A Forrester Total Economic Impact™ Study Prepared For Google

The Total Economic Impact Of Google Apps

A Cross-Industry Survey And Analysis

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FORRESTER®

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Executive Summary

In November 2012, Google commissioned Forrester Consulting to re-examine the total economic impact and expected return on investment (ROI) enterprises may realize by adopting Google Apps after having managed a traditional on-premise messaging and collaboration environment. Google Apps is a cloud-based messaging, collaboration and storage platform, which includes mail, calendaring, text and video chat as well as web-based collaborative documents, spreadsheets, presentations and slides. The purpose of this study is to revisit a TEI case study completed for Google Apps in 2010 to adjust for any difference in financial impact over the past two years. This document should provide readers with a framework and analysis to evaluate the potential financial impact of switching from legacy email and productivity solutions to Google Apps.

To conduct this analysis, Forrester conducted a combination of in-depth executive interviews as well as two broader surveys targeted at both IT and end user groups. This approach allowed Forrester to understand the broad impact Google Apps is having on IT and end user organizations and to supplement this data with an understanding of the underlying drivers of moving to a cloud-based messaging and collaboration platform.

Google Apps Drives IT Cost Savings And Key Collaboration Benefits

Our survey and interviews about Google Apps and the subsequent financial analysis identified several key takeaways for organizations migrating to a cloud-based messaging and collaboration environment.

- The majority of respondents saw tangible and positive IT and end user effects that drove ROI. End users familiar with cloud-based personal email transitioned more smoothly to using Google Apps at work.
- End user productivity gains were even larger than IT cost savings. Not only did end users find efficiencies in the Gmail platform, they also achieved deep productivity gains through Google's collaboration platform.
- The switch to Google Apps was usually driven by replacing or augmenting an existing email solution. In addition to fixed monthly billing, the majority of IT users noted the key benefit of reduction in maintenance costs for a prior messaging platform.
- For the representative organization, the three-year results of switching to Google Apps from traditional infrastructure include:
    - 329% risk-adjusted ROI.
    - A risk-adjusted net present value (NPV) of $10,125,382 with an initial investment of $428,094 in change management, testing, piloting, and initial support.
    - Payback (break-even) within 1.4 months.

Based on our in-depth interviews with IT and end users that had migrated to Google Apps as well as a broader survey of 200 IT and end user respondents, Forrester created a representative financial model to aggregate the results. These results are meant to highlight the common costs and benefits of migrating to Google Apps from a previous messaging and collaboration environment and should be used as a starting point for readers assessing the potential economic impact of Google Apps within their organization. Table 1 illustrates the summary findings.

Actual return on investment will vary by organization. However, the findings contained within the analysis suggest positive tangible returns for the participating organizations.

Table 1
Composite Organization Three-Year Risk-Adjusted ROI/NPV[1]

ROI	Payback period	Total benefits (PV)	Total costs (PV)	Net present value
329%	1.4 months	$13,204,385	$3,079,003	$10,125,382

Source: Forrester Research, Inc.

- **Benefits.** Client organizations realized both IT and end user benefits. The representative organization realized the following benefits that represent those described by the interviewed and surveyed companies:
  - **IT benefits.** These included the cost savings resulting from moving an organization's on-premise messaging and collaboration environment to Google's cloud-based architecture.
    - Cost savings included reduced spending on licenses and infrastructure.
    - Cost savings included reduced IT administrator time spent on system maintenance, upkeep, patching, and upgrades.
    - Organizations noted an average annual cost savings of 38% compared with their previous environment.
  - **End user benefits.** Migrating an organization's messaging and collaboration environment to Google Apps included the following specific end user benefits:
    - **Messaging benefits.** These included productivity gains around email search and spam filtering.
    - **Collaboration benefits.** These included improved efficiency of sharing and editing documents across teams and within teams, faster ability to incorporate feedback, more efficient face-to-face and virtual meetings, and pushing more timely and relevant information to distributed teams.
    - **Individual productivity benefits.** These included a new category focused on synergies and time saved by working with different apps within Google, as opposed to shifting between Google Apps and other software. Mobility benefits like convenience also fall into this group, highlighting the value of bring-your-own-device (BYOD) strategies.
- **Costs.** The composite organization incurred the following costs:
  - Google Apps annual license fee.

- Internal implementation and rollout costs.
- The ongoing costs of routine support.

Factors Affecting Benefits And Costs

Table 1 illustrates the risk-adjusted financial results that the composite organization achieved. The risk-adjusted values take into account any potential uncertainty or variance that exists in estimating the costs and benefits, which produces more conservative estimates. The following factors may affect the financial results that an organization experiences:

- **IT-specific factors.** These include the degree to which Google Apps replaces a legacy messaging and collaboration platform and the ability to repurpose existing IT assets when moving to a cloud-based environment.
- **End user-specific factors.** These include the level of success in training end users on the new environment, the speed of adoption, and the rollout of collaboration tools.

Disclosures

The reader should be aware of the following:

- The study is commissioned by Google and delivered by the Forrester Consulting group.
- Forrester makes no assumptions as to the potential return on investment 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 Google Apps.
- Google reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.
- The customer names for the interviews were provided by Google.

TEI Framework And Methodology

Introduction

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for organizations considering switching to Google Apps from a traditional on-premise environment for messaging and collaboration. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision.

Approach And Methodology

Forrester took a multistep approach to evaluate the impact that adopting Google Apps can have on an organization (see Figure 1). Specifically, we:

- Interviewed Google product development, marketing, sales, and deployment personnel and Forrester analysts to gather data relative to Google Apps and the market for cloud-based messaging and collaboration services.
- Interviewed five organizations, based in the Americas, Europe, and Asia Pacific, who are currently using Google Apps to obtain data with respect to costs, benefits, and risks.
- Conducted a survey of 200 IT and end user respondents, representing different organizations from over 20 industries primarily based in the US, who had migrated to Google Apps.
- Designed a composite organization based on characteristics of the interviewed and surveyed organizations (see Appendix A).
- Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interviews as applied to the composite organization.

Figure 1
TEI Approach

Source: Forrester Research, Inc.

Forrester employed 4 fundamental elements of TEI in modeling the impact of Google Apps:

1. Costs.
2. Benefits to the entire organization.

3. Flexibility.

4. Risk.

Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves the purpose of providing a complete picture of the total economic impact of purchase decisions. Please see Appendix B for additional information on the TEI methodology.

Analysis

Research Highlights

Research data for this analysis was derived from two sources: in-depth interviews with IT and end user stakeholders from five customer organizations as well as a broader IT and end user survey consisting of 200 respondents. This approach builds on the original case study completed in 2010, which included data from 12 stakeholder interviews and a survey of 600 IT and end user customers. Customers for both the interviews and surveys were globally distributed organizations consisting of at least 1,000 employees.

The five interviews uncovered several important drivers which formed the basis of the financial analysis:

- The majority of customers migrated to Google Apps because their messaging platforms were either aging or required a large amount of maintenance costs. In addition to network downtime and the costs incurred to update and patch systems, several IT decision-makers found the ongoing resources needed for dedicated support to be high enough to consider Google's cloud alternative.
- Most of the customers interviewed were part of very distributed organizations with a central IT organization at headquarters and very few IT staff specific to the region or franchise.
- Customers typically adopted the Google Apps platform for the cloud messaging solution, but also found productivity gains both in individual daily tasks and collaborative projects for end users.
- The organizations interviewed for the study were a combination of globally distributed enterprises and medium-size regional companies representing several different industries.
- Interviewed customers also took the opportunity to deploy or redeploy a larger mobile strategy. The challenge going forward would be to determine a BYOD strategy as opposed to the technical or cost challenges associated with prior platforms.

The results of the survey allowed us to validate several of the themes identified during the interview process. These included:

- End users representing more than a dozen industries represented a strong trend in mobility, with almost 25% of interviewees handling more than half of their of emails on a mobile device.
- End users found synergies in working with Google Apps instead of switching between Google and third-party software to complete a task. 69% noted the single sign-on feature as a benefit, while 39% indicated the ability to switch directly between email and documents without losing context as a benefit.
- 44% of respondents noted better internal collaboration as a result of quicker and easier file sharing, real-time changes with others, and being able to access the most up-to-date versions of a file.
- 45% of employees using Google Apps also felt that "If I had to switch back to my previous email environment, my productivity would suffer."

Composite Organization

Based on the interviews with the five existing customers provided by Google and broader survey data, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the financial impact of Google Apps. For the purposes of this case study, the composite organization will be known as Laud Solutions. Based on aggregate survey data and customer interview feedback, Laud Solutions is a North American services organization with 18, 000 employees spread across three continents.

Laud Solutions migrated from an on-premise solution to Google Apps with the objective of simplifying its messaging and collaboration environment. The organization chose to migrate to the Google Apps messaging platform; 60% of end users were fully migrated by the end of Year 1, 75% by the end of Year 2, and 100% by the end of Year 3. At the same time, by moving to a cloud-based messaging platform, Laud Solutions planned to reduce infrastructure by 10% in Year 1, 21% in Year 2, and 42% in Year 3.

In addition to an expectation of cost savings and avoidance by retiring existing licenses and moving to a lower-cost maintenance model, Laud Solutions also expects to achieve productivity gains for its end users. Executive management conservatively estimates that 20% of the time saved through productivity can be effectively converted to perform other work-related tasks.

Framework Assumptions

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

Table 2
Model Assumptions

Metric	Amount
Total employees	18,000
Employee growth per year	10%
Average non-IT staff hourly wage	$30
Weeks per year	52
Working days per year	260
Productivity conversion	20%
Average IT staff hourly wage	$65
Staffing hours	2,080
Pre-migration cost per license	$84
License retirement schedule	
Year 1	60%
Year 2	75%
Year 3	100%
Infrastructure reduction	
Year 1	10%
Year 2	21%
Year 3	42%

Source: Forrester Research, Inc.

The discount rate used in the PV and NPV calculations is 10% and the time horizon used for the financial modeling is three years. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with their respective company's finance department to determine the most appropriate discount rate to use within their own organizations.

Costs

To quantify the ROI impact, we need to examine the incremental costs associated with the migration to Google Apps. These costs included the cost of the Google Apps yearly license, as well as the cost of change management, testing, piloting, implementation, and ongoing routine support.

License Cost

Google Apps is sold for a flat annual license, which includes both the messaging and collaboration tools. The annual license cost is $50 per user per year. Laud Solutions noted the simplicity of pricing as a factor in considering Google Apps as a messaging and collaboration platform.

Change Management

In addition to the cost of licenses, Laud Solutions incurred several additional costs as part of the migration away from its on-premise environment to Google Apps. The cost of change management included the time and effort to educate and promote adoption of Google Apps among a core group of power users, who were called "Google Champions."

Testing

Another upfront cost with Google Apps was internal testing prior to implementation. Laud Solutions noted the need to ensure that it could successfully migrate data from existing accounts to the new cloud-based platform.

Piloting And Implementation

The cost of piloting and implementation includes the cost to transition each user to the new Google Apps environment. As part of the rollout, Laud Solutions selected a subset of power users and executives to perform the initial pilot and act as platform champions during the wider rollout.

Support Costs

Laud Solutions noted a reduction in overall support costs over time, but a minority of the surveyed organizations saw increases in support costs as a result of user questions during the migration period.

Total Costs

Table 3 illustrates the total investment costs for the representative organization.

Table 3
Total Investment Costs: Non Risk-Adjusted

Cost category	Initial	Year 1	Year 2	Year 3	Total
Google Apps license	-	$900,000	$990,000	$1,089,000	$2,979,000
Change management	$130,000	-	-	-	$130,000
Testing	$52,000	-	-	-	$52,000
Pilot and implementation	$48,750	-	-	-	$48,750
Initial support	$91,125	-	-	-	$91,125
Total cost	**$321,875**	**$900,000**	**$990,000**	**$1,089,000**	**$3,300,875**

Source: Forrester Research, Inc.

Benefits

For this section of the analysis, we examine benefits accruing both to Laud Solutions' IT and end user groups after the transition from legacy systems to Google Apps.

End user impact:

- App-to-app synergy.
- Improved search and filtering efficiency.
- Improved team efficiency in virtual and in-person meetings.
- Internal collaboration efficiency.

IT impact:

- Reduced license spending.
- Reduced operations/administration cost.
- Reduced cost to set up internal sites.
- Reduced infrastructure costs.

Table 4
Total Investment Benefits: Non Risk-Adjusted

Cost category	Initial	Year 1	Year 2	Year 3	Total
App to app synergy	-	$561,600	$617,760	$679,536	$1,858,896
Search	-	$398,362	$438,198	$482,018	$1,318,577
Filtering - automatic segmentation	-	$537,030	$590,733	$649,806	$1,777,569
Improved team efficiency - virtual and in-person meetings	-	$51,840	$57,024	$62,726	$171,590
Internal Collaboration Efficiency	-	$2,471,040	$2,718,144	$2,989,958	$8,179,142
Reduced license spend	-	$61,200	$211,500	$513,000	$785,700
Reduced operations/administration cost - support	-	$903,060	$993,366	$1,092,703	$2,989,129
Reduced cost to set up internal sites	-	$42,900	$42,900	$42,900	$128,700
Reduced infrastructure costs	-	$108,000	$226,800	$453,600	$788,400
Total benefit	-	**$5,135,032**	**$5,896,425**	**$6,966,247**	**$17,997,704**

Source: Forrester Research, Inc.

App-To-App Synergy

Over Years 1 to 3, Laud Solutions focused on completely moving from an on-premise messaging model to a cloud-based model. As Laud Solutions retired legacy messaging clients and collaboration software, end users began to adopt the full suite of Google Apps more steadily. Currently, Laud Solutions uses Gmail, Contacts, Calendar, Chat, Sites, and Groups as its exclusive messaging and collaboration platforms. While Google Drive has become popular for convenient cloud storage and access to traditional file types, the organization still retains licenses for an on-premise productivity software suite.

Approximately 10% of staff noted a material increase in day-to-day efficiency by working within Google Apps. That is, the capability to work within one suite of cloud applications without having to load or switch to different software saved time for some employees. On average, the staff noted 12 minutes saved each day as a result of working within Google Apps. When applied to all impacted staff and effectively reallocated, this time savings becomes very meaningful to Laud

Solutions' management. Based on a $30 hourly wage at a rate of applying 20% of the time saved to another work-related task, Laud Solutions experienced $1.9 million in non-risk-adjusted benefits over three years.

Per survey results, 69% of respondents noted single sign-on as a major driver in time efficiencies. Behind single sign-on, 43% respondents valued the capability to work on docs directly from the browser and 41% valued just the capability to immediately access a doc from a hyperlink. Perhaps most importantly, 39% of respondents noted a benefit from the ability to move between apps and tasks without losing context from waiting for software to load and using different user interfaces.

Table 5
App-To-App Synergy: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
A1	Minutes saved per day by working within Google Apps	Survey reported	12	12	12
A2	Hours saved per year	(A1*working days)/60	52	52	52
A3	Productivity conversion	Assumption	20%	20%	20%
A4	Affected staff	Survey reported	10%	10%	10%
At	App-to-app synergy	A2*A3*hourly wage*A4*users	$561,600	$617,760	$679,536

Source: Forrester Research, Inc.

Improved Search And Filtering Efficiency

Aside from the productivity gained from working within the Google Apps suite, Laud Solutions' staff also spent less time in searching for email and filtering out spam. In the past, these tasks required at least 35 minutes per week per employee. After migrating to Google Apps, about half of the staff saw a material improvement: 38% in search and 15% in spam filtering. The aggregate of the search and filtering benefits gives a total three-year non-risk-adjusted benefit of $3 million.

Table 6
Improved Search Efficiency: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B1	Employees seeing a positive impact	Survey reported	56%	56%	56%

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B2	Time spent per week searching emails (minutes)	Survey reported	20	20	20
B3	Estimated time improvement	Survey reported	38%	38%	38%
B4	Hourly cost per user	Assumption	$30	$30	$30
B5	Productivity conversion	Assumption	20%	20%	20%
Bt	Improved search efficiency	(B1*users)*((B2/60)*weeks)*B3*B5*B4	$398,362	$438,198	$482,018

Source: Forrester Research, Inc.

Table 7
Improved Filtering Efficiency: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
C1	Employees seeing a positive impact	Survey reported	51%	51%	51%
C2	Time spent per day filtering incoming emails (minutes)	Survey reported	15	15	15
C3	Working days per year	Assumption	260	260	260
C4	Hourly cost per user	Assumption	$30	$30	$30
C5	Productivity conversion factor	Assumption	20%	20%	20%
C6	Estimated improvement	Survey reported	15%	15%	15%
Ct	Improved filtering efficiency	(C1*users)*(C2/60)*C3*C6*C5*C4	$537,030	$590,733	$649,806

Source: Forrester Research, Inc.

Improved Team Efficiency In Virtual And In-Person Meetings

Laud Solutions' productivity in both virtual and in-person meetings increased by 20% after migrating to Google Apps. With an average of 16 meetings per week, each lasting around 45 minutes, Laud Solutions experienced a resource savings of $170,000 over three years.

More than 65% of affected respondents agreed that Google Apps not only reduced preparation time, but also reduced confusion during and after meetings, as meeting participants knew where to find the most updated documents for a meeting.

Table 8
Improved Team Efficiency in Virtual and In-Person Meetings: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
D1	Number of virtual and in-person meetings per week	Survey reported	16	16	16
D2	Employees affected	Survey reported	20%	20%	20%
D3	Average meeting length (minutes)	Survey reported	45	45	45
D4	Productivity conversion factor	Assumption	20%	20%	20%
D5	Hourly cost per user	Assumption	$30	$30	$30
D6	Estimated improvement	Survey reported	20%	20%	20%
Dt	Improved team efficiency in virtual and in-person meetings	(D2*users)*((D1*D3)/60)*D6*D4*D5	$51,840	$57,024	$62,726

Source: Forrester Research, Inc.

Internal Collaboration Efficiency

Laud Solutions' internal collaboration efficiencies consist mainly of project tracking across teams, file sharing, and document editing by multiple authors. An average of 44% of the organization was affected by all three collaboration activities. 30% agreed that the speed of reporting project status and sharing project files increased. All of the users that saw a positive impact from document editing capabilities found that the process is not only quicker but also ensures that all users and team members have the latest version of a file.

With an average of 20% improvement in all three activities, Laud Solutions experienced $8 million in benefits over three years.

Table 9
Internal Collaboration Efficiency: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
E1	Staff affected by project tracking	Survey reported	46%	46%	46%
E2	Staff affected by file sharing	Survey reported	42%	42%	42%
E3	Staff affected by shared document creation and editing capabilities	Survey reported	44%	44%	44%
E4	Productivity conversion	Assumption	20%	20%	20%
E5	Annual hours spent in internal collaboration	Survey reported	260	260	260
E6	Hourly cost per user	Assumption	$30	$30	$30
E7	Estimated improvement	Survey reported	20%	20%	20%
Et	Internal collaboration efficiency	(E1+E2+E3/3)*users*E5*E7*E4*E6	$2,471,040	$2,718,144	$2,989,958

Source: Forrester Research, Inc.

Reduced License Spending

Laud Solutions came from an on-premise solution that cost $89 per end user license. As the organization plans to phase out all licenses in three years, the cost avoidance presented by the $50 Google Apps license cost per end user is $780,000 over three years. The simplification of billing and cost tracking is one of the key drivers for Laud Solutions' migration to Google Apps.

Table 10
Reduced License Spending: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
F1	Cost per license	Survey and research reported	$89	$89	$89
F2	Estimated reduction in the number of licenses: Year 1	Assumption	10,800	-	-
F3	Estimated reduction in the number of licenses: Year 2	Assumption	-	13,500	-
F4	Estimated reduction in the number of licenses: Year 3	Assumption	-	-	18,000
F5	Annual Google license spending	Refer to cost details	$900,000	$990,000	$1,089,000
Ft	Reduced license spending	(F2 or F3 or F4*F1)-F5	$61,200	$211,500	$513,000

Source: Forrester Research, Inc.

Reduced Operations And Administration Costs, Internal Site Setup Costs, And Infrastructure Costs

Aside from differential license cost savings, Laud Solutions' IT team noticed material cost avoidance in operations, maintenance, and infrastructure. Adopting Google Apps reduced the number of FTEs needed across the board: those needed to manage patches and upgrades fell by 39%, security by 29% reduction, archiving by 27%, backup and disaster recovery by 34%, vendors by 42%, and internal sites by 22%.

Furthermore, the infrastructure needed to maintain an operational on-premise messaging and collaboration platform can also be scaled down or reallocated over a three-year period.

The reduction in FTEs needed for maintenance and infrastructure costs results in $3.9 million of cost savings over three years.

Table 11

Reduced Operations And Administration Costs: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
G1	Annual preinvestment cost per user: patches and upgrades	Survey reported	$7	$7	$7
G2	Estimated reduction in FTEs required to manage patches and upgrades	Survey reported	39%	39%	39%
G3	Annual preinvestment cost per user: security management	Survey reported	$36	$36	$36
G4	Estimated reduction in FTEs required to manage security	Survey reported	29%	29%	29%
G5	Annual preinvestment cost per user: archiving	Survey reported	$110	$110	$110
G6	Estimated reduction in FTEs required to manage archiving	Survey reported	27%	27%	27%
G7	Annual preinvestment cost per user: backup and disaster recovery	Survey reported	$19	$19	$19
G8	Estimated reduction in FTEs required to manage backup and DR	Survey reported	34%	34%	34%
G9	Annual preinvestment cost per user: vendor management	Survey reported	$2	$2	$2
G10	Estimated reduction in FTEs required for vendor management	Survey reported	42%	42%	42%
Gt	Reduced operations and administration costs	(G1*G2)+(G3*G4)+(G5*G6)+ (G7*G8)+(G9*G10)*users	$903,060	$993,366	$1,092,703

Source: Forrester Research, Inc.

Table 12
Reduced Internal Site Setup Costs: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
H1	Hours required to plan, test, and deploy one internal site	Survey reported	150	150	150
H2	Estimated reduction in FTEs required for planning, testing, and deployment	Survey reported	22%	22%	22%
H3	Number of sites created annually	Survey reported	20	20	20
Ht	Reduced cost to set up internal sites	H1*hourly wage*H2*H3	$42,900	$42,900	$42,900

Source: Forrester Research, Inc.

Table 13
Reduced Infrastructure Costs: Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
I1	Infrastructure cost per user	Customer reported	$60	$60	$60
I2	Estimated spending reduction: Year 1	Assumption	10%	-	-
I3	Estimated spending reduction: Year 2	Assumption	-	21%	-
I4	Estimated spending reduction: Year 3	Assumption	-	-	42%
It	Reduced infrastructure costs	I1*users*I2 or I3 or I4	$108,000	$226,800	$453,600

Source: Forrester Research, Inc.

Flexibility

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into a business benefit for some future additional investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to migrate to Google Apps and later implement additional uses and business opportunities. Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix B).

The one benefit that the interviewed customers mentioned the most but did not measure is related to their mobile strategy. All customers recognized that Google Apps could help enable their mobile strategy, whether that involved refreshing mobile devices or developing a BYOD program. Customers mentioned that Google Apps made it more convenient for staff to use mobile devices for work, including allowing executives to pass on short notes and ideas when traveling. This also enabled some customers to scale down or retire their VPN software and to allow more employees to work virtually.

As Laud Solutions explores a BYOD program and an expansion of its virtual worker program, it will start tracking the business value of ideas and messages shared over the mobile platform. Furthermore, Laud Solutions will also likely look into developing a new real estate and physical infrastructure plan that can present material cost savings based on a reduced need for physical office spaces.

Risk

Forrester defines two types of risk associated with this analysis: implementation risk and impact risk. "Implementation risk" is the risk that a proposed investment in Google Apps may deviate from the original or expected requirements, resulting in higher costs than anticipated. "Impact risk" refers to the risk that the business or technology needs of the organization may not be met by the investment in Google Apps, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

Quantitatively capturing investment and impact risk by directly adjusting the financial estimates results in more meaningful and accurate estimates and a more accurate projection of the ROI. In general, risks affect costs by raising original estimates and affect benefits by reducing original estimates. The risk-adjusted numbers should be taken as "realistic" expectations, as they represent the expected values considering risk.

The following implementation risks that affect costs are identified as part of this analysis:

- The time to migrate users away from the previous on-premise environment.

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

- Increased training required for the messaging and collaboration applications.

Table 14 shows the values used to adjust for risk and uncertainty in the cost and benefit estimates. The TEI model uses a triangular distribution method to calculate risk-adjusted values. To construct the distribution, it is necessary to first estimate the low, most likely, and high values of risk that could occur. The risk-adjusted value is the mean of the distribution of those points. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

Table 14
Cost And Benefit Risk Adjustment

Costs	Low	Most likely	High	Mean
Risk to cost: license	100%	100%	125%	108%
Risk to cost: internal implementation	100%	100%	200%	133%
Benefits	**Low**	**Most likely**	**High**	**Mean**
Risk to benefits: IT cost savings	50%	100%	110%	87%
Risk to benefits: end user impact	50%	100%	110%	87%

Source: Forrester Research, Inc.

Financial Summary

The financial results calculated in the Costs and Benefits sections can be used to determine the return on investment, net present value, and payback period for the organization's transition from their previous on-premise system to Google Apps. For the composite organization in this case study, Laud Solutions, with 18,000 employees, these results are shown in Table 15 below.

Table 15
Cash Flow: Non-Risk-Adjusted

Cash flow: original estimates						
	Initial	Year 1	Year 2	Year 3	Total	Present value
Costs	$321,875	$900,000	$990,000	$1,089,000	$3,300,875	$2,776,420
Benefits		$5,135,032	$5,896,425	$6,966,247	$17,997,704	$14,775,134
Net cash flow	($321,875)	$4,235,032	$4,906,425	$5,877,247	$14,696,829	$11,998,713
ROI	432%					
Payback period	1 month					

Source: Forrester Research, Inc.

Table 16 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 14 in the Risk section.

Table 16
Cash Flow: Risk-Adjusted

Cash flow: original estimates						
	Initial	Year 1	Year 2	Year 3	Total	Present value
Costs	$428,094	$972,000	$1,069,200	$1,176,120	$3,645,414	$3,079,003
Benefits	$0	$4,595,818	$5,271,064	$6,215,927	$16,082,808	$13,204,385
Net cash flow	($428,094)	$3,623,818	$4,201,864	$5,039,807	$12,437,394	$10,125,382
ROI	329%					
Payback period	1.4 months					

Source: Forrester Research, Inc.

Google Apps Overview

Google Apps is a web-based messaging and collaboration platform available to businesses for a flat $50 per employee, per year license. Google's applications run in modern browsers without any additional software to buy, install, maintain or upgrade over time. Google also manages the back-end infrastructure in its highly scalable, reliable and secure data center infrastructure, so there are no servers for customers to purchase, configure, patch or upgrade over time.

Google Apps includes:

- **Gmail** includes 25 GB of storage per employee, Google-powered email search, industry-leading spam protection and integrated IM, voice and video chat. Workers can access their Gmail from any computer and on mobile devices including Android, iPhone, BlackBerry, Windows Mobile and tablets. Employees who prefer the Microsoft Outlook interface can continue to use Outlook as their email client without the company needing to operate Microsoft Exchange servers.
- **Google Calendar** allows employees to manage their schedules, create project calendars, and easily schedule time with colleagues. Multiple calendars can be overlayed to quickly display a composite view of multiple people's schedules. Workers can access Google Calendar on any computer and on mobile devices including BlackBerry, iPhone, Windows Mobile and tablets. Employees who prefer the Microsoft Outlook interface can continue to use Outlook as their calendar client without the company needing to operate Microsoft Exchange servers.
- **Google Drive** on your Mac, PC or mobile device (or your browser) gives you a single place for up-to-date versions of your files from anywhere. Share files or whole folders with individuals, your entire team or even customers and partners. Drive brings multi-person real-time collaboration to documents, spreadsheet and slides. Editors can simultaneously access the same web-based file from any computer and contribute while others are also making changes, sparing colleagues the inconvenience of collaborating over attachments.
- **Google Docs** create rich documents with images, tables, equations, drawings, links and more. Gather input and manage feedback with social commenting.
- **Google Sheets** keep and share lists, track projects, analyze data and track results with our powerful spreadsheet editor. Use tools like advanced formulas, embedded charts, filters and pivot tables to get new perspectives on your data.
- **Google Slides** create beautiful slides with our presentation editor, which supports things like embedded videos, animations and dynamic slide transitions. Publish your presentations on the web so anyone can view them, or share them privately.
- **Google Sites** allow teams to create and share collaborative team sites without burdening IT for support. Employees can access sites from any computer and sites can display rich content such as embedded documents, spreadsheets, presentations, calendars and videos.

- **Google+** gives you new ways to share with coworkers. Share private posts with your company to ask questions, find experts and get answers. Schedule online video meetings with up to 15 participants and join right from your laptop, phone or tablet. Google+ is currently offered to Apps customers as a preview.
- **Google Apps Vault** adds archiving and e-discovery to Google Apps. Vault is optional and adds archiving, e-discovery and information governance capabilities for an additional price.
- **Google Groups** can be used as mailing lists and to share calendars, docs, sites and videos quickly with coworkers. Groups are easy for users to set up and the group owner can manage membership in each group.

Migration And Integration Capabilities

At no additional cost, Google offers scalable tools to easily migrate email, calendar and contacts data from legacy Microsoft Exchange, Lotus Notes and many IMAP email systems to Google Apps, so workers can seamlessly switch over to Google Apps with minimal disruption. Furthermore, Google Apps is designed to integrate seamlessly with existing on-premise technology including:

- Single sign-on (SSO).
- LDAP directories, including synchronization.
- Local data repositories using the Secure Data Connector.
- APIs that allow flexible programmatic access to Google Apps from many other systems.

Data Security

People: Google's information security team includes over 300 full-time members who monitor the networks and the applications against threats. This includes monitoring emerging threats, protecting users without any patches or updates. Google runs an industry leading vulnerability rewards program, certification to proactively work against extraneous threats.

Security Certification: Google Apps has successfully completed a SSAE 16 Type II SOC 2 audit and is ISO 27001 certified to ensure that our security procedures are operating effectively, and Google Apps for Government has received the stringent Federal Information Security Management Act (FISMA) certification and accreditation from the U.S. General Services Administration.

Physical Security: Google designs our data centers and applications with security and data protections in mind. Our data centers have physical security including perimeter fencing, 24x7 guards, closed circuit TV, etc. Access to the data centers is tightly restricted to authorized personnel only. The data that is stored in Google Apps is "sharded" across many storage devices and is not stored in clear text, greatly reducing the change of data loss due to hardware access.

Reliability, Uptime Guarantee, And Support

Google's Service Level Agreement (SLA) guarantees that Google Apps will be available at least 99.9% of the time, and the actual performance of the system has been significantly higher than this SLA threshold. Google provides enterprise-grade support to customers including 24/7 telephone support for critical administrative issues.

Message Archiving For Regulatory Compliance

In addition to Google Apps, companies can add Google Apps Vault for $50 per user per year. Google Apps Vault helps protect organizations of all sizes from legal and compliance risks through advanced message archiving, retention and eDiscovery capabilities. It provides the ability to quickly search, identify, preserve and export information in response to litigation, investigation, compliance audits, or Freedom of Information Act (FOIA) requests. Vault helps organizations cull through their data and find messages relevant to such requests, reducing the associated time, effort, and costs.

Availability And Other Versions Of Google Apps

Google Apps is available in over 150 countries and in over 40 languages. In addition to Google Apps for businesses, Google offers free versions of Google Apps for small organizations, non-profits and to schools and universities of all sizes.

More Information

For more information about Google Apps or to speak with a Google representative, visit www.google.com/apps.

Appendix A: Total Economic Impact™ Overview

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

The TEI methodology consists of four components to evaluate investment value: benefits, costs, risks, and flexibility.

Benefits

Benefits represent the value delivered to the user organization — IT and/or business units — by the proposed product or project. Often product or project justification exercises focus just on IT cost and cost reduction, leaving little room to analyze the effect of the technology on the entire organization. The TEI methodology and the resulting financial model place equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization. Calculation of benefit estimates involves a clear dialogue with the user organization to understand the specific value that is created. In addition, Forrester also requires that there be a clear line of accountability established between the measurement and justification of benefit estimates after the project has been completed. This ensures that benefit estimates tie back directly to the bottom line.

Costs

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs in the forms of fully burdened labor, subcontractors, or materials. Costs consider all the investments and expenses necessary to deliver the proposed value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing costs associated with the solution. All costs must be tied to the benefits that are created.

Risk

Risk measures the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections, and 2) the likelihood that the estimates will be measured and tracked over time. TEI applies a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the underlying range around each cost and benefit.

Flexibility

Within the TEI methodology, direct benefits represent one part of the investment value. While direct benefits can typically be the primary way to justify a project, Forrester believes that organizations should be able to measure the strategic value of an investment. Flexibility represents the value that can be obtained for some future additional investment building on top of the initial investment already made. For instance, an investment in an enterprisewide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, an embedded collaboration feature may translate to greater worker productivity if activated. The collaboration feature can only be used with additional investment in training at some future point in time.

However, having the ability to capture that benefit has a present value that can be estimated. The flexibility component of TEI captures that value.

Appendix B: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Although the Federal Reserve Bank sets a discount rate, companies often set a discount rate based on their business and investment environment. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult their respective organization to determine the most appropriate discount rate to use in their own environment.

Net present value (NPV): The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

Present value (PV): The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total net present value of cash flows.

Payback period: The breakeven point for an investment. The point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Return on investment (ROI): A measure of a project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.

A Note On Cash Flow Tables

The following is a note on the cash flow tables used in this study (see the example table below). The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1. Those costs are not discounted. All other cash flows in Years 1 through 3 are discounted using the discount rate (shown in Framework Assumptions section) at the end of the year. Present value (PV) calculations are calculated for each total cost and benefit estimate. Net present value (NPV) calculations are not calculated until the summary tables and are the sum of the initial investment and the discounted cash flows in each year.

[Table Example]
Example Table

Ref.	Category	Calculation	Initial cost	Year 1	Year 2	Year 3	Total

Source: Forrester Research, Inc.

Appendix C: Endnotes

[1] Forrester risk-adjusts the summary financial metrics to take into account the potential uncertainty of the cost and benefit estimates. For more information on Risk, please see page 20.