additional licenses avoided	60		
A3	Total cost savings		A1*A2	$151,200

Source: Forrester Research, Inc.

The second benefit identified and quantified for this study is the time savings associated with the efficiency gains of moving away from a legacy Point-to-Point solution to toward an integrated solution of WebSphere Business Integration Server Express. These gains were brought about by several factors, including: 1) reduction in time that it took to run a query brought about by automating extracting of multiple, disparate databases, 2) automating manual processes around query reporting allowing for fewer FTE's required to run a report, 3) reducing the costs of managing the query reporting process itself by reducing the calls from end users around missing or delayed data.

Forrester conservatively assumes that the business unit would have to allocate 1.5 full-time equivalents (FTEs) if it had continued to run the query system with legacy Point-to-Point infrastructure. (This represents a 33% time savings.) At a fully burdened cost of $60,000, the savings was estimated at $30,000. Table 8 illustrates the cost savings from migrating to the WebSphere Business Integration Server Express.

Table 8: Improved IT Efficiency

Ref.	Metric	Estimate	Calculation	Value
B1	Total number of interfaces	16		
B2	FTE requirements Point-to-Point	1.5		
B3	Administration cost per interface, Point-to-Point		(B2*B6)/B1	$5,625
B4	FTE requirements – WBI	1		
B5	Administration cost per interface, WBI		(B4*B6)/B1	$3,750
B6	Cost per FTE	$60,000		
B7	Savings		(B2-B4)*B6	$30,000

Source: Forrester Research, Inc.

While the two benefits above refer to specific areas of cost savings, other areas of cost savings were mentioned by the interviewed organization but were not quantified for this report. These benefits include:

1. The reduction in maintenance costs as the organization integrates other future applications into the Websphere Business Integration Server Express framework. The organization noted that it plans to integrate other applications (i.e., HR) in the future, resulting in future cost efficiencies around the maintenance of those systems. Forrester Research has indicated that organizations have found maintenance cost savings of 20-30% moving away from a Point-to-Point solution towards an integration middleware strategy.
2. The positive impact of better and more accurate queries to the end user organization. While the quantified benefits above refer specifically IT savings, the representative organization did indicate potential time-to-market savings from better and more accurate reporting capabilities. As this estimate is highly volatile, Forrester chose not to quantify this value as part of this analysis.

Table 9 illustrates the total benefits achieved by the organization moving away from a legacy Point-to-Point environment toward a more centralized hub-and-spoke model with WebSphere Business Integration Server Express.

Table 9: Total Three-Year Benefits

Ref.	Category	Year 1	Year 2	Year 3	Total	PV
A3	License avoidance	$151,200			$151,200	$144,000
B7	Improved process efficiency	$30,000	$30,000	$30,000	$90,000	$81,697
C1	Total benefits	$181,200	$30,000	$30,000	$241,200	$225,697

Source: Forrester Research, Inc.

Risks Associated With Estimates Of Costs And Benefits

Risk-adjusted and nonrisk-adjusted ROI are both discussed in this study. Risk assessments provide a range of possible outcomes, based on the risks associated with IT projects in general and specific risks relative to moving toward a new technology solution. In this study, Forrester discovered that upgrading to IBM WebSphere Business Integration Server Express was a relatively low- to medium-risk endeavor, as expressed by the interviewed organization.

Risk factors are used in TEI to widen the possible outcomes of the costs and benefits (and resulting savings) associated with a project. Since the future cannot be accurately predicted, there is risk inherent in any project. TEI captures risk in the form of risks to benefits and risks to costs.

The following general risks were considered in this study:

- The project itself impacted a core part of its existing business operations. Any disruption to those operations may have serious adverse impact to the business. The interviewed organization felt that the key to mitigating this risk was by having a third-party integrator to implement the platform.
- Another risk identified by a representative was the ability of its current staff to adapt to a changing technology environment. The representative did indicate that this risk was minimal.

If a risk-adjusted ROI still demonstrates a compelling business case, it raises confidence that the investment is likely to succeed, since the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers should be taken as "realistic" expectations, since they represent the expected value considering risk. Assuming normal success at mitigating all risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment. For the purpose of this analysis, Forrester applied a multiplicative risk factor of 102.333% to the costs and 92.667% to the benefits to arrive at a risk-adjusted number (see Table 10).

Table 10: Summary Financial Risk-Adjusted Results – Interviewed Business Unit

Ref.	Category	Amount
R1	Total costs (PV)	($112,521)
R2	Total cost savings (PV)	$209,146
R3	Total net savings (NPV)	$96,625
R4	Internal rate of return (IRR)	146%
(R2-R1)/(R1)	Return on investment (ROI)	86%

R5	Payback period	6 months

Source: Forrester Research, Inc.

Flexibility Options

Flexibility, as defined by TEI, represents investing in capacity or agility that can be turned into business benefit for some *future* additional investment. Flexibility benefits typically increase with the scalability of the technology investment. For example, a scalable investment can allow an organization to adapt without having to incur significant future cost. Scalability represents a key value differentiator for integration technologies such as WebSphere Business Integration Server Express.

During the interview process, the representative organization noted that a key benefit of WebSphere Business Integration Server Express is that it provides it with the flexibility of separating its query and reporting capabilities from its existing ERP solution, allowing further technology independence. As the organization felt this was a direct benefit from the purchase of WebSphere Business Integration Server Express, Forrester chose to model this under the direct benefits section.

Conclusions

This study is meant to provide the reader with a ***framework*** in examining the costs and benefits of migrating toward WebSphere Business Integration Server Express. Data derived from an individual customer interview corroborates statements from IBM for WebSphere Business Integration Server Express to drive capital and labor cost savings within a given environment. Organizations where the cost of the server and server platform are not included in the initial analysis could further drive higher returns.

Based on our in-depth discussions with a business unit of a financial services organization, Forrester projects that the ROI of migrating to WebSphere Business Integration Server Express will be a risk-adjusted 86% (105% nonrisk-adjusted). The one-year NPV of savings is $115,741 (risk-adjusted) and $96,625 (nonrisk-adjusted).

Appendix A: Total Economic Impact™ Overview

Total Economic Impact™ is a methodology developed by Forrester Research, Inc. 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, cost, flexibility, and risk.

Benefits

Benefits represent the *value* delivered to the user-organization – IT and/or business units – by the proposed product or project. Oftentimes product or project justification exercises focus just on IT cost and cost reduction, leaving little room for analysis of the impact of the technology to the entire organization. The TEI methodology and resulting financial model places equal weight of the measure of benefits to that of costs, allowing for a full examination of the impact of the technology on the entire organization. Calculation of benefit estimates involves a clear dialogue between 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.

Cost

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs. These may be in the form of fully burdened labor, subcontractors or materials. Costs consider all the investment and expenses necessary to deliver the value proposed. In addition, the cost category within TEI captures the 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.

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 enterprise-wide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, am 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.

Risk

Risk is the fourth component of the TEI methodology. Risk is a measurement of the uncertainty to benefit and cost estimates contained within the investment. Uncertainty is measured two ways: the likelihood that the cost and benefit estimates will meet the original projections as well as 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 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.