

# The Total Economic Impact™ Of Elasticsearch

Cost Savings And Business Benefits  
Enabled By Elasticsearch

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## ABOUT FORRESTER CONSULTING

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## Executive Summary

Enterprise search platforms ingest, organize, and understand data from enterprise data sources to provide employees, customers, and/or the public access to information that spans multiple data sources and content types<sup>1</sup>. Common challenges include connecting to data sources, tuning the results for more precise answers, and efficient scaling to maximize performance and optimize compute resources. Elasticsearch is designed to address multiple use cases and to help enterprises overcome these key challenges.

[Elasticsearch](#) builds upon the Elastic Stack group of open-source products to supply fast search response times for large concurrent requests of large unstructured or semi-structured datasets. Elasticsearch is a document datastore with advanced machine learning capabilities that can transform data into dense vectors, gets smarter with machine learning, and can employ transformer models to, and related algorithms to, find and surface the most relevant results for users.

Elastic commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Elasticsearch.<sup>2</sup> The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Elasticsearch on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed five representatives with experience using Elasticsearch. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single [composite organization](#) that is global, has 4,000 employees, and

### KEY STATISTICS



Return on investment (ROI)  
**293%**



Net present value (NPV)  
**\$12.05M**

generates annual revenue of \$750 million. The organization has customer facing and employee facing solutions that support revenue generating services as well as internal solutions that provide labor productivity in addition to the intended use cases.

Interviewees noted that prior to using Elasticsearch, their organizations had issues with response times, user scalability, data source scalability, stability, functionality, flexibility, and cost and that attempts to resolve the performance and capability issues leads to excessive costs.

After the investment in Elasticsearch, the interviewees' organizations expanded their existing solutions and added new solutions because previously existing search issues were resolved. Key results from the investment include a significant increase in revenues from search-assisted solutions, cost reductions, labor productivities, and reductions in search team turnover.

Revenue improvement by  
year 3 due to Elasticsearch

**5%**



## KEY FINDINGS

**Quantified benefits.** Three-year, risk-adjusted present value (PV) quantified benefits for the composite organization include:

- **Margin increase due to revenue improvements of \$7.9 million.** By implementing Elasticsearch, the composite organization increases its revenue with existing search solutions and accelerates the development of new solutions throughout the organization. The composite organization sees improvements in performance, scale of data volume, scale of consolidating data sources, total cost of ownership (TCO), stability, and capabilities such as better analytics and presentation prioritization.
- **Employee-related labor productivity savings of \$5.9 million.** By year two, 75% of the composite organization's 4,000 employees save time due to the improvement to search capabilities. With a combination of better performance, consolidation of more sources, built-in analytics, and a better presentation of results, employees see an effective time savings of 2 hours per month by year three.
- **Licensing, storage, internal labor, and external services cost savings of \$2.0 million.** With Elasticsearch, the composite organization saves more than 25% over its prior search solution. Licensing, storage, internal labor, and professional services cost less than they did with the previous solution.
- **IT labor savings from reduced recovery activities worth \$200,000 per year.** Elasticsearch improves the stability of the composite organization's search back-end and the solution has a more effective architecture and recovery process than the composite's previous search back-end.
- **Savings of \$84,000 from reduced recruiting and new hire costs due to improved retention**

**of back-end search team.** The composite organization sees an improvement in employee satisfaction within the back-end search team which leads to a noticeable improvement in employee retention.

**Unquantified benefits.** Benefits that provide value for the composite organization but are not quantified in this study include:

- **Having a trusted business partner.** Interviewees shared that the Elastic team meets with their organizations' teams regularly and provides advice on architecture, problem solving, business use cases, etc.
- **Improved customer satisfaction.** Interviewees shared that their organizations' customers appreciate the performance improvements, stability improvements, improved result completeness, and better organization of results.
- **Better decision making.** Interviewees said their organizations use Elasticsearch for business intelligence (BI) analyses, which leads to better decision-making.
- **End-user labor savings due to performance, stability, and associated down-time reduction costs.** Interviewees said their organizations' customers and employees saw time savings due to better response times and reduced disruptions.
- **More collaboration across groups.** Interviewees shared that IT organizations are collaborating more on search solutions because developers are enthusiastic about using Elasticsearch to better serve their organizations' internal customers.
- **Improving performance using Application Performance Monitoring (APM).** Some interviewees shared that their organization tunes performance by using the complementary solution, Elastic APM, for observability. Performance improves not only by tuning

production search, but also by tuning prior to production — most commonly during testing.

- **Improvements to cyber security.** Interviewees shared that their organizations' back-end search teams have identified threats using Elasticsearch that lead to action by their security teams.

**Costs.** Three-year, risk-adjusted PV costs for the composite organization include:

- **Licensing and professional services costs of \$524,000.** The composite organization enlists Elastic professional services for architecture planning, training, and advisory activities. With on-going expanded use of Elasticsearch over time, the organization uses additional professional services resources during new engagements. Licensing is well articulated in advance and is less expensive than the composite's previous solution.
- **Internal labor and storage costs of \$3.6 million.** The composite organizations' original Elasticsearch implementation requires internal labor and temporarily duplicated resources in proportion to the size of its previous solution. The back-end search team reallocates some team members while other groups form new Elastic search teams over time.

The representative interviews and financial analysis found that a composite organization experiences benefits of \$16.17M over three years versus costs of \$4.12M, adding up to a net present value (NPV) of \$12.05M and an ROI of 293%.



ROI  
**293%**



BENEFITS PV  
**\$16.17M**



NPV  
**\$12.05M**



PAYBACK  
**<6  
months**

### Benefits (Three-Year)

Margin increase due to revenue improvements

\$7.9M

Employee-related labor productivity

\$5.9M

Licensing, storage, internal labor, and external service costs

\$2.0M

IT labor savings from reduced recovery activities

\$201.4K

Reduced recruiting and new-hire costs due to improved retention of back-end search team

\$83.9K

**“[With Elasticsearch] we have modernized our solution. The user experience is fast and includes analytics. We now have both resiliency and scalability. [It’s] a complete reversal [from the past].”**

— Global head of sales management platform, financial services



## TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in Elasticsearch.

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 Elasticsearch can have on an organization.

### DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Elastic 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 study to determine the appropriateness of an investment in Elasticsearch.

Elastic 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.

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



### DUE DILIGENCE

Interviewed Elastic stakeholders and Forrester analysts to gather data relative to Elasticsearch.



### INTERVIEWS

Interviewed five representatives at organizations using Elasticsearch to obtain data with respect to costs, benefits, and risks.



### COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewees' 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 interviewees.



### CASE STUDY

Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, 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.

# The Elasticsearch Customer Journey

## ■ Drivers leading to the Elasticsearch investment

### Interviews

Role	Industry	Region	Revenue
Global head of sales management platform	Financial services	Global	> \$100 billion
Digital workplace technical product manager	Retail	Global	\$20 billion
Director of data analytics and engineering R&D	Networking products	Global	\$5 billion
Enterprise search architect	Networking products	Global	\$20 billion
Data engineering manager	Real estate	United States	\$200 million

### KEY CHALLENGES

Prior to implementing Elasticsearch, the interviewees' organizations had similar experiences with their search and data extraction solutions. Interviewees said the solutions were expensive, inflexible, slow, could not be scaled to meet business requirements and did not provide sought-after functionality.

The interviewees noted how their organizations struggled with common challenges, including:

- **Slow, unstable, and inconsistent user experience.** Two common themes were that the organization's previous search solution provided a sub-optimal user experience while not meeting user business requirements. Interviewees said performance was sometimes so poor that users had timeout failures and that results were sometimes inconsistent from one request to the next or not organized effectively.
- **Unmet business requirements due to lack of flexibility and functionality and inability to scale.** Interviewees said lack of scalability was a common issue and that it prevented the expansion of prior solutions and limited customer growth. They also described functionality limitations, such as not having controls over ranking results, not being able to adjust quickly to

### Voice of the Customer

**"We previously provided an unacceptable user experience to our [external] customers. Results would frequently take a long time, or even time out."**

*– Director of data analytics and engineering R&D, networking products*

**"Previously we had a third-party provider that was expensive while supplying slow response times and key data was refreshed too infrequently."**

*– Data engineering manager, real estate*

**"With our prior search engine, the propagation of data was taking much longer and was showing inconsistent results for customers."**

*– Director of data analytics and engineering R&D, networking products*



demand changes, and not having built-in analytics to optimize deliverables.

- **Exponentially growing solutions costs while employee satisfaction issues worsened.** Interviewees shared that data storage and labor costs for development and maintenance were growing with expansion efforts due to performance, scaling, and stability issues. Some interviewees attributed developer turnover to their organizations' previous solutions.

documentation, and analyzing customers, products, competitors, etc.

**Deployment characteristics.** Use cases for customers and prospective customers include revenue generating services and sharing product and solution information. Employee and partner-based use cases included operational information, product and solution information, customer information consolidation in knowledge bases and revenue generating analyses.

**“Our prior solution provided our customers with their data related to contracts, installed devices, order management, and more. It was very slow – painfully slow.”**

*Director of data analytics and engineering R&D, networking products*

#### Key Assumptions

- **Global organization**
- **\$750 million annual revenue**
- **4,000 employees**
- **Has internal- and external-facing search solutions**

## COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected. The composite organization is representative of the five interviewees, and it is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

**Description of composite.** The global organization provides search capabilities to customers, prospective customers, and its 4,000 employees, and it generates \$750 million in annual revenue. Most of the organization's 4,000 employees benefit or could benefit from effective search capabilities for activities, such as supporting customers, obtaining

# 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	Margin increase due to revenue improvements	\$2,430,000	\$3,240,000	\$4,050,000	\$9,720,000	\$7,929,602
Btr	Employee related labor productivity	\$1,183,200	\$2,662,200	\$3,549,600	\$7,395,000	\$5,942,669
Ctr	Licensing, storage, internal labor, and external service costs	\$809,838	\$809,838	\$809,838	\$2,429,513	\$2,013,946
Dtr	IT labor savings from reduced recovery activities	\$81,000	\$81,000	\$81,000	\$243,000	\$201,435
Etr	Reduced recruiting and new hire costs due to improved retention of back-end search team	\$33,750	\$33,750	\$33,750	\$101,250	\$83,931
Total benefits (risk-adjusted)		\$4,537,788	\$6,826,788	\$8,524,188	\$19,888,763	\$16,171,583

## MARGIN INCREASE DUE TO REVENUE IMPROVEMENTS

**Evidence and data.** Interviewees said Elasticsearch helped their organizations increase revenue by fixing the current state of existing use cases, enabling the expansion of existing use cases, and enabling solution development for additional use cases. They said their organizations saw revenue improvements for direct revenue generating solutions as well as for solutions that drive additional revenue through customer satisfaction improvements, product or service selling, and search capabilities for internal sales assistance.

- Each interviewee from an organization with a revenue generating solution described how implementing Elasticsearch dramatically improved the user experience, be it for direct customer users or internal users. Customers and prospects received fast responses to searches that were more personalized, better prioritized and structured, and contained analyses that were previously unavailable...

- Interviewees said Elasticsearch provided scaling and functionality improvements that allowed their organization to significantly expand both the users served and the content of the use cases. Interviewees described increasing the number of users served by nearly 10 times with no performance issues and they said expanding the data sources presented provides the users with more complete pictures related to their requests.

**“Elasticsearch improved performance by four times, even with a larger database. We were able to onboard larger customers. We now have 10 times the volume with no concerns about performance.”**

*Director of data analytics and engineering R&D, networking products*

- Interviewees said the success of Elasticsearch solutions spread to other areas of their organizations, both through the impetus of the business community and the IT community. They also said time-to-market and the quality of the new solutions improved with the collaboration that resulted from having a developer community that was enthusiastic about building innovative solutions with a modern platform to meet business requirements.

**“In one application we were able to quickly scale up from 1,000 clients to 9,000 clients.”**

*Global head of sales management platform, financial services*

**Modeling and assumptions.** To calculate the value of this benefit for the composite organization, Forrester assumes the following:

- The composite organization’s base revenue is \$750 million per year.

- The revenue increase due to an improvement in performance and results of existing search solutions is 1% per year.
- The revenue increase due to scaling improvements and associated opportunities is 1% per year.
- The revenue increase from new solutions due to internal expansion because of Elasticsearch is 1% in year 1, 2% in year 2, and 3% in year 3.
- The composite’s net margin is 12%.

**Risks.** Risks that could impact the realization of this benefit include:

- The extent to which search is associated with revenue opportunities.
- The performance, scaling, and functionality of existing search solutions.
- The business or IT strategy related to capitalizing on enterprise search.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$7.9 million.

Margin Increase Due To Revenue Improvements					
Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Overall revenue, pre-Elastic	Composite	\$750,000,000	\$750,000,000	\$750,000,000
A2	Revenue increase for existing solution due to better performance and results	Interviews	1.0%	1.0%	1.0%
A3	Revenue increase from expansion due to scaling and associated opportunities	Interviews	1.0%	1.0%	1.0%
A4	Revenue increase from new solutions due to internal use expansion	Interviews	1.0%	2.0%	3.0%
A5	Margin	TEI standard	12%	12%	12%
At	Margin increase due to revenue improvements	$A1 \times A2 \times A3 \times A4 \times A5$	\$2,700,000	\$3,600,000	\$4,500,000
	Risk adjustment	↓10%			
Atr	Margin increase due to revenue improvements (risk-adjusted)		\$2,430,000	\$3,240,000	\$4,050,000
Three-year total: \$9,720,000			Three-year present value: \$7,929,602		

## EMPLOYEE RELATED LABOR PRODUCTIVITY

**Evidence and data.** Interviewees shared that employees in many roles were more productive by using solutions with Elasticsearch internally. They cited numerous factors, including the speed in obtaining results, the increased breadth of information shared, the transition of off-line analyses and consolidations now done on-line, and the improved organization of the information presented. Users who benefited from the use of Elasticsearch included front-line retail workers and their managers, analysts, sales representatives, real estate agents, and various management roles.

Evidence in support of labor productivity included reduced employee bounce rates compared to with prior solutions, reduced use of spreadsheets to gather and analyze data, receiving direct analyses from Elasticsearch that were previously done manually, and a reduction in the use of printouts.

- The percentage of employees who benefit from Elasticsearch is 50% in year 1 and 75% in years 2 and 3.
- The effective time savings per employee per month is 1 hour in year 1, 1.5 hours in year 2, and 2 hours in year 3.

**“With [Elasticsearch] we are now more effective at supplying our retail employees with what they are looking for with minimal effort. They get more, better, faster, and simpler. The time savings have been fairly significant.”**

*Digital workplace technical product manager, retail*

**“We have quadrupled the revenue of our data analytics solution due to [Elasticsearch], with associated costs growing slightly over two times.”**

*Director of data analytics and engineering R&D, networking*

**Modeling and assumptions.** To calculate the value of this benefit for the composite organization, Forrester assumes the following:

- The composite organization has 4,000 employees.
- The average hourly cost of an employee who benefits from search applications is \$58.

**Risks.** Risks that could impact the realization of this benefit include:

- The average cost of employees.
- The ability to improve employee productivity through search capabilities.
- The percentage of employees that can benefit from improved search capabilities.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$5.9 million.

Employee Related Labor Productivity					
Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Number of employees	Composite	4,000	4,000	4,000
B2	Average hourly cost of an employee who benefits from search applications	TEI standard	\$58	\$58	\$58
B3	Percentage of employees who benefit from search applications	Interviews	50%	75%	75%
B4	Average effective time savings per employee per month (hours)	Interviews	1.0	1.5	2.0
Bt	Employee related labor productivity	$B1*B2*B3*B4*12$ months	\$1,392,000	\$3,132,000	\$4,176,000
	Risk adjustment	↓15%			
Btr	Employee related labor productivity (risk-adjusted)		\$1,183,200	\$2,662,200	\$3,549,600
Three-year total: \$7,395,000			Three-year present value: \$5,942,669		

## LICENSING, STORAGE, INTERNAL LABOR, AND EXTERNAL SERVICE COSTS

**Evidence and data.** Interviewees shared that the total cost of ownership of the search back-end operations with Elasticsearch was more than 25% less expensive than their organizations' previous search tool. The savings generally occurred in every cost category associated with search, licensing, storage, internal labor, and professional services. Interviewees also noted that the cost differential would be even greater with growth, due to the necessary actions that would have been required to deal with the performance, scaling, and stability issues of previous search tools.

**Modeling and assumptions.** To calculate the value of this benefit for the composite organization, Forrester assumes the following:

- The annual licensing cost of the composite's previous search solution was \$98,750.
- The composite's previous storage cost was \$325,000 annually.
- The composite's back-end team has three FTEs.

- The average fully loaded annual labor cost of back-end team members was \$163,000.
- The composite's professional services cost was \$40,000.

**Risks.** Risks that could impact the realization of this benefit include:

- Licensing costs.
- Storage usage.
- Back-end team size, which may vary considerably, based upon database administrator (DBA) and other staffing requirements.
- Labor costs.
- Use of professional services.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of \$2.0 million.

Licensing, Storage, Internal Labor, And External Service Costs					
Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Licensing cost for search solution	Interviews	\$98,750	\$98,750	\$98,750
C2	Storage cost for search solution	Interviews	\$325,000	\$325,000	\$325,000
C3	Number of search team (FTEs)	Interviews	3.0	3.0	3.0
C4	Average fully loaded annual labor cost of a search team member	TEI Standard	\$163,000	\$163,000	\$163,000
C5	External services cost for search solution	TEI Standard	\$40,000	\$40,000	\$40,000
Ct	Licensing, storage, internal labor, and external service costs	$C1+C2+(C3 \times C4)+C5$	\$952,750	\$952,750	\$952,750
	Risk adjustment	↓15%			
Ctr	Licensing, storage, internal labor, and external service costs (risk-adjusted)		\$809,838	\$809,838	\$809,838
Three-year total: \$2,429,513			Three-year present value: \$2,013,946		

## IT LABOR SAVINGS FROM REDUCED RECOVERY ACTIVITIES

**Evidence and data.** Interviewees described two scenarios that would lead to temporary outages and recovery efforts: one due to human error and one due to the instability of their organization's prior search solution. They said implementing Elasticsearch eliminated outages caused by the platform. And for outages caused by human error, interviewees said the Elasticsearch architecture reduced the breadth of the outage. They also said the recovery process for Elasticsearch reduced the time and the number of resources required to complete the recovery, but they did not estimate the effects of outages on the end users.

The director of data analytics and engineering R&D at a networking products organization shared, "The previous deployment was costly from a database perspective and with disruptions. Availability was completely compromised once a quarter. [Elasticsearch] has been very stable, even though we have expanded significantly."

**"With our prior solution a developer error could lock up a database for hours, [which would bring] down the whole application. With [Elasticsearch], only a fraction of the application would be affected, and one developer would fix it in 30 minutes."**

*Global head of sales management platform, financial services*

**Modeling and assumptions.** To calculate the value of this benefit for the composite organization, Forrester assumes the following:

- The composite organization's previous recovery costs were \$100,000 per year.
- Elasticsearch reduces the recovery costs by 90%



**Risks.** Risks that could impact the realization of this benefit include:

- The outage frequency, breadth, and severity of outages.
- The amount of partitioning.
- The effort to recover from an outage.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$201,000

### IT Labor Savings From Reduced Recovery Activities

Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Annual recovery costs due to unstable search solutions or human errors	Composite	\$100,000	\$100,000	\$100,000
D2	Cost savings due to Elasticsearch stability and effective recovery process	Interviews	90%	90%	90%
Dt	IT labor savings from reduced recovery activities	D1*D2	\$90,000	\$90,000	\$90,000
	Risk adjustment	↓10%			
Dtr	IT labor savings from reduced recovery activities (risk-adjusted)		\$81,000	\$81,000	\$81,000
Three-year total: \$243,000			Three-year present value: \$201,435		

### REDUCED RECRUITING AND NEW-HIRE COSTS DUE TO IMPROVED RETENTION OF BACK-END SEARCH TEAM

**Evidence and data.** Interviewees shared that employee satisfaction within their organizations' back-end search team is much better than in the past, which led to retention improvements. They said search teams no longer have the stress of needing to constantly deal with performance and stability issues. They said the teams have also been able to meet customer requirements such as scaling data and users as well as providing analytics, better prioritization, and better formatting of results. They also said back-end search teams are happy that they work with a modern solution. The data engineering manager at a real estate organization shared, "Since moving to [Elasticsearch], our back-end team has had no turnover. They are now in control and are making both customers and agents happy."

**Modeling and assumptions.** To calculate the value of this benefit for the composite organization, Forrester assumes the following:

- The composite organization's cost of recruiting, on-boarding, and associated new hire costs are \$75,000 per employee.
- The composite organization avoids recruitment and on-boarding costs for 0.5 FTEs per year.

**"We turned around a developer retention issue. Elastic has provided a nimble environment where we are doing modern things. Employee satisfaction is much better."**

*Global head of sales management platform, financial services*

**Risks.** Risks that could impact the realization of this benefit include:

- Organizational culture and the maturity of prior solution.
- Recruiting, on-boarding, and other new-hire costs.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of \$83,900.

#### Reduced Recruiting And New-hire Costs Due To Improved Retention Of Back-End Search Team

Ref.	Metric	Source	Year 1	Year 2	Year 3
E1	Recruiting, onboarding, and other associated new-employee costs	TEI standard	\$75,000	\$75,000	\$75,000
E2	FTEs per year retention improvement	Interviews	0.5	0.5	0.5
Et	Reduced recruiting and new hire costs due to improved retention of back-end search team	E1*E2	\$37,500	\$37,500	\$37,500
	Risk adjustment	↓10%			
Etr	Reduced recruiting and new hire costs due to improved retention of back-end search team (risk-adjusted)		\$33,750	\$33,750	\$33,750
Three-year total: \$101,250			Three-year present value: \$83,931		

#### UNQUANTIFIED BENEFITS

Interviewees mentioned the following additional benefits that their organizations experienced but were not able to quantify:

- Having a trusted business partner.** Interviewees shared that the Elastic team meets with their organizations' teams regularly and provides advice on architecture, problem solving, business use cases, etc.
- Improved customer satisfaction.** Interviewees shared that their organizations' customers and prospects are happier with the current solutions with Elasticsearch as the back-end search engine. Common benefits included performance improvements, stability improvements, result completeness, and better organization of results.
- Better decision-making.** Interviewees shared that their organizations are using Elasticsearch

for business intelligence (BI) analyses, which led to better decision-making. The data engineering manager at a real estate organization shared, "We are using Elasticsearch to better understand markets, agents, franchises, and competitors. This was an unexpected benefit, that has been very valuable."

**"They are a partner. They were very much on board with getting us up and moving initially. And the support they've been able to provide has been very good."**

*Digital workplace technical product manager, retail*

- **End-user labor savings due to stability, performance, and associated down-time reduction costs.** Although they were not able to quantify the benefits of having more stability and a reduction in outage time, interviewees recognized the importance of the improvements. With their organizations' customers, the reduction in outages and improved stability provides customer labor productivity, reduces reputation harm, and likely increases revenue. For employees as end users there is a labor productivity benefit. For help desk staff, testers, support staff, and developers there are time savings from the reduction in performance, stability, and outage issues. The data engineering manager at a real estate organization shared, "We have far fewer issues. The benefits cascade from users to help desk to tier 3 support."
- **More collaboration across groups.** Interviewees shared that their Organizations' IT team are collaborating more on search solutions because developers are enthusiastic about using Elasticsearch to better serve internal customers.

tuning prior to production - most commonly in testing.

- **Improvements to cybersecurity.** Interviewees shared that their organizations' back-end search teams have identified threats using [Elasticsearch] that lead to action by their security teams. The data engineering manager at a real estate organization shared, "Although we aren't formally using Elastic for security, we constantly identify scripting attacks trying to go through our proxy servers to figure out exploits. We share our findings with the security team, and they block them by changing the API gateway or disallowing IP addresses."

**"Elastic use is spreading throughout the company. There are multiple groups collaborating, many with multiple projects."**

*Director of data analytics and engineering R&D, networking*

- **Improving performance using Application Performance Monitoring (APM).** Some interviewees shared that their organization is tuning performance by using Elastic APM for observability. They said performance is better not only by tuning production search, but also by

## FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Elasticsearch and later realize additional uses and business opportunities, including:

- **Time-to-market improvement.** Interviewees shared that their organizations' ability to develop and implement a new solution that included search improved due to Elasticsearch. They said this is partially due to improvements to implementation effort with Elasticsearch and the expanded knowledgebases that are evolving in the interviewees' organizations.
- **Having the flexibility of a cloud environment.** Interviewees shared that implementing in a cloud environment provided flexibility and allowed the scaling and shifting of resources that was not readily available with previous solutions.
- **Built-in functionality enables new growth opportunities and flexibility in hiring practices.** Interviewees shared that Elasticsearch's functionality and scaling either expanded or simplified the use of capabilities such as advanced analytics and machine learning, data manipulation, data aggregation, and prioritization. In addition to expanding deliverables, and pursuing new opportunities, interviewees shared that certain job requirements can be eased due to combined aggregations and analytics now available.

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

## Voice of the Customer

**“[Elasticsearch] enabled us to deliver more functionality much faster. I describe it as [providing] multifaceted growth opportunities.”**

*– Global head of sales management platform, financial services*

**“[Elasticsearch’s] ability to do processing that we used to have to do in Java without a performance hit has been very important. We now have more processing capabilities. [Elasticsearch] allows us to do more manipulations, aggregations, and calculations.”**

*– Director of data analytics and engineering R&D, networking products*

**“My organization now has no physical assets [in its search infrastructure]. It’s all 100% cloud native. I can move things very quickly. I don't know how to put a dollar amount on it, but there is a significant labor productivity [gain], and [Elasticsearch] deserves a lot of credit.”**

*– Global head of sales management platform, financial services*

# 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
Ftr	Licensing and professional services	\$110,000	\$115,500	\$162,250	\$232,375	\$620,125	\$523,678
Gtr	Internal labor and storage costs	\$440,000	\$688,600	\$1,294,700	\$1,942,050	\$4,365,350	\$3,595,091
	Total costs (risk-adjusted)	\$550,000	\$804,100	\$1,456,950	\$2,174,425	\$4,985,475	\$4,118,769

## LICENSING AND PROFESSIONAL SERVICES

**Evidence and data.** Interviewees shared that their organizations enlisted Elastic professional services for architecture planning, training, and advisory activities. With on-going expanded use of Elasticsearch over time, the organizations used additional professional services resources. Interviewees said licensing was well articulated in advance and less expensive than previous solutions.

**Modeling and assumptions.** To calculate the value of this cost for the composite organization, Forrester assumes the following:

- The composite organization utilized Elastic professional services for the original implementation at a cost of \$100,000.
- The composite organization utilizes Elastic professional services for future projects at a cost of \$20,000 per year.

- Due to rapid project expansion, the composite organizations' licensing cost is \$85,000 in year 1, \$127,500 in year 2, and \$191,250 in year 3.

**Risks.** Risks that could impact the realization of this cost include:

- The need for professional services, which will vary based upon project complexity, previous architecture, customer's skill levels, and customer resource constraints.
- The organization's licensing costs, which may vary based on licensing terms including volume discounts.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$524,000.

Licensing And Professional Services						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
F1	Professional services for implementation	Interviews	\$100,000			
F2	Licensing	Interviews		\$85,000	\$127,500	\$191,250
F3	On-going professional services	Interviews		\$20,000	\$20,000	\$20,000
Ft	Licensing and professional services	F1+F2+F3	\$100,000	\$105,000	\$147,500	\$211,250
	Risk adjustment	↑10%				
Ftr	Licensing and professional services (risk-adjusted)		\$110,000	\$115,500	\$162,250	\$232,375
Three-year total: \$620,125			Three-year present value: \$523,678			

## INTERNAL LABOR AND STORAGE COSTS

**Evidence and data.** Interviewees shared that their organizations' original Elasticsearch implementation required internal labor and temporary duplicated resources in proportion to the size of the previous solution. The back-end search teams were able to reallocate some team members while new Elasticsearch teams formed over time in other groups.

**Modeling and assumptions.** To calculate the value of this cost for the composite organization, Forrester assumes the following:

- For implementation, the composite organization utilizes internal labor and resources totaling \$400,000.
- The original Elasticsearch solution had 2 FTEs for all 3 years. These FTEs handle user and data increases of the original solution as well as additional group projects.
- The composite organization adds 2 FTEs both in year 2 and year 3, to create new Elasticsearch teams in other organizations.

- Due to solution growth and additional solutions, the composite organizations' data storage costs are \$300,000 in year 1, \$525,000 in year 2 and \$787,500 in year 3.
- The average fully loaded annual labor cost of a back-end team members was \$163,000.

**Risks.** Risks that could impact the realization of this cost include:

- The implementation effort and resources, which will vary based upon project complexity, previous architecture, solution size, and customer's skill levels.
- The opportunities for additional search solutions.
- The corporate culture and cooperation across departments, which will vary and can affect the time to begin and complete new search projects with Elasticsearch.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of \$3.6 million.

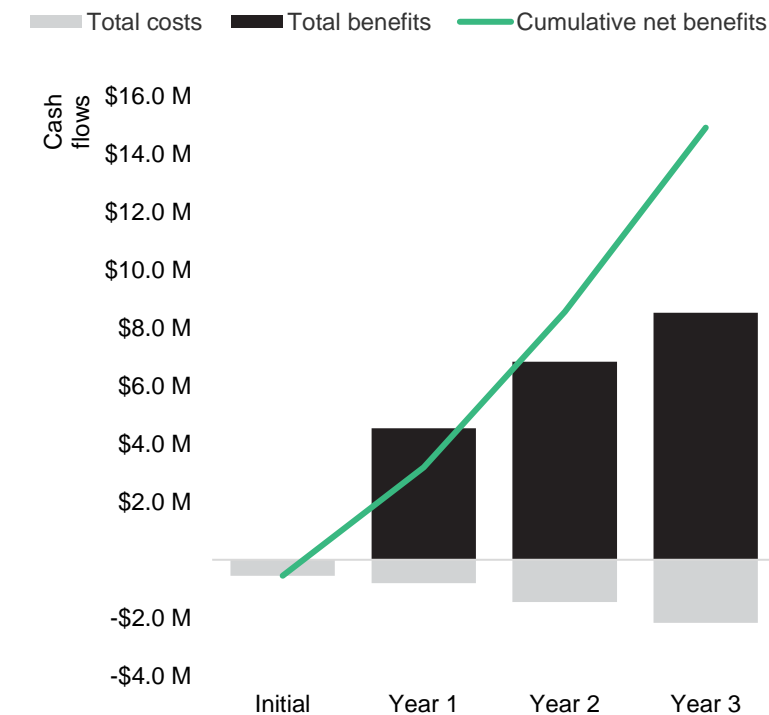
Internal Labor And Storage Costs						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
G1	Internal implementation costs	Interviews	\$400,000			
G2	Number of search team members (FTEs)	Interviews		2.0	4.0	6.0
G3	Average fully loaded annual labor cost of a search team member	TEI standard		\$163,000	\$163,000	\$163,000
G4	Storage costs	Interviews		\$300,000	\$525,000	\$787,500
Gt	Internal labor and storage costs	$G1+(G2*G3)+G4$	\$400,000	\$626,000	\$1,177,000	\$1,765,500
	Risk adjustment	↑10%				
Gtr	Internal labor and storage costs (risk-adjusted)		\$440,000	\$688,600	\$1,294,700	\$1,942,050
Three-year total: \$4,365,350			Three-year present value: \$3,595,091			



# Financial Summary

## CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

### Cash Flow Chart (Risk-Adjusted)



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	(\$550,000)	(\$804,100)	(\$1,456,950)	(\$2,174,425)	(\$4,985,475)	(\$4,118,769)
Total benefits	\$0	\$4,537,788	\$6,826,788	\$8,524,188	\$19,888,763	\$16,171,583
Net benefits	(\$550,000)	\$3,733,688	\$5,369,838	\$6,349,763	\$14,903,288	\$12,052,814
ROI						293%
Payback period (months)						<6

## 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.

## Appendix C: Supplemental Material

### *Related Forrester Research*

“The Forrester Wave: Cognitive Search,” Forrester Research, Inc., Q3 2021

“The Total Economic Impact Of Elastic Observability And Security Solutions,” a commissioned study conducted by Forrester Consulting on behalf of Elastic, June 2021

## Appendix C: Endnotes

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<sup>1</sup> “The Forrester Wave: Cognitive Search,” Forrester Research, Inc., Q3 2021

<sup>2</sup> 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.

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