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The Total Economic Impact™ Of Embarcadero DBArtisan

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Executive Summary

In November 2006, Embarcadero Technologies, Inc. commissioned Forrester Consulting to examine the financial impact and potential return on investment (ROI) an organization might realize by deploying DBArtisan. DBArtisan is a cross-platform database administration tool suite that helps database administrators (DBAs) maximize availability, performance, and security of enterprise databases. DBArtisan boosts productivity so existing staff can manage more databases. It also aids developers in code editing, debugging, testing, and preparing applications for production. To determine the impact, Forrester examined the specific costs, benefits, flexibility, and risk elements that a DBArtisan user organization experienced when it implemented DBArtisan. This study illustrates the financial impact of the implementation of DBArtisan within a 2,500-employee life insurance company and its subsidiaries.

After conducting in-depth interviews, Forrester found that this Embarcadero customer achieved significant productivity gains among its application development, database administration, and IT infrastructure staff, measured in terms of labor cost savings. The customer also achieved more effective linkage between its application programming team and the DBAs, which is measured in terms of the number of full-time employees (FTEs) that would be required to support the same level of output if the DBArtisan cross-platform database administration tools had not been implemented.

Purpose

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of DBArtisan. Forrester's aim is to clearly show all calculations and assumptions used in the analysis. This study should be seen as a guide to understand and evaluate a business case for investing in Embarcadero's DBArtisan.

Methodology

Embarcadero selected Forrester for this project because of Forrester's expertise around database management systems, database administration, the data management tools market, 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. Forrester's TEI methodology provides 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 Embarcadero's DBArtisan and the database administration tools market in general.

2. Forrester interviewed Embarcadero marketing and product management personnel to fully understand the value proposition of DBArtisan solutions.

3. Forrester conducted a series of in-depth interviews with one organization currently using 33 DBArtisan seats.

4. Forrester constructed a financial model representative of the data collected in the interviews. This model can be found in the TEI Framework section below.

5. Forrester created this study, which represents and examines the estimated value of the findings derived from the customer interview and analysis process and from Forrester's independent research.

Key Findings

Table 1 represents a summary of the ROI that the Embarcadero customer organization realized over a three-year period by deploying the DBArtisan.

The three-year, risk-adjusted total net present value (NPV) of **$2.2 million** represents the net cost savings and benefits attributed to using DBArtisan when compared with the customer's prior manual processes or use of simpler, less-comprehensive tools. In addition, the risk-adjusted ROI was a very favorable **857%.** The objective of this study is to identify savings experienced by the interviewed customer organization. These results can be used as a guide to allow other enterprises to determine the expected benefits for their own environment.

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 estimation, incorporating any potential risk factors that may later impact the original cost and benefit estimates.

Table 1: Three-Year Summary Financial Results

Summary financial results	Original estimate	Risk-adjusted
ROI	1092%	857%
Payback period (months)	1.8	2.2
Total costs (PV)	$223,090	$233,682
Total benefits (PV)	$2,658,827	$2,237,306
Total (NPV)	$2,435,737	$2,003,624
Internal rate of return (IRR)	682%	534%

Source: Forrester Research, Inc.

Disclosures

The reader should be aware of the following:

- The study is commissioned by Embarcadero Technologies and delivered by the Forrester Consulting group.

- Embarcadero and the organization interviewed for this study reviewed and provided feedback to Forrester, but Forrester maintained editorial control over the study and its findings.

- The customer for the interviews was provided by Embarcadero.

- Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that the reader should use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Embarcadero's DBArtisan.

- This study is not meant to be used as a competitive product analysis.

Embarcadero DBArtisan: Overview

According to Embarcadero, DBArtisan is a cross-platform database administration tool set that helps DBAs maximize the availability, performance, and security of their relational database management systems. DBArtisan enables consistent and unified support for all major database platforms (IBM DB2 for LUW and z/OS, Microsoft SQL Server, MySQL, Oracle, and Sybase ASE) and allows organizations to standardize on one unified and integrated solution for database administration.

DBArtisan enables DBAs to concurrently manage multiple databases from a single graphical user interface. Database professionals can transform their DBA skills into cross-platform solution expertise. DBArtisan includes a rich feature set that helps DBAs automate and streamline day-to-day administrative tasks. The rich feature set, combined with the single console for managing all the databases in the environment, gives DBAs the means to increase their productivity significantly.

DBArtisan Workbench helps organizations improve productivity and reduce costs in the following key areas of database administration:

Streamlining basic database administration tasks. DBArtisan Workbench provides easy-to-use wizards and graphical interfaces that dramatically reduce the time to perform basic database administration tasks such as altering database objects, migrating schemas, creating SQL and DDL to execute against the database, and generating schema reports. DBArtisan Workbench also includes the SQL Debugger to quickly pinpoint errors in stored procedures or trigger code, and Space Analyst to quickly identify and correct storage inadequacies and inefficiencies.

Improved performance management. DBArtisan Workbench includes SQL Profiler to quickly identify and correct poorly running database code and ensure high application performance and availability. In addition, DBArtisan Workbench includes Performance Analyst to monitor and diagnose performance degradation issues, and Capacity Analyst to track key database performance metrics such as database growth and server load for proactive planning and problem prevention.

Simplified backup and recovery. DBArtisan Workbench includes Backup Analyst to simplify the process of planning and performing backup and recovery tasks. Intuitive wizards and visual interfaces guide users through the process of creating and monitoring backups and recoveries. In addition, a high-performance engine reduces the time to complete backup runs.

Automated change management (using Change Manager). Change Manager dramatically simplifies the process of managing database changes by providing facilities to capture and compare schema versions, synchronize schemas, migrate schemas across database environments, and generate schema comparison reports. This reduces the time spent tracking and managing schema changes and eliminates the need for error-prone manual processes.

SQL management. DBArtisan offers powerful visual tools for creating and analyzing complex SQL statements and server-side code objects such as stored procedures and triggers. Using the Embarcadero Query Builder, users can construct very complicated SQL statements with point-and-click ease. As users select the objects and methods to use for SQL statements, DBArtisan automatically generates the code. The built-in syntax checking facility ensures that all SQL statements are built and run correctly the first time.

Analysis

We have mission-critical apps that are running on DB2, Sybase, and SQL Server, and they are not going away, they are not collapsing. We haven't shifted or converted entirely from any single platform to another. We are simply taking on more and more.
— Assistant vice president, database administration

Overview Of The Customer Organization

The organization from which the customer interviews for this study were drawn is a life insurance and investment products company with several subsidiaries. Headquartered in a southeastern US city, the company employs 2,500 staff in 14 offices throughout the US. It has annual revenues of approximately $2.1 billion and assets of approximately $29.0 billion.

A central IT infrastructure department is responsible for the company's network, servers and server administration, database administration, mainframe, internet support, electronic communication, service desk, workstation support, telecommunication, record services, mail center, disaster recovery, security, and data center operations. The department also supports all of the company's processing centers, ensuring optimal performance and availability of infrastructure. This group numbers 120 staff.

The database administration team consists of the team manager and two database administrators. The team manager is the primary Sybase DBA and also a backup for SQL Server support. The primary SQL Server DBA provides backup on Sybase. There is a DB2 mainframe DBA, who is backed up by two technical support staff.

An application development team, separate from the infrastructure group and the database administrators, includes a staff of 18 developers. This group is responsible for financial and HR systems, business intelligence applications, and management reporting for the life insurance division. This group mainly uses SQL Server (new development) and Sybase platforms (ERP system).

The interviews for this study uncovered multiple factors that spurred the implementation of DBArtisan, including:

- Several DBArtisan seat licenses were first purchased in 1998 to help facilitate the transition from the DB2 platform to Sybase. Deployment has since grown to 30 licenses for Sybase and SQL Server.

- DB2 was the customer's main database platform until Sybase was implemented in 1995. All future development was mandated to be on Sybase. There was only one Sybase DBA at the time, with no effective backup.

- The customer had been using (and still uses) a tool set from another vendor to help with DB2 administration. The DBA was accustomed to administering DB2 databases with a tool set versus "the hard core of typing of all the commands and all the DDLs from scratch," thus saving a great deal of time. Another set of tools to administer Sybase was needed.

- The company continues to maintain mission-critical applications on DB2.

TEI Framework

Introduction

From the information provided in the DBArtisan customer interviews, Forrester constructed a TEI framework for those organizations considering implementation of DBArtisan. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that impact the investment decision.

Framework Assumptions

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

Table 2: General Assumptions

Ref.	General assumptions	Value
	Discount rate	12%
	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 their finance department to determine the most appropriate discount rate to use within their own organization.

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

Table 3: Average Fully Loaded Hourly Compensation

Ref.	Metric	Calculation	Developers	DBAs
A1	Annual average salary		$75,000	$90,000
A2	Benefits		50%	50%
A3	Fully loaded compensation		$112,500	$135,000
A4	Hours per year		2,000	2,000
At	Average fully loaded hourly compensation	A1*(1+A2)/A4	$56.00	$67.50

Source: Forrester Research, Inc.

Costs

Costs for DBArtisan consist of the costs of the initial licenses and annual maintenance fees. No formal training is required, although Forrester assumes that users will spend time learning how to use the tools and understanding how these work within their own development and infrastructure environments. No additional hardware is needed, and the customer reported that the tools work "right out of the box."

Software Licenses And Annual Maintenance

The customer employed 31 DBArtisan Professional seats at the beginning of 2007, described below:

Table 4: Software Costs

Product	Seats purchased	List price	Maintenance
DBArtisan Pro for Sybase	15	$46,425	$10,875
DBArtisan Pro for MS SQL	9	$27,855	$6,525
DBArtisan Pro for Sybase/MS SQL	4	$27,980	$6,500
Solution Pack Std for Sybase	2	$8,990	$2,100
Solution Pack Std for MS SQL Server	1	$4,495	$1,050
TOTAL	31	$115,745	$27,050

Source: Forrester Research, Inc.

Implementation And Learning Costs

Forrester assumes that developers and DBAs will spend approximately 40 hours each in learning how to use DBArtisan and understanding its workings within their environment. The calculation of this indirect cost for the customer interviewed for this study is as follows:

Table 4: Training Costs

Ref.	Metric	Calculation	Initial Cost
A1	Number of people		21
A2	Cost per person (average for 18 developers, 3 DBAs)		$50.44
A3	Hours		40
At	Training costs - Learning DBArtisan	A1*A2*A3	$42,368

Source: Forrester Research, Inc.

Total Costs

Table 5 presents the initial and ongoing costs, and their present values, of DBArtisan described by this customer. Please note that software costs represent list pricing.

Table 5: Total Costs

Costs	Year 0	Year 1	Year 2	Year 3	Total	PV
Software license fees & maintenance	$115,745	$27,053	$27,053	$27,053	$196,905	$180,722
Training costs - Learning DBArtisan	42,368				42,368	42,368
Total	$158,113	$27,053	$27,053	$27,053	$239,272	$223,090

Source: Forrester Research, Inc.

Benefits

> *Once we got DBArtisan in here and started working with it, we just never looked for anything else. It's kind of a one-stop shop tool for our application development team and database infrastructure group. — Vice president, application development group*

The customer identified several significant and quantifiable areas of benefit resulting from the implementation of DBArtisan.

Labor Cost Savings — Programming And Testing

The head of the applications development group explained to Forrester that DBArtisan is a valuable tool for his programmers. "They [developers] use the tool to do most of their code development, for stored procedures and new table construction, viewing construction triggers, and so forth; they use DBArtisan as a development tool for all the database objects." This team also relies heavily on the debugging feature in its test environment. "We will test it from our end and actually get users to test with us so we get user sign-off before the applications are sent to the infrastructure team." Once the application gets to the DBAs (described below), DBArtisan simplifies the job of recompiling code and pushing it into the production environment.

"Using DBArtisan, we have been able to build our test environment to look very similar to the production environment, with all the same linkages between databases, the same dependencies, and those kinds of things," explained the vice president in charge of the application development team. "It's our primary tool for database development and analysis."

As programmers develop new code, they save it in SQL files and then push it to the infrastructure team, who initiate the proper change controls before moving the new code into production using their own seats of DBArtisan. "It's kind of a joint effort," explained the VP in charge of the application development group "and it's nice that our DBAs have the same tools that we do. So we can kind of speak the same language."

"If we didn't have DBArtisan, it would be real tough to test things and debug code that has already been written. Artisan allows us to step through sections of code line by line and see what variables are changing. There would otherwise be a lot of effort in our testing and debugging that DBArtisan really streamlines."

DBArtisan is also employed to monitor the servers, understand their loads, see what applications are running, and pinpoint bottlenecks or slowdown points. "We use it quite a bit for just monitoring our environment," explained the head of the application development team.

After polling members of the application development team, this group determined that the use of DBArtisan saves each of the 18 developers between two and four hours per day in their development work.

Forrester assumes that not all of the labor cost savings will actually be realized by the customer as employees use some of the time saved for unrelated activities. This benefit calculation is therefore reduced by applying a capture rate of 75%.

Forrester calculates this benefit as follows:

Table 6: Labor Cost Savings - Applications Development Group

Ref.	Metric	Calculation	Per period
A1	Number of workers		18
A2	Fully loaded hourly compensation rate per worker		$56.00
A3	Number of hours (saved) per day		3.0
A4	Percent captured		75%
A5	Days per year		250
At	Labor cost savings - Applications Development Group	A1*A2*A3*A4*A5	$567,000

Source: Forrester Research, Inc.

This labor cost savings amount represents approximately five FTEs ($567,000 divided by average fully loaded annual compensation amount of $112,500).

Connecting Development Staff And DBAs

The application development team and the infrastructure team were separated, for compliance reasons, two years ago. With this structure, the programmers cannot manipulate things they shouldn't be manipulating while the infrastructure team does not know a whole lot about the workings of the payroll, financial systems, and HR applications. This structure, while it makes the auditors happy, could be problematic when the Java, .Net, and PowerBuilder developers hand over new or amended applications to a group of DBAs who are not familiar with the applications. DBArtisan serves as a bridge between the two groups. The product enables the application developers to put the application code into the right format and shape for the infrastructure team to recompile the new, pre-tested code and put it into production faster and more easily. Database and system administrators in this organization rely heavily on the development staff to create and implement logical database designs in their own test environment, conduct their application testing, and facilitate the migration of those objects from the test environment to a model environment and into production. To do this successfully, developers must generate scripts and migrate them to the database administrators in the exact sequence in which they will be executed. "We do not have the resources nor the time to sit with each application team and to develop those scripts for them," noted the head of the database administration. Developers submit migration requests to a Lotus Notes database, attaching all of the SQL scripts that are necessary for execution by the

infrastructure's database administration team. The scripts are generated by DBArtisan and submitted to the Lotus Notes database. "We trust in our developers' use of DBArtisan and we have not had any failure to date with any migrations to any environment," explained the assistant vice president of database administration to Forrester.

Labor Cost Savings — Database/Infrastructure Administration

Interviews with this Embarcadero customer indicated that DBArtisan is a consistent means of managing a multiple DBMS environment. It also eases the transition toward supporting new RDBMS environments. DBArtisan provides a set of tools that allows us to easily embrace the support of a new RDBMS platform. "Just knowing I have a tool like DBArtisan builds my confidence in my abilities to embrace new platforms."

Using DBArtisan, a DBA can have a "relational view from above" of all of the objects in each supported database instance. The product enables the infrastructure staff to accomplish a host of tasks, including:

- Interrogating SQL logs and jumping from one SQL server to another quickly

- Compare, schedule, enable, disable, and kickoff jobs

- Execute scripts that are sent from the application development group, toggle into the data stores quickly, execute scripts, and quickly handle numerous requests

- Report database allocation changes

- Making sure that nothing is happening that prevents calls from coming in

- Housekeeping, environment upkeep: dive into jobs, history, and error logs

- Migrate data objects to and from platforms

- Enable administration of database access and security, configuration changes, and monitoring of all existing processes

DBArtisan represents a "one tool-fits-all capability versus using a different tool for each RDBMS. The DBAs use the tool all day every day. And it empowers my staff to be sort of interchangeable," explained the head of the database administration/infrastructure group.

The value for the DBA infrastructure team was expressed to Forrester in terms of the number of additional staff, estimated to be four FTEs, who would be required to carry out the group's responsibilities without the use of DBArtisan. "Without a trustworthy tool that can generate flawless DDL and SQL, which can in turn be promoted into production without error, we would require several more people than we currently employ. We could not do the job that my team does without a tool like this," explained the group's manager, the assistant vice president of database administration.

Table 7 presents the calculation of the benefit amount for this group.

Table 7: Labor Cost Savings – Database/Infrastructure Administration

Ref.	Metric	Calculation	Per period
A1	Number of additional FTEs required without DBArtisan		4.0
A2	Base salary per DBA		$90,000
A3	Benefits %		50%
A4	Fully loaded compensation		$135,000
At	Reduction in headcount - database administration dept.	A1*A2*(1+A3)	$540,000

Source: Forrester Research, Inc.

Table 8 presents the annual benefits accruing from DBArtisan as expressed by the customer in this study, along with the present values.

Table 8: Total Benefits

Benefits	Year 1	Year 2	Year 3	Total	PV
Labor cost savings - applications development group	$567,000	$567,000	$567,000	$1,701,000	$1,361,838
Labor cost savings - database administration/ Infrastructure group	540,000	540,000	540,000	1,620,000	1,296,989
Total	$1,107,000	$1,107,000	$1,107,000	$3,321,000	$2,658,827

Source: Forrester Research, Inc.

The customer identified the following benefits achieved from using DBArtisan; however, representatives were not able to quantify these benefits at this time:

Compliance

For the head of the applications development group, DBArtisan solves challenges related to Section 404 of the Sarbanes-Oxley legislation. To become compliant, this organization had to put a lot of controls and risk mitigation in place. This vice president needed better understanding (and reports) of the security of all database environments and also needed to demonstrate effective controls to auditors. "We need to show the auditors that we have a secure environment and people cannot get in and manipulate tables and things like that," explained the vice president in charge of the application development group. "Before [DBArtisan], I don't think we would have been able to do that." The product offers the ability to create valuable audit reports. The customer did not attempt to estimate the value of this set of benefits.

Flexibility

Flexibility, as defined by TEI, represents investing in additional capacity or capability that could be turned into business benefits later, at some additional cost. This provides an organization with the "right" or the ability to engage in specific future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to implement DBArtisan for a focused purpose and later discover additional uses and/or activate additional functionality inherent in the software.

The customer in this study cited the flexibility inherent in their DBArtisan implementation as including the ability to focus on more strategic work in the application development area. And in the database administration/infrastructure group, flexibility is extant in the company's proven ability to readily add more database instance from any of the possible RDMS platforms that could be introduced with another company acquisition.

Forrester believes that value exists in: a) potential for greater focus and resource deployment on strategic development projects and b) unrealized value inherent in the agility to expand usage to other database platforms; however, at this time the customer is unable to quantify this flexibility option.

In some instances, the reader of this study may believe his or her organization is ready to take advantage of the same or similar flexibility in DBArtisan; and in that case, the option will have a present value that can be estimated. The flexibility component of TEI captures that value using the financial industry standard Black-Scholes options pricing model.

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

Risk

There are two aspects of risk and risk mitigation considered in this study: project risks and the uncertainty associated with the estimates of costs and benefits in a business case. Below is a summary of each.

Project Risk And Mitigation

There are risks associated with IT projects in general and specifically with database administration tools; however, the customer indicated that these risks were minimal given the gradual implementation and adoption of the product since 1998, which helped to mitigate any project implementation risk. To further mitigate project risk, the AVP of database administration serves as a beta tester for new versions of DBArtisan. In this connection, this interviewee cited possible risk around newer versions that incorporate less-proven functionality, such as the new Java migration engine in version 8.1x. "The ultimate risk is that you actually lose data and/or objects in production," he noted. Although there have been no instances where this has occurred.

Risks Associated With Estimates Of Costs And Benefits

Risk- and non-risk-adjusted ROI are both discussed in this study. As the future cannot be accurately predicted, there is risk inherent in any project. 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 particular technology solution.

With the benefit of hindsight, the customer believes that its investment in the DBArtisan carries a lower level of risk when compared, for example, to its previous manual processes or the use of less-comprehensive tools or the shareware that was used before DBArtisan was deployed.

Risks Calculations

If a risk-adjusted ROI still demonstrates a compelling business case, it raises confidence that the investment is likely to succeed because the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers should be taken as "realistic" expectations because they represent expected values considering risk. In general, risks affect costs by raising the original estimates and affect benefits by reducing the original estimates.

The TEI framework 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.

For example, in the case of labor cost savings estimated in the database administration/infrastructure group. The four-FTE value used in this analysis can be considered the "most likely" or expected value. The number of FTEs avoided will vary based on how well DBArtisan functions within the workflow and specific parameters of the customer's environment. This variability represents a risk that must be captured as part of this study. Forrester uses a risk factor of 4.5 FTEs on the high end, 4.0 FTEs as the most likely, and 1.0 FTEs on the low end. This has the effect of decreasing the benefit estimate to take into account the fact that original benefit estimates are more likely to be revised downward than upward. Forrester then creates a triangular distribution to reflect the range of expected benefit, with 3.17 FTEs as the mean (3.17 is equal to the sum of 4.5, 4.0, and 1.0 and then divided by three). Forrester applies this mean to the fully loaded compensation amount of $112,000 to arrive at a risk-adjusted value of $427,500 (compared to the non risk-adjusted amount of $540,000).

The following table shows how the risks specific to labor cost savings in the respective areas of the customer's organization that have deployed DBArtisan.

Table 9: Risk-Adjustment For Labor Cost Savings – Database/Infrastructure Administration

Ref.	Metric	Calculation	Year 1
A1	Number of workers		18
A2	Fully loaded hourly compensation rate per worker		$56.00
	Variable low		1.0
A3	Number of hours (saved) per day		3.0
	Variable high		4.0
A4	Percent captured		75%
A5	Days per year		250
Al	*Equation low*		$189,000
At	Labor cost savings - applications development group	A1*A2*A3*A4*A5	$567,000
Ah	*Equation high*		$756,000
Atr	Total (risk-adjusted)	Average (Al,At,Ah)	$504,000

Source: Forrester Research, Inc.

The TEI framework applies the same triangular distribution method to calculate risk-adjusted values for most cost categories. Table 10 below shows how the cost of learning DBArtisan is adjusted (upward) to take into account the uncertainty around the time estimate to gain mastery of the product and to begin to realize value from it.

Table 10: Risk-Adjustment For Training Cost

Ref.	Metric	Calculation	Per period
A1	Number of people		21
A2	Cost per person		$50.44
	Variable low		30
A3	Hours		40
	Variable high		80
	Equation low		$31,776
At	Training costs — learning DBArtisan	A1*A2*A3	$42,368
	Equation high		$84,735
Atr	Total (risk-adjusted)	Average (Al, At, Ah)	$52,959

Source: Forrester Research, Inc.

The cost of software and maintenance is set contractually, and therefore no risk adjustment is applied.

TEI Framework: Summary

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

Table 1 (below, repeated from the Executive Summary) represents a summary of the costs and savings described by the DBArtisan customer in this study over a three-year period.

Table 1: Three-Year Summary Financial Results

Summary financial results	Original estimate	Risk-adjusted
ROI	1092%	857%
Payback period (months)	1.8	2.2
Total costs (PV)	$223,090	$233,682
Total benefits (PV)	$2,658,827	$2,237,306
Total (NPV)	$2,435,737	$2,003,624
Internal rate of return (IRR)	682%	534%

Source: Forrester Research, Inc.

The three-year, risk-adjusted total NPV (net present value) of **$2.2 million** represents the net cost savings and benefits attributed to DBArtisan. In addition the risk-adjusted ROI was a very favorable **857%**.

If a risk-adjusted ROI still demonstrates a compelling business case, it raises confidence that the investment is likely to succeed, because the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers should be taken as "realistic" expectations because they represent the expected value considering risk. Assuming normal success at mitigating risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment.

It is important to note that values used throughout the TEI Framework are based on in-depth interviews with one organization. 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 DBArtisan.

Study Conclusions

Forrester's in-depth interviews with Embarcadero's customer yielded several important observations:

- DBArtisan provided significant productivity gains among its application development, database administration, and IT infrastructure staff measured in terms of labor cost savings.

- DBArtisan can help improve availability, performance, and security of enterprise databases.

The financial analysis provided in this study illustrates how an organization can evaluate the value proposition of DBArtisan. Based on these findings, companies looking to implement DBArtisan 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.

This study is meant to provide the reader with a framework to examine the costs and benefits of deploying Embarcadero Technologies' DBArtisan Professional. Based on our in-depth discussions with the customer, Forrester projects a three-year risk-adjusted ROI of 857% (1092% non risk-adjusted). The NPV for the investment is $2,003,624 (risk-adjusted) and $2,435,737 (non-risk-adjusted). For the customer in this study, implementation of DBArtisan allowed cost savings to be achieved by the IT organization.

The customer also believes that its investment in the DBArtisan gives it the "flexibility option" to incorporate a new database platform at any time in the future and to focus on more strategic work by staff who are relieved of tasks that are simplified and automated by the product.

Other organizations that are likely to see beneficial results using the Embarcadero Technologies DBArtisan product have the following characteristics:

- Manage tens, hundreds, or thousands of heterogeneous databases in their environment

- Have performance tuning related issues in production environments

- Want a productivity tool to help developers with code editing, debugging, testing, and preparing application for production

- Want to automate testing and tuning of application code against databases

- Seek to improve manageability of database administration

For our subject customer organization, the Embarcadero product carries a relatively low level of risk (although prospective customers are advised to thoroughly test the most recent version of DBArtisan in their own environment), a very positive **857%** risk-adjusted ROI and a reasonable two- to three-month horizon to recoup the investment.

Forrester makes no assumptions regarding the effects of DBArtisan at other organizations.

This study examines the financial impact attributable to one organization. The underlying objective of this document is to provide guidance to technology decision-makers seeking to identify areas where value can potentially be created by using the DBArtisan.

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, 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 12% 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 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 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 one through three 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.

Appendix C: About The Project Manager

Jeffrey North,
Senior Consultant

Jeffrey North is a senior consultant with Forrester's Total Economic Impact™ (TEI) consulting practice. He advises clients on the TEI framework — services that help organizations understand the financial value of IT strategies and investments.

Jeff came to Forrester with consulting and operating experience, notably working with fast-growth companies. He was a founding member of the digital strategy practice at Cambridge Technology Partners, where he specialized in business value justification of technology investments and customer advocacy. As a director in the international and catalog business units at Staples, Jeff built and managed metrics and reporting programs in North America and Europe as the company experienced significant growth. He has also consulted in a business-IT capacity to retailers and life sciences companies.

Jeff holds a B.A. from St. Lawrence University and an M.B.A. with a concentration in international management and finance from Thunderbird, the Garvin School of International Management.