

A Forrester Total Economic
Impact™ Study
Commissioned By
Amazon

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The ISV Business Case For Building SaaS on Amazon Web Services (AWS) A Total Economic Impact™ Analysis

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Executive Summary

Amazon Web Services (AWS) commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study to develop the business case for independent software vendors (ISVs) that sell on-premises software to develop software-as-a-service (SaaS) on AWS. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of developing a SaaS product.

To better understand the revenues, investments, and risks associated with developing and launching a SaaS product, Forrester conducted 10 in-depth interviews with ISVs that had developed SaaS products that run on AWS. Nine of the interviewed ISVs had made the transition from developing on-premises software to developing SaaS; one interviewed ISV was born in the cloud and, from inception, only built SaaS. We built our analysis and model on the nine transitional ISVs and looked to the 10th ISV for anecdotal feedback on building and deploying SaaS from launch. We also conducted an online survey of 106 ISVs, hosted either on AWS or with other cloud providers, that had made the transition from on-premises software to SaaS, and we used the survey results to develop a broader market overview of ISV drivers, behaviors, and performance trends.

The nine interviewed ISVs were driven to develop SaaS products by customer demand for SaaS solutions, the need to protect their customer base from SaaS competitors, and the desire to bring innovations and new product features to market more quickly and easily. Similarly, the surveyed ISVs were driven to develop SaaS products in response to customer demand for SaaS delivery (89%), to fend off SaaS competitors (71%), and to increase their agility and responsiveness to changing market demands (80%).

The nine interviewed ISVs had SaaS products in the market ranging from three to 10 years, and seven continued to sell and support their on-premises software products. SaaS subscription revenues as a percentage of total revenues ranged from less than 10% to 100%. SaaS gross margins typically ranged from 40% to 70%.

The areas of largest investment were for initial SaaS product development, sales and marketing, and customer support. Seven of the interviewed ISVs developed multitenant architectures while still supporting single-tenant deployments. Thirty-nine percent of the surveyed ISVs supported both single and multitenant architectures, while 51% supported multitenant architectures only. The interviewed ISVs' investments in customer support were intended to help customers maximize the value received from the SaaS product, which in turn would minimize churn and increase contract renewal rates.

The interviewed ISVs chose AWS as their infrastructure provider for many reasons, predominantly for the maturity of AWS' technical capabilities and breadth of services, presence in local markets, overall geographic reach, and reputation and credibility. The ISVs also noted the development support that AWS provided, such as architectural reviews, best practice guidance, and whitepapers. The ongoing go-to-market support that the ISVs receive through AWS and the AWS Partner Network (APN) was also a clear benefit noted by the interviewees.

SAAS ON AWS OFFERS ISVS A ROBUST PLATFORM FOR BUSINESS TRANSFORMATION

For this analysis, Forrester developed a composite ISV based on what we learned from the nine interviewed and 106 surveyed ISVs that made the transition from developing on-premises software to SaaS. Prior to developing its SaaS product, the composite ISV was a B2B software company with revenues coming from licenses sales and software maintenance fees. In response to competitive pressures and seeking to broaden its potential market, the composite ISV decided to develop SaaS products and transform its business from an on-premises, license-based software business to a SaaS business model.

Of 106 surveyed ISVs that had made the transition from on-premises software to SaaS:

- **Eighty-two percent had SaaS gross margins that were greater than or the same as on-premises software.**
- **Eighty-one percent reported improved time-to-market for new applications.**
- **Eighty-four percent realized cost savings related to application maintenance.**

Our economic model shows that by Year 5 of selling SaaS the products, the composite ISV has \$50 million in net-new recurring subscription revenues from its SaaS products (in addition to any revenues coming from traditional sales platforms) and gross margins of 63%. The SaaS operations become profitable in the fourth year of operations (see Table 1).

The model assumes the following:

- Per-seat prices are \$150.
- SaaS sales growth rates are 100% in Year 2, 90% in Year 3, 60% in Year 4, and 50% in Year 5.
- The annual average revenue churn rate is 5%.
- The composite ISV develops new and complementary products for cross- and upsell purposes.

TABLE 1
Five-Year Pro Forma Income Statement (\$1000s)

Ref.	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	
PL1	Subscription revenues		2,407	7,102	15,895	29,738	50,207	
PL2	Onboarding expense		406	813	1,463	2,356	3,494	
PL3	Cloud hosting and third-party technology expense		1,375	3,733	7,280	12,513	15,083	
PL4	Gross margins	PL1-PL2-PL3	626	2,557	7,153	14,869	31,630	
PL5	Gross margin (%)	PL4/PL1	26%	36%	45%	50%	63%	
PL6	Sales and marketing		1,358	1,868	2,995	4,374	5,810	
PL7	General and administration		385	1,136	2,543	4,758	8,033	
PL8	Customer support		335	419	503	586	670	
PL9	IT operations		94	94	94	94	94	
PL10	R&D	1,406	750	938	1,125	1,125	1,313	
PL11	Total operating expense	PL6+PL7+PL8+PL9+PL10	\$1,406	\$2,922	\$4,454	\$7,259	\$10,937	\$15,920
PL12	Total operating income	PL4-PL11	(\$1,406)	(\$2,296)	(\$1,897)	(\$106)	\$3,931	\$15,711
PL13	Operating profit	PL12/PL1	(95%)	(27%)	(1%)	13%	31%	

Source: Forrester Research, Inc.

- › **Revenues.** The composite ISV generated SaaS revenues from the following:
 - **Recurring subscription revenues.** These revenues are generated predominantly from converting on-premises software customers to SaaS. Most revenues are from direct sales, with some coming from partners.
- › **Investments and expenses.** The composite ISV experienced investment and expenses in the following areas:
 - **Customer onboarding.** This is the staff expense needed to ensure successful customer engagement from the beginning of the customer relationship.
 - **Hosting and third-party technology expense.** This is the expense to AWS for hosting and related services, and to any other providers whose technologies may be used to deliver the SaaS solution.
 - **Sales and marketing.** This is the staff expense associated with salespeople, pre-sales engineers, and marketing. It does not include any expense associated with partner-driven sales.
 - **General and administration.** This general and administration expense is assumed to be 16% of revenues. Data for this assumption was obtained from third-party surveys of SaaS ISVs (see Appendix D).
 - **Customer support.** This is the staff expense for post-sales customer engagement and support. Customer support managers focused on ensuring customers were deriving as much value as possible from the SaaS offering, exploring opportunities to sell more seats, and managing the overall customer relationship.
 - **IT operations.** This is the staff expense associated with technical operations support for the SaaS product.
 - **Research and development.** This is the expense needed to develop the first launch-ready product and for ongoing development of new features, new products, and bug fixing.

Disclosures

The reader should be aware of the following:

- › The study is commissioned by AWS and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.
- › Forrester makes no assumptions as to the potential result that other ISVs will see. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of using AWS.
- › AWS 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.
- › AWS provided the ISV partner names for the interviews but did not participate in the interviews.

Market Overview: ISVs Transition From Traditional To SaaS Applications

The rise of cloud computing has led to dramatic changes in how infrastructure and software are consumed. Forrester estimates that enterprise adoption of SaaS ranges from 18% to 23% of enterprises, depending on the application (see Appendix D). In the face of increasing SaaS adoption and other market forces, ISVs that offer traditional on-premises software solutions are facing increasing pressure to develop SaaS solutions. ISVs that are planning to offer SaaS solutions need to carefully consider the broad range of decisions that they will need to make and how they will manage the transition from on-premises software to SaaS, as these decisions may fundamentally affect their business models and operations.

To evaluate why and how ISVs transition from developing and selling traditional on-premises applications to offering SaaS applications, Forrester conducted a survey of 106 ISVs that have transitioned some or all of their on-premises applications to SaaS. Survey respondents were not solely AWS customers; the cloud hosting provider used by respondents varied. Forrester asked these ISVs to explain the challenges and objectives leading to the decision to transition to providing SaaS applications. We also asked them to describe their SaaS development and delivery costs and key business outcomes.

WHY ARE ISVS DRIVEN TO DEVELOP SAAS SOLUTIONS?

When Forrester surveyed 106 ISVs to learn the important factors in their decision to develop SaaS products, the ISVs identified several key drivers, including:

- › **Customer demand for SaaS delivery or new solutions.** Eighty-nine percent of ISVs consider satisfying customer demand for SaaS delivery to be a key motivator. Additionally, 90% of all the surveyed ISVs developed a SaaS product as a response to customer demand for new solutions (that would be delivered via SaaS).
- › **Competitive pressure to deliver a SaaS solution.** With established competitors developing SaaS solutions and new competitors entering the market, 71% of ISVs noted that losing traditional-on-premises software customers to SaaS competitors was a key motivator to enter the SaaS market.
- › **Increased agility and responsiveness to changing market demands.** In response to increasing competitive pressures, 80% of ISVs noted that the ability to rapidly respond to changing customer and market needs was an important factor in developing a SaaS product, with 82% highlighting the desire to launch completely new applications.
- › **Lower cost of application development.** Seventy-seven percent of ISVs noted that high development costs associated with on-premises software products limited what they could provide to their on-premises software customers, and 78% of ISVs viewed SaaS development as a way to streamline software research and development (R&D) and delivery costs.
- › **Expansion of addressable market.** SaaS pricing and ease of deployment open doors to reach new customer segments. Eighty-five percent of ISVs viewed SaaS delivery as a way to reach new geographies; 80% saw it as a way to enter new verticals; and 78% thought SaaS products could aid expansion into new, usually smaller company size segments.

OUTCOMES AND BENEFITS OF DEVELOPING SAAS SOLUTIONS

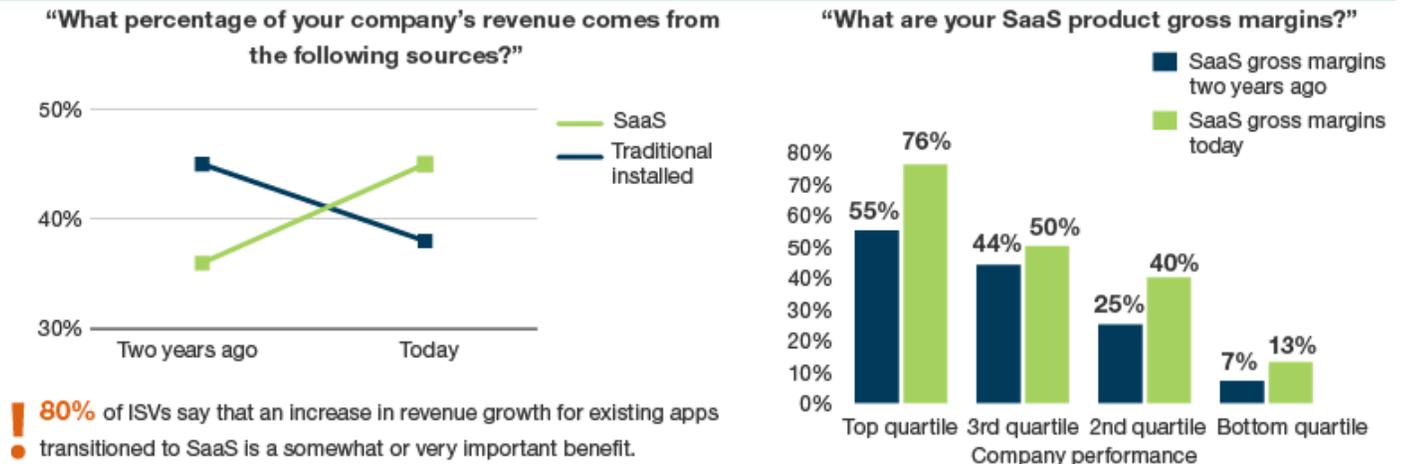
The decision to migrate traditional applications to SaaS rests not only on whether SaaS enablement can create enough value to justify the costs and risks associated with the transition, but also on whether an ISV can even survive without a SaaS solution in today's market. Surveyed ISVs described the following outcomes from launching SaaS solutions:

- › **SaaS revenues are a fast-growing portion of overall revenues.** Eighty percent of ISVs said that a key benefit is an increase in revenue growth for existing applications that were transitioned to SaaS. The ISVs reported that two years ago, revenue from SaaS subscriptions was 36% of total company revenue, while the on-premises software share was 45%. Today, revenue from SaaS subscriptions has grown to 45% of total revenue, surpassing the current on-premises software share of 38%.

- › **SaaS gross margins improve over time.** The ISVs reported that SaaS gross margins varied widely, from 6% to over 70%. The top-performing companies had average gross margins of 55% two years ago, which grew to 76% today. Conversely, the bottom-performing companies had gross margins that are 13% or lower (see Figure 1). Irrespective, all companies reported that their gross margins grew over time, reflecting their ability to control costs, leverage the economies of scale offered by multitenant architectures, or refine their pricing strategy.

FIGURE 1

SaaS Gross Margins Growth



Base: 33 ISVs in the United States, 32 in EMEA, 20 in LATAM, and 21 in APAC

Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, July 2016

- › **SaaS gross margins are equal to or greater than on-premises software gross margins.** Eighty-two percent of ISVs had gross margins that were greater than or the same as on-premises software margins, and 18% had gross margins that were less than on-premises software margins. Of those companies that reported SaaS gross margins greater than on-premises software gross margins, 47% have sold SaaS solutions for more than two years, while 37% have sold SaaS solutions for less than two years. Of those ISVs that had margins that were the same as or less than on-premises software margins, 75% justified this because adopting SaaS was necessary for their company’s survival; 64% said SaaS positioned the company for long-term growth; and 39% said SaaS allows the company to protect its customer base (see Figure 2).

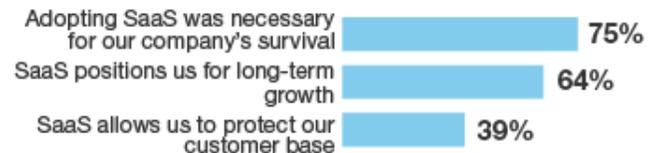
FIGURE 2

SaaS Gross Margins

“How do your SaaS product gross margins compare with your on-premises product gross margins?”



“How does your organization justify this?”*
(Multiple responses accepted)



Base: 33 ISVs in the US, 32 in EMEA, 20 in LATAM, and 21 in APAC

*Base: 19 ISVs in the US, 19 in EMEA, 13 in LATAM, and 10 in APAC

Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, July 2016

- › **Cost savings are realized with SaaS development and support.** The main factor here is that SaaS solutions get ISVs away from having to support multiple versions of their software. Instead, all development and support is streamlined toward the current — and only — version. Also, SaaS allows ISVs to collect user data, and 88% use this data to optimize application performance and reduce support costs. So how big is this potential savings? In comparison with their on-premises software products, 84% have realized cost savings related to application maintenance, and 81% have cost savings related to application development with their SaaS products.
- › **Innovation and agility are enabled by SaaS delivery.** Eighty-one percent of ISVs cited improved time-to-market for new applications, and 79% cited the ability to offer new services and applications as important outcomes. Differences in testing, tuning, and rollout mean that SaaS vendors can release multiple major upgrades per year — in contrast with the on-premises software world, where upgrades happen much less frequently. The one-version nature of SaaS lets vendors get more meaningful insights into where to make enhancements, since they have better information about what's being used in their systems versus when software is deployed behind firewalls. Additionally, the multitenant nature of SaaS enables vendors to capture advanced analytics and benchmarking based on the entire user population, which can be used to optimize application performance and drive the product development roadmap. Finally, the many-to-many real-time collaboration features that SaaS powers lets vendors deliver new functionality that would not be possible in the traditional license model. In the traditional model, customers run a variety of different versions, with different architecture and hardware, and therefore get very limited benefit from the wider population of customers.
- › **SaaS positions them for long-term growth.** Eighty percent of the ISVs surveyed noted the ability to attract new customer segments, and 79% noted the ability to offer service in new geographic markets. In fact, 51% of the ISVs are actively targeting new geographies, 46% are targeting new verticals, and 42% are targeting new company size segments. The ISVs continue to target traditional customer segments and migrate existing on-premises software customers to SaaS products.

KEY RISKS THAT MAY BE ENCOUNTERED

While entering the SaaS market can provide many opportunities — and in many cases is the only option for survival in the fast-changing software market — there are several areas where ISVs should be cautious when transforming traditional on-premises software products and business models to accommodate SaaS delivery. Surveyed ISVs noted that:

- › **Costs to develop SaaS products may be higher than expected.** Fifty-nine percent of ISVs said that development costs were within budget, but 38% of ISVs found that costs to develop the first minimally viable SaaS product exceeded their planned budget. For those ISVs with older or more complex code, development costs may be relatively higher, because more rearchitecting or rewriting may be needed. Most ISVs also have to invest a significant amount in change management and new methods such as Agile deployment, which may be unfamiliar for the existing developer resources.
- › **Customers may have concerns about adopting SaaS solutions.** Although 80% of the surveyed ISVs developed SaaS solutions in response to customer demand, the ISVs reported that some customers had concerns with SaaS. Customer concerns focused on economics, application performance, and compliance. Forty-three percent of ISVs noted customer fears of financial lock-in with the same vendor; 40% mentioned concerns about switching from license- to subscription-based models; and 39% said customers were concerned about total costs being too high. Forty percent of ISVs said customers had concerns about data security, and 39% mentioned compliance and data privacy. Forty-two percent said customers were concerned about SaaS application performance. ISVs can alleviate customer concerns by showing total cost of ownership comparisons between SaaS and on-premises applications, and by becoming knowledgeable about the security and compliance capabilities of their cloud provider, which can help them enhance the security of their applications.
- › **SaaS products may deliver lower-than-expected revenues.** Some ISVs experienced lower-than-expected revenues from their SaaS products. The reasons cited varied according to how long the ISVs had been selling SaaS solutions. For ISVs that had been selling SaaS for one to two years, 70% cited short time-in-market, while 60% cited limited geographic availability and feature gaps in their products. ISVs that had been selling SaaS for more than two years cited similar reasons but in different proportions. Sixty-one percent cited features gaps in their products; 48% mentioned geographic availability; and 45% cited competition from other SaaS vendors as reasons for lower-than-expected revenues. ISVs should ensure that they have sufficient development resources to ensure that their initial SaaS products have enough features to satisfy customer needs, and that they can bring these products to market in a timely manner.

THE JOURNEY TO SAAS: WHAT TO CONSIDER

Transitioning to SaaS delivery will require ISVs to re-evaluate their cost models, develop new pricing strategies, and focus on subscription-based metrics. ISVs that are planning to make the journey to SaaS need to consider:

- › **Whether to rewrite or transition existing on-premises applications or to develop completely new ones.** Fifty-two percent of ISVs transitioned existing applications to SaaS products, and 41% of ISVs created newer versions or derivatives of on-premises software products for the cloud. In addition to leveraging existing on-premises software solutions, 80% of ISVs created completely new applications for SaaS delivery. No matter which path they choose, ISVs should ensure that their SaaS products are optimized for the cloud and take advantage of the automation that the cloud affords.
- › **What to look for in a cloud technology platform.** When we asked ISVs to rank their top three priorities when selecting a cloud technology platform provider, they indicated that their top priority was technical features and capabilities (42%). Other top-ranked priorities included global reach at 10% and brand, security, and compliance tied at 8%.
- › **Whether and when to support multitenant and single-tenant deployments.** Most ISVs chose either a multitenant deployment or a mix of single and multitenant deployments. Fifty-one percent of ISVs deployed their SaaS offerings as multitenant-only solutions, and 39% of ISVs supported both single and multitenant deployments. Over time, ISVs moved away from supporting single-tenant and toward multitenant deployments. The number of ISVs supporting single-tenant-only deployments dropped from 13% to 9% over two years. Single-tenant architectures are the easiest path for a traditional ISV, but they generally won't be able to offer the benefits that customers have come to expect from SaaS in the long run. Multitenant architectures are what enable some of the unique customer benefits such as elasticity, many-to-many collaboration, and seamless automatic upgrades. Additionally, multitenant architectures can result in better economies of scale for the ISV. Less work will be involved in deploying and managing the solution if the ISV only has to make the

changes in one place. However, we learned that ISVs continue to support single-tenant deployments for those customers who require it and for those for whom single tenant is a good fit.

- › **How to establish the appropriate budget for upfront SaaS development costs.** ISVs should consult with their peers and other developers to ascertain the work effort and required resources needed to bring their SaaS product to market within their budget and timeframe. On average, ISVs spent 14 months developing the first minimally viable SaaS product, but development times ranged from three months to two years.
- › **How to establish the appropriate pricing model and price point for the SaaS products.** The surveyed ISVs took into account many considerations when determining the right price for their product. ISVs chose one or more consumption-based variables as part of the SaaS pricing formula. Sixty-five percent of ISVs used per-user pricing; 55% used per-product pricing; 53% used per-location pricing; 48% used per-company pricing; and 39% chose usage-based factors (like number of transactions), among other variables. Seventy-one percent of ISVs factored in pricing models and price points established by competitors. ISVs should understand the elements (e.g., resource consumption) and costs that will be reflected in the price and know how to measure these costs and elements. ISVs should also consult with their peers to determine the appropriate pricing model.
- › **The metrics used to gauge the financial health of the SaaS business.** ISVs track several metrics to gauge the financial health of their SaaS business, but the emphasis on which metrics they track has changed over time. Monthly recurring revenue (MMR) was the top metric for ISVs that had sold SaaS for one to two years. However, ISVs that had been in the market for more than two years put comparatively greater emphasis on MMR *growth* (41% versus 34%) and churn rate (37% versus 18%). This suggests that more mature SaaS ISVs understand that controlling churn is key to long-term growth and profitability, because it's usually less expensive to renew a contract with an existing customer than it is to attract a new customer. The survey did not distinguish between revenue churn and customer churn, and we note that customer churn leads to revenue churn.

TEI Framework And Methodology

INTRODUCTION

From the information provided in the interviews, Forrester has constructed a Total Economic Impact (TEI) framework for ISV partners that wish to build SaaS solutions on AWS. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect investment decisions.

APPROACH AND METHODOLOGY

Forrester took a multistep approach to evaluate the business case for AWS (see Figure 3). Specifically, we:

- › Interviewed AWS personnel, along with Forrester analysts, to gather data relative to AWS and the marketplace for AWS.
- › Interviewed 10 ISV partner organizations that are currently using Amazon Web Services and surveyed 106 ISV partner organizations to obtain data with respect to costs, benefits, and risks.
- › Designed a composite ISV based on characteristics of the interviewed and surveyed ISVs.
- › Constructed a financial model representative of the interviews and survey data using the TEI methodology. The financial model is populated with the expense and revenue data obtained from the interviews as applied to the composite ISV.
- › Risk-adjusted the financial model based on issues and concerns the interviewed ISVs highlighted. Risk adjustment is a key part of the TEI methodology. While interviewed ISVs provided expense and revenue 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 expense and revenue figures have been risk-adjusted and are detailed in each relevant section.

Forrester employed four fundamental elements of TEI in modeling the impact of Amazon Web Services: revenues, expenses, flexibility, and risks. Please see Appendix A for additional information on the TEI methodology.

FIGURE 3

TEI Approach



Source: Forrester Research, Inc.

The ISV Partners' Journey

INTERVIEW HIGHLIGHTS

Forrester conducted a total of 10 interviews for this study, and nine were included in the in-depth analysis. We interviewed CEOs and co-founders, chief technology officers (CTOs), chief product officers (CPOs), and vice presidents for cloud products at these partner organizations. The primary characteristics of the interviewed ISVs are summarized in Table 2.

ISV	HQ	Selling SaaS	Product Type	Applications Today	Single Vs. Multitenant	Customer Profile
No. 1	EU	3 years	Integration management, business process modeling, IT planning and portfolio management	SaaS and on-premises version of products	Single tenant	Fortune 1000 organizations, 70 countries
No. 2	US	10 years	Data integration and data management	SaaS and on-premises version of products	Mostly multitenant, some components available as single tenant	Global enterprises and SMBs
No. 3	APAC	4 years	Server management, mail security, mail delivery software	SaaS and on-premises version of products	Mostly multitenant, with some customers single tenant	Medium to large enterprises in local region, all industries except public sector
No. 4	US	5 years	ERP software	SaaS and on-premises versions	Single and multitenant	Global enterprises
No. 5	APAC	4 years	Retail, customer, and supplier analytics	Sells only SaaS version	Mostly multitenant, some components available as single tenant	Global enterprises
No. 6	EU	6 years	File sync and share, collaboration software	SaaS and on-premises versions	Single and multitenant	Mostly EU enterprises
No. 7	LATAM	6 years	eCommerce platform	Sells only SaaS version	Multitenant	SMB, corporate, and enterprise
No. 8	APAC	3 years	Security software	SaaS and on-premises versions	Multitenant	Small to large enterprises
No. 9	US	5 years	Analytics, mobility, security software	SaaS and on-premises versions	Single tenant	Global enterprises

Source: Forrester Research, Inc.

SaaS Strategy Business Drivers

The interviewed ISVs each had multiple business drivers for pursuing a SaaS version of their existing software products, including the ability to:

- › **Satisfy customers' demand for SaaS solutions.** Increasing customer demand was a key motivating factor in the decision to pursue a SaaS offering. Customers sought cloud solutions for many reasons, including ease of deployment, consumption-based pricing, the ability to switch IT costs from capex to opex, the use of IT resources for business needs instead of infrastructure management, and quick access to new software releases. In one instance, an ISV was told that a cloud solution was necessary in order to be included in a customer's RFP.
- › **Protect the existing customer base.** Competitive pressures from new entrants and current competitors who had SaaS delivery options motivated some ISVs to develop their own SaaS solutions in order to protect their market share.
- › **Enable access to new markets and buyers.** SaaS delivery offered the potential to enter new markets because SaaS solutions can inherently overcome geographic boundaries and avoid high upfront expenses associated with on-premises software solutions. New markets include vertical industries, companies of different size segments, and new geographies. Additionally, within their current customer base, the interviewees were able to sell to business users, thereby establishing new relationships outside of IT.
- › **Enable a platform for rapid delivery of innovative solutions.** Cloud environments provide unique architectural capabilities that enable faster product innovation, allowing ISVs to rapidly respond to customer needs and competitive pressures. Many interviewees stressed the need to evolve products faster and reduce the time-to-market for new features. To increase competitive advantage, these ISVs wanted to enhance product functionality, ease of use, and ability to capitalize on technology trends within their markets.
- › **Remove adoption barriers for on-premises software that requires large capital investments.** Certain types of software like data analytics or ERP often require a substantial capital investment in both hardware and software licenses in order to enable the solution. For the ISVs whose on-premises software products required a large capital investment, SaaS allowed customers to avoid this investment. It also offered entry into new markets (e.g., smaller customers) that were previously unreachable.

“Some of the larger deals we won last year, if we didn’t have a cloud-based offering, we wouldn’t have even been invited to the table.”

~ Vice president for cloud

Reasons For Choosing AWS

After making the decision to pursue a SaaS product strategy, the interviewed ISVs needed to select an appropriate development, and cloud infrastructure platform. They noted that the right cloud provider should provide the scalability, reliability, availability, and security to build a superior product road map while also providing better global reach than can be achieved with an on-premises software solution.

The ISVs' reasons for choosing Amazon Web Services were influenced by:

- › **Reputation and credibility.** The interviewed ISVs noted the importance of AWS' reputation as a market leader both among their customers and in the overall IaaS market, which addresses customer concerns about the reliability of the ISV's hosting provider.
- › **Presence in local markets and overall geographic reach.** AWS' global and regional presence was important to global ISVs that wished to offer SaaS solutions to all their customers, as well as to smaller ISVs that aspired to expand beyond

their local or regional markets. For some ISVs, AWS was the only game in town within their local geographic market, making AWS the obvious choice.

- › **Maturity of AWS' technical capabilities and breadth of services.** There was consensus across the interviewees that the tools within AWS' portfolio enabled faster time-to-market and provided a stable and scalable platform for growth. These tools also help ISVs achieve high levels of automation to drive down costs. The interviewed ISVs used a broad spectrum of AWS' capabilities, including compute services like Amazon Elastic Compute Cloud (Amazon EC2), Auto Scaling, and Elastic Load Balancing, storage capabilities with Amazon Simple Storage Service (Amazon S3) and Amazon CloudFront, database services like Amazon Relational Database Service (Amazon RDS) and Amazon Redshift, and management tools like Amazon CloudWatch. Several interviewees also noted that AWS has strong security capabilities which is critical for their customers.
- › **Development support provided by AWS.** The interviewees leveraged support from AWS in the development of their SaaS applications. This included documentation like reference architectures and whitepapers to help internal engineers develop the SaaS products. AWS also provided architecture reviews, in-person training, and best practice guidance on areas like design, performance, and security.
- › **Go-to-market support provided by AWS Partner Network (APN).** As ISVs within the APN mature their practice, they can qualify to move up APN tiers and become eligible to gain a number of program benefits, such as proof-of-concept (POC) funding, market development funding, free trial funding, specific program eligibility (such as the AWS SaaS Partner Program and AWS Competency Program), and to execute a number of go-to-market activities. AWS helped the interviewed ISVs with go-to-market activities such as joint webinars, joint marketing programs, and promotion at AWS events. The interviewees also leveraged the AWS Competency Program, especially in the area of security. This provided an additional level of confidence for customers in their ISVs' security capabilities.

“AWS had the amazing toolbox we needed. It had mail services, database services, and our computing services and load balancers. It was the perfect toolbox to build a SaaS version of our product.”

~ Head of cloud workload security

The SaaS Development Process

Of the nine ISVs interviewed, seven migrated their existing applications to AWS, while two developed new applications on AWS. The ISVs' development experience varied, depending on the maturity and complexity of their existing products and the amount of application rearchitecture undertaken. We found that the ISVs:

- › **Had a similar approach to initial product development.** While some ISVs considered developing a lightweight version of their on-premises software products for the cloud, it was clear that customers wanted access to all product functionality in the SaaS version. Therefore, all of the interviewees developed SaaS products with the same functionality as on-premises software. Initial development time varied with the complexity of the solution, whether it was developed for single or multitenant deployments, and the amount of development resources used. A key decision point was whether to adopt a multitenant architecture from the outset (which requires a larger upfront investment) or to develop a single-tenant product first, followed by a multitenant architecture. A majority of ISVs chose to initially use a single-tenant model to get to market faster and later switched to multitenant for most or all functionality and customers. All the ISVs that had developed multitenant architectures noted the operational cost efficiencies that came with this but said that it required enough business volume to make it worthwhile.
- › **Experienced widely different times needed to develop their first SaaS application.** The interviewed ISVs experienced development times ranging from three months to two years. The primary drivers of variance in the development timeframe

include product complexity, the amount of on-premises software code that requires rewriting, the completeness of features built into the initial product, and whether a multitenant platform was developed. Similarly, the team size for the initial development varied from three to 16 FTEs. This initial period includes design, training, development, testing, and deployment of the first viable SaaS product.

- › **Invested in regular and frequent application development.** Incremental development was a critical focus for all interviewed ISVs, with interviewees deploying new releases every three to six months on average. Early ongoing development often focused on porting additional application functionality to the cloud and, because many ISVs chose to deploy initially into a single-tenant environment, pursuing additional automation to drive down costs. ISVs would also focus on adding new features and functionality. Eventually, if they did not do this initially, they would move most or all product components and customers to a multitenant environment to achieve additional cost efficiencies.

Sales Strategy

The introduction of SaaS products necessitated changes to the sales organization. Many ISVs leveraged a mix of direct, partner, and occasionally web sales channels. The sales changes focused on:

- › **Whether the ISV continued to sell and support on-premises software products.** There was a broad range of approaches to the sales focus after the SaaS product was introduced. Strategies ranged from the ISV focusing sales on the on-premises software products while letting the SaaS business grow organically to switching its go-to-market strategy to be exclusively SaaS. Most fell in the middle by focusing new business development on the SaaS product while continuing to sell and support the on-premises software product in a manner that was financially sound (the on-premises software products, which had relatively slow growth, offered a reliable high margin revenue stream). While some cannibalization of on-premises software revenues was inevitable, the survey of 106 ISVs found that 80% of them believed that the increase in revenue growth for existing applications that had transitioned to SaaS was a primary benefit of offering SaaS solutions.
- › **The structure of the sales organization.** Interviewees made a wide variety of changes to their sales organizations with the launch of the SaaS products. Some interviewees created a separate sales force for the SaaS product with both new hires and existing sales staff, while some used their existing sales team to sell both types of products. The use of partners also varied: Some interviewees reduced their reliance on partners for SaaS sales and deployment because they could sell and deploy with a direct model and earn higher margins. Others noted that they needed to engage with or develop a new partner ecosystem for the SaaS product (they sought after partners with deep cloud experience), and that these partners were helpful for lead generation, international expansion, technical integration, and hybrid cloud/on-premises software deployments. Due to the ease of deployment of the SaaS product, some ISVs were able to sell direct via web channels. Of the 106 ISVs that we surveyed, approximately 36% of SaaS revenues came from a direct sales force, 33% through Web channels and 31% through partners.
- › **Sales compensation with a SaaS product.** Most interviewees noted that key changes had to be made in sales compensation plans to account for the new subscription revenue basis. Sales quotas and commission structures were modified to fit the subscription pricing model and contract renewals. High emphasis was placed on customer retention because the cost of renewing a customer was lower than the cost of selling to a new customer.

“Cloud changes the relationship with the customer. You need to have the account executive engaged throughout, and that relationship needs to be maintained past the initial subscription agreement.”

~ Senior vice president

- › **Sales training appropriate for SaaS products.** Because the SaaS product often had the same or similar functionality as the on-premises software product, SaaS training focused on understanding the needs of SaaS buyers and the SaaS deployment model. At a minimum, ISVs provided training on pricing, selling strategies, and SaaS target customers.

Operational Changes

The interviewed ISVs noted that important investments were made in operations. These include:

- › **Incremental investments in customer onboarding and customer relationship management.** The interviewees noted the need to ensure customer success with the SaaS product from the customer's initial onboarding experience until contract renewal. Customer onboarding primarily focused on coordinating activities between the deployment, migration, and training teams to ensure smooth adoption of the SaaS product. These ISVs noted that onboarding was much faster with SaaS because of simplified procurement compared with the on-premises software product. In one instance, a provider of big data and analytics services was able to reduce customer onboarding time from “four to six months” to “days or weeks.” Post-deployment, the focus shifted to customer retention and deeper account penetration. Customer support managers focused on ensuring customers were deriving as much value as possible from the SaaS offering, exploring opportunities to sell more seats, and managing the overall customer relationship.
- › **A new team to provide cloud infrastructure assistance.** Most interviewees established some type of SaaS-specific operations team. This team would be responsible for technical assistance related to cloud infrastructure, policies, and procedures and post-sales support. Some interviewees leveraged the existing on-premises software support team to manage product issues while establishing a separate cloud operations team for cloud infrastructure issues. Some ISVs created a small team that specialized in AWS in addition to the existing operations team. Forward-looking ISVs adopted a DevOps model. (See Appendix D for more information about DevOps).
- › **A cloud security expert.** Some ISVs noted the importance of investing in a cloud security and compliance resource. Some interviewees provided training to existing staff to fill this role, while others hired externally to bring in the right knowledge to ensure that cloud products remained within desired security levels.

“Both our direct sales and our partner sales model has evolved to be more in tune with the SaaS-based offering and pricing model. We’ve also brought elements of customer retention into our sales strategy.”

~ Chief product officer

Key Performance Indicators

To gauge the success of the SaaS investment, the ISVs monitored several key metrics, including:

- › **Metrics related to value and revenues.** These included metrics such as annual contract value, total contract value, and annualized return per customer. Additionally, ISVs tracked SaaS gross margins and SaaS revenue growth. For all of the interviewed organizations, SaaS products represented a key revenue growth area, with year-over-year growth exceeding 40%. Gross margins for SaaS products typically ranged from 40% to 70%, with higher gross margins for simpler products like cloud security or secure cloud storage and multitenant environments. For the 106 ISVs that we surveyed, all had experienced gross margin growth over the previous two years, and 82% had SaaS gross margins that were greater than or the same as on-premises software margins. The top-performing ISVs had average SaaS gross margins of 76%.

- › **Metrics describing customer retention.** ISVs placed additional attention on customer retention metrics like customer churn rate, renewal rates, and recurring revenue. These types of metrics became more important with the introduction of a subscription-based model. Of the 106 surveyed ISVs that had been in market for more than two years, 41% said they focused on monthly recurring revenue growth and 37% said they focused on churn rate. The survey did not distinguish between revenue churn and customer churn, and we note that customer churn leads to revenue churn.
- › **Metrics that measure sales efficiency.** ISVs tracked metrics related to sales efficiency, including conversion rates from trial period to paying customer, new SaaS bookings, new tenants per week, customer acquisition costs, and sales cycle length. Most interviewees noted that SaaS sales cycles were often 25% to 50% shorter than on-premises software sales cycles due to faster pilots, the use of free trials, and “freemium” models. The reduction in sales cycles directly reduced customer acquisition costs compared with on-premises software products.
- › **Metrics related to the usage and performance of the SaaS products.** ISVs also created specific metrics to measure SaaS usage, both at the individual user level and for product features. This was done to understand potential customer dissatisfaction and subsequent churn. Metrics varied greatly by product type and included number of active users, user session duration, number of active jobs, transaction value, gross merchandising value, and hours or protection provided. Metrics were also developed that would trigger a billable event if certain thresholds were exceeded, like storage or bandwidth.

R&D, Innovation, And Agility In A SaaS Environment

A key result of migrating applications to the cloud is the opportunity for increased innovation and agility, so most of the interviewed ISVs allocate a significant portion of overall SaaS costs to R&D. Ongoing development efforts are focused on three key areas:

- › **Leveraging sophisticated tooling and architecture innovation to drive down costs.** ISVs consistently searched for new ways to simplify the cloud footprint, automate processes, and optimize AWS usage to achieve process efficiencies and cost savings.
- › **Pursuing regular releases of new functionality to enhance competitive advantage in the market.** Most ISVs leveraged the ease of deploying updates with a SaaS model to boost competitive advantage. These ISVs could introduce new features faster to meet evolving customer needs and more effectively fight off competition. In one instance, an ISV was able to deliver releases every three weeks with SaaS versus three times a year with on-premises software. Rapid updates allowed those ISVs that sought to be perceived as market leaders to increase the frequency and speed of updates. Updates were usually released on a quarterly or biannual basis, and there was much flexibility in this. Three of the interviewed ISVs established DevOps teams for their SaaS product development and operations.
- › **Investing in expansion to new regions.** With an on-premises software product, an ISV’s expansion to new regions could require significant capital investment. By using a global cloud platform to deliver their products, many ISVs noted the new opportunity for international expansion for their SaaS products. These ISVs often leveraged local partners to help sell products in new regions.

“We’ve definitely become more agile in terms of putting out feature functionality, and we typically try to do that every quarter. We’ve accelerated the innovation as a function of being on the cloud.”

~ Chief technology officer

Analysis

THE COMPOSITE ISV

For this TEI study, Forrester has created a composite ISV to illustrate the quantifiable revenues and costs of pursuing a SaaS strategy. The composite ISV is intended to represent a software whose customers are companies in the midmarket and enterprise segments (companies with more than 500 employees). The company sells its software in multiple countries.

The composite ISV's on-premises software products require customers to make an upfront investment in software licenses and professional services in order to fully deploy the solution in the customer's environment. The cost to the ISV of developing and deploying software upgrades made it difficult and time-consuming to bring new features and functionality to the market. Similarly, the cost of deploying upgrades was such that customers often skipped release cycles, which frequently meant forgoing the benefits of new features. For these reasons, the composite ISV found that more nimble competitors with SaaS solutions were beginning to make inroads into its core customer base.

The composite ISV decided to pursue a SaaS strategy for the following reasons:

- › Respond to customer demand for new features.
- › Satisfy demand for SaaS delivery from existing customers.
- › Reach new geographic markets.
- › Respond to competition from new market entrants.

In pursuing its SaaS strategy, the composite ISV decided to build out a multitenant platform from the outset. It understood that this would require a larger upfront investment but would result in lower operating costs over time. The company planned to support single-tenant deployments when customers required it.

The composite ISV's top requirements of its SaaS hosting vendor were:

- › Technical features and capabilities of the platform.
- › Security features or ability to meet local compliance requirements.
- › Global reach of the vendor.

REVENUES

The composite ISV experienced the following revenues streams that are related to the SaaS product:



Recurring Subscription Revenues And Gross Margins

From the interviews, we learned that SaaS revenue growth varied considerably from ISV to ISV. Drivers of revenue growth under an ISV's control were sales and marketing investment, ability to manage revenue churn, product maturity, and each ISV's appetite for transitioning its business model away from on-premises software to SaaS. The timing of investments in sales, marketing, and product development also varied, driven by each ISV's need for growth, profitability, and product development.

In the SaaS business model, the cost of revenues (equivalent to the cost of goods sold) has two primary components: 1) hosting and third-party expenses and 2) customer onboarding. Hosting and third-party expenses varied widely among the interviewed ISVs and depended on the volume and variability of the hosting services that were consumed. The onboarding expense was driven by the number of people assigned to perform these tasks, which in turn was driven by the sales growth rate and customer support management strategy.

For the composite ISV, we assume the following:

- SaaS revenues are predominantly generated from converting existing on-premises software customers to SaaS. This strategy yields a lower cost of sale compared with new customer sales and achieves a faster breakeven period on a per-customer basis.
- Assumed SaaS sales growth rates are based on net-new accounts and are not accumulated recurring revenues.
- Gross margins increase gradually over time and reach 63% after five years of operations. This is a result of accumulating subscription revenue and the composite ISV's ability to amortize its hosting costs over more customers. As noted earlier, the composite ISV pursued a multitenant architecture from the outset, which is inherently suited for driving economies of scale. We note that for the interviewed ISVs, gross margins ranged from 40% to 70%, and these gross margins were achieved after five-plus years of selling SaaS products.
- The revenue churn rate is 5% annually. Revenue churn rate accounts for contract non-renewals and adjustments to the contract size during the contract period (e.g., by reducing the number of users). The churn rate is accounted for by adjusting recurring revenues accordingly.
- Onboarding expense is commensurate with customer growth. The onboarding expense is the labor effort needed to ensure successful solution delivery and initial adoption and usage of the SaaS product. The onboarding expense is detailed in the Investments and Expenses section.

Assumptions regarding cost per seat and sales growth are shown in Table 3.

Table 4 shows the revenues and gross margins for the composite ISV's SaaS operations. By Year 5, the composite ISV has accumulated subscription revenues of \$50.2 million.

The calculations for the recurring revenues are shown in Appendix B.

TABLE 3
Revenue Generation Assumptions

Ref.	Metric	Value				
A1	Cost per seat	\$150				
A2	Annual revenue churn rate	5%				
A3	Number of seats sold in Year 1	18,000 across 59 customers				
A4	Sales growth rates	Year 2	Year 3	Year 4	Year 5	
		100%	90%	60%	50%	
A5	Average gross margins	Year 1	Year 2	Year 3	Year 4	Year 5
		26%	36%	45%	50%	63%

Source: Forrester Research, Inc.

TABLE 4
SaaS Revenues And Gross Margins (\$1,000s)

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
PL1	Subscription revenue		\$2,407	\$7,102	\$15,895	\$29,738	\$50,207
PL2	Onboarding expense		\$406	\$813	\$1,463	\$2,356	\$3,494
PL3	Hosting and third-party technology expense		\$1,375	\$3,733	\$7,280	\$12,513	\$15,083
PL4	Gross margins	PL1-PL2-PL3	\$626	\$2,557	\$7,153	\$14,869	\$31,630
PL5	Gross margin (%)	PL4/PL1	26%	36%	45%	50%	63%

Source: Forrester Research, Inc.

INVESTMENTS AND EXPENSES

The composite ISV invested in the following areas:

- › Initial product development.
- › Incremental product development.
- › Sales and marketing.
- › Customer onboarding.
- › Customer support.
- › Operations support.
- › General and administration.

These represent the internal costs needed to develop, sell, and operate its SaaS products. A five-year summary of investments and expenses are shown on Table 5.

TABLE 5
Total Investments And Costs (\$1,000s)

Ref.	Cost Category	Initial	Year 1	Year 2	Year 3	Year 4	Year 5
Btr	Initial product development	\$1,406	\$0	\$0	\$0	\$0	\$0
Ctr	Incremental product development	\$0	\$750	\$938	\$1,125	\$1,125	\$1,313
Dtr	Sales and marketing	\$0	\$1,358	\$1,868	\$2,995	\$4,374	\$5,810
Etr	Customer onboarding	\$0	\$406	\$813	\$1,463	\$2,356	\$3,494
Ftr	Customer support	\$0	\$335	\$419	\$503	\$586	\$670
Gtr	Operations support	\$0	\$94	\$94	\$94	\$94	\$94
Htr	General and administration	\$0	\$385	\$1,136	\$2,543	\$4,758	\$8,033

Source: Forrester Research, Inc.

Initial Product Development



From the interviewed ISVs, we learned that the labor effort needed to develop their first viable SaaS product ranged from three developers working for three months to the equivalent of over 50 developers working for one year (an outlier). The variability in development expense is attributable to multiple factors originating with the product itself, including product complexity, the amount of on-premises software code that requires rewriting, the completeness of features built into the initial product, whether a multitenant platform was developed, and the amount of money available to fund the initial development. A larger initial development expense is associated with major code rewrites and development of a multitenant architecture. Typically, the ISVs had between four and 10 developers working for 12 to 18 months to develop the first viable SaaS product.

For the composite ISV, we assume:

- A multitenant architecture is developed and some code rewriting is required.
- Five developers work for one and a half years to develop a launch-ready product.
- The initial SaaS product does not have all the features of the on-premises software product, and these features would be developed and released during the first year of SaaS operations.

The initial development expense is \$1,406,250 (see Table 6).

We note that each ISV's initial development expense will vary considerably, and the costs experienced will vary accordingly. Readers are encouraged to examine their own requirement and consult with AWS to determine their initial SaaS product development budget.

TABLE 6
Initial Product Development

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5
B1	Number of developers		5					
B2	Average developer annual salary		\$150,000					
B3	Benefits overhead (%)		25%					
B4	Average developer annual compensation	$B2*(1+B3)$	\$187,500					
B5	Estimated time needed to develop first viable SaaS product (years)		1.5					
Bt	Initial product development	$B1*B4*B5$	\$1,406,250	\$0	\$0	\$0	\$0	\$0

Source: Forrester Research, Inc.



Incremental Product Development

The interviewed ISVs noted that ongoing product development combined with a regular release cycle was a cornerstone of their SaaS strategies. This allowed the ISVs to bring new innovations, features, and bug fixes easily and rapidly, with minimal disruption or expense to their customers. From the interviews, we learned that the incremental product expense ranged from 5% to 55% of the total expense. From our survey data, we learned that the average incremental product development expense ranges from 5% to 40% of total costs.

For the composite ISV, we assume that the number of full-time equivalent (FTE) developers grows from four in Year 1 of operations to seven in Year 5 of operations.

The annual incremental product development expense is shown in Table 7.

TABLE 7
Incremental Product Development

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
C1	Number of developers		4	5	6	6	7
C2	Developer average annual salary		\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
C3	Benefits overhead (%)		25%	25%	25%	25%	25%
Ct	Incremental product development	$C1*(C2*(1+C3))$	\$750,000	\$937,500	\$1,125,000	\$1,125,000	\$1,312,500

Source: Forrester Research, Inc.



Sales And Marketing

The interviewed ISVs adopted a range of strategies to building their sales forces. These strategies included training the existing sales force to sell all products and hiring and training a completely new sales force to sell SaaS. The sales force composition usually had a mix of existing and new resources. The size of the sales force varied with sales growth targets and the use of partners or other indirect channels. We note that the overall sales and marketing expense includes the cost of the sales forces, pre-sales engineers who may be involved in selling activities, and the marketing expense.

For the composite ISV, we assume:

- There is a sales force tasked with selling SaaS and legacy on-premises software.
- Sales required involvement of engineers working in a pre-sales role.
- The marketing expense is 5% of revenues.

The sales and marketing expense is \$1.3 million in Year 1 and grows to \$5.8 million by Year 5 (see Table 8).

TABLE 8
Sales And Marketing

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
D1	Number of salespeople		6	6	10	14	16
D2	Sales average annual salary		\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
D3	Number of presales/support engineers		3	5	6	7	8
D4	Engineer average annual salary	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
D5	Benefits overhead (%)	25%	25%	25%	25%	25%	25%
D6	Total annual sales expense	$((D1*D2)+(D3*D4))*(1+D5)$	\$1,237,500	\$1,512,500	\$2,200,000	\$2,887,500	\$3,300,000
D7	Annual marketing expense of sales	5%*annual revenues	\$120,372	\$355,098	\$794,757	\$1,486,882	\$2,510,332
Dt	Sales and marketing		\$1,357,872	\$1,867,598	\$2,994,757	\$4,374,382	\$5,810,332

Source: Forrester Research, Inc.



Customer Onboarding

We learned that successful product deployment and initial adoption was an essential part of ensuring overall customer success. A successful, positive customer experience resulted in lower customer churn rates and increased likelihood of cross-sell and upsell. Customer onboarding was the first step in the customer engagement experience. Customer onboarding was primarily concerned with coordinating onboarding activities between the customers and the ISV. On a tactical basis, it included sending out introduction and educational emails, ensuring successful data importing and that logins were successful, and making check-up phone calls. The number of onboarding staff needed varied widely and depended on the degree of self-service inherent to the product, the need for data import and integration with other systems, sales growth rates, customer training needs, rollout schedules, and overall product complexity.

For this analysis, customer onboarding is calculated separately because it's a part of cost of revenue and appears on the income statement.

We assume that the composite ISV needs approximately one onboarding FTE for every 12 customers. This equates to five FTEs required in Year 1 and grows to 43 FTEs in Year 5. The customer onboarding expense is \$406,250 in Year 1 and grows to \$3.5 million by Year 5 (see Table 9).

TABLE 9
Customer Onboarding

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
E1	Number of customer onboarding support staff		5	10	18	29	43
E2	Customer onboarding annual average salary		\$65,000	\$65,000	\$65,000	\$65,000	\$65,000
E3	Benefits overhead (%)	25%	25%	25%	25%	25%	25%
Et	Customer onboarding	$E1*(E2*(1+E3))$	\$406,250	\$812,500	\$1,462,500	\$2,356,250	\$3,493,750

Source: Forrester Research, Inc.



Customer Support

We learned that customer support (often referred to as customer success management) is primarily concerned with supporting the customer beyond the initial deployment period. Customer support is often tasked with nurturing the overall customer relationship, and it is an important part of ensuring contract renewals. On a tactical level, customer support provides functions like level-one and level-two help desk support. Customer onboarding (described above) is often part of the overall customer support management effort, and there may be overlap between the customer onboarding and post-sales customer support managers. We also note that the sales team is also involved in the overall customer support function.

For the composite ISV, we assume that four FTEs are required in Year 1, and this grows to eight FTEs in Year 5. The customer support expense is \$335,000 in Year 1 and grows to \$670,000 by Year 5 (see Table 10).

TABLE 10
Customer Support

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
F1	Number of customer support managers		4	5	6	7	8
F2	Customer support manager average annual salary		\$67,000	\$67,000	\$67,000	\$67,000	\$67,000
F3	Benefits overhead (%)	25%	25%	25%	25%	25%	25%
Ft	Customer support	$F1*(F2*(1+F3))$	\$335,000	\$418,750	\$502,500	\$586,250	\$670,000

Source: Forrester Research, Inc.



IT Operations

For the interviewed ISVs, operations support primarily dealt with technical operations of the SaaS platform. SaaS operations support performed a wide range of duties, including ensuring that the production environment was equipped with the proper level of resources and designed correctly to scale per business needs; analyzing and resolving SaaS customer issues escalated by the customer support team; and interfacing between support and development to help identify and troubleshoot issues and optimize the reliability, performance, and supportability of the overall infrastructure. Staffing levels varied with scope, scale, and complexity of the infrastructure and the presence of customized use cases in single-tenant environments.

We assume that the composite ISV needs one FTE. The annual operations support expense is \$93,750 (see Table 11). Forrester recognizes that staffing levels will vary according to each ISV's needs and may grow over time. We encourage readers to estimate staffing levels according to their own use case.

TABLE 11
IT Operations

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
G1	Number of operations support staff		1	1	1	1	1
G2	Operations support staff average annual salary		\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
G3	Benefits overhead (%)		25%	25%	25%	25%	25%
Gt	IT operations	$G1*(G2*(1+G3))$	\$93,750	\$93,750	\$93,750	\$93,750	\$93,750

Source: Forrester Research, Inc.



General And Administration Expense

For the composite ISV, we assume that the general and administration expense is 16% of revenues. Estimates for the general and administration expense were obtained from the 2015 Pacific Crest SaaS Survey (see Appendix D). The annual general and administration expense is shown in Table 12.

TABLE 12
General And Administration Expense

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5
H1	Annual revenues		\$2,407,443	\$7,101,958	\$15,895,146	\$29,737,645	\$50,206,647
Ht	General and administration	16%	\$385,191	\$1,136,313	\$2,543,223	\$4,758,023	\$8,033,064

Source: Forrester Research, Inc.

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 the SaaS product may deviate from the original or expected requirements, resulting in higher costs than anticipated. Impact risk refers to the risk that the business needs of the organization may not be met by the investment in the SaaS product, resulting in lower overall total revenues and margins. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

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. This study shows the risk-adjusted numbers, which should be taken as “realistic” expectations since they represent the expected values considering risk.

The following impact risks that may affect revenues and margin are:

- › Sales growth rates may not be achieved.
- › Revenue churn rate will vary with each ISV’s ability to manage churn.
- › Onboarding expenses will vary with each ISV’s needs.

The following implementation risks that may affect expenses and costs are:

- › Initial and ongoing development expenses will vary with product complexity, features, and functionality, and whether a multi- or single-tenant architecture is deployed.
- › AWS expenses will vary in accordance with SaaS product functionality and the AWS resources used.
- › Salaries and associated overhead rates will vary.
- › Staffing levels required for each function will vary according to each ISV’s needs.

Amazon Web Services: Overview

Amazon Web Services (AWS) is a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers over one million customer organizations, including enterprise, government and startup businesses, in 190 countries around the world. Launched in 2006, Amazon Web Services officially began offering developer customers access to web services — now widely known as cloud computing — based on Amazon's own back-end technology platform.

Technology innovation has always been at the heart of the company culture, driving the growth of Amazon.com. After more than a decade building and running the highly scalable web application, Amazon.com, the company realized it had developed a successful core competency operating massive scale technology infrastructure and data centers and embarked on a much broader mission to serve a new customer segment—developers and businesses—with a platform of web services.

AWS has been continually expanding its services to support virtually any cloud workload, and it now has more than 70 services that range from compute, storage, networking, database, analytics, application services, deployment, management and mobile.

To learn more about AWS, visit <http://aws.amazon.com>.

Appendix A: Total Economic Impact™ Overview

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

The recurring SaaS revenues calculations are shown in the table below:

RA1	Average price/seat	\$150						
RA2	Number of seats sold in Year 1	16,500						
RA3	Average annual churn rate	5.0%						
RA4	Equivalent monthly churn rate	0.43%	Monthly churn = $1 - (1 - \text{annual churn rate})^{1/12}$					
			Year 1	Year 2		Year 3	Year 4	Year 5
RA5	Annual sales growth rate			100%		90%	60%	50%
RA6	Yearly sales		\$2,475,000	\$4,950,000		\$9,405,000	\$15,048,000	\$22,572,000
Ref.	Year 1	Calc,	Jan	Feb	...	Nov	Dec	
R1	Start	R4		\$205,370		\$2,014,729	\$2,211,506	
R2	Net new MRR	RA6/12	\$206,250	\$206,250		\$206,250	\$206,250	
R3	Monthly churn	(R1+R2)*RA4	\$880	\$1,756		\$9,473	\$10,313	
R4	Month End MRR	R1+R2-R3	\$205,370	\$409,865		\$2,211,506	\$2,407,443	
	Year 2	Calc,	Jan	Feb	...	Nov	Dec	
R5	Year 1 contract carry over revenues	R4	\$2,407,443					
R6	Year 2 net new sales	RA6	\$4,950,000					
R7	Start	R10	\$2,407,443	\$2,807,916		\$6,336,165	\$6,719,880	
R8	Net new MRR	R6/12	\$412,500	\$412,500		\$412,500	\$412,500	
R9	Monthly churn	(R7+R8)*RA4	\$12,028	\$13,736		\$28,785	\$30,422	
R10	Month End MRR	R7+R8-R9	\$2,807,916	\$3,206,679		\$6,719,880	\$7,101,958	
	Year 3	Calc,	Jan	Feb	...	Nov	Dec	
R11	Years 1+2 contract carry over	R10	\$7,101,958					
R12	Year 3 net new sales	RA6	\$9,405,000					
R13	Start	R16	\$7,101,958	\$7,852,073		\$14,460,757	\$15,179,484	
R14	Net new MRR	R12/12	\$783,750	\$783,750		\$783,750	\$783,750	
R15	Monthly churn	(R13+R14)*RA4	\$33,635	\$36,835		\$65,023	\$68,088	
R16	Month End MRR	R13+R14-R15	\$7,852,073	\$8,598,989		\$15,179,484	\$15,895,146	
	Year 4	Calc,	Jan	Feb	...	Nov	Dec	
R17	Years 1+2+3 contract carry over	R16	\$15,895,146					
R18	Year 4 net new sales	RA6	\$15,048,000					
R19	Start	R22	\$15,895,146	\$17,075,999		\$27,479,586	\$28,611,029	
R20	Net new MRR	R18/12	\$1,254,000	\$1,254,000		\$1,254,000	\$1,254,000	
R21	Monthly churn	(R19+R20)*RA4	\$73,147	\$78,183		\$122,558	\$127,384	
R22	Month End MRR	R19+R20-R21	\$17,075,999	\$18,251,816		\$28,611,029	\$29,737,645	
	Year 5	Calc,	Jan	Feb	...	Nov	Dec	
R23	Years 1+2+3+4 contract carry over	R22	\$29,737,645					
R24	Year 5 net new sales	RA6	\$22,572,000					
R25	Start	R28	\$29,737,645	\$31,483,781		\$46,867,640	\$48,540,712	
R26	Net new MRR	R14/12	\$1,881,000	\$1,881,000		\$1,881,000	\$1,881,000	
R27	Monthly churn	(R25+R26)*RA4	\$134,864	\$142,311		\$207,928	\$215,065	
R28	Month End MRR	R25+R26-R27	\$31,483,781	\$33,222,470		\$48,540,712	\$50,206,647	

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.

Appendix D: Supplemental Material

Related Forrester Research

The estimate for enterprise adoption of SaaS applications was obtained from the following Forrester Research report: “Application Adoption Trends 2016: SaaS Expands Across The Enterprise And Across The Globe,” Forrester Research, Inc., March 30, 2016

Online Resources

Estimates for general and administration expenses were taken from the 2015 Pacific Crest SaaS Survey, which can be found at <http://www.foentrepreneurs.com/2015-saas-survey-part-2/>.

More information about DevOps may be found at <https://aws.amazon.com/devops/>.