The Total Economic Impact™ Of Tableau

Cost Savings And Business Benefits Enabled By Tableau

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ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit forrester.com/consulting.

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Investment Benefits

Reduced time for users to evaluate the same data and reach similar conclusions:
$2.2 million

Reduced cost of depreciation (or similar improvements to business operation):
$1.9 million

Avoided cost of alternate software products:
$65,308

Executive Summary

Tableau provides a platform to analyze and visualize data. It helps customers improve the quality of insights for decision makers and allows the enterprise to present that data graphically and rapidly to decision makers throughout the company, such as customer-facing delivery or supply chain management. Tableau customers experience a shift to a data-centered culture and increased data literacy companywide. Employees increasingly make decisions regarding both major strategic choices and minor operational changes using data to inform their choices.

Tableau commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Tableau on their organizations. To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed several customers with years of experience using Tableau.

Prior to using Tableau, the customers struggled to put timely and relevant data into the hands of business users, present dashboards that enabled quality decision making, and allow managers to sort out salient data points from mounds of reports. In Forrester's interviews, one executive said: "As we looked at the massive amounts of data that we had across the enterprise, we had to face the questions: 'How can we get a look across our entire company? What are we going to use? Are the current tools we are using capable of providing what we need? How do we help decision makers gain insights to manage the business rather than just process routine data?'"

After deploying Tableau, customers reported an accelerated ability to put the right data in the right hands at the right time. In addition, with data available and a presentation platform, some customers turned many people who were otherwise "doing their job" into employees capable of enabling customer success. To this point, one interviewee said: "We don't have to wait for daily or weekly reports any longer. The pace of our business accelerated using measures for customer satisfaction, fleet management, remote locations, and corporate management. Our company as a whole became better informed and more proactive, which has resulted in increased revenue growth and higher profitability."

Key Findings

Quantified benefits. The following risk-adjusted present value (PV) quantified benefits are representative of those experienced by the companies interviewed:

› **Accelerated speed for evaluating and making decisions worth $2.2 million.** Using Tableau reduced the effort for data collection, organization, and evaluation by an average of 30 minutes per day per user. Each customer Forrester interviewed reached thousands of users over several years, making a productivity impact across their organizations.

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ROI
587%

Benefits PV
$4.2 million

NPV
$3.5 million

Payback
<3 months

› **Increased efficiency of business operations valued at $1.9 million.** Almost every customer Forrester interviewed experienced an impact on the effectiveness of business. Some customers realized increased revenue, greater customer retention, reduced cost of fuel for a transportation company, or (as in the example on which this benefit is modeled) the reduced cost of depreciation for a company managing a complex fleet of vehicles. One executive said, "Shining the data visualization spotlight on existing problems can easily highlight issues that result in huge financial results."

› **Avoided $65,308 in costs of alternate software products.** As adoption of Tableau increased, the companies were able to retire subscriptions to software tools that became redundant or were superseded by capabilities within Tableau.

Unquantified benefits. The interviewed organizations experienced the following benefits, which are not quantified for this study:
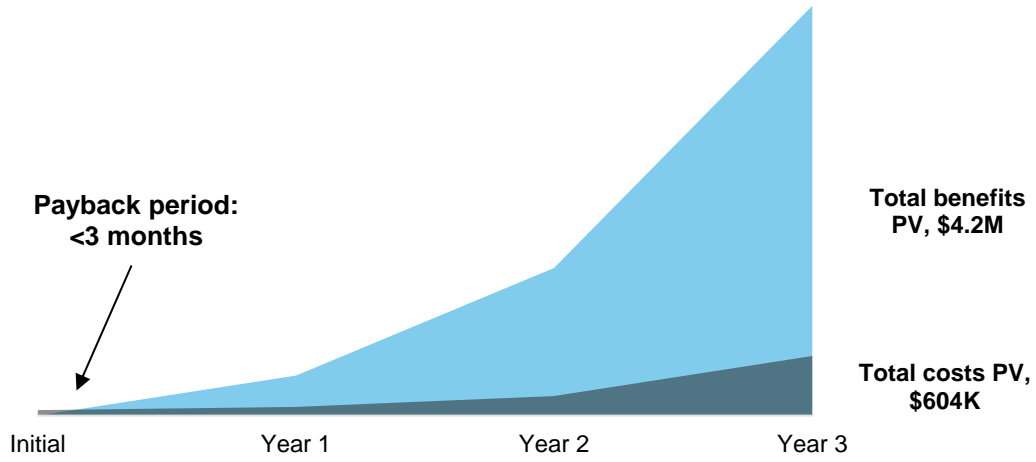
› **Supported ongoing journey to a data-driven company culture.** Tableau provided functionality and data delivery capabilities that keep data and fact-based decision making as the norm across the customer enterprise.

› **Anticipated needs and tailored programs to customers.** Tableau put information into the hands of the right people, including customer-facing employees, to enable better customer service and tailor offerings more precisely.

› **Enabled collaboration and continued innovation in data analysis.** Data analysts deepened their skills and increased their understanding of business needs through collaborative communities.

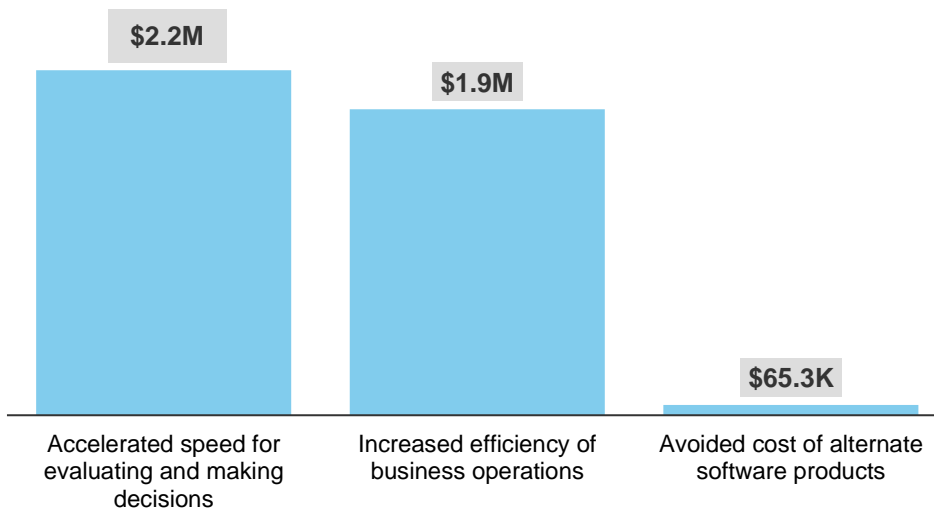**Costs.** The interviewed organizations experienced the following risk-adjusted PV costs:

› **Tableau licenses and support totaling $343,861 over three years.** Forrester modeled a growth trajectory based on the experiences of the customers who participated in interviews. It accounts for the cost of licenses for a small team of 50 users in the first year with a rapid expansion to 300 users in second year, followed by large-scale adoption by 1,500 users in the third year.

› **Cloud compute resources costing $93,744.** The cloud compute services also started small with a capacity of eight computing-core servers that grew to require 32 cores within three years.

› **Staff to manage environment adding up to $111,853.** The organizations incurred a cost to manage, maintain, and support the Tableau environment. This cost varied with the number of users and ranged from a single employee working part time to dedicated specialists for larger companies.

› **Implementations and configurations worth $54,450.** Configuring the environment and implementing initial Tableau use cases typically required the effort of three employees providing 50% of their time over four months.

Forrester's interviews with eight existing customers and subsequent financial analysis found that a composite organization based on these findings would experience benefits of $4.2 million over three years versus costs of $603,908, adding up to a net present value (NPV) of $3.5 million and an ROI of 587%.

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Financial Summary

Payback period:
<3 months

Total benefits
PV, $4.2M

Total costs PV,
$604K

| Initial | Year 1 | Year 2 | Year 3 |

Benefits (Three-Year)

$2.2M

$1.9M

$65.3K

| Accelerated speed for evaluating and making decisions | Increased efficiency of business operations | Avoided cost of alternate software products |

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TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing Tableau.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Tableau can have on an organization:

DUE DILIGENCE
Interviewed Tableau stakeholders and Forrester analysts to gather data.

CUSTOMER INTERVIEWS
Interviewed eight organizations using Tableau to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION
Designed a composite organization based on characteristics of the interviewed organizations.

FINANCIAL MODEL FRAMEWORK
Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.

CASE STUDY
Employed four fundamental elements of TEI in modeling Tableau's impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Tableau and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Tableau.

Tableau reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes that contradict Forrester's findings or obscure the meaning of the study.

Tableau provided the customer names for the interviews but did not participate in the interviews.

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The Tableau Customer Journey

BEFORE AND AFTER THE TABLEAU INVESTMENT

Interviewed Organizations

For this study, Forrester conducted eight interviews with Tableau customers. Interviewed customers include the following:

INDUSTRY	INTERVIEWEE	CUSTOMER CIRCUMSTANCES
Internet commerce	Product director	Launched Tableau to replace a previously used proprietary data warehouse. It currently has 24,000 users, about 10% of whom are labeled creators.
Supply chain services	Director of business intelligence	Began with a core team of 50 users. Within four years, the company expanded to an enterprisewide license as it deployed users and dashboards across the company.
Technology products	Director of IT	Initiated Tableau relationship with 60 users, which increased to 200 within 18 months. Over five years, the number of users grew to about 5,000.
Financial services	Business intelligence architect	Built three distinct Tableau environments: one for external, customer-facing functions and the other two for in-house operations. The company has a total of 11,000 users at the time of this study.
Travel and entertainment	Director of business intelligence	Launched Tableau more recently and has a total of 550 users today, 50 of whom are creators.
Transportation	Director of business intelligence	Began with a core team of 100 users, which expanded to include 300 creators, about 2,000 explorers, and 5,000 guest users (described elsewhere in this study as viewers).
Financial services	Director of analytics as a service	Managed an internal center of excellence that provides coaching and mentoring to business units scattered around the globe. The central team of roughly 10 people supports more than 80 power users and thousands of data viewers.
Internet commerce	VP of analytics	Used Tableau to bridge and international coalition and later merger of internet services around the global. Tableau provided a common analytics platform that captured and conveyed the official voice of the customer.

Key Challenges

During interviews, the executives shared key challenges or problems that drove their need for an alternate solution. Those issues included:

› **Burying key information within a mountain of reports.** One executive said: "We had a lot of useful information that was being sent around in spreadsheets, but it took too much effort for managers to extract actionable points from it. Because of the difficulty of extracting information from the reports, the data wasn't providing any additional value. We needed to link broader information sets and tie it to revenue and cost to be valuable."

› **Ensuring that business analysts kept pace with an evolving data-centric company culture.** The travel and entertainment executive said: "The company was undergoing a cultural shift with regards to data and data management. I didn't want the business analytics team to become a bottleneck. We needed a tool that could promote self-service."

"When I was interviewed to join the company for business intelligence, the people that I spoke with indicated that the organization was three years behind competitors. That's where I started. Because the attitude was that we were so far behind, executives were willing to invest a lot of time and energy into supporting programs, especially when they started seeing results."

Business intelligence architect, financial services

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> › **Working to catch up with competitors in terms of business analytics.** The financial services interviewee mentioned: "When I was interviewed to join the company for business intelligence, the people that I spoke with indicated that the organization was three years behind competitors. That's where I started. Because the attitude was that we were so far behind, executives were willing to invest a lot of time and energy into supporting programs, especially when they started seeing results."

> › **Shifting to a KPI culture without a presentation platform for data.** The transportation executive told Forrester: "We had an internal initiative to build an enterprise dashboard for business operations. We encountered a challenge of where to locate the dashboard so that the data could trickle out to the field. After evaluating a number of technologies, we chose Tableau as our main data visualization tool."

Solution Requirements

The interviewed organizations searched for a solution that could:

> › **Scale across a global organization.** The executive at the technology product company said: "Use of Tableau grew rapidly across the organization. In fact, [it grew] exponentially crazy. At one point, the number of users doubled every quarter. We had entire departments come to us and say, 'Someone showed us Tableau, and we want to use it across our team.' This was followed by entire functions that wanted to leverage Tableau for things such as asset tracking, marketing programs, channel management, and a tool for new managers joining the company."

> › **Function at an enterprise level and with an intuitive interface.** Another executive added, "We needed to do seat testing, user acceptance testing, and about one week of training."

> › **Engage business leaders by providing clear value from the start.** The executive in the travel and entertainment industry said: "We put five platforms through a thorough and detailed evaluation. It was also critical for us to move the business analytics team out of the IT organization and relocate into the business units. I knew that it was critical that we got the business leaders engaged."

> › **Establish trust and confidence in users that the data was correct.** The transportation executive contributed: "Data governance needs to play a major role in deploying Tableau. Users across the organization need to feel comfortable with data, knowing that they can trust it is accurate, and that it's certified. We had users asking: 'Can I make decisions on this data? Is it accurate?'"

Key Results

The interviews revealed that key results from the Tableau investment include:

> › **Building relationships and credibility for IT services.** One financial services executive told Forrester: "Because business users wanted to learn and become more effective with Tableau, we created internal user activities that had a positive vibe and gave users time to interact and meet IT staff that they would otherwise be unlikely to ever meet."

> "We put five platforms through a thorough and detailed evaluation. It was also critical for us to move the business analytics team out of the IT organization and relocate into the business units. I knew that it was critical that we got the business leaders engaged."
>
> *Director of business intelligence, travel and entertainment*

> "We took the same information that used to be sprawled across a six- to 10-page report and packaged into a digital report that was unique to a manager's area of responsibility three times per day. We moved from data 'hunt and peck' to providing timely, relevant insights."
>
> *Director of business intelligence, supply chain services*

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› **Increasing customer satisfaction.** The transportation executive said: "Using Tableau as a tool is increasing our understanding of customers. We are seeing tangible improvements in our Net Promoter Scores and in customer satisfaction.[1] Those gains are from programs that are informed by Tableau. So Tableau doesn't cause the increase, but it definitely enables decision makers and customer-facing employees. Every field employee has a tablet. They know their operational targets, and they can track productivity in almost real time."

› **Elevating actionable points above the noise of abundant data.** One executive mentioned: "We took the same information that used to be sprawled across a six- to 10-page report and packaged into a digital report that was unique to a manager's area of responsibility three times per day. We moved from data 'hunt and peck' to providing timely, relevant insights."

› **Integrating analysis across data platforms.** The internet commerce executive told Forrester: "Tableau gives us a platform to extend data beyond our data warehouse. We combine data from the data warehouse that is based on one technology and integrate it with data from another database platform."

› **Allowing business-friendly naming conventions.** One interviewee said: "Tableau really helped from an enterprise data governance standpoint by allowing more friendly naming conventions. I don't want to say that it's a semantic lab, but it does give us the ability to make things more business-friendly. Within Tableau, we've been able to provide the necessary metadata associated with the data sets, the timing of them, and the definitions of columns."

› **Evaluating data models and testing assumptions.** Another executive added: "Tableau gives us a sandbox-like environment for data management. It enables us to quickly bring together information, determine if things are missed, and run a bunch of test queries. The ability to layer visualization on top of data allows us to quickly determine if the data needs further scrutiny."

› **Cocreating queries and reports with the decision makers.** The executive from the technology products company said: "We can now sit down with a business user and make changes on the fly right in front of them. This is amazing. We are no longer going back and forth to identify requirements, run queries, and refine the data and query until we get it right. Many times, by sitting down with a decision maker, we can go through iterations to refine the data for them and have it done in 30 minutes. This impacts time-to-market, ease of use, and trust between business leaders and our business analysts."

› **Engaging business analysts on more complex opportunities.** The financial services executive said: "With dashboards and other basic information available automatically, I can take the extra time that our analysts spent running manual data modeling and assign them to some other problem that has more value."

"With dashboards and other basic information available automatically, I can take the extra time that our analysts spent running manual data modeling and assign them to some other problem that has more value."

Product director, internet commerce

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Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the eight companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization that Forrester synthesized from the customer interviews has the following characteristics:

› Grows rapidly with:

- 50 users in Year 1.
- 300 users in Year 2.
- 1,500 users in Year 3.

› Defines different levels of users as:

- **Creators.** Users who need full ability to prepare, transform, analyze, and create visualizations for others. In addition to analysts, core data management users who define and manage enterprise data will use the creator license. In companies with well-established Tableau implementations, roughly 10% of users are creators.
- **Explorers.** This group includes sophisticated users who are familiar with their company's data model, nuances, and assumptions with limited ability to modify data views and adapt content. Explorers can connect to published data models in order to examine and modify analytical content. These users can also explore data through Tableau's natural language interface, Ask Data. The explorers typically make up about 25% of the total users.
- **Viewers.** This is the largest group and comprises users or consumers of data who don't have the ability to directly modify or edit the data. As companies mature, this group typically comprises 60% to 65% of the overall user population.

Analysis Of Benefits

QUANTIFIED BENEFIT DATA AS APPLIED TO THE COMPOSITE

	Total Benefits				
Ref.	**Benefit**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Atr	Accelerated speed for evaluating and making decisions	$62,100	$445,500	$2,316,600	$2,824,200	$2,165,132
Btr	Increased efficiency of business operations	$382,500	$860,625	$1,147,500	$2,390,625	$1,921,121
Ctr	Avoided cost of alternate software products	$0	$14,250	$71,250	$85,500	$65,308
	Total benefits (risk-adjusted)	$444,600	$1,320,375	$3,535,350	$5,300,325	$4,151,561

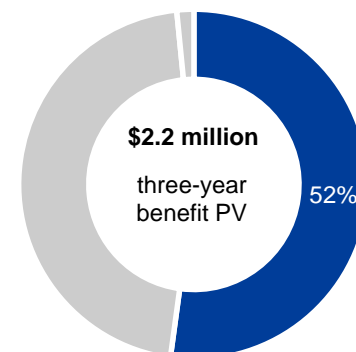## Accelerated Speed For Evaluating And Making Decisions

The companies that Forrester interviewed realized an immediate benefit of users gaining faster access to data. For some, the faster time was due to avoiding the back and forth between decision makers and analysts that often resulted in lengthy lag between generating ideas and making decisions. But it also required numerous iterations to get to the right nuggets of information for a decision maker to validate a hypothesis or to confirm a hunch. According to the executives interviewed, the average user saved 30 minutes per day to get the same data and arrive at the same conclusions.

In the financial model, Forrester tracked the productivity improvement to the number of users.

› In Year 1, an average of 40 users realized the value. This was usually described as a core team of users or a single business team that implemented Tableau and began experimenting with its functionality.

› In Year 2, the number of users increased dramatically as executives saw the value and requested to be included.

› In Year 3, the user population for the companies that Forrester interviewed exploded, and Tableau often became the de facto tool used throughout the enterprise.

Although the average user saved 30 minutes per day, Forrester experience indicates that only a fraction of productivity improvements are redirected into measurable results. As such, Forrester adjusted this benefit based on the percent of time savings that users should expect to recover in the form of additional productivity by 30%. This means that a person who saved 30 minutes of time using Tableau would contribute an average of 9 minutes in additional value to the organization. This value will vary based on the type of work and the impact of each individual employee.

> The table above shows the total of all benefits across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of nearly $4.2 million.

$2.2 million

three-year benefit PV

52%

Accelerated speed for evaluating and making decisions: 52% of total benefits

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Because Forrester heard similar accounts of adoption and growth across the interviews, we believe that the majority of readers will experience a similar result — albeit scaled to the size and complexity of their organizations. As such, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of $2.2 million.

| Accelerated Speed For Evaluating And Making Decisions: Calculation Table					
Ref.	Metric	Calculation	Year 1	Year 2	Year 3
A1	Number of users (excluding creators)	From interviews	40	285	1,480
A2	Percentage of time saved (per year)	30 mins per *240 days per year	5.8%	5.8%	5.8%
A3	FTEs saved	A1*A2	2.3	16.5	85.8
A4	Averaged burdened salary	Composite	$100,000	$100,000	$100,000
A5	Percentage of time recovered	Composite	30%	30%	30%
At	Accelerated speed for evaluating and making decisions	A3*A4*A5	$69,000	$495,000	$2,574,000
	Risk adjustment	↓10%			
Atr	Accelerated speed for evaluating and making decisions (risk-adjusted)		$62,100	$445,500	$2,316,600

Increased Efficiency Of Business Operations

Nearly every executive shared descriptions of the impact Tableau had on their business operations, but the specific journey from insights to financial results varied. Examples included:

› Increased customer satisfaction and engagement and higher retention of customers through better supply chain management.

› Reduced cost of fuel for a fleet in the transportation industry by optimizing the performance of assets.

› Reduced cost of depreciation for a company with an extensive fleet that used Tableau to assess the optimal times to financially benefit from the purchasing and retiring of vehicles as investments.

As with the number of users, the business results from using Tableau to make decisions also improved with time. Forrester used the last example to represent the benefits impact on the business because the example was clear and the customer provided superb data. Forrester modeled impact in Year 1 of 1% for eight months of the year (after implementation), followed by a 1.5% reduction in depreciation in Year 2. The impact rose to a 2% reduction in depreciation by Year 3.

Although most readers are unlikely to significantly reduce depreciation expenses by millions of dollars, many of the interviewees shared similar results that impacted their business operations. To account for this uncertainty, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted total PV of $1.9 million.

$1.9 million

three-year benefit PV

46%
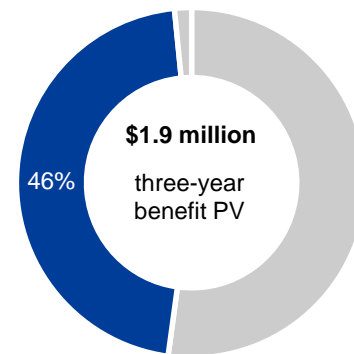
Increased efficiency of business operations: 46% of total benefits

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Increased Efficiency Of Business Operations: Calculation Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B1	Business operational cost (e.g., annual depreciation)	From interviews	$450,000,000	$450,000,000	$450,000,000
B2	Reduced cost (e.g., of depreciation)	From interviews	1.0%	1.5%	2.0%
B3	Percentage of year realized (rounded percentage shown for Year 1)	From interviews	67%	100%	100%
B4	Percentage attributed to Tableau	From interviews	15%	15%	15%
Bt	Increased efficiency of business operations	B1*B2*B3*B4	$450,000	$1,012,500	$1,350,000
	Risk adjustment	↓15%			
Btr	Increased efficiency of business operations (risk-adjusted)		$382,500	$860,625	$1,147,500

Avoided Cost Of Alternate Software Products

A final and less significant benefit was the avoided cost of paying for software products the companies previously licensed. The cost savings began in the second year as business executives across the company relied heavily on Tableau and increased in the third year.

Forrester believes that most organizations will realize a similar benefit, partly because the savings were modest compared to previous analytical tools — which are spreadsheets for many organizations. To account for this risk, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted total PV of $65,308.

> Impact risk is the risk that the business or technology needs of the organization may not be met by the investment, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for benefit estimates.

Avoided Cost Of Alternate Software Products: Calculation Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
C1	Cost of tools retired by the organization	From interviews		$15,000	$75,000
Ct	Avoided cost of alternate software products	=C1	$0	$15,000	$75,000
	Risk adjustment	↓5%			
Ctr	Avoided cost of alternate software products (risk-adjusted)		$0	$14,250	$71,250

Unquantified Benefits

In addition to the benefits outlined above, the interviewed executives shared other benefits that did not have specific financial implications. While quantification of these benefits is not readily available, their impact on business outcomes should not be overlooked. Specifically, the companies benefited in the following ways:

› **Supported ongoing journey to a data-driven company culture.** One executive said: "I need to continue driving a shift in culture. Tableau gives me a way to show managers how to view information in a way that they did not know was possible. My team can rapidly develop dashboards for new business purposes that continue to drive a broader change in culture among managers. To me, this capability is absolutely key."

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> › **Anticipated needs and tailored programs to customers.** The travel and hospitality executive said: "We can now look at the language requirements of customers that are arriving so that we can bring in staff with additional language skills or make other adjustments that make the experience more positive for customers. The ability to get that information at the push of a button is huge."

> › **Enabled collaboration and continued innovation in data analysis.** The financial services executive said: "Collaboration is a huge benefit of using Tableau. We have social groups of users that meet, collaborate, and share ideas." For example, research often halts because the analyst lacks technical knowledge. One goal of using Tableau is to reduce the number of scenarios where expertise is required to advance analysis. A collaborative community of users often results in getting insights sooner.

Overall, these more intangible benefits can be seen as contributors toward becoming an insights-driven organization that can drive top-line growth. As a result, an insights-driven business harnesses and implements digital insights strategically and at scale to drive growth and create differentiating experiences, products, and services. Forrester research indicates:

"Insights-driven business can sustain exponential revenue growth because they are built differently in five fundamental ways: 1) They have operating models that depend on insights implemented in software; 2) they ensure that insights are always actionable; 3) they continuously experiment and learn; 4) they invest in data, analytics, and insights strategically; and 5) they make insights-to-action a team sport."[2]

Flexibility

The value of flexibility is clearly unique to each customer, and the measure of its value varies from organization to organization. There are multiple scenarios in which a customer might choose to implement Tableau and later realize additional uses and business opportunities, including:

> › **Integrating Tableau data with web services data.** The financial services executive said: "Several years ago, we didn't talk about it much, but today we are discussing API and API calls. We are looking at all kinds of web connections and asking: 'What is next? What code do we use with that one? What new services are opening?'"

> › **Supporting mobile delivery.** The internet commerce interviewee told Forrester: "We are seeing huge growth in mobile adoption. Mobile is driving some of the biggest investments in terms of the kinds of analytics development and usage."

> › **Expanding to business partners.** The same executive added: "We are looking for ways to deliver data and results via Tableau to our business partners. It could be a really interesting market opportunity for us because a lot of the value we add is connecting consumers and suppliers."

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

> Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for a 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.

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Analysis Of Costs

QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE

	Total Costs						
Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Dtr	Cost of Tableau license and support	$0	$29,736	$89,350	$323,414	$442,500	$343,861
Etr	Cost of cloud compute resources	$0	$3,300	$19,800	$99,000	$122,100	$93,744
Ftr	Cost of staff to manage environment	$0	$3,938	$23,625	$118,125	$145,688	$111,853
Gtr	Cost to implement and configure	$54,450	$0	$0	$0	$54,450	$54,450
	Total costs (risk-adjusted)	$54,450	$36,974	$132,775	$540,539	$764,738	$603,908

Cost Of Tableau License And Support

During interviews, customers told Forrester that they started with a small, core team that set up Tableau and began using it, usually to address a discrete, focused business challenge. Two of the companies originally launched Tableau to build a business dashboard. In each situation, the core team using Tableau attracted the attention of additional users who requested access, which then exploded into widespread use in the following year.

Forrester built a financial model that is based on the typical growth of the interviewed companies and typical implementation sizes and costs for a customer over the first three years. It is based on the following number of users:

> Year 1: 50 users. These users consist of 10 creators and 40 explorers who understand the data structure, how to leverage Tableau, and how to lay the foundation for more casual users.

> Year 2: 300 users. The number of creators increased to 15 users and the number of explorers increased to 80 users. In addition, the organization added more than 200 hundred casual users called viewers.

> Year 3: 1,500 users. By the third year, the number of viewers expanded to 1,300 users supported by 20 creators and 160 explorers.

Because pricing used is based on list prices from Tableau, Forrester did not risk-adjust this cost, yielding a three-year risk-adjusted total PV of $343,861.

The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of $603,908.

Implementation risk is the risk that a proposed investment may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost estimates.

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Cost Of Tableau License And Support: Calculation Table

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
D1	Total number of users	From interviews		50	300	1,500
D2	Number of viewer users	From interviews		0	205	1,320
D3	License cost per viewer license	$12/month		$144	$144	$144
D4	Total cost for viewer license	D2*D3		$0	$29,520	$190,080
D5	Number of explorer users	From interviews		40	80	160
D6	License cost per explorer user	$35/month		$420	$420	$420
D7	Total cost for explorer users	D5*D6		$16,800	$33,600	$67,200
D8	Number of creator users	From interviews		10	15	20
D9	License cost per creator user	$70/month		$840	$840	$840
D10	Total cost for creator users	D8*D9		$8,400	$12,600	$16,800
D11	Annual support	Calculated		$4,536	$13,630	$49,334
Dt	Cost of Tableau license and support	D4+D7+D10+D11	$0	$29,736	$89,350	$323,414
	Risk adjustment	0%				
Dtr	Cost of Tableau license and support (risk-adjusted)		$0	$29,736	$89,350	$323,414

Cost Of Cloud Compute Resources

Of the eight interviewees, four hosted their Tableau implementation in the cloud and four managed it on-premises. Typically, the server capacity started small and then grew with the number of users. Several of the customers indicated that their Tableau environment grew to consume as much as 32 cores. Most organizations indicated that they spent from $40,000 to $100,000 annually to host their enterprisewide Tableau implementation.

Forrester used public cloud pricing to configure compute resources that scaled with the number of users and used an average value of $60 per user per year for the model. Given that this cost is less than the cost of Tableau licenses, most organizations will face little risk of costs spiraling out of control. Nevertheless, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of $93,744.

Cost Of Cloud Compute Resources: Calculation Table

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
E1	Cost of cloud compute resources	$60/user/year		$3,000	$18,000	$90,000
Et	Cost of cloud compute resources	=E1		$3,000	$18,000	$90,000
	Risk adjustment	↑10%				
Etr	Cost of cloud compute resources (risk-adjusted)		$0	$3,300	$19,800	$99,000

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Cost Of Staff To Manage Environment

Similar to compute resources, the composite organization requires some degree of labor to manage and maintain the Tableau environment. Among the interviewed companies, the investment ranged from "one person does this in addition to their regular job" to employing several dedicated employees (for a very large customer).

In the financial model, Forrester calculated the cost of system admin work to be $75 per user per year. In the early stages with fewer users, the administration role was to set up and make changes. As the number of users increased the admin role shifts to supporting the data structure and integrity. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year risk-adjusted total PV of $111,853.

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
Cost Of Staff To Manage Environment: Calculation Table						
F1	Average admin cost	$75/user/year		$3,750	$22,500	$112,500
Ft	Cost of staff to manage environment	=F1		$3,750	$22,500	$112,500
	Risk adjustment	↑5%				
Ftr	Cost of staff to manage environment (risk-adjusted)		$0	$3,938	$23,625	$118,125

Cost To Implement And Configure

The original configuration and setup of the Tableau environment required a minor investment by employees. In total, Forrester modeled an environment created by three employees who spent 50% of their time over four months valued at a total cost of $49,500.

The cost that readers are likely to incur will vary with their specific objective. Two of the interviewed customers were implementing dashboards that required more effort and integration. To account for the risks that costs will vary, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of $54,450.

**Three employees** spent 50% of their time for four months implementing and configuring Tableau.

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
Cost To Implement And Configure : Calculation Table						
G1	Three employees		3			
G2	Fifty percent of time		50%			
G3	Four months (years)		0.33			
G4	Average burdened salary		$100,000			
Gt	Cost to implement and configure	G1*G2*G3*G4	$49,500	$0	$0	$0
	Risk adjustment	↑10%				
Gtr	Cost to implement and configure (risk-adjusted)		$54,450	$0	$0	$0

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Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)

Total costs
Total benefits
Cumulative net benefits
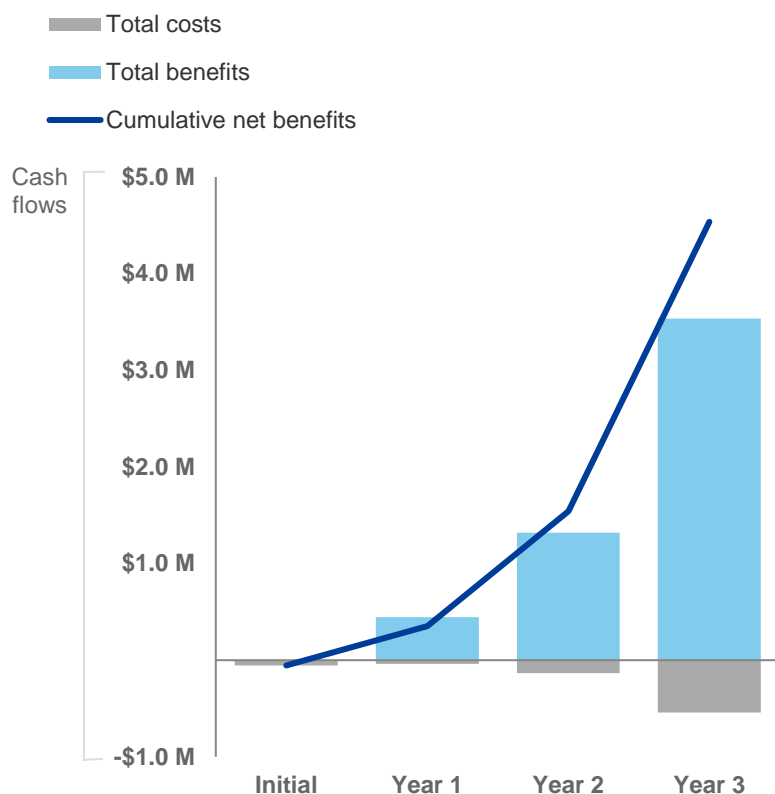
The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (risk-adjusted estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($54,450)	($36,974)	($132,775)	($540,539)	($764,738)	($603,908)
Total benefits	$0	$444,600	$1,320,375	$3,535,350	$5,300,325	$4,151,561
Net benefits	($54,450)	$407,627	$1,187,600	$2,994,811	$4,535,588	$3,547,653
ROI						587%
Payback period (months)						<3

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Tableau: Overview

The following information is provided by Tableau. Forrester has not validated any claims and does not endorse Tableau or its offerings.

Tableau helps people see and understand data. Tableau's self-service analytics platform empowers people of any skill level to work with data. From individuals and nonprofits to government agencies and the Fortune 500, tens of thousands of customers around the world use Tableau to get rapid insights and make impactful, data-driven decisions. See how Tableau can help you by downloading the free trial at tableau.com/trial.
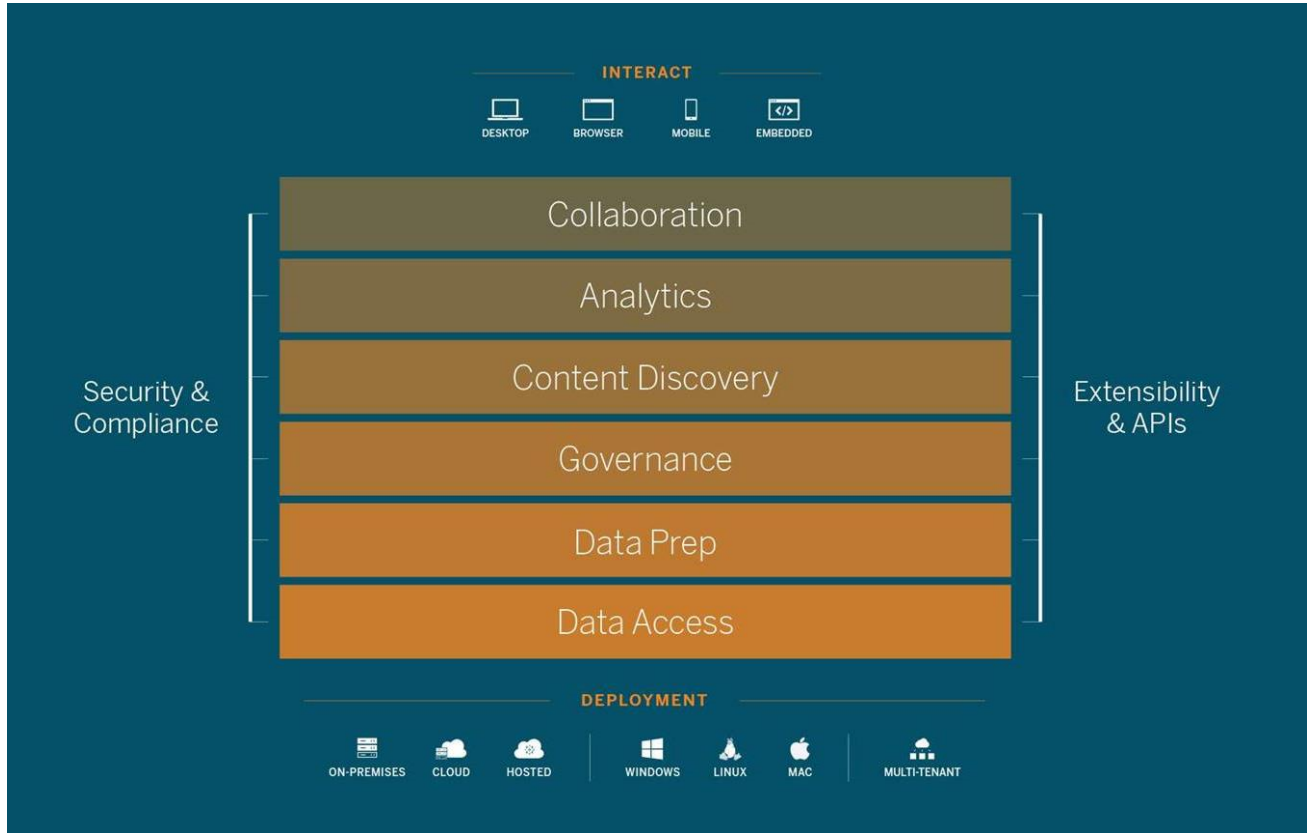
Appendix A: Total Economic Impact

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.

Total Economic Impact Approach

Benefits represent the value delivered to the business by the product. The TEI methodology places 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.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

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 NPV of cash flows.

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.

Return on investment (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

Discount rate

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

Payback period

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

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Appendix B: Endnotes

[1] Net Promoter and NPS are registered service marks, and Net Promoter Score is a service mark, of Bain & Company, Inc., Satmetrix Systems, Inc., and Fred Reichheld.

[2] Source: "Insights-Driven Businesses Set The Pace For Global Growth," Forrester Research, Inc., October 19, 2018.

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