

Top 10 SaaS Best Practices

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Overview

This Top 10 SaaS Best Practices white paper describes how ISVs and software development companies are or should be using best practices and innovation in software product development to bring SaaS (software-as-a-service) services to the market faster, improve quality, increase customer experience, acceptance and loyalty, and improve overall business performance. The SaaS best practices also capitalize on the enterprise Web 2.0 phenomenon and leverage Web 2.0 features for more valuable and effective SaaS services. The 10 SaaS best practices have been selected from industry research and surveys, customer experiences and our experience in the marketplace. ISVs and major software developers can utilize these best practices as a guide to market trends and how to develop SaaS services to achieve leadership and competitive advantage in the marketplace.

Introduction

ISVs should follow best practice guidelines and approaches for innovative software product research and development, marketing, sales, customer service and operations to reduce their software development time and cost, improve software quality, speed-up their time to market and improve customer acceptance and satisfaction. In addition, ISVs should leverage proven PaaS (platform-as-a-service) and IaaS (infrastructure-as-a-service) and off-shore providers to improve their financial, operational and technology performance and gain competitive advantage.

For example, sales and marketing is traditionally the largest expense for SaaS companies. Sales and marketing estimated spending in 2008 for 13 leading SaaS companies averaged about 28% of revenue according to RBC Capital Markets Group research. The sales and market expenses for the 13 companies ranged from 17% to 49% of revenue. Examples of companies that were more efficient in 2008 relative to their projected revenue growth rate compared to the amount of their sales and marketing expense as a percent of revenue were Absolute Software, Omniture, Concur, Ultimate Software, and Kenexa. The estimated median organic revenue growth for 2008 was projected to be 25%.

Gartner projects 2009 SaaS revenue growth to be about 21.9% and that the revenue growth rate through 2013 will average approximately 19.4% per year. The SaaS market is in its infancy and in 2008 was about \$7 - \$8 billion of a total estimated software market of approximately \$271 billion. The SaaS market is growing much faster than the traditional software market.

Research and development is generally the second largest expense for SaaS companies. Median R&D spending as a percent of revenue was estimated to be about 13% in 2008 for the 13 leading SaaS companies in the RBC Capital Markets Group research mentioned above. Estimated R&D expense as a percent of revenue ranged between 5% and 18%. Absolute Software, Omniture, Concur, Salesforce.com,

Kenexa and Vocus were the most efficient relative to their R&D expense as a percent of revenue compared to their projected revenue growth rate.

The median direct cost of revenue of the 13 SaaS companies was projected to be 31% and the median gross profit margin was estimated to be 69%. The estimated median G&A expense was 14% of revenue and the estimated revenue per employee was \$232,243.

ISVs need to adopt innovative/ best practices, processes and technologies to lower their sales and marketing and research and development expenses, improve their operational and financial performance and achieve competitive advantage. How do SaaS companies compete with some of the industry leaders mentioned above?

Top Ten Best Practices for ISVs and SaaS Development

Trigent defines ten key best practices to lower software development cost and time, improve software quality, reduce time to market and ensure prospect /customer participation, loyalty and satisfaction. In addition, the ten best practices will improve a company's overall financial, operating and technology performance and competitive advantage subsequent to their successful adoption.

The top ten best practices are out lined in Exhibit 1 below:

1. Adopt and embrace new business, operating and technology models for SaaS
2. Leverage enterprise Web 2.0 to do software product research and define market and product requirements
3. Add greater value to and surround your SaaS service with complementary web services / APIs and mash-ups
4. Incorporate Open Source software in SaaS services
5. Utilize agile software product development methodologies in the R&D process
6. Develop a best-of-breed architecture
7. Develop an integration strategy for SaaS applications
8. Produce frequent and incremental releases and incorporate prospect and customer requirements
9. Leverage PaaS / IaaS-based or Open Source provisioning, billing, usage and performance management standard commercial functionality
10. Outsource to third-party PaaS or IaaS hardware and infrastructure providers versus maintaining in-house hardware and infrastructure

Exhibit 1 - Top 10 SaaS Best Practices

1. Adopt and Embrace New Business, Operating and Technology Models for SaaS

The business, operating and technology models for SaaS companies are considerably different from the traditional software development model. SaaS providers are no longer just in the software business or operating within the four walls of the organization. SaaS providers are in both the services and software business and should focus their business on the core competence of a SaaS provider. SaaS providers

should also adopt and embrace new business, operating and technology models to remain competitive in the future. Exhibit 2 below is a depiction of the significant market changes that are taking place and the new business models that are emerging compared to the traditional industry models that have historically impacted software companies.



Exhibit 2 - Traditional and New Business Models

The new aforementioned models are having a significant impact on how ISVs develop and support their software products, go-to-market and compete for market share. The shift from a traditional software company to a SaaS company model also has a significant impact on the company's culture, organization structure, internal competencies, sales team, customer support, pricing, operations and financials. Companies moving to this model need to become more market and customer focused in order to provide a higher level of service and to support their customers with enhanced levels of customer responsiveness, operations and system performance.

Ingress Corporation is an example of a company that has fully embraced the new business model and moved the company to a more customer focused, open, agile, lower cost and integrated SaaS-based company.

2. Leverage Enterprise Web 2.0 to do Software Product Research and Define Market and Product Requirements

Enterprise Web 2.0, supported by SaaS and PaaS should be leveraged by companies to do software market and product research and define market and product requirements before the development and launch of a software product. Don Tapscott and Anthony Williams wrote in their book entitled Wikinomics, that

the next generation enterprise is different from today's enterprise. They view that the next generation of companies will need to embrace globalization and a global pool of talent, peer collaboration, open innovation, process innovation, on-demand services and rich customer experiences.

By adopting enterprise Web 2.0 capabilities early, companies can engage with prospects and customers in a co-innovation and peer collaboration manner by leveraging Web 2.0 features like enterprise networking, collaboration, crowd sourcing, and the collective intelligence of focused relevant enterprise communities. Early and frequent collaboration with prospects and customers will result in having a better understanding of the market and customer needs, better products or services and closer relationships with customers and partners. Moreover, ongoing collaboration, co-innovation and community collective intelligence will benefit a company greatly subsequent to initial product launch by providing a forum for customers to give input on the ongoing software product development roadmap, incremental product release schedule and customer support.

Building an enterprise community and ecosystem around the SaaS service is critical for customer acquisition, differentiation, growth and success. Communities create market buzz about the software service and its capabilities as well as provide collective intelligence relative to the market needs and requirements of business community members. In addition, business communities represent a great body for micro marketing, training, partner solicitation and involvement, and third-party channels.

A schematic of enterprise Web 2.0 and its inter-relationships with research, marketing, product development, sales and customer support processes, as well as SaaS and PaaS is depicted in Exhibit 3 below:

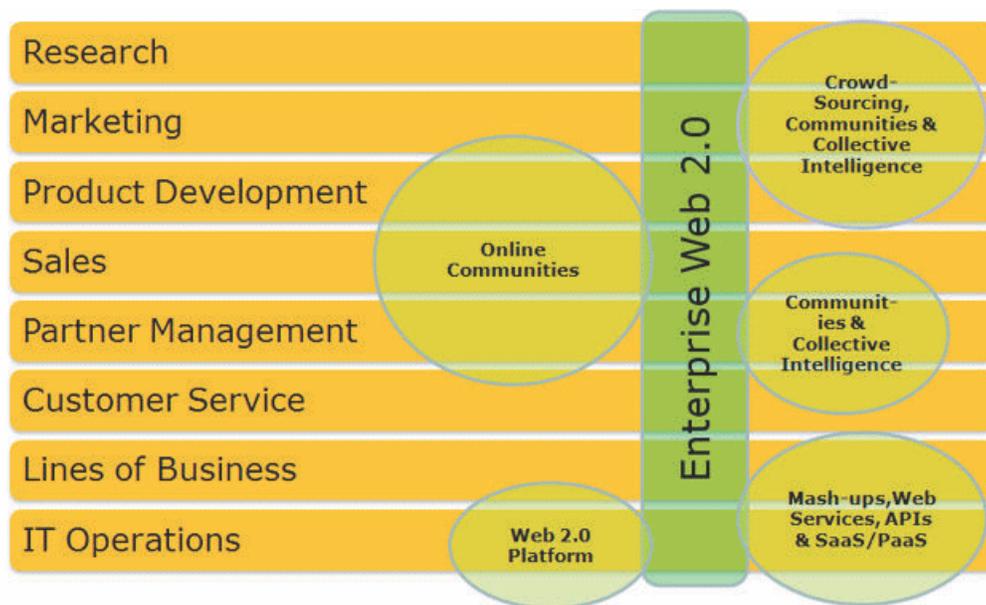


Exhibit 3 - Enterprise Processes, SaaS and Web 2.0

3. Add Greater Value to and Surround Your SaaS Service with Complementary Web Services/APIs and Mash-ups

Web services, API s and mash-ups should be utilized to extend your service offering and leverage complementary third-party value added services. Third-party value added services will help you provide a broader customer solution and greater functionality, differentiate your product and provide greater customer experiences. Third-party services will also help you build your SaaS ecosystem and business community.

Web service providers offer API s that enable developers to exploit functionality over the Internet, rather than developing complete applications. Examples of providers that offer business services range from Strikelron, delivering business data services and Xignite, offering financial web services to a full range of API s offered by such companies as Google Maps, ADP payroll processing, the U.S. Postal Service and Bloomberg.

Programmable Weblists approximately 1,325 API s/Web services and about 4,000 mash-ups, including about 500 new mash-ups in the last 6 months. Examples of popular API s being utilized include: Google Ajax Feeds and AdSense advertising management service, Amazon S3 online storage service, Simple DB online database service, and Flexible Payments online payment service, Blogger blogging service, FedEx package shipping, Skype Internet communications, Windows Live Contact database service, Adobe Share service for publishing and tracking documents, and Zoho online office suite. In addition, Drupal has many API s surrounding its open source content management system.

Examples of mash-ups being used include: Google Search and Maps, Diggwebnews, Yahoo Pipes, Amazon Remote Shopping Cart , Dropcash type key for authentication and PayPal for online payments for e-commerce transactions. JackBe's Presto enterprise mash-up plat form provides mash-ups to Microsoft Excel and Oracle WebCenter which is a suite of components for building rich user interactive applications. JackBe's Presto plat form is being used to create industry-specific mash-ups relative to retail, healthcare, manufacturing, financial services and Federal, state and local government. Serena Software is also well known for its mash-up capabilities.

API s/web services and mash-ups will grow more rapidly as the SaaS market grows over the foreseeable future. As ISVs and end-users continue to innovate, accelerate time to market, reduce software development cost and enable self-service, API s and mash-ups will be leveraged for rapid software solutions, business results and competitive advantage.

4. Incorporate Open Source Software in SaaS Services

In 2007, only about 28% of companies surveyed incorporated open source software in their SaaS services. In 2008, approximately 51% of companies surveyed and outlined in the **The 2009 Softletter SaaS Report** incorporated open source in their SaaS product. This is a growing trend driven by the growth of SaaS, number and quality of open source products available on the Web, leveraging mash-ups and web services/APIs, virtualization and the main business drivers to decrease time to market and lower development time and cost. VC funded ISVs are particularly interested in incorporating open source in their SaaS products since they are seeking rapid development time, reduce time to market, lower cost and a greater return on their investment.

The most well-known commercial IaaS provider and platform is Amazon's Elastic Compute Cloud (EC2). Amazon's EC2 supports a variety of operating systems, including Red Hat's Enterprise Linux, Microsoft Windows Server and Sun/Oracle's OpenSolaris, as well as web hosting and development environments. EC2 supports Apache's web hosting service and Red Hat's JBOSS application development environment. EC2 also supports a variety of databases such as MySQL Enterprise open source database, the Microsoft SQL server and Oracle's 11g.

In EC2, you can specify a particular VM (operating system and application set), and then deploy your applications on it or provide your own VM image to execute on the servers. Amazon bills its customers based on what users consume relative to compute time, storage, and network bandwidth.

Microsoft has designed its Azure Services Platform to be open, standards-based and interoperable and it supports XML, REST and SOAP standards which means that Azure services can be called from other platforms and programming languages. Windows Azure supports a PHP SDK (software development kit) and Silverlight controls support PHP developers.

5. Utilize Agile Software Product Development Methodologies in the R&D Process

In a traditional on-premise software development model, development cycles typically followed a phased approach and took 12 to 18 months to complete. In a SaaS environment, prospects and customers can gain access to the PaaS or IaaS on day one and this environment can be used to solicit user requirements and their involvement, as well as build a community and working SaaS prototype. Moreover, an agile development environment supports prospect and customer interaction and a continuum of incremental SaaS development and services. The important tenants of agile development are customer collaboration and delivering working SaaS services on a frequent basis. Agile development improves understanding and responsiveness and reduces the feedback and correction cycle between the generation and realization of user requirements.

SaaS-based product development is very compatible and advantageous to requirements being collected in a collaborative manner by multi-disciplined and cross-functional teams and working in an interactive and agile development environment. Teams work collaboratively together to constantly define needs, prioritize activities, balance features and functionality, and produce iterative releases and rapid results.

An agile software product development approach should improve the alignment of product capabilities with user requirements, result in faster and higher quality software development and quicker error detection and correction. In addition, agile development should lower software development time and cost. This approach should also result in higher customer understanding, acceptance and satisfaction of the software product. In The 2009 Softletter SaaS Report, 67% of the companies surveyed implemented agile methodologies in their R&D process.

6. Develop a Best of Breed Architecture

Develop an overall architecture as part of the IT strategy to include SaaS, PaaS/IaaS and integration to on premise applications. The complete stack of web, application(s) and platform should be addressed. A best practice is to choose the PaaS/IaaS provider early in the process. Architect the best of breed components of the PaaS/IaaS as part of the overall solution. Examples of best of breed components include provisioning, billing, self-service, usage and metering, and performance and monitoring, SLAs, etc.

The architecture should also address the common features expected within a SaaS offering such as: mobile access via smart phones, analytics and metrics, communication and alerts via email and SMA, and easy identity management.

Develop a multi-tenant SaaS architecture to create economies of scale and maintain a single code base to decrease development time and time to market, as well as maintenance cost. Pay close attention to scalability and high availability. Ensure that the solution is highly configurable and extensible. Additionally, ensure that the architecture includes any relevant integration components.

7. Develop an Integration Strategy for SaaS Applications

As companies migrate to SaaS applications, the need for solutions that will interoperate and exchange data is critical. Consequently, it is extremely important to fully understand the business processes and workflow requirements before implementing and integrating SaaS applications. The lack of SaaS integration has been a major concern relative to deploying multiple SaaS-based applications. Although the use of APIs are important, they are not a sufficient integration strategy since there may be many APIs utilized which lack adherence to standards and have frequent modifications and updates.

Companies need to employ an information architect who understands the business processes, workflow and technology in order to develop an overall integration strategy. Some best of breed PaaS and IaaS providers may offer a single, seamless solution for a company's entire application portfolio including both SaaS and on-premise environments. Additionally, many providers offer pre-built connectors to leading applications as well as the ability to develop custom connectors via visual, drag-and-drop technology. Some SaaS and PaaS providers offer pre-integrated suites such as Oracle's Fusion and Salesforce.com's AppExchange.

Boomi's AtomSphere is a leading integration platform that handles many combinations of SaaS, Cloud and on-premise applications. Boomi supports leading SaaS providers such as Salesforce.com, NetSuite and Intuit. In addition, OpSource, which focuses on PaaS for serving SaaS providers has recently introduced OpSource Services Bus that includes integration technology from Boomi to address cloud integration.

Cast Iron Systems provides SaaS-based pre-configured integrated solutions versus a traditional coding approach to leading SaaS application providers. Examples of a few of the SaaS application providers supported by Cast Iron include: Salesforce.com, Xactly, Concur, Ultimate Software, NetSuite, Ariba and Microsoft Exchange and Dynamics.

8. Produce frequent and incremental releases and incorporate prospect and customer requirements

In a SaaS environment, customers have built-in access to the software product on a 24x7 basis. Consequently, an organization can incorporate customer requirements and feedback directly in the SaaS product solution. Additionally, it is becoming increasingly important to understand and align the SaaS product with customers' improved business processes. The SaaS product can aggregate user requested features, look for patterns and ranked customer requirements. Companies can incorporate the top ranked requirements and feedback in their future product roadmap and release schedule and make them available in several future incremental releases. Only about 24% of the average SaaS software provider releases new features as they are ready. Only approximately 28% of SaaS providers have three releases per year.

9. Leverage PaaS/IaaS-based or Open Source Provisioning, Billing, Usage and Performance Management Standard Commercial Functionality

In addition to the specific SaaS application, standard SaaS functionality or commercial components are required to support the SaaS application. The standard SaaS functionality already exists in the marketplace and should be leveraged to the extent possible. Examples of standard SaaS functionality includes: service provisioning; tenant and subscription management; subscriber management and

self-service for changing status, service and usage; pricing to include existing and new services and promotions; customer billing including the ability to record and measure usage and transactions, if appropriate; payment processing; and usage and performance management. Usage and performance management can include both the individual user activities and the underlying infrastructure that supports the service. Actual usage raw data and metrics need to be accumulated and presented to support the billing and management of operations.

Many software ISVs either use the standard SaaS functionality of the PaaS/IaaS provider or use Open Source software to handle the supported SaaS functionality mentioned above. According to The **2009 Softletter SaaS Report**, approximately 59% of the companies surveyed utilize commercial SaaS components.

SaaS providers show they spend between 14-34% on operations, which includes staff expenses. The **2009 Softletter SaaS Report** showed that 1-25% or more of companies' SaaS revenue is spent on hardware, software and infrastructure. 11% of the companies surveyed did not know what they spend.

10. Outsource to Third-Party PaaS or IaaS Hardware and Infrastructure Providers Versus Maintaining In-house Hardware and Infrastructure

55% of companies surveyed in The 2009 Softletter SaaS Report outsource their SaaS-based hardware, software and infrastructure. 39% of the companies surveyed use collocation services, 36% utilize managed hosting services, 13% leverage the cloud and 6% utilize integrated hosting services. This is particularly true for start-ups and small companies. Start-ups and small companies can gain time to market, lower cost and competitive advantage by outsourcing their PaaS or IaaS infrastructure. They can also gain an advantage by leveraging third-party capabilities like billing systems that are PCI compliant and infrastructure hosting centers that have SLAs and undergone SAS 70 security and privacy audits and are SAS 70 compliant. The PCI Data Security Standard is a multifaceted security standard that includes requirements for security management, policies, procedures, network architecture, software design and other critical protective measures. This standard is intended to help organizations proactively protect customer account data.

The SAS 70 audit includes two types of service auditor reports. A "Type I" service auditor's report includes the "service auditor's opinion on the fairness of the presentation of the service organization's description and suitability of controls that have been placed in operation".

A "Type II" service auditor's report includes the "information contained in a Type I report and the service auditor's opinion on whether the specific controls were operating effectively during the period under

review". Compliance and adherence to major standards are important since data security, controls and risk of service outages are major inhibitors of companies adopting a SaaS offering.

The majority of medium to large-sized companies maintain their own in-house hardware and infrastructure, even though in many instances it is more costly for medium-sized companies to do so.

Trigent's SaaS focus, model, capabilities and best practices for software product development is depicted in Exhibit 4 below:



Exhibit 4 - Trigent's SaaS Model

Trigent custom develops SaaS software products, migrates premise-based client server software products to SaaS or develops and supports both on-premise and SaaS software hybrid models.

About Trigent Software Inc.

Trigent is a privately held, professional IT services company and a Microsoft Gold Partner with its U.S. headquarters in the greater Boston area and its Indian headquarters in Bangalore. We provide consulting services in various technologies including Microsoft Solutions. Our operating model is to conduct sales, customer relationships and front-end consulting (e.g., business case, requirements, architecture) onsite with our clients and perform the detail design, development, integration, testing and quality assurance offshore at our world class development and support center in Bangalore. We are a SEI CMM Level 4 company and is ISO 9001:2000 TickIT certified organization.

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