The Total Economic Impact Of Tableau Business Intelligence Solution

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Forrester Consulting
Making Leaders Successful Every Day

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Executive Summary

In November 2010, Tableau Software commissioned Forrester Consulting to examine the total economic impact and potential return on investment (ROI) enterprises may realize by deploying Tableau Desktop and Tableau Server. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of the Tableau Desktop and Tableau Server on their organizations.

Tableau Decreases BI Support Costs And Drives End User Empowerment

Forrester interviewed three existing Tableau customers for this project - a financial services firm, a hospital and an online media firm. The financial analysis based on the interview with the hospital found that this organization experienced the risk-adjusted ROI, costs, and benefits shown in Table 1.

Table 1

Three-Year Risk-Adjusted ROI[1]

ROI	Payback period	Total benefits (PV)	Total costs (PV)	Net present value
127%	13 months	$1,051,110	($462,473)	$588,637

Source: Forrester Research, Inc.

- **Benefits.** The organization experienced the following financially quantifiable benefits:

  o **Avoided report maintenance costs of $671,762.** This resulted from converting all existing and new reports to the Tableau environment and streamlining the report publishing process.

  o **BI analyst productivity improvements of $379,348.** This is the equivalent of three FTEs. It results from users generating their own reports and freeing up BI analysts to perform higher-value tasks.

- **Costs.** The organization experienced the following financially quantifiable costs:

  o **Software license fees of $205,000.** This represents the costs of 30 Tableau Desktop licenses and a Tableau Server license.

- o **Software maintenance fees of $64,688.** This represents 20% of the software license fees paid in Years 2 and 3 of the analysis.

- o **Hardware acquisition costs of $20,000.** The organization purchased hardware (a server) to run Tableau Server.

- o **Data preparation and report conversion costs of $50,197.** This represents the cost to prepare data in warehouses and cubes for use by end users, and recreating existing reports with Tableau Desktop.

- o **New report creation costs of $119,588.** This is the labor cost incurred by the end user and the BI team to create 275 new standardized reports.

We note that the organization realized significant labor productivity gains related to nurse staffing, resulting from a custom-built application based on Tableau.

Factors Affecting Benefits And Costs

Table 1 illustrates the risk-adjusted financial results that were achieved by the 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:

- The number of existing reports converted to the Tableau environment and the relative report maintenance savings achieved by converting new report creation to Tableau.

- The effort needed to prepare underlying data for end user usage.

- The adoption level of Tableau within the organization and the number of end users that become successful Tableau report creators.

- The organization's ability to leverage actionable insights from the data presentation capabilities that Tableau offers.

Disclosures

The reader should be aware of the following:

- The study is commissioned by Tableau Software 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 Tableau Desktop and Tableau Server.

- Tableau Software 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 Tableau Software.

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 Tableau Desktop and Tableau 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 Tableau Desktop and Tableau Server can have on an organization (see Figure 1). Specifically, we:

- Interviewed Tableau Software marketing and sales personnel and Forrester analysts to gather data relative to Tableau Desktop and Tableau Server and the marketplace for BI report writing tools.

- Interviewed three organizations currently using Tableau Desktop and Tableau Server to obtain data with respect to costs, benefits, and risks. The economic model was constructed from one interview, and profiles of the other two companies are provided in Appendices A and B.

- Constructed a financial model representative of the interview using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interview.

Figure 1
TEI Approach
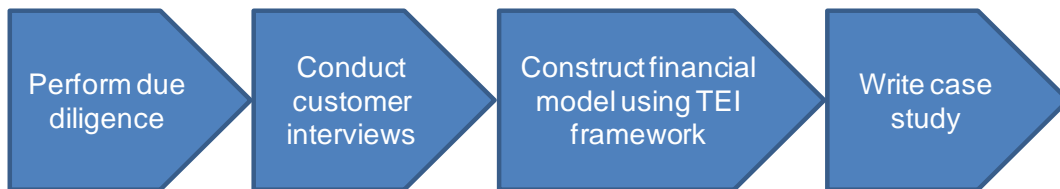
Source: Forrester Research, Inc.

Forrester employed four fundamental elements of TEI in modeling Tableau Desktop and Tableau Server:

1. Costs.

2. Benefits to the entire organization.

3. Flexibility.

4. 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 C for additional information on the TEI methodology.

Analysis

Interview Highlights

"The role of the report creator has shifted to the business. . . . Managers now use Tableau to create reports in HR, finance, nursing. . . . The reports are the way they like them." (BI team manager)

Report Creation Prior To Using Tableau

For this analysis we interviewed a representative from a teaching hospital that is affiliated with a university located in the United States. The hospital has over 1,200 beds and revenues in excess of $1 billion. We spoke with the leader of a business intelligence team ("the BI team") that works inside a decentralized IT department. The team consisted of a total of four analysts, including the manager, and was responsible for report and data preparation for the hospital's administration, nursing, and outpatient departments. The team had counterparts that performed similar functions for the finance, quality control, and compliance departments. Tableau is used in these parts of the organization, but this analysis does not include any costs and benefits associated with these parts of the organization.

Prior to using Tableau Desktop and Tableau Server, the BI team used a variety of third-party tools from leading database and BI vendors to generate reports. The BI team had created 75 "standardized" reports that were automatically updated with fresh data at regular intervals. Data warehouses and cubes were already in place, so usually no additional data preparation was required when creating new reports.

The team found it difficult to create new reports using the tools it had. It usually took two days to complete a new report once work began, less time for simple reports. Standardized report were distributed by "publishing" them to an internal Web site. Once a new report was completed, it was rarely changed because of the amount of effort involved to make the changes (IT was needed to change underlying SQL queries). End users rarely came to the report writing team to create new reports because of the time delay between requesting and receiving a new report, despite the overwhelming need to do so. Similarly, little effort was made to modify existing reports. When the standardized reports did not meet their needs, they created their own reports using Microsoft Excel, Access, and other ad hoc tools. Both the standardized and user-created reports were static — there was no ability to drill down into the data behind a report or create advanced visualizations and dashboards.

To overcome the challenges presented by their report creation and updating processed, the BI team manager wished to find a report creation and data visualization tool that:

- Was easy to use, thereby increasing the agility of the report creation and updating process.

- Empowered end users to create their own reports. This would remove the bottleneck inherent in "centralized" the report creation team and allow end users to create reports that were well tailored to their needs.

Report Creation After Using Tableau

At the time of the interview, the organization had been using Tableau Desktop and Tableau Server for three years. From the interview, we learned that the organization:

- **Increased Tableau Desktop deployment from 30 to 80 seats.** Tableau Desktop adoption spread to other BI teams and departments, including finance, quality control, and compliance. The majority of new Tableau Desktop users were end users. More than 800 active readers accessed reports from the Tableau Server.

- **Used Tableau's visualization capabilities to drive process improvements.** The ability to visualize data in new ways and drill down into the data behind the graphics allowed doctors, nurses, and others to perform root-cause analysis that eventually lead to process improvements. The organization follows Lean Six Sigma process improvement methodologies.

- **Increased the number of standardized reports by more than 400%.** The number of standardized reports increased from 75 to 350 across the organization. These reports were created by both the BI team and end users. To facilitate report creation by end users, the BI team developed a vetting process, which ensured that end user-created reports met minimum standards and that they would refresh automatically after publishing to the organization's internal Web site.

- **Reduced report creation times by 87.5%.** The average report creation time for analysts in the BI team was reduced from two days (16 hours) to 2 hours. For end users, the average time needed to create a new report was about two days.

- **Stopped using its traditional BI reporting tools.** After using Tableau's products and experiencing increased adoption and usage in the organization, the BI team stopped using its traditional report generation tools and converted all report creation to Tableau.

- **Achieved significant improvements in nursing labor productivity.** The BI team developed a custom application that is used to manage nurse staffing levels in near real time. While exact numbers were not available, the interviewee estimated that this application had saved the organization "millions" in nursing labor hours. This application took about 70 days to develop.

- **Incurred zero training costs.** The organization found Tableau Desktop so easy to use that users can essentially train themselves using materials posted on the organization's Web site.

- **Reduced report distribution, storage, and duplication costs.** Using Tableau Server has increased the number of reports that are posted to the organization's Web site from 40% to 90%. This has reduced the number of reports that are emailed from 60% to 10%. The managers no longer store same reports on their hard drives. They also save on printing costs, which was the primary report distribution method among managers.

- **Simplified the process of publishing reports on its internal Web site.** Using Tableau Server and simple SQL commands reduced the complexity and time needed to publish reports to the internal Web site. Updates to HTML tables and customer code development were no longer needed.

- **Freed up BI team members to perform higher-value tasks.** The cumulative benefits that accrued from easier maintenance and a reduction in report creation times have allowed the BI team to focus on generating higher-value-added applications, like the nursing labor management system.

Framework Assumptions

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

Table 2

Model Assumptions

Ref.	Metric	Calculation	Value
A1	Average salary of BI analysts		$85,000
A2	Average salary of end users		$65,000
A3	Salary overhead multiplier		1.2
A4	Work hours per year		2,080

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 three 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

The organization accrued costs in the following areas:

- Software license and maintenance fees.

- Hardware acquisition costs.

- Data preparation and report conversion costs.

- Report creations costs.

Report and data maintenance costs are not shown because these are treated as a net benefit, i.e., report maintenance costs decreased, which is a benefit.

Software License Fees

The scope of analysis covers the BI team whose manager we interviewed and the users that this team serviced. This group of people has 30 Tableau Desktop licenses. The company has an unlimited-use Tableau Server license, and we have shown the server license cost that is attributable to this same group of people. The Tableau Desktop license costs $45,000, and the Tableau Server license costs are $160,000 (see Table 3). The total software license costs are $205,000. All software pricing was provided to Forrester by Tableau Software and represents list pricing as of November 2010.

Table 3

Software License Fees

Ref.	Metric	Calculation	Per period	Year 1	Year 2	Year 3	Total
B1	Tableau Desktop license fees		$45,000				
B2	Tableau Server license fees		$160,000				
Bt	Tableau software license fees	B1+B2	$205,000				
Bto	Total (original)		($205,000)	$0	$0	$0	($205,000)

Source: Forrester Research, Inc.

Software Maintenance Fees

Software maintenance fees are 20% of the license fees. The first year of maintenance is included in the initial license cost and is then paid annually. The annual software maintenance fees are $41,000 (see Table 4).

Table 4

Software Maintenance Fees

Ref.	Metric	Calculation	Per period	Year 1	Year 2	Year 3	Total
C1	Tableau Desktop maintenance fees	B1*0.2	$9,000				
C2	Tableau Server maintenance fees	B2*0.2	$32,000				
Ct	Annual software maintenance fees	C1+C2	$41,000				
Cto	Total (original)		$0	$0	($41,000)	($41,000)	($82,000)

Source: Forrester Research, Inc.

Hardware Acquisition Costs

The organization acquired a dedicated server to run Tableau Server. The cost of this server is $20,000 (see Table 5).

Table 5

Hardware Acquisition Costs

Ref.	Metric	Calculation	Per period	Year 1	Year 2	Year 3	Total
D1	Hardware (servers) for running Tableau Server		$20,000				
Dt	Hardware costs	D1	$20,000				
Dto	Total (original)		($20,000)	$0	$0	$0	($20,000)

Source: Forrester Research, Inc.

Data Preparation And Report Conversion Expense

After making the decision to use Tableau for all its reporting needs and to make it easy for end users to create reports, it became necessary to prepare the data that existed in warehouses and cubes for this task. At the same time, the BI team converted the existing 75 standardized reports to Tableau. This effort took three BI team members working for two months to complete. The labor expense for this is $47,077 (see Table 6).

Table 6

Data Preparation And Report Conversion Expense

Ref.	Metric	Calculation	Per period	Year 1	Year 2	Year 3	Total
E1	Number of BI analysts		3				
E2	Average hourly rate	A1*A3/A4	$49.04				
E3	Number of hours		320				
Et	Data preparation and report conversion costs	E1*E2*E3	$47,077				
Eto	Total (original)		($47,077)	$0	$0	$0	($47,077)

Source: Forrester Research, Inc.

New Report Creation Costs

We learned that over the three-year period of this analysis, the organization created 275 new standard reports. The organization's end users adopted Tableau Desktop enthusiastically, and we assume that 80% of the new reports were created by end users. We also learned that it took an end user two days (16 hours) to create a new report. Assuming an average end user salary of $65,000, the total cost to generate the reports is $137,385 (see Table 7). Because the reports were created over three years, we recognize this cost in three equal increments.

Table 7
New Report Creation Costs

Ref.	Metric	Calculation	Per period	Year 1	Year 2	Year 3	Total
F1	Number of new reports		275				
F2	Percentage new reports created by end users		80%				
F3	Average time needed for an end user to create a new report (hours)		16				
F4	Average end user hourly rate	A2*A3/A4	$37.50				
F5	Subtotal: end user report creation costs	F1*F2*F3*F4	$132,000				
F6	Percentage new reports created by BI analysts		20%				
F7	Average time needed for a BI analyst to create a new report (hours)		2				
F8	Average BI analysts hourly rate	A1*A3/A4	$49.04				
F9	Subtotal: BI analyst report creation costs	F1*F6*F7*F8	$5,394				
Ft	New report creation costs	F5+F9	$137,394				
Fto	Total (original)		$0	($45,798)	($45,798)	($45,798)	($137,394)

Source: Forrester Research, Inc.

Total Costs

The total costs for acquiring and setting up Tableau Desktop and Tableau Server are $491,471 (see Table 8).

Table 8
Total Costs

Costs	Initial	Year 1	Year 2	Year 3	Total
Tableau software license fees	(205,000)				(205,000)
Annual software maintenance fees			(41,000)	(41,000)	(82,000)
Hardware costs	(20,000)				(20,000)
Data preparation and report conversion costs	(47,077)				(47,077)
New report creation costs		(45,798)	(45,798)	(45,798)	(137,395)
Total	($272,077)	($45,798)	($86,798)	($86,798)	($491,471)

Source: Forrester Research, Inc.

Benefits

The benefits that we quantified include:

- Cost avoided for report maintenance.

- Labor productivity increase for BI team members.

We have not quantified any benefits associated with process improvements experienced by the organization because we were unable to gather the data that would be needed to do this. Forrester notes that the organization experienced numerous process improvements that result from improved data insights that were enabled with Tableau. We encourage readers to examine their business processes to determine where improved data visibility may lead to process or other improvements.

We have not quantified any benefits associated with end users creating reports versus BI analysts. The value of this benefit may be calculated from the time differences needed to create reports and the difference in pay rates between BI analysts and end users. Forrester has chosen not to include this benefit in the overall ROI because we are unable to determine how many of the 275 new reports were created by the BI team that is the focus of this study versus other BI teams and how many reports that were created by end users versus BI analysts.

Timing Of Benefits

The organization's adoption of Tableau was gradual. This means that benefits that arise from decreased maintenance load for the BI analysts and increased BI analyst productivity accrued gradually over the three years that the organization has used the product. To account for this, we assume that 50% of benefits are accrued in Year 1, 80% in Year 2, and 100% in Year 3. Forrester urges readers to closely examine potential Tableau adoption and usage scenarios in their organizations to determine the potential timing of benefits.

Cost Avoided — Report Maintenance

Prior to converting its reports to Tableau, it required one FTE per month to maintain the 75 standardized reports. After converting its reporting environment to Tableau Server and Tableau Desktop, the organization found that it took 10 hours per month to maintain 350 reports. The value of this benefit is equal to the difference in effort required to maintain 350 reports in the old environment versus the new environment. The difference in effort is 736.7 labor hours per month (see row G5, Table 9). This equates to $433,500 annually. The total cost avoided is $997,050.

Table 9

Cost Avoided — Report Maintenance

Ref.	Metric	Calculation	Per period	Year 2	Year 3	Total
G1	Number of hours/month needed to maintain 75 reports in prior environment (one FTE)		160			
G2	Number of hours/month needed to maintain one report	G1/75	2.133			
G3	Equivalent number of hours/month needed to maintain 350 reports	G2*350	746.7			
G4	Number of hours/month needed to maintain 350 reports in the Tableau environment		10			
G5	Number of hours saved per month	G3-G4	736.7			
G6	BI team analyst hourly rate	A1*A3/A4	$49.04			
Gt	Cost avoided — report maintenance	G5*G6*12	$433,500			
Gto	Total (original)		$216,750	$346,800	$433,500	$997,050
	Percentage recognized		50%	80%	100%	

Source: Forrester Research, Inc.

Labor Productivity Improvement — BI Analysts

Prior to using Tableau Desktop and Tableau Server, the BI team devoted its time to report writing and maintenance. The report writing and publishing process was very laborious, requiring writing code for the Web site, data preparation, and actual report development. Each time a new report was generated, the Web site code was modified to accommodate it. Using Tableau Server and Tableau Desktop, almost all of the labor effort has been automated, and end users create the majority of the reports. We learned that this saved the organization three FTEs.

According to the manager that we interviewed, "We focus our time now [on doing] the applications instead of generating reports." To calculate the value of the labor productivity improvement, we assume the organization avoided hiring three additional FTEs to perform the application development that the BI team now currently does. We also

assume that the BI team uses 80% of its time on application development, the remainder being spent on management and other tasks. The annual value of this benefit is $563,040 (see Table 10).

Table 10

Labor Productivity Improvement — BI Analysts

Ref.	Metric	Calculation	Per period	Year 2	Year 3	Total
H1	Number of developers		3			
H2	BI team analyst fully loaded salary	A1*A3	$102,000			
H3	Percentage captured		80%			
Ht	Labor productivity improvement — BI analysts	H1*H2*H3	$244,800			
Hto	Total (original)		$122,400	$195,840	$244,800	$563,040
	Percentage recognized		50%	80%	100%	

Source: Forrester Research, Inc.

Total Benefits

The total value of the benefits is $1,560,090 (see Table 11).

Table 11

Total Benefits

Benefits	Initial	Year 1	Year 2	Year 3	Total
Cost avoided — report maintenance		216,750	346,800	433,500	997,050
Labor productivity improvement — BI analysts		122,400	195,840	244,800	563,040
Total		$339,150	$542,640	$678,300	$1,560,090

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 Tableau Desktop and Tableau 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 C).

The organization has greatly expanded its use of Tableau Desktop, and now has more than 80 Tableau Desktop licenses. The organization can further capitalize on its investment should it decide to increase its use of data to optimize its processes and as a management tool.

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 Tableau Desktop and Tableau 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 Tableau Desktop and Tableau 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 investment 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:

- The effort needed to prepare data for Tableau end users and convert old reports to Tableau will vary with the complexity of the data, data cleanliness, the number of data sources, and the number of existing reports.

- The cost to create reports using Tableau will vary with the relative expertise of each individual and the state (preparedness) of the underlying data sources.

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

- The level of automation that is introduced into the report publishing and maintenance process after Tableau is introduced into the organization.

- The amount of report writing that end users undertake.

Table 12 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 12

Cost And Benefit Risk Adjustments

Costs	Low	Most likely	High	Mean
Data preparation and report conversion costs	100%	100%	140%	113%
New report creation costs	100%	100%	115%	105%
Benefits	**Low**	**Most likely**	**High**	**Mean**
Cost avoided — report maintenance	50%	100%	100%	83%
Labor productivity improvement — BI analysts	50%	100%	100%	83%

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 Tableau Desktop and Tableau Server. These are shown in Table 13 below.

Table 13
Cash Flow — Non-Risk-Adjusted

Cash flow — original estimates						
	Initial	Year 1	Year 2	Year 3	Total	PV
Benefits	$0	$339,150	$542,640	$678,300	$1,560,090	$1,266,398
Costs	($272,077)	($45,798)	($86,798)	($86,798)	($491,471)	($450,658)
Net benefits	($272,077)	$293,352	$455,842	$591,502	$1,068,619	$815,739
ROI	181%					
Payback period (months)	11					

Source: Forrester Research, Inc.

Table 14 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 12 in the Risk section to the cost and benefits numbers in Tables 8 and 11.

Table 14
Cash Flow — Risk-Adjusted

Cash flow — risk-adjusted estimates						
	Initial	Year 1	Year 2	Year 3	Total	PV
Benefits	$0	$281,495	$450,391	$562,989	$1,294,875	$1,051,110
Costs	($278,197)	($48,088)	($89,088)	($89,088)	($504,461)	($462,473)
Net benefits	($278,197)	$233,406	$361,303	$473,901	$790,414	$588,637
ROI	127%					
Payback period	13					

Source: Forrester Research, Inc.

Tableau Desktop And Tableau Server: Overview

Tableau Desktop

Tableau Desktop is a software application that lets any business user graphically analyze structured data to produce maps, charts, graphs, dashboards and reports in minutes. Tableau's drag-and-drop interface allows customization of views, layouts, shapes, colors and more. Users can create dashboards, highlight across views, add filters and drill down with a few clicks of the mouse. There is no programming required to create views or dashboards. Users can publish views to Tableau Server to share them securely, or paste images or data into presentations and files.

Tableau works with a variety of data files and databases, including Oracle, Teradata, Vertica, SQL, MySQL, Access and other databases, as well as Excel files and text files. There is no limit on the size of data that can be work with. It is also possible in Tableau to join tables in a database, or blend data from two different data sources in the same view. Tableau Desktop can connect live to data sources or extract data into Tableau's Data Engine, an architecture-aware in-memory data store that is optimized for analytical queries.

Tableau Server

Tableau Server is a business intelligence application allows users to share live, interactive data visualizations, dashboards, and reports. Tableau Server has enterprise-class security and performance and can supported deployments of thousands of users. Reports are published to Tableau Server from Tableau Desktop. Reports published to Tableau Server can be modified and republished without any programming or custom scripts. Tableau Server integrates with ActiveDirectory and supports common security standards. Refreshed data can be published to Tableau Server at anytime or on an automated schedule. It allows users to save customized views, send links to views or embed them in portals like Sharepoint, and comment on views. There is no limit on the size of data that can be worked with in Tableau Server. Users can use the Tableau Data Engine, a local data store, to take load off critical infrastructure or connect live to leverage fast databases.

Appendix A: Interviewed Organization No. 2 — Benefits

The second company we interviewed is a midsize financial brokerage firm and is a subsidiary of a larger full-service financial services firm. The firm has 6,000 employees and has $180 billion in assets in its retail operations.

Prior to using Tableau, the organization used a variety of third-party products for dashboarding and data analysis. A total of three BI analysts (the "BI team") prepared reports for the business units. The BI team's customer base consisted of 40 people. The reports were used for strategic purposes in marketing research and finance. Request of reports were placed in a queue after they were received, with reports for the regulatory and compliance groups jumping to the head of queue. The BI analysts generated 10 to 15 reports per month, and it usually took three weeks from receiving a report to delivering it the requestor. Usually, no data preparation was needed, as all the necessary data was already in ETL format. The BI team maintained 50 reports that required regular data refreshes. Updated reports were emailed out to their respective users. It took 10 to 15 hours per month to maintain these reports.

The BI team had reached a state of gridlock because of the cumulative time needed to create new visualizations and dashboards, to refresh reports with new data and emailing the reports to their users. Faced with increasing demand for new reports, the BI team needed a platform that would dramatically decrease report creation time. Subsequent to that, it needed a system that would minimize the effort needed to update and distribute reports.

Tableau Desktop was purchased primarily for its data visualization capabilities, and Tableau Server was purchased for its updating and distribution capabilities. At the time of writing, the organization has been using Tableau Desktop for five years and Tableau Server for one year. The organization has six Tableau Desktop users, with 120 Interactors and 20 Readers on the Tableau Server.

After deploying Tableau Desktop and Tableau Server, the organization experienced the following benefits:

- Reduced the time needed to create a report from 16 to 24 hours to 2 to 4 hours, or by more than 500%. The BI team increased the total number of reports that are updated regularly from 50 to 120. This equates to an avoided cost of approximately $55,000 in report creation expense.

- Reduced the report maintenance effort to 0 hours. The BI team manager estimates that in the prior environment, it would have taken 50 hours per month to maintain 120 reports. This equates to $27,700 in avoided maintenance costs annually.

- Avoided $40,000 annually in geospatial data feeds because of the geospatial analytical capabilities that are built directly in Tableau Desktop.

- Can distribute more reports to more users with no incremental effort. Report distribution used to be a bottleneck for the organization. It estimates that 10% to 15% of users log into Tableau Server every day for strategic work. This is in contrast to looking at an old report at the beginning of each month. The soft benefit is greater user involvement with the data.

- Experienced a "creative lift" when creating new reports. It found it "very easy" to swap visual formats in Tableau Desktop, making it simple to evaluate different visual formats during development. Development was also simplified because Tableau Desktop plugged easily into its data without the need to prework it.

- The organization uses Tableau Desktop's visualization capabilities to examine fees schedules against client risk factors and then determine from which clients revenues are generated. This allowed the firm to optimize its fee schedules for its clients.

- The use of Tableau Desktop and Server has been so successful that the organization anticipates that the number of Tableau Server users will increase from 120 in 2010 to more than 500 in 2011.

Appendix B: Interviewed Organization No. 3 — Benefits

The third company is a large online media company with more than 80 online sites and properties. Its primary source of revenue is from online advertizing. We interviewed the leader of the BI team. BI teams are spread across the company, with no overall BI governance.

Prior to using Tableau Desktop, the company used tools from leading BI vendors to prepare reports and visualizations from data contained from internal SQL databases and a variety of Web analytics data received from third parties. Reports were distributed manually via email. The BI team had a chargeback scheme for the reports it generated. Chargeback rates ranged from 2 to 400 hours and have charged $700,000 for a CEO-level eight-page dashboard. BI reports are distributed by email, but the vast majority of people were mailing out Excel spreadsheets.

The BI team originally purchased a visualization tool for examining data in its global workforce. It found that Tableau Desktop "was as if someone who analyzed data built the tool" and that it "paid for itself in weeks from productivity." The organization started with eight Tableau Desktop licenses. Tableau Desktop usage grew organically and is now at more than 100 licenses. Of these users, 50 are active publishers on the Tableau Server, and more than 900 are users on the Tableau Server. Tableau Desktop is used in more than 50 groups throughout the organization ranging in size from 50 to 150 users

Over the three-year period of using Tableau Desktop and Tableau Server, the organization found that:

- Tableau Desktop delivers large BI analyst and report generator productivity increase. After a reduction in force where about 80 report generators and analysts were lost, the organization experienced no reduction in the quantity or quality of reports and analytics. It found that Tableau replaced more than 20% of the laid-off analysts due to productivity increases. What it took the person we interviewed a week to produce using traditional BI tools took less than 2 hours to produce with Tableau Desktop.

- There is a much stronger alignment between data preparers and consumers. Because reports and visualizations are relatively easily prepared and accessed with Tableau Server and Tableau Desktop, the people who are responsible for raw data and getting into a structured form are forced to talk to the analysts who transform the data into something meaningful and who are in turn working much more closely with the executives who consume the data.

- Tableau Desktop puts more control in the analysts' hands because it allows them to offer executives alternate views of the data.

- Reports are far more widely distributed and read. Analysts can publish to the Web without righting code. The person we interviewed commented that "even the CEO has connected to Tableau [Server]."

Appendix C: 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 D: 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 E: 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 17.