

Return on Information: Improving your ROI with Google Enterprise Search

How Google search solutions can boost your bottom line



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Between now and 2020, the amount of digital information created and replicated in the world will grow to almost 35 zettabytes, equivalent to a stack of DVDs reaching halfway to Mars.
 Source: IDC, *The Digital Decade – Are You Ready?*

As enterprises continue to produce, store, and make use of business content, volume grows and the investment needed to manage complexity increases. Yet much of this content remains difficult to manage and access. Fulcrum Research claims that 80% of enterprise content is unstructured (stored in things like Word docs and .pdfs, as opposed to structured data bases, CRM systems, etc.), and Forrester Research asserts that content volume is growing at a rate of 200% annually. At this rate, the volume of data stored in many organizations may measurably reach the point of “too much information” – in other words, where the levels of information actually interfere with productivity rather than contribute to it. For many organizations, it’s already happening – and it’s burdening IT resources and complicating what most knowledge workers need to do to find, and work with, business information.

“Information overload” is a reality for many organizations and individuals. Fortunately, effective enterprise search can help people navigate that reality, giving them the information they need to speed decisions and productively conduct their work.

Storage isn’t the only issue when it comes to information overload: helping people navigate this sea of data is also a challenge. For marketing managers, IT programmers, scientists, or any employee who works with business information, finding, understanding, and working with the right data is essential to productivity.

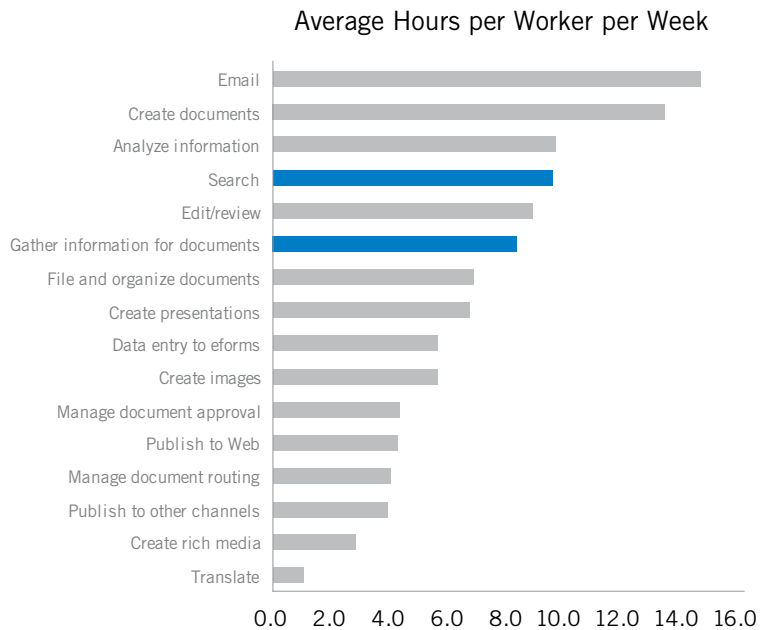


Figure 1 Time Spent on Information Tasks. Source: IDC

This indicates that 9.5 hours of time can be spent searching and another 8.3 hours gathering information each week. Furthermore, according to IDC, 3 hours is spent each week recreating content that already exists (not depicted above). Given these inefficiencies, knowledge workers spend only a fraction of their time on productive tasks such as originating content or analyzing information.

An organization with 1,000 employees can save \$1 million annually, or \$2,700 a day, in wasted employee costs. At this rate, a \$15,000 search solution – such as the Google Search Appliance – would pay for itself within 11 days.

Calculating the returns from high-quality search

A simple calculation can help organizations see the potential ROI resulting from effective Google search:

$$(\# \text{ of workers}) \times (\text{average annual salary}/2,080 \text{ hours}) \times (\text{hours saved}/\text{worker}) = \$ \text{ total productivity savings}/\text{year}$$

Note that this calculation only estimates the ROI from time saved. It does not take into account the potential increases in revenue from, for instance, delivering products to market faster.

IDC estimates the percentage of search time that can be saved by implementing high-quality enterprise search at 53.4%; however, even a 10% reduction in lost time can yield impressive returns.

Scenario						
10,000 Employees						
50% Knowledge Workers						
\$150,000 Salary, Benefits, Overhead per Employee						
Total “Knowledge Worker” Salary Costs: 5,000 x \$150,000 = \$750 million						
Increased Productivity with Search						
Information Task	Hours Per Week	Yearly Hours Saved	Annual Cost Per Worker	Savings	Productiity Boost to Worker	Productivity Boost to Company
Search	9.5	437.0	\$35,625	5%	\$1,781	\$8,906,250
Recreate existing documents	3	138.0	\$11,250	10%	\$1,125	\$5,265,000
Gathering information for documents	8.3	381.8	\$31,125	5%	\$1,556	\$7,781,250
TOTAL						\$22,312,500
With highly conservative assumptions, a 10,000 person company can experience over \$22 million in productivity gains						

Figure 2: Conservative ROI for productivity improvements based on implementing the Google Search Appliance

Above is a simple scenario that illustrates the ROI achievable with Google search solutions. In this example, 50% of workers in a company are knowledge workers, each paid \$150,000/year (fully loaded). The chart shows savings on the total time spent on searching, as well as recreating existing content and generating information for documents.

Adding complexity to overload

In addition to managing accumulating information, many organizations also need to find information across complex sources and formats: intranets, email systems, file shares, wikis, and a range of business knowledge, Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), and other applications. According to a Gartner study, 66% of enterprises utilize six or more such repositories. With information in so many different places, locating it can be nearly impossible unless workers know in advance exactly where to look. Organizing this information, and training users on how to locate and work with it, is often a time-consuming IT responsibility.

1 Based on average knowledge worker salary of \$150,000 per year (per IDC)
 2 Assume a highly conservative savings of only 5% reduction in the search time saved
 3 Even though good search should be able to discover most, if not all, existing documents, assume 20% to be highly conservative

Even with training, though, this information can be difficult to locate – yet, without it, workers can have a difficult time making the right decisions. Being unable to find business information comes at a high cost – one that can be measured in lost opportunity and on the bottom line. Therefore, information complexity, clutter, and overload have a direct negative affect on corporate effectiveness and productivity, all of which translate to costs.

“Search” is often upheld as the fix for finding information across repositories. Yet search often requires retroactive engineering before legacy data can be identified and successfully found. That re-engineering can be a complex task – one that front-loads search solutions with costs even before deployment begins. Some organizations, faced with the need to re-map their IT architecture before they begin to install search, understandably stick to the “look until you find it” method – which, especially as data accumulates, continues to slow productivity. This is why implementing the right search platform, tailored to an organization’s unique data needs, has become a critical role for many IT departments.

High returns from high-quality enterprise search

Since IDC studies show that effective search can help reduce the 16% of time spent searching for information, the right internal search solution can add measurable value the bottom line. High-quality enterprise search can help workers free time for analyzing information, making decisions, and creating useful new content. By minimizing unsuccessful searches and enabling workers to find information stored in diverse content repositories, IDC says that organizations can virtually eliminate the need to recreate existing content.

Because organizations are often caught unaware of hidden costs that accompany their chosen search solution, several factors should be considered as organizations bring search to their IT mix.

Up-front costs Up-front data preparation or re-engineering, space allocation and preparation, equipment purchases, IT training

Set-up costs Actual deployment, integration, admin training; consulting expenses and connector costs

Ongoing costs Additional hardware, storage, and power; annual maintenance, software upgrades, support, and tuning; user training

It’s important for organizations to consider the various phases of search deployment and weigh the direct and indirect costs of each and how they affect ROI. Although effective search might save knowledge workers hours each month, it may take as many hours of an IT worker’s time to maintain and manage the search solution. This investment-to-productivity payoff should be thoroughly understood to obtain the best return on investment through effective search.

Return on Information

Calculating costs for search acquisition, preparation, and ongoing maintenance are key first steps in calculating ROI. But decision-makers should be aware of another important data point: the “return on information” based upon the value of relevant data returned through search. High-quality enterprise search maximizes return on information by reliably producing the result that users need and expect, without

“Poor search was seen as the greatest single cause of reduced usability across intranets we have seen...Search usability accounted for an estimated 43% of the difference in employee productivity between the best and the worst intranets.”
 Intranet Usability
 Nielsen Norman Group

forcing changes to how and where that information is stored, and without requiring IT to constantly fine-tune search parameters based on gaps in user results.

Google search and ROI

With the Google Search Appliance (GSA), Google offers simple, high-value search solutions to help organizations decrease IT costs and maximize ROI. The GSA is designed to deliver relevant results, out of the box, without requiring data re-engineering, custom indexing, or tuning. All of Google’s search tools feature the familiar, powerful Google interface – recognized by users worldwide – which minimizes training for both IT and end users. One GSA unit is capable of indexing millions of documents across diverse content sources and formats, helping users navigate information that might otherwise be difficult to locate.

To simplify matters and keep costs low, Google provides solutions that are deployed on-premise and include hardware, software, product updates, support, and product replacement coverage, all at one price. This “one price” model eliminates annual maintenance fees and removes the potential for cost overruns. What’s more, the GSA cuts costs by streamlining deployment and allowing search to begin with three simple steps: plugging in the GSA behind the firewall, inserting an Ethernet cable, and specifying which repositories the appliance should search. The search appliance does the rest, creating a master index and then automatically performing periodic incremental crawls on a customizable schedule to refresh its listings. Although this indexing works out of the box, it can be tailored on many levels to meet user needs.

Traditional enterprise search deployments are usually more complicated. For instance, deployments can include front-end web servers, query servers, index servers, and database servers, let alone patch management or backup servers. This often includes full-time staff for installation, training, and ongoing maintenance, as well as the storage and power requirements associated with a complex installation. (This Search Architectures for Microsoft SharePoint Server 2010 documentation illustrates this complexity: <http://www.microsoft.com/downloads/en/details.aspx?FamilyID=22FFC029-2C08-457D-8311-CA457C6D160E>.)

It’s not unusual for a traditional search architecture to look like this:

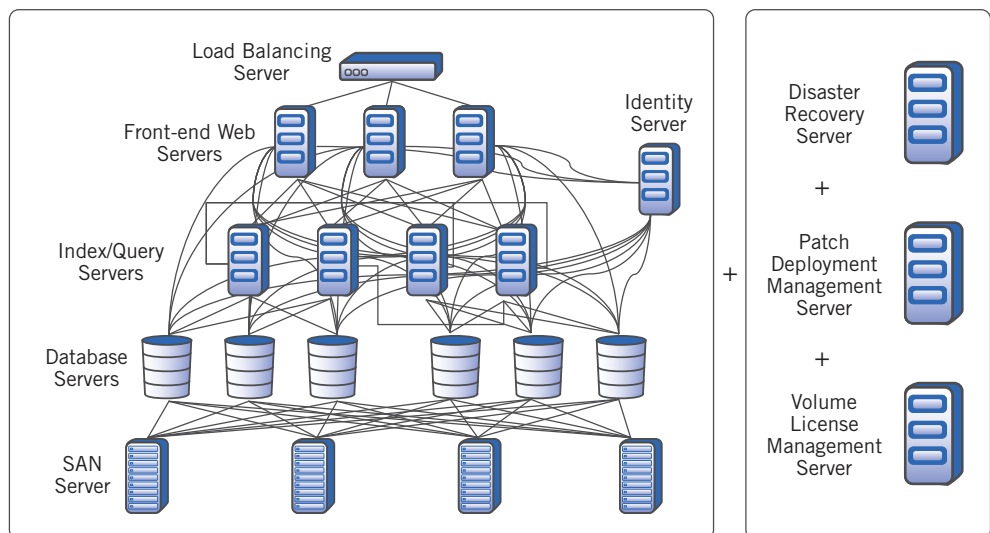


Figure 5: Traditional enterprise search infrastructure

“We have the same one-fifth full-time employee supporting search as we did before, but we’ve gone from searching at best 500,000 documents to searching 22 million documents.”

Sean Powell
Project and Technical Lead
Kimberly-Clark

Read the full case study at
www.google.com/enterprise/gsa/kimberlyclark.html

As a counterpoint, Kimberly-Clark addressed their entire internal search needs with a few simple GSA boxes, each of which looks like this:



Figure 4 – Google Search Appliance – ten million docs in a box

When Kimberly-Clark put the power of the Google Search Appliance to work on their internal search scenario, they minimized both the complexity of their search installation and the IT headcount required to maintain it. Within days, 55,000 employees were able to search 22 million documents across the company intranet, using less than one-fifth of an IT staff member’s time. Not only did GSA yield productive, reliable search results across all media, it did so with no end-user training and almost no maintenance. More importantly, Kimberly-Clark can continue to build on their initial success by adapting the system to their evolving needs. This includes adding new content types, adapting the user experience to different user communities, and accommodating the complex security requirements endemic to today’s enterprise information environments.

One Google Search Appliance can search as many as tens of millions of documents. GSA configurations address search needs spanning the range of 500,000 through 30 million documents, and enable customer configurations for unlimited documents. These options are licensed at varying levels based on one simple data point: the number of documents searched. With straightforward stackable scaling, there is virtually no limit to the number of documents a GSA cluster can accommodate. Organizations can add content without worrying about the underlying search architecture. As this content grows, the GSA license can be modified accordingly, so that the only change is to the licensing point. The new range of documents is added to the index, yet the underlying technology remains the same, and the transparency of the GSA’s document-centric pricing model makes it easy for future IT budget planning.

Total Cost of Ownership

Companies that have deployed the Google Search Appliance often report a dramatic reduction in their total cost of ownership (TCO). This is due to hardware and software savings, reduced deployment costs, efficient content indexing configuration, and easy ongoing maintenance. Google search solutions, which are easy to implement and maintain, help ensure that gains achieved in one part of the business are not negated by extra time and effort required in another.

In most cases, where the GSA replaces an existing search solution, companies notice a significant uptick in relevance alongside a dramatic reduction in time/effort spent planning and incorporating new content. While many search solutions offer extremely flexible relevance frameworks, this puts the onus of a PhD’s knowledge and focus in relevance tuning back onto the customer. Few customers are trained to handle this kind of complexity, and fewer still to re-do the exercise with each new type of

“With the Google Search Appliance, it now takes our sales executives 15 seconds to find something they used to burn 30 minutes looking for.”
 Jim Cahill
 Marketing Communications Manager, Emerson Process Management

content, each new user community, and in response to existing complaints from business leads asking, “Why doesn’t my content show up?”

The beauty of the Google Search Appliance is it already embeds the world’s best relevance, the product of thousands of engineers working on Google.com, and it also features separate algorithms optimized for the enterprise environment. Why should IT have to try and replicate that intellectual capital on their own?

The table below shows a “before” vs. “after” comparison from a large pharmaceutical company with 50,000 employees. In addition to reducing TCO, the Google Search Appliance helped improve many metrics including response time, improved connectivity, and intranet search usage.

Accelerate Time-to-Task	Previous Solution	Google	Change
Response time	8–10 sec	< 1 sec	-94%
Queries/day	1,800	8,200	356%
% of intranet visits with search	2.7%	5.5%	105%
Increase Decision Quality			
Spell check	No	“Did you mean...”	
Phonebook and Who’s Who	Separate search	Included	
SAP Enterprise Portal	Separate search	Included	
Corporate intranet site	Separate search	Included	
Streamline Infrastructure Support			
Platform	Server + BEA + Code	Appliance	
Count	6 Servers	2 Appliances	
Disaster recovery	Weeks	Minutes	
Cost			
Search license	\$160K/year	\$45K/year	-72%

Google reduced search license costs by 72%

Figure 8. Actual metrics from a large pharmaceutical company

This company achieved direct savings in infrastructure and licensing costs, and markedly improved decision quality for its users, when they used GSA-powered search to improve intranet usability and content navigation.

Each company’s total cost of ownership can be dramatically different, depending on which vendor they choose for the enterprise search installation. To understand the various factors influencing total cost of ownership, refer to the Requirements Comparison table at the end of this paper.

User Experience

All search engines are not created equal. Those that find the right results for queries quickly are the ones that will deliver the largest gains in worker productivity. Users need to be able to search seamlessly across multiple content repositories – without the need for extensive systems integration work. To work with information complexity, Google solutions offer widespread search across an entire organization’s content stores, from SharePoint and Documentum systems to desktops and intranet sites. Google’s solutions can search more than 220 different file formats and can plug in quickly to almost any type of content repository.

“The Google Search Appliance saved us an enormous amount of time and effort. The system integrated with our existing IT infrastructure seamlessly.”

Mark Troester
Director of Web Support
Illinois State University

In addition to the “out of the box” ease that Google brings to enterprise search, the GSA also offers a range of advanced search features that further enhance search relevance and satisfaction.

Search as you type dynamically presents suggestions and auto-completes queries

Unified results delivers results from a wide variety of sources – websites, news, video, and more – and integrates them all on one page, regardless of content source

OneBox provides realtime business results, including sales leads, PO status and business intelligence information

When search is easy – and the results meaningful – people integrate search naturally into their ongoing business behavior, simply sourcing and using the information that they need. This ease, along with Google’s simple, low-cost model, increases the effectiveness of internal search and reduces total cost of operations, contributing to increased ROI.

The social search experience

Nothing is more personal than relevance, which is why the GSA integrates social signals into its daily work. Within the enterprise, users are constantly voting with their clicks. The system is smart enough to understand this, and continue to enhance relevance over time, including adapting for the false clicks and other signal anomalies that are a part of user behavior.

Additionally, the Google Search Appliance enables admins to personalize the user search experience by using built-in GSA features such as front ends, Key Matches, and source biasing. Thus, admins can weight code or design documents higher for engineering users, and prioritize sales or advertising documents for marketing users. Further, using “Alerts,” employees can subscribe to email alerts for topics and documents of interest, choosing an hourly, daily, or weekly update schedule.

Direct cost savings and marked improvements in search usability and results help IT make the most of their investment in search – and improve the ROI on other technology, including corporate portals, content management systems, and real-time systems. What’s more, high-quality search provides a much better return on information, letting users find and make sense of complex results through one simple search experience – much like they can on the web.

ROI that extends across the organization

Google search solutions can positively affect the productivity of almost any organization and drive a variety of business benefits – including improved ROI. The right search solution can deliver:

Faster time to market:

Using effective enterprise search, companies can deliver products to market faster, resulting in gains of millions or even hundreds of millions of dollars. These gains can be especially noteworthy in industries where time to market is a key determining factor in profits and business success. According to a detailed ROI analysis published by Specialty Pharma Magazine, “For a product with peak sales of \$700 million, delays can be worth up to \$4 million per business day in lost profits and \$6 million in lost sales.”

“If we had this solution three years back, when we started our integration project for the core network processes, we would have saved more than 22 man years of effort...It is the first time we can provide tangible ROI data of any information product, even when we exclude soft benefits of the Google Search Appliance such as informed decision-making.”

Dr. Petros Panagiotidis
Business Systems Integration
Vodafone

According to a survey by AMR Research, 32% of respondents designated “products late to market” as the top reason for new product launch failures. Each month a product is delayed has a negative impact on ROI. Deploying search systems that increase productivity can result in a reduction in total product development time and costs, as well as faster time to market, a key factor in product revenues.

Improved responsiveness to customers:

High-quality search can also enhance responsiveness to customers and reduce customer support costs. Lacking search that spans multiple systems, employees helping customers often need to switch from system to system to conduct searches while a customer is on the phone. As a result, they often have a difficult time finding answers to customer questions and issues take a long time to be resolved. With unified search that spans multiple systems, employees serving customers can find answers faster, reducing inquiry handling time, and increasing customer satisfaction.

Based on conservative assumptions, the Google Search Appliance can save 10% to 15% of labor costs annually in a call center, a significant savings.

Enhanced ability to analyze and share information:

Today’s knowledge workers need to share information and, in service practices, increase billable hours – wherever they work. People who travel frequently, or who work in distributed workplaces, often find it more difficult to tap into knowledge stores housed in home offices or other geographically remote places. High-quality search frees up valuable work time for anyone who works with business information, but – in the case of employees who travel – makes even more business sense when people are away from the documents they need.

What’s more, the right search solution ensures that workers can access information “anytime, anyplace,” making it easy for people to securely use internal documents to verify information, or leverage existing content, making work more efficient at all times. Companies that implement high-quality search solutions such as the Google Search Appliance can measurably improve their ROI by making knowledge available and easy to find, thus increasing the productivity of billable hours.

Conclusion

Google enterprise search delivers proven value and can produce meaningful, measurable increases in ROI. Numerous business benefits, including increased productivity, reduced time-to-market, diminished customer service costs, and increased billable hours, can have a significant impact on the bottom line.

As organizations consider the benefits of bringing high-quality search to the workplace, it’s critical to assess the various factors influencing the ROI they seek. There’s no doubt that “search,” in a pure sense, heightens employee productivity by making the right knowledge available and useful when and where it’s needed. What’s more, relevant, findable information can speed project or product time-to-market and measurably increase the efficiency with which employees work.

With the Google Search Appliance, companies of all sizes can reap the benefits of return on investment and on information, with highly productive, relevant search – with a low-maintenance, easy-to-use solution that optimizes the value of business information while minimizing costs. With all of these factors in mind, organizations that take an informed approach to enterprise search can create a substantial and ongoing competitive advantage and achieve measurable returns.

“Our order support reps are very resourceful, but even with the extensive knowledge base on our intranet, we needed a fast way to search for the right document at the right time. The Google Search Appliance clearly enables our reps to quickly find the information they need on our intranet, and use it to respond thoroughly to a customer call. We reduced our average handling times by 18%.”
 Senior Vice President of Marketing
 Large Telecommunications
 Company

Requirements Comparison Worksheet

Google has consistently provided the best relevancy at the lowest total cost of operations across enterprise search. Although requirements and costs will differ depending on the size and complexity of your implementation, the following worksheet outlines what requirement variables you can expect from Google, Microsoft/Fast, and Autonomy:

	Microsoft/ FAST Platform	Autonomy Platform	Google Platform
A. Software and Licenses Requirements	Windows Server OS (per server)	IDOL Server License by Document Count	GSA Licensing by Document Count Connectors INCLUDED
	SharePoint Server License	IDOL Users Licenses (per user)	
	SharePoint Client Access Licenses (per user)	IDOL Connectors (added fee per connector)	
	SQL Server License	Add-on Features (added fee per feature) <ul style="list-style-type: none"> • UI Components • Audio/Video Search • Multiple Languages 	
	FAST ESP Server License		
	Connectors		
B. Hardware	Search Servers	IDOL Servers	Hardware INCLUDED
	SharePoint Servers		
	Index Servers		
	SAN Storage and Databases		
C. Setup and Integration	FAST Deployment Consultation	Autonomy Consultation	Google Partner Consultation if needed
	Sharepoint integration/tuning External content integration/tuning	Partner Consultation	
D. Upgrades and Maintenance	Upgrades through Software Assurance	Upgrades are not included	Upgrades INCLUDED
E. Relevancy Tuning	Third party professional services engagement	Third party professional services engagement	Relevancy Tuning INCLUDED

