

ECONOMIC VALIDATION

The Economic Benefits of Amazon QuickSight

Accelerating and Reducing the Complexity of BI Insights While Saving Up to 74% Over Traditional Solutions

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Economic Validation: Key Findings Summary

Validated Benefits of Amazon QuickSight



Up to 74% lower cost of BI solution over three years.



157% to 300% increase in usage of BI analytics.

275% return on investment (modeled).

- **Cost Savings:** QuickSight helped organizations consolidate silos of legacy BI hardware and software and significantly reduce BI-related spend with a simple and scalable per-user pricing model.
- **Reduced Complexity:** The fully managed BI service significantly reduced the complexity of supporting and maintaining BI systems and software, reducing the number of specialized resources required and allowing teams to focus on expanding the use of analytics rather than managing infrastructure, software, and licenses.
- Faster Time to Bl Insights: QuickSight enabled teams to deploy and scale analytics capabilities months earlier, allowing organizations to expand the use of intelligence across the organization, accelerate software development efforts, and improve ML capabilities.

Introduction

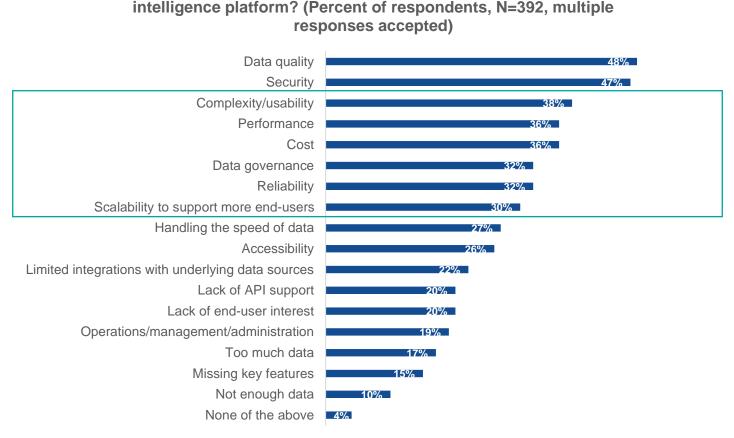
This Economic Validation from TechTarget's Enterprise Strategy Group focuses on the quantitative and qualitative benefits organizations can expect by using the Amazon QuickSight cloud-native business intelligence (BI) service rather than siloed and specialized legacy BI tools and processes to deliver actionable insights across the organization.

Challenges

Data has become the lifeblood of modern organizations. Collected from devices, applications, employees, customers, and partners, data can be leveraged by BI systems to identify ways to lower costs, improve operational efficiencies, enhance products, and uncover new or better revenue opportunities. But solving today's near-real-time requirements for information with yesterday's legacy BI platforms and processes brings about many challenges. Enterprise Strategy Group research reveals that, after the critical aspects of data quality and security (which are top concerns around anything related to data), some of the top challenges experienced by organizations with their BI platforms and tools are complexity, performance, cost, data governance, reliability, and scalability to handle more users (see Figure 1).¹

What challenges does your organization experience with its business

Figure 1. Top Challenges Experienced With Business Intelligence Platforms



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

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¹ Source: Enterprise Strategy Group Survey Results, *The Path to Data Leadership*, July 2021.

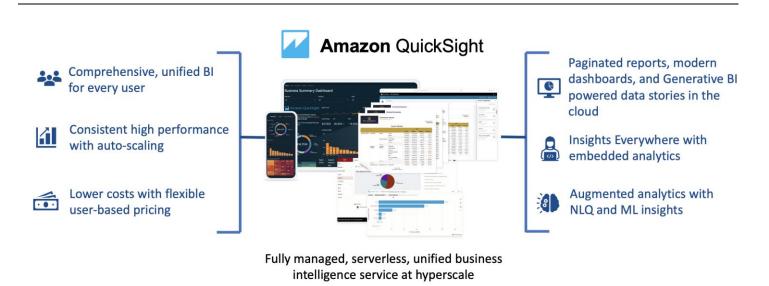
Over the years, organizations have made investments in various BI approaches, including running periodic queries to produce and distribute reports, providing access to data for analysts to visually explore and uncover insights, providing access to data for developers to embed BI analytics into applications, and, most recently, using machine learning to systematically learn from BI data. Over time, organizations find that siloed business units and corporate mergers and acquisitions have resulted in the need to support many BI platforms and point tools requiring multiple interfaces, licensing models, support and maintenance operations, and potential infrastructure management, which results in added complexity and cost. Legacy platforms and tools require a large upfront investment in overprovisioned infrastructure and license commitments, as well as costly ongoing costs to operate, support, and maintain. In addition, organizations must hire and train experienced staff to manage the infrastructure and software, as well as support the tools and access to data for visual exploration, development of embedded analytics, and machine learning. As organizations are asked to support more data sources and expand the use of analytics further throughout the organization, legacy tools and processes become more costly and complex to scale, often resulting in business delays, inconsistent performance, slower time to insights, and reduced productivity.

Continuing to rely on a siloed approach to business intelligence with legacy tools does not enable the organization to make effective use of its most important asset: data. A simple, scalable, and unified strategy helps to limit cost and complexity, minimizes time to insights, and enables modern organizations to operate as efficiently and agilely as possible.

The Solution: Amazon QuickSight

Amazon QuickSight is a cloud-native BI service that enables organizations to deliver easy-to-understand insights to all areas of the business. QuickSight is a fully managed service that replaces the need for buying, deploying, operating, and maintaining business intelligence platform and tools (see Figure 2).

Figure 2. Amazon QuickSight Unified Business Intelligence Service



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Amazon QuickSight provides organizations with:

- Scalability. Built for hyperscale on a serverless architecture, there is no infrastructure or software to manage.
- **Transparent and flexible pricing.** Simple user-based pricing includes maximum monthly charges per user, with no upfront costs or capacity planning required.



- **High performance.** Very fast access to the data provides an improved customer experience and makes data available to anyone without waiting for results to load.
- Insight availability. Secure dashboards can be accessed from anywhere, including mobile devices, email, or directly embedded into applications.
- **Comprehensive data sources.** These include native AWS sources, spreadsheets, big data sources, and third-party cloud or on-premises databases.
- Flexible visualization. With dashboards, paginated reports, embedded analytics, natural language queries (NLQ), and Generative BI-powered data stories, QuickSight enables users to create, save, and share results in order to better collaborate with others, improving organizational efficiency.
- **API agility.** QuickSight provides API access to create and manage users, data sets, and assets, which enables intelligence to be managed as source code that can be integrated into DevOps pipelines.
- **ML-powered insights.** QuickSight helps users find trends, identify key business drivers, forecast future results, and summarize data in easy-to-consume natural language narratives.
- **Security and compliance.** Enterprise-grade security, built-in governance, global availability, built-in redundancy, and BI tools help build repeatable governance processes.
- **Generative BI (New):** During the course of this study, AWS announced Generative BI with Amazon Q in QuickSight, which enables business analysts and business users to use natural language to build, discover, and share meaningful insights in seconds. Amazon Q's new dashboard authoring capabilities in QuickSight makes it easy for analysts to build dashboards and calculations using natural language. New capabilities like data stories, new question and answer experience, and executive summaries in Amazon Q makes it easier for business users to use existing dashboards to better inform business stakeholders, distill key insights, and simplify decision-making. While these new capabilities introduced in Amazon Q will increase productivity, given the timing, this study did not take into account Generative BI benefits.

Enterprise Strategy Group Economic Validation

Enterprise Strategy Group (ESG) completed a quantitative economic analysis of Amazon QuickSight. ESG's Economic Validation process is a proven method for understanding, validating, quantifying, and modeling the economic value propositions of a product or solution. The process leverages ESG's core competencies in market and industry analysis, forward-looking research, and technical/economic validation. ESG conducted in-depth interviews with end users to better understand and quantify how QuickSight has impacted their organizations. The qualitative and quantitative findings were used as the basis for an economic model comparing the cost and benefits of using Amazon QuickSight instead of siloed and specialized legacy BI tools and processes to deliver actionable insights across the organization.

Amazon QuickSight Economic Overview

ESG's economic analysis revealed that Amazon QuickSight helped organizations reduce costs, expand the use of analytics, and lower the complexity of supporting BI operations across the business. We spoke with customers in organizations ranging from medium sized (tens of dashboards, TBs of data, and hundreds of consumers) to very large organizations (up to 500 dashboards, PBs of data, and 25,000 consumers). These customers spanned several industries and included use cases of providing dashboards to internal employees and/or to external customers, as well as embedding near real-time data into web applications. ESG found that QuickSight provided its customers with significant savings and benefits in the following categories:

• **Cost savings.** QuickSight helped organizations consolidate silos of legacy BI hardware and software and significantly reduce BI-related spending with a simple and scalable pricing model.

- **Reduced complexity.** The fully managed BI service significantly reduced the complexity of supporting and maintaining BI systems and software, reducing the number of specialized resources required and enabling teams to focus on expanding the use of analytics rather than managing infrastructure, software, and licenses.
- **Faster time to BI insights.** QuickSight enabled teams to deploy and scale analytics capabilities months earlier, helping expand their use of intelligence across the organization, accelerate software development efforts, and improve ML capabilities.

Cost Savings

Amazon QuickSight customers were able to reduce many of the capital and operational costs associated with purchasing and operating traditional BI solutions. The fully managed QuickSight SaaS solution makes it easy to consolidate, scale, and protect multiple siloes of BI solutions with simple and predictable pay-per-use pricing. Customers reported savings and benefits in the following categories:

- Fully managed service. The fully managed QuickSight service was quick and easy for customers to get started with and use, helping to avoid much of the time, cost, and expertise required to get started with and operate a traditional BI service.
- Flexible pricing with no guesswork. QuickSight provides customers with a simple user-based pricing model based on the number of authors and readers, along with low maximum monthly charges per reader. This enabled customers to benefit from low and predictable monthly spending instead of making an

"We lowered our annual spending by 68% by using QuickSight, saving us \$2.1M over three years."

upfront investment in hardware or software BI solutions and then trying to predict the number of licenses that they needed to purchase. Customers of these traditional BI solutions often had to overprovision the solution to account for growth and/or the worst-case scenario and sign multiyear contracts to lower costs. With traditional solutions, customers often had to purchase a minimum number of licenses as well, or grow in "licensing steps," resulting in them paying for more users than they needed at any point in time. With QuickSight's simple and transparent pricing model, none of this upfront or ongoing complexity of user and predictive cost management planning was required.

• **Consolidation of BI systems.** QuickSight customers were able to consolidate multiple BI systems and dashboards into a single solution that can be accessed by anybody, anywhere. This is a big advantage for siloed or merged/acquired organizations that had independently built several BI and reporting solutions over time and were looking to unify and simplify operations.

"By normalizing on QuickSight, our business units could stop paying for licenses for alternative visualization tools that they were using."

• Lower risk of downtime. The QuickSight service is built on AWS global infrastructure and provides built-in availability and redundancy, ensuring that customers' dashboards and insights are always available and running on up-to-date hardware and software that is fully protected from failures, bugs, or localized disasters that can result in system downtime or even loss of data.

Reduced Complexity of BI Operations

ESG found that QuickSight significantly reduced or eliminated much of the complexity around deploying, managing, maintaining, optimizing, and scaling business intelligence solutions. ESG also found that organizations could free up much of the time they previously spent on various activities ranging from managing the solution to creating and viewing reports and dashboards. Customers reported savings and benefits in the following categories:

• **SaaS simplicity.** Because it is a fully managed cloud service, QuickSight customers did not have to spend time deploying, managing, maintaining, and supporting hardware, hypervisors, operating systems, or BI software. The customers we spoke with reported that

they were able to free up to 28% of their time, enabling administrators to focus on other tasks.

• Less time spent managing data sources and users. The customers that we spoke with were able to easily discover AWS data sources from S3

"QuickSight has provided us with cost reduction, flexibility, scalability, and easy integration into other AWS services."

storage, RedShift, Athena, and others and make them available to authors to extract insights. QuickSight customers could also integrate data sources from popular databases like Oracle, MySQL, and PostgreSQL as well as on-premises and cloud data warehouses like Teradata, Databricks, and Snowflake, among many other sources. They could easily import file data and connect to popular SaaS offerings to pull in data. The unified interface and native integrations, as well as simple API customization, made it easy to manage data sources and account logins. Others reported that QuickSight enables them to focus on scalable data visualization, while using tools that were optimally designed for data to manage schema and data models outside of QuickSight.

• Less time spent managing security and compliance. Amazon QuickSight customers benefitted from the AWS shared-responsibility model where AWS is responsible for the security and compliance of all infrastructure. Customers protected their QuickSight deployments by using private VPC subnets and the ability to encrypt data at rest. In

"QuickSight is continuously adding new features that allow us to expand our capabilities."

addition, QuickSight deployments support many industry-specific and regulatory requirements (for example, HIPAA and FedRAMP) and provide user security features such as role-based access control, Microsoft Active Directory integration, AWS CloudTrail auditing, single sign-on (SSO), and the option of using AWS Identity and Access Management (IAM) or other third-party security and compliance solutions. These built-in and simple-to-integrate services reduced the burden on customers to provide security and compliance coverage and manage point solutions on their own.

- Less time spent managing high availability. A large pain point for customers that managed their own traditional BI systems was ensuring that the system was protected and minimizing downtime of the system. These customers had to worry about hardware and software updates as well as architecting, managing, and testing system backups, restores, and disaster recovery scenarios. Because QuickSight provided options for high availability and recoverability across regions, none of this time, effort, or added stress was required.
- Less time spent monitoring, troubleshooting, and optimizing. QuickSight's super-fast, in-memory calculation engine (SPICE) provided users with fast and predictable performance out of the box, without the need to monitor, troubleshoot, and optimize queries, BI and visualization software, and the underlying infrastructure and networks. Customers reported that dashboards they previously waited for seconds or even minutes (one reported up to 30 minutes) to update were made available near instantaneously with QuickSight.

"We used to have periodic issues with dashboard load times; we had a metric that we monitored and discussed weekly. Since moving to QuickSight, load times are so fast that we no longer have a reason to measure this metric."

• Simplified scaling of BI operations (scale up and scale back). Customers reported that they had previously dealt with challenges trying to scale traditional BI solutions. It was costly and complex to scale operations (especially those that involved adding hardware), and they often had to overestimate the requirements and sometimes ran into scaling limitations that forced them to use multiple deployment incidents or tools. The process could be slow since it required budget and approvals, which could limit the speed at which operations

could scale, sometimes causing the business to operate less effectively. With QuickSight, administrators were free to add and remove users, dashboards, and data sources as needed, enabling them to operate in an agile fashion without having to worry about what needed to change under the hood. None of the organizations that we spoke with had run into any scaling limitations with QuickSight.

• Less training required. QuickSight was very easy for customers to learn compared with previous solutions that require significant training and certifications to be able to deploy, maintain, scale, tune, and operate. Some organizations may have had to make investments in training for multiple platforms and tools, and this expertise

would have to be retained or quickly replaced to keep operations running smoothly. QuickSight customers stated that QuickSight operation was simple to learn in only a few days by reading how-to guides and watching videos, as they did not have to worry about any of the underlying infrastructure or platform management.

"QuickSight was very easy to pick up, even for our business users that do not have a lot of technical experience."

• Reduced effort to create new insights. QuickSight customers stated that building new dashboards was simple with QuickSight and could be done in only a few hours by using prebuilt templates, eliminating process speedbumps as well as dragging-and-dropping components. Some previous solutions could take days to create a dashboard and often required cross-functional dependencies and customizations that were not necessary in QuickSight. Creation time can vary widely based on data sources, organizational structure, and process requirements. One customer reduced the time it took them to create dashboards from 2-3 hours to only 5 minutes and another from several weeks to a single day.

Faster Time to BI Insights

QuickSight enabled customers to deploy and scale BI operations significantly faster than they could with traditional solutions, making it possible to make BI insights available to more parts of the organization and considerably

accelerating adoption of insight-driven services among individual users. Customers reported savings and benefits in the following categories:

• Faster deployment of BI operations and capabilities. By being able to quickly deploy and integrate data sources, organizations can generate valuable insights months earlier than with a traditional BI solution. The service can be up and running in minutes to hours, with data sources integrated and "With our previous tools, we had a data quality problem, a data access problem, and too many tools to manage. QuickSight provides us with scalable visualization of our data without any of these challenges."

insights being used across the organization in only a few weeks or months (depending on complexity). This is especially true if data already resides in AWS. With traditional deployments, organizations must plan, order components, deploy, install, configure, test, and customize the platform—a process that can take months before insights can be produced for consumers.

Simplified scaling and updating of BI. QuickSight deployments can be scaled up or back instantaneously as the business demands with little to no effort. Traditional solutions require planning and predicting, and then, at a minimum, procurement of new licenses. In the worst case, traditional systems cannot be scaled or might require the purchase of new hardware and "QuickSight allowed us to develop a licenses that must be shipped, deployed, expanded, scalable product and focus on data and rebalanced. In addition, updating and upgrading modelling to deliver a better end-user traditional deployments can be time-costly and timeexperience rather than worrying about consuming. One organization reported that a system managing and scaling licenses and upgrade for their previous BI tool took 18 months and systems." cost \$700K. New capabilities are constantly being

added to QuickSight behind the scenes, and they are available to users instantly, without the need to update or upgrade their deployment.

- Faster availability of BI insights. By eliminating most of the time required to deploy, update, and upgrade traditional systems, and by minimizing the time to create dashboards, organizations are able to make new business insights available to all parts of their organization, customers, and suppliers in a much shorter time. This helps to optimize operations, lower costs, recognize trends, and identify new business opportunities much earlier.
- Expanded use of BI. One of the major benefits of QuickSight is the ability to expand the use of BI intelligence to more areas of the organization. Most customers reported significantly higher adoption of analytics across the organization on the process was made simpler more.

organization as the process was made simpler, more cost-effective, and quicker. This was true of both the number of authors (more people making their data available to others) and of consumers (more people gaining the benefit of updated analytics). Customers reported that adoption for both producers and consumers of insights had increased between 157% and 300% after moving to QuickSight.

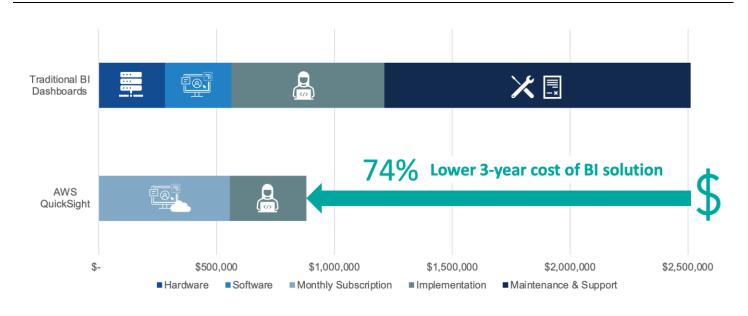
"After seeing the success that others have had, new groups are approaching us every year to start using QuickSight for their dashboarding needs."

Enterprise Strategy Group Analysis

ESG leveraged the information collected through vendor-provided material, public and industry knowledge of economics and technologies, and the results of customer interviews to create a three-year TCO/ROI model that compares the costs and benefits of providing BI services across an organization using Amazon QuickSight versus leveraging traditional on-premises BI systems and tools to solve the same set of business requirements. ESG's interviews with customers who have recently made the transition, combined with experience and expertise in economic modeling and technical validation of BI solutions and operations helped to form the basis for our modeled scenario.

Our modeled scenario considered an organization that had been leveraging traditional BI systems, software, and siloed processes to provide BI to their organization. We assumed that various business units were considering refreshing and upgrading their current, aging solution consisting of several tiers of hardware and software components to handle various web services, gateway services, application services, and content services. To price the solutions, ESG assumed that the organization had up to 200 licensed content creators or authors that periodically created new, or made updates to existing, BI reports and dashboards. These reports and dashboards were then accessed with varying frequency by up to 2,000 employees, suppliers, and partners. ESG then leveraged a comprehensive pricing calculator to estimate the expected costs of the traditional solution versus the expected costs of satisfying the same set of requirements with Amazon QuickSight cloud services. Our analysis, shown in Figure 3, predicted that Amazon QuickSight could lower costs by up to 74% over a three-year period.





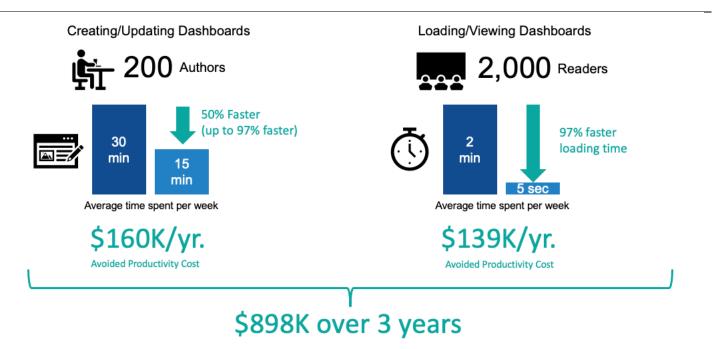
Source: Enterprise Strategy Group, a division of TechTarget, Inc.

The model considered the following costs and was based on the assumptions reported in the description of these categories:

- **Hardware and software.** This includes the expected costs of server, network, and storage hardware and licensed software for 200 users required to provide and ensure highly available web services, application services, data services, and content and metadata management, along with other modules.
- **Monthly subscription costs.** ESG conservatively assumed published per-user pricing rates for Amazon QuickSight (slightly higher savings could have been achieved with annual commitments). ESG also assumed 200 authors at \$24/month and 2,000 readers (working 5-day weeks, 48 weeks per year) with the following access frequency: 60% "heavy" users (8 sessions per day), 20% "moderate" users (3 sessions per week), and 20% "light" users (1 session per week). The "heavy" users were capped at the maximum cost of \$5/user/month, while the others came in at \$3.60/user/month ("moderate" users) and \$1.20/user/month ("light" users). Additionally, ESG assumed a total of 7 TB of SPICE data capacity charged at \$0.38/GB/month.
- Implementation costs. The implementation costs modeled all of the expected costs to implement the BI solution and underlying features on an ongoing basis, including the infrastructure, operating systems, hypervisors, servers, modules, metadata, integrations, connectors, data integrations, etc. These could be implemented and managed by dedicated full-time employees (FTEs) or professional services, partial tasks performed periodically by many FTEs, or any mix of these. For the traditional systems, we conservatively estimated that implementation would require the fully burdened equivalent of 2 FTEs or professional services resources. Because there is no hardware, underlying operating system, or hypervisor to manage, and because software is provided as a service, we estimated the overall QuickSight implementation cost would be 50% lower than the traditional solution (our interviews suggested that this could be as high as 80%).
- **Maintenance and support costs.** Maintenance and support costs associated with traditional BI solutions can be significant. These include the costs of maintenance and software support contracts, performing software updates and upgrades, and maintaining highly available hardware, among other costs. While they could be higher in practice, we estimated traditional solution maintenance costs at twice that of the implementation cost. With Amazon QuickSight, there were no maintenance or support costs.

ESG then used the assumptions validated in interviews and case studies to conservatively predict the improvement to author and reader productivity that can be achieved through faster creation and updating of dashboards, as well as faster loading of reports and dashboards for readers. QuickSight users reported significant variations in time savings for report and dashboard creation times. Some stated that dashboards that used to take months to create now took weeks. Others stated that dashboards that used to take weeks to create could now be created in a day, and reports that used to take 2-3 hours to build now took 5 minutes with QuickSight. Our model assumed that, on average, authors that were spending 30 minutes per week could now spend only 15 minutes (a 50% improvement) in updating dashboards or creating new dashboards, returning a total of \$160K/year in potential productivity. Similarly, we assumed that QuickSight could reduce this time down to only 5 seconds. While the savings per user was not substantial, with 2,000 users over three years, this time reduction returns a total of \$139K/year in productivity. Together, over three years, we determined that a total of \$898K in productivity returns can be achieved with QuickSight (see Figure 4). For many organizations where authors are more heavily utilized, these savings could be substantially higher.

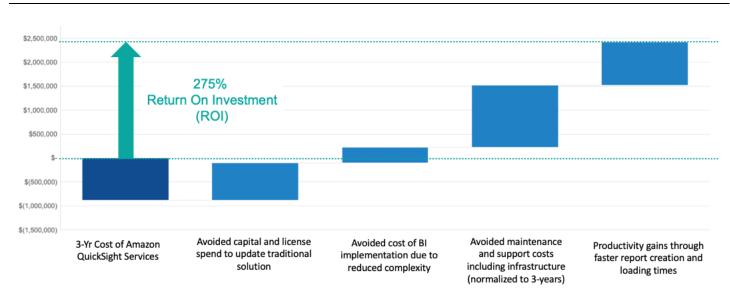




Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Finally, putting all of the costs and savings together, ESG assessed the potential ROI of using Amazon QuickSight instead of continuing to leverage a traditional BI solution. As shown in Figure 5, the total spending on QuickSight services is offset by the savings in avoided capital spend, licensing costs, implementation, and maintenance cost of the traditional solution, as well as by the expected productivity gains, resulting in a return on investment of 275%.





Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Issues to Consider

ESG's models are built in good faith upon conservative, credible, and validated assumptions; however, no single modeled scenario will ever represent every potential environment. The benefits received by an organization depend on the size of the organization, the nature of the business, and the capabilities of the current product or service being used, along with many more variables. ESG recommends that you perform your own analysis of available products and consult with AWS to understand and discuss the differences between the solutions through your own proof-of-concept testing.

Conclusion

BI is a critical tool that can optimize and accelerate nearly every function for today's data-driven organizations. Providing decision-makers with accurate and timely insights powered by comprehensive, up-to-date data in an easily accessible and digestible format will accelerate the success of every business unit within an organization. But traditional silos of BI solutions may not be designed to operate at the speed and scale required by modern organizations.

Enterprise Strategy Group (ESG) validated that Amazon QuickSight has provided customers with cost savings, reduced complexity, and faster time to insights, enabling them to scale and accelerate the use of analytics across the organization. Our models predict that QuickSight can lower the total cost of providing BI insights by up to 74% over three years, resulting in a return on investment of 275%.

If your organization is currently leveraging traditional BI platforms and processes and is looking to simplify, accelerate, and scale your BI capabilities while minimizing cost, ESG suggests that you consider Amazon QuickSight.

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