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# The Total Economic Impact™ Of Phrase TMS

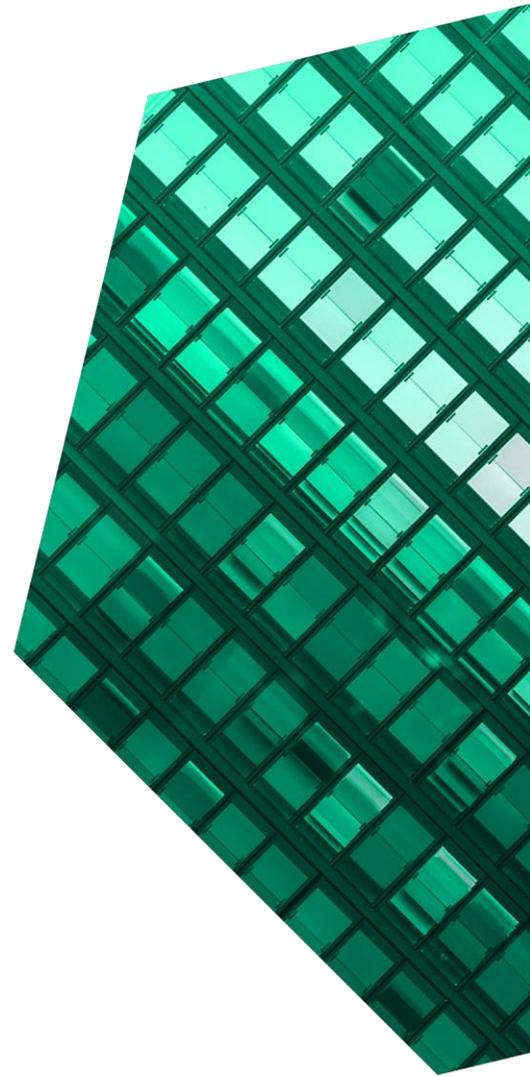
Cost Savings And Business Benefits  
Enabled By Phrase TMS

**NOVEMBER 2022**

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Project Lead: Mary Barton

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## Executive Summary

Content localization is a competitive differentiator. The most forward-looking businesses know that an investment in localization is not only an investment in customer experience but also an investment in employee experience. Organizations that have invested in unified localization services supported by an integrated suite of solutions have seen a significant return on that investment through improved forecasting and scalability, substantial efficiencies gained, and an improved execution of corporate strategy.

The Phrase Suite is the AI-powered localization platform that enables customers to benefit from the latest translation automation technology, while ensuring control of process, cost, and quality metrics. Unlike legacy systems built for language service providers, Phrase is cloud-native and was built to support global organizations and their move to agile software development workflows.

Phrase commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying [Phrase TMS](#).<sup>1</sup> The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Phrase TMS on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed five representatives with experience using Phrase TMS. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single [composite organization](#): a global retail organization translating between 30 million and 40 million words per year.

Increased translation team efficiency:

**30%**



### KEY STATISTICS



Return on investment (ROI)  
**527%**



Net present value (NPV)  
**\$2.67M**

Prior to using Phrase, these interviewees noted how their organizations struggled with legacy systems to provide accurate and timely translations to support business goals. Interviewees had a range of solutions in place prior to engaging Phrase, from completely manual emailing and file management to semiautomated systems. However, all the interviewees were ready to move to a centralized cloud solution that could integrate with other corporate systems such as CMSes, DMS platforms (storage), and marketing automation platforms, while reducing the management and maintenance burden for the localization team.

After the investment in Phrase, the interviewees reported reduced translation costs and increased efficiencies for the translation management team, and they noted that they had begun to see their localization teams creating a bigger impact on corporate goals.

## KEY FINDINGS

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

- **Reduced translation costs.** The composite organization achieves a \$0.03-per-word reduction in translation costs in Year 1 (for 30 million to 40 million words), increasing to \$0.05 per word by Year 3. The result is a present value savings of almost \$2.8 million over three years.
- **Workflow and process improvement.** Phrase's integration with content repositories and CRM systems along with its enablement of self-service for users creates a present value benefit for the composite of almost \$400,000 over three years.

**“Our team became really important in bringing the company to where it is now. Everybody now understands that without translation, we would not have been able to achieve our growth strategy.”**

*Localization team manager,  
consumer products*

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

- **Improved scalability to enable growth.** With a cloud-based solution and automated workflows, localization teams could clear translation backlogs and expand the content for translation. Interviewees reported increased volumes of 10 to 13 times what they could manage prior to adopting Phrase.

- **Expanded role of translation team.** Phrase enabled interviewees to provide previously neglected or newly discovered services to support their organizations. Expanded activities supported employee recruitment and retention, additional translation service provider vetting, sales training, and analytics.
- **Increased employee satisfaction.** Phrase gave localization teams the ability to meet deadlines without investing long hours and performing excessive manual work, improving their morale.
- **Improved ability to forecast and control translation costs.** Localization managers reported that when the localization process became more visible and predictable, internal stakeholders made more use of translation services. They self-submitted through the Phrase interface to obtain automated quotes and submit content, allowing them to expand the amount and type of content translated with less uncertainty.

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

- **Total solution cost.** Fees for the Phrase TMS solution vary based on the number of words translated and other factors. The composite organization pays fees to Phrase of just over \$128,000 in Year 3. The organization also spends about \$10,000 on integration and minimal training for a total three-year present value cost of \$312,000.
- **Ongoing Phrase TMS support.** Interviewees reported that Phrase required minimal effort to support and maintain. The total present value cost for the composite organization is just under \$195,000 over three years.

The representative interviews and financial analysis found that the composite organization experienced benefits of \$3.18 million over three years versus costs of \$507,000, adding up to a net present value (NPV) of \$2.67 million and an ROI of 527%.



ROI  
**527%**



BENEFITS PV  
**\$3.18M**



NPV  
**\$2.67M**



SAVINGS PER WORD  
**Up to 5¢**

### Benefits (Three-Year)

Reduced translation costs

**\$2.8M**

Workflow and process improvement

**\$395.3K**

**“We assembled a team to list requirements for analytical purposes, data, project management, from the translators, and Phrase had the tools that fit best with the requirements across the board.”**

— Head of language services, industrial testing equipment

## 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 Phrase TMS.

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 Phrase TMS can have on an organization.

### DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Phrase 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 Phrase TMS.

Phrase 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.

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



### DUE DILIGENCE

Interviewed Phrase stakeholders and Forrester analysts to gather data relative to Phrase TMS.



### INTERVIEWS

Interviewed five representatives at organizations using Phrase TMS 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 Phrase TMS Customer Journey

## Drivers leading to the Phrase TMS investment

Interviews			
Role	Industry	Region	Words Translated Per Year
Globalization lead	Shipping and logistic services	United States	2 million
Head of language services	Industrial testing equipment	United States	10 million
Senior localization program manager	Business services	United States	20 million
Senior director, product globalization	Industrial testing equipment	United States	35 million
Localization team manager	Consumer products	Switzerland	50 million

### KEY CHALLENGES

Interviewees' organizations had a variety of solutions in place prior to adopting Phrase TMS, from virtually manual ones to semiautomated.

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

- **Legacy systems that lacked the ability to modernize for scale.** Interviewees reported that they were unable to connect legacy translation systems to other corporate technologies such as a CMS or other content repositories. The limited amount of machine translation that organizations were able to achieve was error-prone and inefficient. The limitations of legacy systems prevented the interviewees' organizations from executing their growth strategies.

The globalization lead in shipping and logistic services said, "Our old system wasn't standing the test of time as we needed to move towards machine translation, workflow automation and self-service capabilities."

Even organizations with somewhat-automated processes in place faced access limitations. The senior localization program manager at a business services organization said: "One of the

big benefits for us is that it is completely web-based, especially with our translation providers. With [our previous solution], the providers had to log in to our server through the VPN, and frankly, it was not a straightforward process. So having a completely cloud-based solution is much, much better for us."

- **Lack of personnel to manage translation requests.** Whether it was due to a large catalog of material that needed to be translated or a high volume of small jobs, organizations lacked the ability to handle largely manual translation processes.

The globalization lead at a shipping and logistic services organization said, "We had a lot of smaller translation jobs and we didn't have the bandwidth in project management to handle all of the translation requests."

- **No ability to customize translation workflow processes.** The globalization lead also told Forrester: "We didn't have a good, clear way to define a workflow for any particular customer. The vendor was responsible for trying to make their best guess of which configurations or workflows to use."

- **Large catalogs of untranslated material.** With no ability to integrate with CMS systems or effectively leverage machine translation, interviewees reported that business was hampered by large backlogs of material queued for translation.

The head of translation services at an industrial testing equipment firm said: “We have a huge catalog of products maintained in a CMS. This content is updated regularly with information about the products and leveraged to quote invoicing demos to our customers. It is used internally as well, but this catalog was not being translated. It was over a million words behind because machine translation was not being leveraged, and it was simply too huge to deal with otherwise.”

**“We like the usability of it; our stakeholders are quite happy. Creating a submission is very intuitive, even for people who have never worked with the translation management system.”**

*Senior localization program manager, business services*

- **Inability to scale.** The language services global senior manager at an industrial testing organization said: “The IT team explained to me that [Phrase] was a very modern tool from an architectural perspective. It was built to be online from the beginning, and that was going to allow it to grow and change, and Phrase had a really good roadmap. We were looking for a long-term, future-looking partner that was investing in

machine translation technology, something I really wanted to introduce.”

### 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 composite organization is a global retailer with headquarters in the United States. It has outlined a strategy for growth and has recognized that a key component enabling that growth is a unified, scalable solution for localization.

**Deployment characteristics.** The composite organization’s global operations are mainly located across North America, Europe, and Asia. The firm works mainly with one source language, English, and translates it into approximately 35 destination languages. Materials for translation include product information, software FAQs, web content, web apps, and mobile app content. The composite translates approximately 30 million words per year in Year 1, growing to 40 million in Year 3.

#### Key Assumptions

- **One primary source language**
- **35 destination languages**
- **30 million to 40 million words translated per year**

# 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	Reduced translation costs	\$720,000	\$1,120,000	\$1,600,000	\$3,440,000	\$2,782,269
Btr	Workflow and process improvement	\$146,250	\$157,950	\$175,500	\$479,700	\$395,347
	Total benefits (risk-adjusted)	\$866,250	\$1,277,950	\$1,775,500	\$3,919,700	\$3,177,616

## REDUCED TRANSLATION COSTS

**Evidence and data.** Before obtaining Phrase, interviewees were frustrated by a lack of staff to manage translation requests from across the organization, many of which required at least some manual steps to complete. Coupled with increased demand to handle additional volume and content types, the organizations sought to create an infrastructure to manage localization efforts that would enable their teams to execute their organizations' growth strategies.

- The senior director of product globalization at an industrial testing equipment organization said, "We actually pay the linguist to clean up everything, so we get more leverage out of the translation memory, which means we pay less money for new translations."
- Even organizations with large existing translation memories saw an improvement from the optimized structure provided by Phrase. The senior localization program manager at a business services firm said, "It provides us better quality because we have everything centralized in one translation memory."

**Modeling and assumptions.** Based on the customer interviews, Forrester estimates the following for the composite organization:

- The organization translates between 30 million words during Year 1, 35 million words in Year 2, and 40 million words in Year 3.
- It achieves increased volume and decreased costs through a combination of a greater percentage of machine-translated content and increased quality, reduced error rate, and continuously improved and expanded translation memory.

**Risks.** Savings from reduced translation costs may vary due to:

- The number of words translated per year.
- The decrease achieved in translation cost per word.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of almost \$2.8 million.

Reduced Translation Costs					
Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Number of words translated per year	Composite	30,000,000	35,000,000	40,000,000
A2	Cost reduction per word with Phrase	Composite	\$0.03	\$0.04	\$0.05
At	Reduced translation costs	A1*A2	\$900,000	\$1,400,000	\$2,000,000
	Risk adjustment	↓20%			
Atr	Reduced translation costs (risk-adjusted)		\$720,000	\$1,120,000	\$1,600,000
<b>Three-year total: \$3,440,000</b>			<b>Three-year present value: \$2,782,269</b>		

### WORKFLOW AND PROCESS IMPROVEMENT

**Evidence and data.** Interviewees reported that the ease of connection with existing content repositories and CRS, along with an intuitive submission process for internal stakeholders to self-manage translation requests, allowed translation managers to redirect their efforts to more value-added activities.

- The globalization lead at a shipping and logistic services firm explained: “Part of the allure of Phrase for me was the submitter portal, because we needed a better way to help the 30 teams that request translations. We needed a self-service model that would allow projects to be entered simply without significant project management. With our lean globalization team, we needed a system like this to successfully manage all of our products. Phrase gives us an easy way to submit translations directly to our vendors with no guesswork. Project owners can access status updates anytime, keeping all parties informed.”
- The head of language services for an industrial testing equipment company said: “In the past there was a lot of email exchange with our internal customers and agencies. Now we are leveraging Phrase’s intake forms that anyone can access internally. With predefined workflows, anything that comes in from the [particular group], for example, goes to a predefined

agency. The agency is connecting to Phrase as well, so they will have an interface or an email and know what to do with the file. It comes back

**“We are more agile because we can quickly connect to the content repository. Previously, we would have to download the file on our computer then upload it onto the translation management system. I would say [it adds up to] 20% to 30% time saved.”**

*Localization team manager, consumer products*

the same way. For a lot of the work, our team only needs to make sure that things are running smoothly.”

- The senior localization program manager at a business services organization noted: “With our prior solution, for any new template, we had to ask [the previous solution provider’s] support team to create it for us. Then we would test it and

there would be a back and forth. With Phrase, when we want to add a new file format or type of content, we can set everything up on our end in a few clicks.”

- The senior localization program manager added: “Previously, everything was based on a ticketing system where people would create a ticket for authorization, attach the files that they needed to translate to this ticket, and then we would import these files into [the previous solution], and then upload the results back to the ticketing system. This is reduced now to an absolute minimum.”

**Modeling and assumptions.** Based on the customer interviews, Forrester estimates the following for the composite organization:

- The composite is able to achieve a 25% reduction in time spent to manage translation

submission requests in Year 1 and increases to 30% in Year 3.

- There is a team of five translation managers.
- The fully loaded salary for a translation manager is \$130,000 per year.

**Risks.** Savings from workflow and process improvements may vary due to:

- Translation manager time saved and efficiencies achieved.
- The fully loaded salary of translation team members.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of more than \$395,000.

Workflow And Process Improvement					
Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Percentage of time saved for a translation manager	Interviews	25%	27%	30%
B2	Number of FTEs performing translation	Composite	5	5	5
B3	Fully loaded salary of translation team members	TEI standard	\$130,000	\$130,000	\$130,000
Bt	Workflow and process improvement	B1*B2*B3	\$162,500	\$175,500	\$195,000
	Risk adjustment	↓10%			
Btr	Workflow and process improvement (risk-adjusted)		\$146,250	\$157,950	\$175,500
<b>Three-year total: \$479,700</b>			<b>Three-year present value: \$395,347</b>		

## UNQUANTIFIED BENEFITS

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

- **Enhanced scalability to enable growth.** With Phrase, interviewees reported that they were able to achieve a scale that had been impossible with their legacy systems. Interviewees reported that the ability to leverage machine translation was key to their future growth strategy. The globalization lead at a shipping and logistic services company said, “Another thing that we do that generates volume and that we weren’t able to do before Phrase is use machine translations to do reverse translations for client feedback

**“We started by translating the website content, and then they realized they could also translate campaigns, so we were serving many different teams inside marketing. Then at some point, we also started serving some sales teams, regional teams that needed translation services for different reasons.”**

*Localization team manager,  
consumer products*

such as call logs, customer NSAT [net satisfaction] scores and chat logs.”

- **Expanded role and impact of the translation team.** The Workflow And Process Improvement benefit measures the dollar amount associated with the time saved by translation team managers. The bigger effect may be that

resources can be redirected to previously neglected or newly discovered opportunities for improvement in localization services, as evidenced by the various activities described by interviewees. The effect of the activities, while recognized as valuable, is difficult to quantify.

The senior director of product globalization at an industrial testing equipment firm said, “We are taking on more responsibilities within the organization, doing more translation to support beyond just the product.”

The globalization lead for a shipping and logistic services company said: “We have a lot of employees for whom English is not their first language. We have a big focus on internal translation to enable a better onboarding and improve the overall employee experience and engagement. Now we can get more job aids and corporate communications out to these employees quickly which creates a more inclusive environment.”

The head of language services at an industrial testing equipment organization told Forrester: “We have expanded our scope of services as well. For example, we can vet legal translation services. We don’t do that type of translation internally, but we are happy to vet those services for our internal customers.”

The senior localization program manager at a business services organization commented: “We have extended the capabilities of our team because we have been able to continue to connect more platforms and CMSes. Now we have one member of the team who is focusing on the language quality program.”

- **Increased employee satisfaction.** Reduction of repetitive tasks not only improved efficiencies but also led to higher job satisfaction among the translation team.

The senior director, product globalization at an industrial testing equipment firm said: “I could come up with a way to get to market, but it wouldn’t be reasonable, and it would be expensive internally. With so much repetitive work, people are going to burn out. And I wouldn’t be able to take a vacation!”

- **Improved ability to forecast and control translation costs.** The senior director of product globalization at an industrial testing equipment organization explained that prior to engaging with Phrase, getting a quote from a translation vendor could take days to weeks, exceeding the acceptable turnaround time for jobs. Instead, the organization negotiated a rate based on a predicted volume of work, but the actual amount paid was unknown until the invoice arrived.

The senior director of product globalization continued, “With the Phrase estimation tool, we can just run it without sending any job to any vendors, but we can internally estimate the cost for running this project, and then we can make a decision before we even trigger the job.”

The globalization lead at a shipping and logistic services firm said: “Now that we have made it easier for our stakeholders to get high quality translations at a low cost, they do more of it. They can get an instant quote and quickly determine whether they want to move forward or not based on the costs. Machine translation has been a game changer for us. This simple process encourages our stakeholders to push more volume of translations through the system, providing an improved employee and client experience.”

## FLEXIBILITY

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

- **Entering new markets.** Each of the interviewees reported that part of their corporate strategy was to grow through the expansion to new markets. As an organization is able to achieve lower cost per word for translations, more markets can be

**“We give them a little training session and show them the portal. I mean, basically, all you have to do is, ‘What do you want to translate? What’s your source language? What’s your target language?’ And then you need some way to pay for it. But it’s very easy.”**

*Globalization lead, shipping and logistic services*

identified as viable opportunities for continued growth.

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

# 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
Ctr	Phrase fees	\$0	\$118,157	\$125,214	\$135,135	\$378,505	\$312,426
Dtr	Implementation and support	\$28,750	\$104,650	\$44,850	\$44,850	\$223,100	\$194,649
	Total costs (risk-adjusted)	\$28,750	\$222,807	\$170,064	\$179,985	\$601,605	\$507,075

## PHRASE FEES

**Evidence and data.** Phrase provided pricing information for this analysis. For specific information around pricing, please contact Phrase.

**Modeling and assumptions.** Phrase fees are based on usage, or the number of words translated per year. The composite organization incurs fees of between \$112,000 and \$129,000 per year.

**Risks.** Total solution costs may vary due to:

- Fees negotiated with Phrase.
- Implementation activities and costs.

**Results.** To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$312,000.

Phrase Fees							
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3	
C1	Phrase fees	Phrase		\$112,530	\$119,251	\$128,700	
Ct	Phrase fees	C1	\$0	\$112,530	\$119,251	\$128,700	
	Risk adjustment	↑5%					
Ctr	Phrase fees (risk-adjusted)		\$0	\$118,157	\$125,214	\$135,135	
<b>Three-year total: \$378,505</b>				<b>Three-year present value: \$312,426</b>			

### IMPLEMENTATION AND SUPPORT

**Evidence and data.** In addition to fees paid to Phrase, the interviewees described incurring some minimal expense to implement and maintain Phrase.

**Modeling and assumptions.** Based on the customer interviews, Forrester estimates the following for the composite organization:

- A team of five people is dedicated for one month to implement Phrase across the organization.
- One team member spends about half their time for the ongoing support of Phrase.

- The average fully loaded annual salary for a team member is \$130,000.

**Risks.** The actual cost of implementing and supporting Phrase may vary due to:

- Salary of team members.
- Organizational readiness.
- Size of deployment.

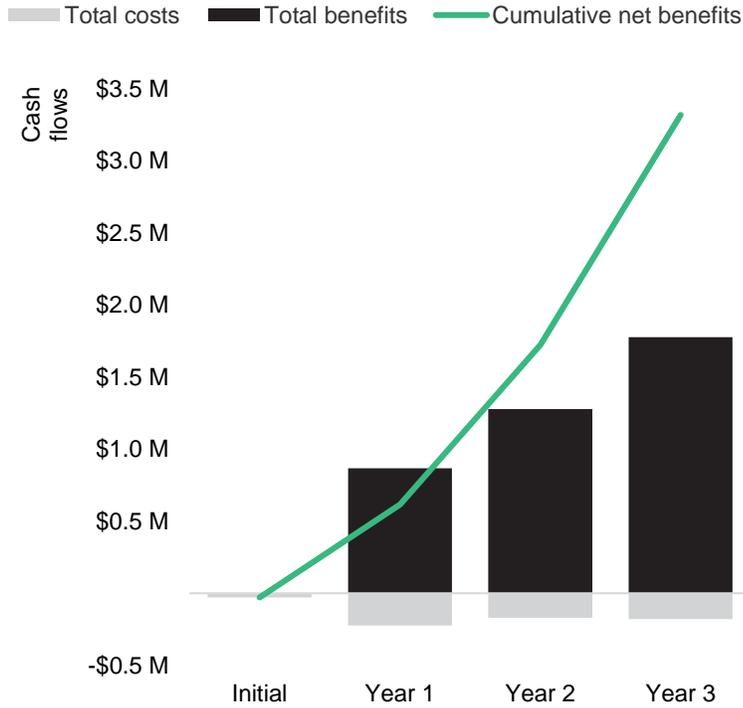
**Results.** To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV of \$195,000.

Implementation And Support						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
D1	Weeks to complete implementation	Interviews	4.0			
D2	FTEs dedicated to managing Phrase	Interviews	2.5	0.7	0.3	0.3
D3	Fully loaded annual salary of implementation and support team members	B3	\$130,000	\$130,000	\$130,000	\$130,000
Dt	Implementation and support	D2*D3	\$25,000	\$91,000	\$39,000	\$39,000
	Risk adjustment	↑15%				
Dtr	Implementation and support (risk-adjusted)		\$28,750	\$104,650	\$44,850	\$44,850
<b>Three-year total: \$223,100</b>			<b>Three-year present value: \$194,649</b>			

# 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 and NPV for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI and NPV 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	(\$28,750)	(\$222,807)	(\$170,064)	(\$179,985)	(\$601,605)	(\$507,075)
Total benefits	\$0	\$866,250	\$1,277,950	\$1,775,500	\$3,919,700	\$3,177,616
Net benefits	(\$28,750)	\$643,444	\$1,107,886	\$1,595,515	\$3,318,095	\$2,670,541
ROI						527%

# 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 B: Endnotes

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<sup>1</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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