

A Forrester Total Economic
Impact™ Study
Commissioned By
Google

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February 2016

The Total Economic Impact™ Of Google Apps For Work

An Analysis Of Cloud-To-Cloud
Migration Value

FORRESTER®

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Executive Summary

In February 2016, Google commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by migrating to Google Apps for Work from an alternative cloud messaging and collaboration platform. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Google Apps on their organizations.

Google Apps for Work is a suite of cloud applications that includes Gmail, Google Drive (file storage and sharing), Hangouts (video meetings and chat), Docs, Sheets, Slides, Forms, Calendar, and Sites. As the cloud messaging and collaboration market space matures and end user organizations gain experience in migrating from corporate-owned, on-

premises infrastructure to cloud platforms, a segment of organizations are already reevaluating their first cloud migrations and cloud partners — some have even embarked on a second migration from one cloud to another.

This evaluation begins by shifting more obvious on-premise to cloud benefits like hardware reduction (e.g., email servers) and maintenance cost avoidance from a future state and a benefit to a current state and a standard. That is, the value of switching to Google Apps for an organization that is already using a cloud-based messaging and collaboration platform is not in the amount of hardware that can be decommissioned; instead, the cloud-to-cloud migration discussion emphasizes the features, capabilities, and outcomes that Google Apps can bring to the business in the context of cloud competitors.

To better understand the benefits, costs, and risks associated with migrating from an alternative cloud messaging and collaboration platform to Google Apps, Forrester interviewed seven existing Google customers that can be considered midsize. All interviewed organizations have previously used an alternative cloud platform and desired a combination of the following from a Google Apps migration: simpler and leaner unified communications; similar high-quality user experience regardless of device or operating system (OS); capability for real-time multiuser content creation and editing; and effective customer service that consistently meets SLAs regardless of region. Readers should be aware that these migration goals for Google Apps are highlighted by seven interviewed customers. Certain functional, technical, and quality gaps may not be relevant to all organizations especially as competing platforms, including Google, enhance their technology over time.

GOOGLE APPS FOR CLOUD-TO-CLOUD MIGRATIONS INCREASES ADOPTION OF COLLABORATION APPLICATIONS, RESULTING IN IMPROVED STAFF PRODUCTIVITY AND NEW BUSINESS CAPABILITIES

For the purposes of this case study, a composite organization, Laud Enterprises, will be used to represent the composite feedback of interviews. Forrester's interview with seven existing customers and subsequent financial analysis found that the composite organization, Laud Enterprises, experienced the risk-adjusted ROI, benefits, and costs shown in Figure 1.¹ The analysis points to benefits of \$1,339,091 versus costs of \$428,428 over three years, adding up to a net present value (NPV) of \$910,663.

FIGURE 1

Financial Summary Showing Three-Year Risk-Adjusted Results

ROI:
213%

NPV:
\$910,663

Payback:
1.9 months

Source: Forrester Research, Inc.

“With every new release, [alternative platform] moves buttons and functions around. But it’s not about a richer toolbar and re-learning where to find things. It’s about use cases - and Google focuses on resolving these as quickly and simply as possible.”

~ Director of IT, POPSUGAR

- › **Benefits.** The composite organization, Laud Enterprises, experienced the following three-year, risk-adjusted, present value benefits:
- **Improved collaboration and productivity — \$967,516.** This benefit describes the capabilities and productivity achieved with the increased adoption of collaboration features in Google Apps. Productivity benefits include time savings from different use cases, ranging from content creation and editing to resolving help desk tickets while on a mobile device.
 - **Product usage efficiency— \$91,636.** This benefit focuses on the differential in adoption of the functions and features of Google Apps versus an alternative platform. The formula takes into consideration the frequency that features are used and the cost for the respective platforms. Readers should note that this cost avoidance does not tangibly return cash back to an organization; instead, this benefit centers on comparing the frequency of utility based on a given cost. Since Google Apps and a similar package of applications for an alternative platform are not sold “a la carte” or by specific functions that an organization selects, then an organization can evaluate the value of adoption based on the frequency that staff use specific apps in the platform. As an example, for two similarly priced hotels with similar amenities, this benefit category focuses on the usage rate of those amenities by a consumer, divided by the cost.
 - **Licensing and hardware cost savings — \$278,523.** This benefit centers on the licensing cost differences between Google and an alternative platform. This benefit also takes into consideration any one-time cost avoidances related to legacy videoconference hardware refreshes and desktop and laptop upgrades that the composite would incur with the alternative platform.
 - **Cloud performance and customer support — \$1,416.** This benefit details the difference in vendor response times against prescribed SLAs.
- › **Costs.** The composite organization, Laud Enterprises, experienced the following three-year, risk-adjusted, present value costs:
- **Software license fees — \$168,545.** This cost focuses on the monthly licensing fee per user for Google Apps.
 - **Videoconferencing solution — \$42,195.** This cost describes the hardware investment in Chromeboxes based on the composite’s office volume and sizes.
 - **Professional services — \$32,400.** This cost centers on the external professional services that assisted in the migration and deployment of Google Apps.
 - **Training — \$100,322.** This cost details the amount of staff that spent material time to complete training for Google Apps.
 - **Internal labor and implementation — \$84,965.** This cost illustrates the internal labor and effort needed for both upfront implementation and ongoing operations.

Disclosures

The reader should be aware of the following:

- › The study is commissioned by Google and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.
- › Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in 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.
- › Google provided the customer names for the interviews but did not participate in the interviews.
- › While all interviewed customers evaluated, tested, and piloted an alternative cloud messaging and collaboration platform, not all interviewed customers deployed the full suite of applications for an alternative platform. Some interviewed customers kept certain on-premise components like file-sharing, repository, internal company sites, and instant messaging. This may be due to perceived deployment risks and concerns for those specific components or gaps in technology at the time the customer used the alternative platform. Details for each interviewed customer can be found in the Analysis section below.

TEI Framework And Methodology

INTRODUCTION

From the information provided in the interviews, Forrester has constructed a Total Economic Impact (TEI) framework for those organizations considering implementing Google. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision, to help organizations understand how to take advantage of specific benefits, reduce costs, and improve the overall business goals of winning, serving, and retaining customers.

APPROACH AND METHODOLOGY

Forrester took a multistep approach to evaluate the impact that Google Apps can have on the composite organization, Laud Enterprises (see Figure 2). Specifically, we:

- › Interviewed Google marketing, sales, and/or consulting personnel, along with Forrester analysts, to gather data relative to Google Apps and the marketplace for cloud-to-cloud migrations.
- › Interviewed seven Google customers to obtain data with respect to costs, benefits, and risks.
- › Designed a composite organization to represent the feedback from five of the interviewed Google customers. The remaining two customers were used to develop spotlight sections featured in this document.
- › Constructed a composite financial model using the TEI methodology.
- › Risk-adjusted the financial model based on issues and concerns the interviewed organizations highlighted in the interview. Risk adjustment is a key part of the TEI methodology. While interviewed organizations provided cost and benefit estimates, some categories included a broad range of responses or had a number of outside forces that might have affected the results. For that reason, some cost and benefit totals have been risk-adjusted and are detailed in each relevant section.

Forrester employed four fundamental elements of TEI in modeling Google's service: benefits, costs, flexibility, and risks.

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

FIGURE 2
TEI Approach



Source: Forrester Research, Inc.

Analysis

COMPOSITE ORGANIZATION — LAUD ENTERPRISES

For this study, we conducted interviews with seven existing customers that have adopted Google. A description of the five interviewed customers that contributed to the composite can be found below:

› **A Canadian online travel agency with over 400 staff and \$400 million in annual revenue.**

As this organization migrated 100 users from its on-premises IMAP environment to an alternative cloud platform, several issues occurred and the deployment team chose to halt the migration. The primary issue was a realization that the test account and domain name that the team casually chose could not be changed. This customer mentioned that the only way to use a proper domain name was to start a new subscription and account with the alternative platform provider. Once this issue stopped the full deployment to all 400 staff, the deployment team researched further and found that hardware upgrades and additional licensing would be needed to effectively run the alternative platform. The instant messaging and conferencing module also needed local client deployment and did not work well with the customer's Linux environment. This customer ultimately deployed Google Apps to avoid these additional issues, while also experiencing license cost savings of \$3 per license, improved mobile administrator capabilities leading to 50% improvement in issue resolution times, and improved conferencing capabilities with Google Hangouts and Chromeboxes.

› **POPSUGAR is a US online media network with 500 staff and 75 million monthly visitors.**

The organization's IT director has worked with an alternative platform for almost 20 years but welcomed the prospect of working with Google Apps. Ninety-five percent of the organization used the Mac OS, and users did not like the user experience of the local email client for the alternative platform. Thus, many users began to forward corporate email to their personal Gmail accounts for both the user interface and collaboration applications. Challenged with addressing these security risks and improving the email experience for users, the organization decided to migrate to Google entirely after testing an alternative cloud platform and finding Google a better fit for its younger-skewing workforce. The IT director highlighted that Google Hangouts is a "dream" due to its ability to start a videoconference with one click, without the need for traditional conference dial-in information and long URLs that need to be copied and pasted into calendar invitations.

"We created a test account domain and realized we couldn't change the name afterwards — we would have to start a new subscription. The [alternative platform]'s conferencing app needed local installations, file sharing did not work as expected, and we never heard back for some tickets that were opened."

~ Director of IT, midsize Canadian online travel agency

"Feedback is collected systematically for all IT projects. Google Apps is the only one to ever get 100% positive rating. The volume of users is the same as the previous platform, but the level of engagement is much deeper."

~ Chief technology officer, Bricocenter

- › **Bricocenter is an Italian retail company focused on home improvement and hardware.** The company has over 50 retail shops and 1,500 staff, all of whom have Google accounts. Retail store staff primarily use the Gmail, Google Drive, and Hangouts features, while internal staff also use Google Sites and collaborate on Google Docs more frequently. One of the drivers that led to the customer's decision to migrate away from its alternative platform was the discovery that an expensive hardware upgrade would be needed for many of its in-store computers to effectively run the alternative cloud platform after the customer already migrated to the alternative cloud platform from on-premise.

- › **Xero is a New Zealand cloud software-as-a-service (SaaS) company with over 1,500 staff and \$40 million in annual revenue.** This company has experienced twofold growth each of the past several years and recognized proportional growth in demand for messaging and collaboration capabilities. Similar to other customers, Xero migrated to an alternative cloud platform from on-premise but highlighted a poor experience with an alternative platform's messaging and conferencing application, which resulted in calls with material lag and a poor experience for Mac users. Staff began to look for workarounds, and there were soon several noncompany-approved communications channels. By deploying Google Apps, the company was able to standardize communications and reduce meeting preparation time by at least 5 minutes per meeting. It also no longer had to coordinate which of the several communication tools would be used for a meeting and then subsequently find the participants in the respective directories.

- › **Hinduja Tech is an Indian IT solutions company with over 1,200 staff and a presence in EMEA, the Americas, and Asia Pacific (APAC).** From inception, this company was "born in the cloud" and did not make a migration from on-premise to cloud. As a company that also partners with and deploys cloud collaboration technologies, it recognized that its alternative platform and Google Apps had similar capabilities. Thus, Hinduja Tech evaluated the platforms based on IT administrator tools, costs, the future technology road map, and customer service. The organization estimated a 30% productivity increase based on real-time multiuser content creation and a 50% reduction in weekly IT administrator effort. Perhaps most importantly, the customer highlighted that only three of 10 issues were satisfactorily resolved by the alternative platform's customer support, and resolutions were often 4 to 6 hours beyond the 8-hour SLA. After deploying Google Apps, Hinduja Tech reported fewer issues, and any tickets that are raised are typically satisfactorily resolved nine out of 10 times and always within the 8-hour SLA.

“We implemented in six weeks, mainly with 11 internal resources and some assistance from an external resource. Trainings were held but seemed unnecessary as attendance was low.”

~ Andrew Jessett (IT manager), Xero

“The previous platform provider resolved three of 10 issues satisfactorily and often took 12 to 14 hours to do so against an 8-hour SLA. Google is closer to nine of 10 and always within the 8-hour window.”

~ Head of network and system department, Hinduja Tech

Based on these interviews, a composite organization was created to represent the aggregated feedback and quantified experiences captured during the interviews. For the purposes of this case study, the composite organization will be known as “Laud Enterprises.” Laud Enterprises is an US online retailer focused on toys and collectible figurines and novelties, and it has the following high-level characteristics:

- › It is a 15-year-old company with 1,000 staff, who have an average age of 30. Twenty-five percent have never used the predominant email client for corporate environments.
- › It has \$500 million in annual revenue from ad sales, toy sales, and collectible auctioning.
- › It has 20 offices spanning the Americas, EMEA, and APAC, with seven large offices (70 to 100 staff) and 13 smaller offices (20 to 40 staff).
- › Besides internal support staff, resources are primarily split between the business technology development and toy acquisition teams. While development staff continually improve the online consumer experience and applications that can help field staff, the toy acquisition team consists of field staff who negotiate toy reseller contracts, assess collectible value, and acquire collectibles.

Prior to engaging Google, Laud Enterprises migrated from an on-premise solution to an alternative cloud platform and used it for one year before assessing other cloud messaging and collaboration providers. The company’s IT team noticed Mac and Linux users installing workarounds to the alternative platform’s locally installed conferencing application. The young and tech-savvy staff were passionate about the company’s mission and searched for alternatives that would help them be more effective in collaborating virtually. The staff highlighted a key frustration was related to the user experience of the locally installed conference application, especially the gap between different OSes.

As the enterprise agreement with the alternative platform came to an end, Laud Enterprises assessed different vendors and found that Google was the best fit for the company’s distributed staffing model that included many mobile staff in the field, more than one supported OS in the organization, and an increasing demand to effectively and virtually develop and edit content together. Laud Enterprises engaged Google with the following high-level goals:

- › Ensure a consistently high-quality user experience across all mobile devices and desktop OSes. Success metrics include help desk ticket reduction related to email and collaboration issues that are specific to a device or OS, and a satisfactory rating on the annual employee satisfaction survey for the collaboration technology category.
- › Enable field staff to effectively search, share, create, and edit content while outside of the office without a laptop. Success metrics include increase in volume of documents created and developed by multiple users, increase in volume of documents created on mobile devices, and anecdotes of specific opportunities there captured or otherwise lost if real-time mobile document editing was not available.
- › Increase usage of videoconferencing, unify virtual communications, and decrease nonapproved communication workarounds. Success metrics include increase in videoconferencing volume, positive post-call quality ratings, and reduction in nonapproved applications installed or used.
- › Reduce time for content creation by enabling real-time multiuser document editing capabilities. Primary success metric is reduction in content development time, which will be measured through bi-annual department-level surveys.

“We tested the [alternative platform] recently again, and they’ve checked a few more boxes to catch up to Google Apps, but Google still wins at ‘unity’ and having all apps come together in a way that makes sense.

~ Director of IT, POPSUGAR

INTERVIEW HIGHLIGHTS

The customer interviews revealed the following themes:

- › **“It just works” was repeated by several Google customers.** There may be components of “it just works” related to both a particularly troublesome prior state and an improved and efficient current state; however, the key takeaway from this statement lies in one of the key desires of customers in this segment: simplicity. As opposed to newer technology trends that require larger investments like big data, predictive analytics, and even robotics, IT professionals can appreciate an effective messaging and collaboration platform but also expect the platform to run seamlessly with very few issues. Messaging and collaboration, in their perspective, is a mature technology that can continually improve but should not require material time and effort to implement and maintain. And that is what Google customers highlight; the simplicity of Google Apps allows most common use cases, like adding a videoconference room to a calendar invite, to be achieved quickly or even with one click.
- › **Age, distributed business operations, and training play vital roles in Google Apps adoption.** One of the most commonly mentioned risks centers on whether staff will adopt Google Apps and whether some staff, who have used traditional local email clients for decades, will lead material resistance to change. Some interviewed customers had natural advantages with average staff age below 30, which allowed for a higher degree of existing familiarity with at least the Gmail component of Google Apps. Other customers have business models that require a majority of staff to be in the field and traveling. Whether the travel is intracity or across national borders, these resources need an effective way to complete tasks while mobile, in transit, and without a traditional laptop and cubicle. Offering pre-recorded self-service and in-person training is the risk mitigation strategy that can build higher adoption with more resistant staff, fully leverage the under-30’s skills base, and offer a Google Hangout and Google Docs solution to the field staff who need coordination meetings and document editing capabilities while traveling.
- › **Technology and pricing may win customers, but responsive customer support will retain them.** As technologies change and pricing strategies evolve, a case study about Google Apps cloud-to-cloud migration compared with an alternative platform could also change. However, as some customers have mentioned, beyond a certain threshold of comparable technology and pricing, the customer desires simplicity in mature technologies and responsive customer support. Thus, while technologies and pricing may continue to change, customers have either expressed a desire to be retained or “have no urge to go back,” depending on their experience with customer support and representatives.

REGIONAL SPOTLIGHT — WEEKLY HANGOUTS REDUCE FORMAL EMAIL DRAFTING, MAKE THE MOST OF TRANSIT TIME IN CROWDED TOKYO SUBWAYS, AND SAVE OVER \$200,000 IN MOBILE COSTS

Open House is a public real estate company based in Tokyo, Japan with 1,100 staff and \$1.5 billion in annual revenue. It operates 17 sales locations, mainly in Tokyo but also in several locations in the neighboring cities of Kawasaki and Yokohama. The company's target market is buyers in their 30s to early 40s who are looking to buy their first home. Each sales office is staffed with 15 to 20 agents who have an average age of 29 and can communicate effectively with the target demographic.

The company used an alternative cloud platform for two years but retained the local email client and did not deploy the conferencing and internal site applications. The primary driver for Open House's consideration of Google was the flexibility and cost reduction of using Google Apps with iOS devices. The mobile device became the main business case that the company built. It forecasted a 2,100 yen or approximately \$18 savings per person each month. In aggregate, this would amount to \$237,600 in cost savings per year.

“We used to get weekly tickets about access issues. With Google, fewer tickets come in and the ones that do are mostly about terminology or usability.”

~ IT manager, acquired US semiconductor company

“We’ve seen two major changes from users: making best use of transit time in the field without a laptop, and gaining communication advantages with three-city weekly status calls that have become easier to arrange.”

~ IT manager, Open House

Beyond cost savings, Google Apps drove two significant changes in behavior. The first is achieving the capability to work effectively during transit, especially on a crowded train without a seat or a laptop. The ability to review attachments, find materials on Google Drive, and reply to emails during transit between a site visit and the office has had a material impact on the work-life balance of staff. Management senses an improvement in health condition and that more staff can now leave work at a more reasonable hour.

The second behavior change is leveraging Google Hangouts to hold a weekly status meeting for 1.5 hours among the three main corporate offices in Tokyo, Osaka, and Nagoya. This type of meeting was difficult to arrange prior to the deployment of Google Apps and has significantly improved coordination, while reducing the number of emails and the time and formality of email follow-ups.

M&A SPOTLIGHT — WELCOMING A MANDATORY SYSTEM INTEGRATION

This Google customer is a semiconductor company with over 5,000 staff and \$2.5 billion in annual revenue and was acquired by another semiconductor company. This company has a global footprint and sells its products to large IT vendors in support of building out their data centers. At the time that the prospect of an acquisition was announced, the company had recently completed its migration to the alternative cloud platform.

The organization experienced severe patching issues during migration to the alternative cloud platform, and end users had trouble signing in and reported frozen screens when authentication did not work. The vendor and partner took two months to apply 15 to 20 patches to the 5,000 computers for each user. Patches often needed restarts and resulted in pop-up alerts to users (sometimes during meetings), which may reduce productivity.

In comparison, the migration to Google Apps took only weeks instead of months, and the ongoing management effort has also reduced. The customer highlighted that Hangouts and Sites are easier to manage and use compared with the alternative. Most importantly, the weekly tickets related to access and password issues that were experienced on the prior platform have now been reduced to a few each month related to Google terminology and upfront usability items like searching instead of sorting.

BENEFITS

The composite organization, Laud Enterprises, experienced four benefits in this case study:

- › Improved collaboration and productivity.
- › Product usage efficiency.
- › Licensing and hardware cost savings.
- › Cloud performance and customer service.



Improved Collaboration And Productivity

Organizations will have different use cases that best represent an increase in collaboration and productivity. Laud Enterprises gravitates toward three cases. The first case is the ability to reduce the wait time to resolve a ticket related to messaging and collaboration. With more functional IT administrator tools on mobile devices, administrators can quickly resolve certain tickets, such as account lockout, without being at a desk. This gives administrators more flexibility for away-from-desk and offsite work and provides a shorter wait time for end users. Table 1 accounts for 20% of tickets opened when administrators are away from their desk and a 50% reduction in resolution time, which translates to 10 minutes.

The second use case shortens the meeting preparation time. Prior to Google Apps, users began to circulate several different communications tools. Confusion arose regarding when to use which tool, and staff had to confirm with each other at the beginning of meetings that they all had the same platform and were able to find each other on the platform's directory. With Google Hangouts, users only have to click one button, without the need to search for any contacts or copy and paste in any links or phone numbers. Laud Enterprises estimates that this saves 3 minutes per meeting. Table 1 also considers that the average daily meeting volume of each staff member is three meetings.

Lastly, the third use case is related to reducing the time to create a piece of content or contract from five days to four days. The ability to develop and edit content in a real-time multiuser environment increases productivity by 20%, while the model assumes three pieces of content are created each week.

In aggregate, all hours are summed and then multiplied by an average hourly wage of \$48 in Year 1 and a 20% productivity conversion ratio. The productivity conversion ratio accounts for time saved that is not put back into productive work for the company. The total three-year risk-adjusted value was \$1.2 million.

TABLE 1
Improved Collaboration And Productivity

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
A1	Messaging- and collaboration-related tickets per week	Composite	15	15	15
A2	Tickets opened while support staff are away from seat	Composite	20%	20%	20%
A3	Pre-Google response time (minutes)	Composite	20	20	20
A4	Response time improvement due to improved mobile administrator tools	Composite	50%	50%	50%
A5	Post-Google response time (minutes)	A4*A3	10	10	10
A6	Ticket resolution hours saved	$(A2*A1*(A3*A4)*52)/60$	26	26	26
A7	Average daily volume of meetings per user	Assumption	3	3	3
A8	Average volume of meetings per day	A7*B5	3,000	3,300	3,630
A9	Average meeting preparation time reduction (minutes)	Composite	3	3	3
A10	Meeting preparation hours saved	$(A8*A9*240)/60$	36,000	39,600	43,560
A11	Average content/contract creation time (days)	Composite	5	5	5
A12	Reduction in creation and editing time due to multiuser real-time collaboration	Composite	20%	20%	20%
A13	Volume of content/contracts created per week	Assumption	3	3	3
A14	Content/contract creation hours saved	$(A11*A12)*8*A13*52$	1,248	1,248	1,248
A15	Average business resource hourly wage	Assumption	\$48	\$53	\$58
A16	Productivity conversion	Assumption	20%	20%	20%
At	Improved collaboration and productivity	$(A6+A10+A14)*A15*A16$	\$358,404	\$432,321	\$521,626
	Risk adjustment	↓10%			
Atr	Improved collaboration and productivity (risk-adjusted)		\$322,563	\$389,089	\$469,464

Source: Forrester Research, Inc.



Product Usage Efficiency

The cost of low technology adoption can be compared with the cost of staying at a hotel. Given a similar cost of two hotels, hotel X may have a large gym in a separated annex while hotel Y may have 2 smaller gyms at each wing of its main building. Also, while hotel X may have a highly rated restaurant that offers priority reservations to guests, hotel Y may have a convenient "grab and go" food store in the lobby with healthy options. While both hotels are lodging options (cloud platforms) at similar pricing, with a long list of amenities, the design of the amenities from quality to location really matters when "amenity utilization" or adoption is considered.

In a theoretical market where all hotels have similar pricing, and customers do not have a budget hotel Z or super luxury hotel W, the objective measures of best value related to "what am I getting" beyond room size and bedding will be around amenity utilization and user or customer experience. With that said, there are subjective metrics as well related to brand loyalty, reward programs, resistance to change, and specific use cases where a large gym in the annex might be a better fit. This category does not presume the best hotel for everyone, but the best value that Laud Enterprises received and the cost avoided given unused amenities and a higher price.

Laud Enterprises did not fully utilize all of the components in its previous cloud collaboration platform. Some components were included in monthly pricing but were not formally deployed. Many users also found workarounds for formally deployed components that did not provide a user-friendly experience. At one point, the technology management team noted that several teams used personal Google accounts to collaborate using Google Docs and also adopted Google Drive for convenient storage and access while mobile and working from home. The use of several different videoconferencing applications also created issues for unified communications and contact lists. This presented a security vulnerability and posed a fundamental question of why Laud Enterprises should continue paying and using a platform that employees only partially use.

The organization estimates that almost 50% of the prior platform was unused each month. In comparison, with the exception of consistent creation and updating of Google Sites by all staff, most other components included in Google Apps are used by most staff, as shown by the estimated 10% of unused features each month.

When taking into consideration the monthly fee per user, the cost of low adoption is essentially the percentage of unused features multiplied by the monthly fee. The cost avoidance is the difference in the cost of unused features and their respective monthly fees. The risk-adjusted benefit was between \$33,000 and \$41,000 each year, as shown in Table 2.

TABLE 2
Product Usage Efficiency

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B1	Google monthly cost per user	Composite/client provided	\$5	\$5	\$5
B2	Percentage of Google features that are used less than once per month	Assumption	10%	10%	10%
B3	Alternative platform monthly cost per user	Composite	\$8	\$8	\$8
B4	Percentage of alternative platform features that are used less than once per month	Assumption	50%	50%	50%
B5	Licensed users	Year 1: composite Year 2 and 3: B5 _{pv} *110%	1,000	1,100	1,210
Bt	Product usage efficiency	$((B3*B4)-(B1*B2))*A5*12$	\$42,000	\$46,200	\$50,820
	Risk adjustment	↓20%			
Btr	Product usage efficiency (risk-adjusted)		\$33,600	\$36,960	\$40,656

Source: Forrester Research, Inc.



Licensing And Hardware Cost Savings

Compared with Laud Enterprises' prior cloud platform plan, Google Apps is a saving of \$3 per user each month. Furthermore, by choosing Google and investing in Chromeboxes, the organization was able to avoid computer upgrade costs and the full videoconferencing refresh costs. Google Apps works effectively on the current set of computers without upgrades. Laud Enterprises also installed Chromeboxes, costing less than a refresh of its videoconferencing solution, which was subsequently decommissioned.

The total three-year risk-adjusted value was \$298,452, with \$185,250 coming initially as cost avoidance, as shown in Table 3.

TABLE 3
Licensing And Hardware Cost Savings

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
C1	Google monthly cost per user	A1	-	\$5	\$5	\$5
C2	Alternative platform monthly cost per user	A3	-	\$8	\$8	\$8
C3	Licensed users	A5	1,000	1,000	1,100	1,210
C4	Videoconferencing hardware refresh cost per unit	Composite	\$15,000	-	-	-
C5	Legacy videoconference hardware due for refresh	F6	7	-	-	-
C6	Users needing upgrade to effectively run alternative platform	Composite	30%	-	-	-
C7	Upgrade cost per unit	Assumption	\$300	-	-	-
Ct	Licensing and hardware cost savings	$((C2 * C3) - (C1 * C3)) * 12 + (C4 * C5) + ((C6 * C3) * C7)$	\$195,000	\$36,000	\$39,600	\$43,560
	Risk adjustment	↓5%				
Ctr	Licensing and hardware cost savings (risk-adjusted)		\$185,250	\$34,200	\$37,620	\$41,382

Source: Forrester Research, Inc.



Cloud Performance And Customer Support

As customers and the composite generally agreed that both the prior platform and Google had similar levels of cloud reliability, the main quantifiable driver for this benefit category is customer support. As noted in Table 4, the response time difference reduces as the alternative platform improves over a three-year period. The benefit value is also small and almost immaterial in the context of other benefit categories. However, Laud Enterprises noted that this benefit may be key in retaining a customer.

TABLE 4
Cloud Performance And Customer Support

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
D1	Google response time	Composite	8	8	8
D2	Alternative platform response time	Composite	12	10	8
D3	Monthly ticket volume	Assumption	2	2	2
D4	Average IT resource hourly wage	I4/2,080	\$60	\$66	\$73
D5	Productivity conversion	B16	20%	20%	20%
Dt	Cloud performance and customer support	$(D2-D1)*D3*12*D5*D4$	\$1,154	\$635	\$0
	Risk adjustment	↓10%			
Dtr	Cloud performance and customer support (risk-adjusted)		\$1,038	\$571	\$0

Source: Forrester Research, Inc.

Total Benefits

Table 5 shows the total of all quantified benefits, as well as present values (PVs) discounted at 10%. Over three years, the composite organization, Laud Enterprises, expects risk-adjusted total benefits to be a PV of \$1,339,091.

TABLE 5
Total Benefits (Risk-Adjusted)

Ref.	Benefit	Initial	Year 1	Year 2	Year 3	Total	Present Value
Atr	Improved collaboration and productivity	\$0	\$322,563	\$389,089	\$469,464	\$1,181,116	\$967,516
Btr	Product usage efficiency	\$0	\$33,600	\$36,960	\$40,656	\$111,216	\$91,636
Ctr	Licensing and hardware cost savings	\$185,250	\$34,200	\$37,620	\$41,382	\$298,452	\$278,523
Dtr	Cloud performance and customer support	\$0	\$1,038	\$571	\$0	\$1,610	\$1,416
	Total benefits	\$185,250	\$391,402	\$464,240	\$551,502	\$1,592,394	\$1,339,091

Source: Forrester Research, Inc.

COSTS

The composite organization, Laud Enterprises, experienced five primary costs in this case study:

- › Software license fees.
- › Videoconferencing solution.
- › Professional services.
- › Training.
- › Internal labor and implementation.



Software License Fees

Software license costs take into account the monthly user fee of \$5 multiplied against total users. Users are assumed to grow by 10% each year. The three-year risk-adjusted license cost was \$204,558, as shown in Table 6.

TABLE 6
Software License Fees

Ref.	Cost	Calculation	Initial	Year 1	Year 2	Year 3
E1	Licensed users	A5		1,000	1,100	1,210
E2	Monthly fee per user	A1		\$5	\$5	\$5
Et	Software license fees	$E1 * E2 * 12$		\$60,000	\$66,000	\$72,600
	Risk adjustment	↑3%				
Etr	Software license fees (risk-adjusted)			\$61,800	\$67,980	\$74,778

Source: Forrester Research, Inc.



Videoconferencing Solution

Laud Enterprises took into account its 20 offices and the conference rooms before investing in Chromeboxes. The Chromebox solution allowed for simple and immediate connection with the rest of the Google Hangouts solution. For each office, small Chromeboxes were deployed to medium-size conference rooms and large Chromeboxes were deployed to large conference rooms. The organization did not install Chromeboxes in small conference rooms, as they are meant for private calls or small coordination meetings. In those cases, a laptop webcam would suffice. The total initial risk-adjusted value was \$42,195, as shown in Table 7.

TABLE 7
Videoconferencing Solution

Ref.	Cost	Calculation	Initial	Year 1	Year 2	Year 3
F1	Small offices	Composite	13			
F2	Small conference rooms in small offices (no Chromebox)	Composite	1			
F3	Medium-size conference rooms in small offices (small Chromebox)	Composite	1			
F4	Large conference rooms in small offices (large Chromebox)	Composite	0			
F5	Chromebox cost for small offices	$F1*((F2*0)+(F3*F11)+(F4*F12))$	\$12,987			
F6	Large offices	Composite	7			
F7	Small conference rooms in large offices (no Chromebox)	Composite	3			
F8	Medium-size conference rooms in large offices (small Chromebox)	Composite	2			
F9	Large conference rooms in large offices (large Chromebox)	Composite	1			
F10	Chromebox cost for large offices	$F6*((F7*0)+(F8*F11)+(F9*F12))$	\$27,979			
F11	Chromebox for small room	Client provided	\$999			
F12	Chromebox for large room	Client provided	\$1,999			
Ft	Videoconferencing solution	$F5+F10$	\$40,966			
	Risk adjustment	↑3%				
Ftr	Videoconferencing solution (risk-adjusted)		\$42,195			

Source: Forrester Research, Inc.



Professional Services

While deployment was mostly managed and delivered by internal IT staff, Laud Enterprises used professional services for data migration, communications templates, and training templates. The estimated cost was \$30 per migrated user, which totaled a risk-adjusted value of \$32,400, as shown in Table 8.

TABLE 8
Professional Services

Ref.	Cost	Calculation	Initial	Year 1	Year 2	Year 3
G1	Licensed users	$E1_{\text{Year 1}}$	1,000			
G2	Cost per migrated user	Composite	\$30			
Gt	Professional services	$G1 * G2$	\$30,000			
	Risk adjustment	↑8%				
Gtr	Professional services (risk-adjusted)		\$32,400			

Source: Forrester Research, Inc.



Training

The cost of training is centered on the hours that staff dedicate to training instead of business. As the company's staff are fairly familiar with Google Apps, only 30% take the half-day training. Including incremental hires each year, this accumulates to a three-year risk-adjusted value of \$104,719.

TABLE 9
Training

Ref.	Cost	Calculation	Initial	Year 1	Year 2	Year 3
H1	New licensed users	Initial: $E1_{\text{Year 1}}$ Year 2 and 3: $E1_{\text{cy}} - E1_{\text{py}}$	1,000	-	100	110
H2	Users participating in training	Composite	30%	-	30%	30%
H3	Training hours	Composite	4	-	4	4
H4	Average hourly wage of users participating in training	Assumption	\$65	-	\$72	\$79
Ht	Training	$H1 * H2 * H3 * H4$	\$78,000	-	\$8,580	\$10,382
	Risk adjustment	↑8%				
Htr	Training (risk-adjusted)		\$84,240	-	\$9,266	\$11,212

Source: Forrester Research, Inc.



Internal Labor And Implementation

The initial internal deployment effort consisted of five resources for six weeks. The ongoing administrator effort is estimated at 1 hour per week. The total three-year, risk-adjusted internal labor value was \$86,478.

TABLE 10
Internal Labor And Implementation

Ref.	Cost	Calculation	Initial	Year 1	Year 2	Year 3
I1	Internal resources dedicated to deployment	Composite	5	-	-	-
I2	Deployment weeks	Composite	6	-	-	-
I3	Ongoing administrator hours per week	Composite	-	1	1	1
I4	Average IT resource salary	Assumption	\$125,000	\$125,000	\$137,500	\$151,250
It	Internal labor and implementation	$((I2/52)*I4)*I1 + ((I3/52)*I4)$	\$72,115	\$2,404	\$2,644	\$2,909
	Risk adjustment	↑8%				
Itr	Internal labor and implementation (risk-adjusted)		\$77,885	\$2,596	\$2,856	\$3,141

Source: Forrester Research, Inc.



Total Costs

Table 11 shows the total of all costs, as well as present values (PVs) discounted at 10%. Over three years, Laud Enterprises expects risk-adjusted total costs to be a PV of \$428,428.

TABLE 11
Total Costs (Risk-Adjusted)

Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Etr	Software license fees	\$0	\$61,800	\$67,980	\$74,778	\$204,558	\$168,545
Ftr	Videoconferencing solution	\$42,195	\$0	\$0	\$0	\$42,195	\$42,195
Gtr	Professional services	\$32,400	\$0	\$0	\$0	\$32,400	\$32,400
Htr	Training	\$84,240	\$0	\$9,266	\$11,212	\$104,719	\$100,322
Itr	Internal labor and implementation	\$77,885	\$2,596	\$2,856	\$3,141	\$86,478	\$84,965
	Total costs	\$236,720	\$64,396	\$80,102	\$89,132	\$470,350	\$428,428

Source: Forrester Research, Inc.

FLEXIBILITY

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

Laud Enterprises plans to more widely use Google Sites to create more internal self-service functions as well as Google Forms to collect feedback. Although Google+ has not been featured in any immediate plans over the next year, the organization is curious and wants to work a social component into the collaboration platform.

Lastly, Laud Enterprises is also on a path to own less infrastructure and look into more “as-a-service”-type offerings. The organization will pay particular attention to those software partners that can integrate well with Google Apps.

RISKS

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 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, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

TABLE 12
Benefit And Cost Risk Adjustments

Benefits	Adjustment
Improved collaboration and productivity	↓ 10%
Product usage efficiency	↓ 20%
Licensing and hardware cost savings	↓ 5%
Cloud performance and customer support	↓ 10%
Costs	Adjustment
Software license fees	↑ 3%
Videoconferencing solution	↑ 3%
Professional services	↑ 8%
Training	↑ 8%
Internal labor and implementation	↑ 8%

Source: Forrester Research, Inc.

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

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

- › Low adoption rate with no training to mitigate risk or accelerate adoption rate.
- › Using only email and calendar.
- › Overlapping licensing and hardware for prolonged periods.

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

- › Accelerated user growth, storage demand, and license demand.
- › Opening new offices that require incremental Chromeboxes.
- › Hiring more senior executives who are less experienced with Google Apps.

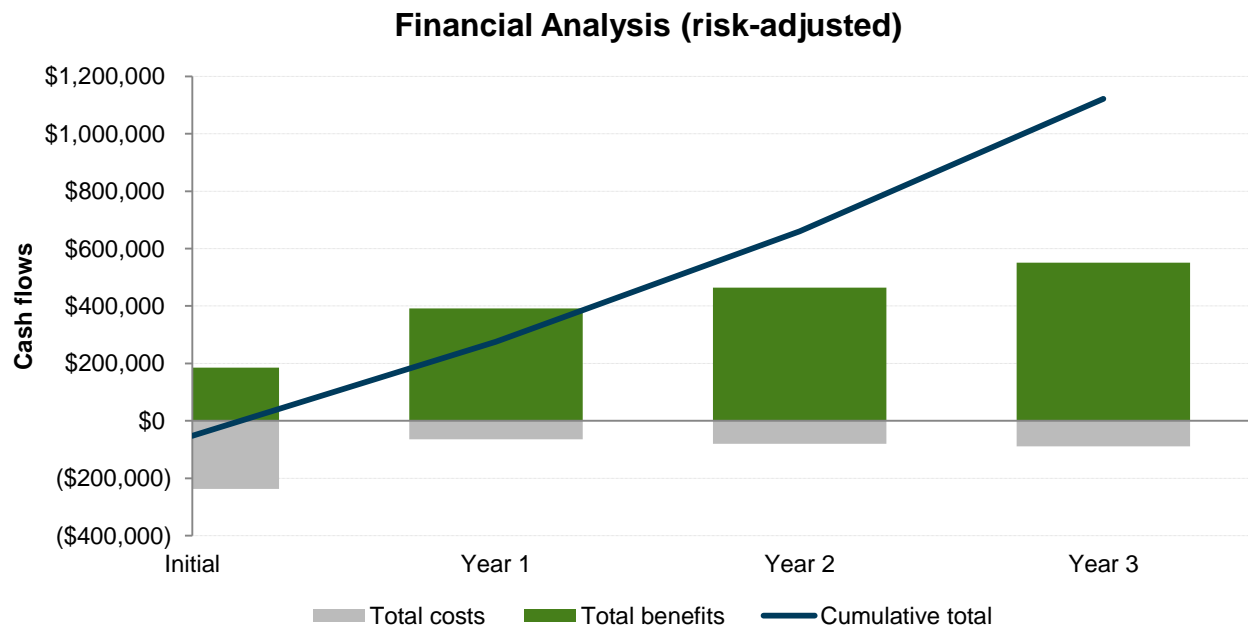
Table 12 shows the values used to adjust for risk and uncertainty in the cost and benefit estimates for the composite organization. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

Financial Summary

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for Laud Enterprises' investment in Google.

Table 13 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 12 in the Risks section to the unadjusted results in each relevant cost and benefit section.

FIGURE 3
Cash Flow Chart (Risk-Adjusted)



Source: Forrester Research, Inc.

TABLE 13
Cash Flow (Risk-Adjusted)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Costs	(\$236,720)	(\$64,396)	(\$80,102)	(\$89,132)	(\$470,350)	(\$428,428)
Benefits	\$185,250	\$391,402	\$464,240	\$551,502	\$1,592,394	\$1,339,091
Net benefits	(\$51,470)	\$327,006	\$384,138	\$462,370	\$1,122,044	\$910,663
ROI				213%		
Payback period				1.9 months		

Source: Forrester Research, Inc.

Google Apps For Work: Overview

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

Google Apps for Work is a suite of applications that includes Gmail, Google Drive (file storage and sharing), Hangouts (video meetings and chat), Docs, Sheets, Slides, Forms, Calendar, and Sites, plus admin controls designed specifically for use within businesses. Google's applications run in web browsers without any additional software to install, as well as natively on iPhones, iPads, and Android phones and tablets. Google also manages the back-end infrastructure in its scalable, reliable, and secure data centers, so there are no servers for customers to purchase, configure, patch, or upgrade over time.

GOOGLE APPS FOR WORK FEATURES

Google Apps for Work includes:

- › **Gmail.** This provides business email, including advanced spam filtering, instantaneous message search, integrated text, voice and multiperson video chat, and other productivity enhancements such as Priority Inbox. Gmail is accessible on any mobile device through a standard email app and has dedicated mobile apps for iOS and Android.
- › **Google Drive.** This file synchronization and sharing service allows employees to access the most recent version of their work from anywhere and on any device, including smartphones and tablets. With Drive, employees can store any file up to 5TB and instantly view common formats, including documents, PDFs, images, and even HD videos, right from their web browser or mobile device. Teams can share files or whole folders, and with granular file permissions it's simple to control who can view, comment on, or edit each file. Google Drive is available with unlimited storage and has dedicated mobile apps for iOS and Android, as well as apps to synchronize files from Windows and Mac computers.
- › **Google Hangouts.** This online video meetings service allows up to 15 people to connect in HD from their laptop, tablet, phone, or conference room unit. Hangouts includes screen sharing for enhanced collaboration, as well as voice calling and instant messaging for quick conversations. Google Hangouts has dedicated mobile apps for iOS and Android.
- › **Google Docs.** Employees can collaborate on documents in real time, so teams can work on the same document at the same time and complete projects faster. Google Docs supports images, tables, equations, drawings, links, and more. Social commenting allows for a quick gathering of feedback and approvals from the right people. With Google Docs, employees can edit documents created in other major word processing software or convert popular document formats like .doc, .docx, and .rtf to Google Docs to activate collaborative functions. Google Docs works with or without an Internet connection and has dedicated mobile apps for iOS and Android.
- › **Google Sheets.** This powerful spreadsheet editor lets employees collaborate on spreadsheets at the same time. Google Sheets supports tools like advanced formulas, embedded charts, filters, and pivot tables to get new perspectives on data. Google Sheets enables employees to share lists, manage projects, analyze data, and track results together. With Google Sheets, employees can edit spreadsheets created in other major spreadsheet software or convert popular spreadsheet formats like .xls, .xlsx, and .csv to Google Sheets to activate collaborative functions. Google Sheets works with or without an Internet connection and has dedicated mobile apps for iOS and Android.
- › **Google Slides.** Google Slides allows teams to create presentations together, with support for embedded videos, animations, and dynamic slide transitions. Employees can share presentations privately with colleagues or partners or can publish them to the Web for customers to view. With Google Slides, employees can edit presentations created in other major presentation software or convert popular presentation formats like .ppt and .pptx to Google Slides to activate collaborative functions. Google Slides works with or without an Internet connection and has dedicated mobile apps for iOS and Android.

- › **Google Forms.** This tool makes creating custom web forms for surveys and questionnaires as easy as writing a document. Google Forms can be shared in email, embedded in a website, or shared through social channels. Form responses are instantly gathered in a spreadsheet as they're submitted and can be analyzed directly in Google Sheets.
- › **Google Calendar.** Employees can manage their schedules, create project calendars, schedule time with colleagues, and add shared resources like conference rooms. Multiple calendars can be overlaid to instantly display a composite view of multiple people's schedules. Google Calendar is accessible on any mobile device with a standard calendar app and has dedicated mobile apps for iOS and Android.
- › **Google Sites.** Employees can create and share project websites and intranet pages without any programming skills or technical support. Google Sites helps keep everyone on the same page — literally — by making it easy to centralize and organize team documents, calendars, videos, and more. With just a couple of clicks, sites can be optimized for viewing on smartphones and tablets.
- › **Google Apps Vault.** This retention, archiving, and eDiscovery tool for Google Apps allows IT admins to manage business-critical information and prepare for the unexpected, such as a lawsuit or employee departure. Google Apps Vault can reduce time and costs associated with responding to legal discovery requests, audits, or internal investigations. If an employee leaves the organization, Google Apps Vault can help track the status of projects and communications the employee was involved with.
- › **Hundreds of third-party applications.** These applications are available from the Google Apps Marketplace and extend Google Apps with capabilities such as CRM, project management, accounting and finance, and sales and marketing tools that work seamlessly with Google Apps, including the ease of single sign-on (SSO) access.

STATE-OF-THE-ART SECURITY

Millions of organizations (including Google) trust Google's infrastructure to keep their most important corporate data safe. Google's network of data centers is engineered for security, reliability, and redundancy and is backed by some of the world's leading experts in information security. Google data center physical security features a layered security model, including safeguards like custom-designed electronic access cards, alarms, vehicle access barriers, perimeter fencing, metal detectors, and biometrics, and the data center floor features laser beam intrusion detection. Google's data centers are monitored 24x7 by high-resolution interior and exterior cameras that can detect and track intruders. Access logs, activity records, and camera footage are available in case an incident occurs. Data centers are also routinely patrolled by experienced security guards who have undergone rigorous background checks and training. Google's information security team includes over 500 security and privacy professionals, part of the software engineering and operations division, who monitor the networks and the applications against threats.

Google's security practices are verified by independent third-party reviews. To demonstrate compliance with security standards in the industry, Google has sought and received security certifications such as ISO 27001 certification and SOC 2 and SOC 3 Type II audits. For customers who are subject to the requirements of the Health Insurance Portability and Accountability Act (HIPAA), Google Apps can also support HIPAA compliance. Google is also US-EU Safe Harbor certified and offers model contract clauses as an additional means of compliance with the European Data Protection Directive.

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 historical performance of the system has been significantly higher than this SLA threshold. Google provides enterprise-grade support to customers, including 24x7 telephone support for critical administrative issues.

More information about Google Apps for Work is available at google.com/apps.

Appendix A: Composite Organization — Laud Enterprises

Based on these interviews, a composite organization was created to represent the aggregated feedback and quantified experiences captured during the interviews. For the purposes of this case study, the composite organization will be known as “Laud Enterprises.” Laud Enterprises is an US online retailer focused on toys and collectible figurines and novelties, and it has the following high-level characteristics:

- › It is a 15-year-old company with 1,000 staff, who have an average age of 30. Twenty-five percent have never used the predominant email client for corporate environments.
- › It has \$500 million in annual revenue from ad sales, toy sales, and collectible auctioning.
- › It has 20 offices spanning the Americas, EMEA, and APAC, with seven large offices (70 to 100 staff) and 13 smaller offices (20 to 40 staff).
- › Besides internal support staff, resources are primarily split between the business technology development and toy acquisition teams. While development staff continually improve the online consumer experience and applications that can help field staff, the toy acquisition team consists of field staff who negotiate toy reseller contracts, assess collectible value, and acquire collectibles.

Prior to engaging Google, Laud Enterprises migrated from an on-premise solution to an alternative cloud platform and used it for one year before assessing other cloud messaging and collaboration providers. The company’s IT team noticed Mac and Linux users installing workarounds to the alternative platform’s locally installed conferencing application. The young and tech-savvy staff were passionate about the company’s mission and searched for alternatives that would help them be more effective in collaborating virtually. The staff highlighted a key frustration was related to the user experience of the locally installed conference application, especially the gap between different OSes.

As the enterprise agreement with the alternative platform came to an end, Laud Enterprises assessed different vendors and found that Google was the best fit for the company’s distributed staffing model that included many mobile staff in the field, more than one supported OS in the organization, and an increasing demand to effectively and virtually develop and edit content together. Laud Enterprises engaged Google with the following high-level goals:

- › Ensure a consistently high-quality user experience across all mobile devices and desktop OSes. Success metrics include help desk ticket reduction related to email and collaboration issues that are specific to a device or OS, and a satisfactory rating on the annual employee satisfaction survey for the collaboration technology category.
- › Enable field staff to effectively search, share, create, and edit content while outside of the office without a laptop. Success metrics include increase in volume of documents created and developed by multiple users, increase in volume of documents created on mobile devices, and anecdotes of specific opportunities there captured or otherwise lost if real-time mobile document editing was not available.
- › Increase usage of videoconferencing, unify virtual communications, and decrease nonapproved communication workarounds. Success metrics include increase in videoconferencing volume, positive post-call quality ratings, and reduction in nonapproved applications installed or used.
- › Reduce time for content creation by enabling real-time multiuser document editing capabilities. Primary success metric is reduction in content development time, which will be measured through bi-annual department-level surveys.

FRAMEWORK ASSUMPTIONS

Table 14 provides the model assumptions that Forrester used in this analysis.

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.

TABLE 14
Model Assumptions

Ref.	Metric	Value
X1	Hours per week	40
X2	Weeks per year	52
X3	Hours per year (M-F, 9-5)	2,080
X4	Hours per year (24x7)	8,760
X5	Annual organization/budget growth	10%
X6	Annual salary/wage growth	10%
X7	IT full-time equivalent (FTE) annual salary	\$125,000
X8	Training resource hourly wage	\$65
X9	Business FTE hourly wage	\$48

CY/PY Current/prior year

Source: Forrester Research, Inc.

Appendix B: 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. TEI assists technology vendors in winning, serving, and retaining customers.

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

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 form 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.

FLEXIBILITY

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

RISKS

Risks measure 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 risk factors are based on a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the risk factor around each cost and benefit.

Appendix C: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Companies set their own 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 organizations 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 NPV of cash flows.

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.

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 the Framework Assumptions section) at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations are not calculated until 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.

TABLE [EXAMPLE]
Example Table

Ref.	Metric	Calculation	Year 1	Year 2	Year 3

Source: Forrester Research, Inc.

Appendix D: 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, see the section on Risks.