Assessing the Impact of Software As A Service (SaaS) Innovations on Disrupting the Enterprise Software Industry

Steven R. Kursh – Software Analysis Group, Cambridge, MA, USA
Pratik Patel – Software Analysis Group, Cambridge, MA, USA

ABSTRACT

A primary factor in the recent growth in the enterprise software industry is software-as-a-service, commonly known by its acronym - SaaS. The key drivers of this growth are several technology and business innovations working in concert. In this paper, we extend prior research regarding disruptive innovation with a specific focus on the enterprise software industry. We discuss how acquisition and deployment of SaaS by enterprises is different than on-premises software sold as a product; related technology infrastructure and licensing of SaaS; and accounting and finance metrics for assessing and valuing SaaS companies that complement GAAP standards and principles. The paper will be useful to professors and students in course discussions regarding innovation and, more broadly, technology.

Keywords: disruptive innovation, software industry practices, SaaS, entrepreneurial finance

INTRODUCTION

Software is an integral part of our personal lives, business activities, and government services. The majority of the ten largest publicly-traded companies by market cap are either software companies or businesses where software is integral to their operations and products. Heading the list is Apple and Microsoft, each at over $3 trillion in market cap as of the time of our research and writing. Many of the top fifty companies by market cap are either software companies or enabled by software technologies; for example, Oracle is valued at over $383 billion, SAP at over $249 billion, and Netflix at over $270 billion.

Revenues in the software industry are estimated to be approximately $700 billion dollars in 2024 and are expected to grow by over 5 percent annually going forward (Statista, 2024). By way of contrast, total revenues for all US Colleges and Universities in 2023 was under $560 billion and given trends from 2018 through 2023 is likely to decline in 2024 (IBIS World, 2024). We can only expect, moreover, that software will continue to grow more important in our lives with the greater use of artificial intelligence, crypto, and more powerful applications, for example, personalized medicine.

SAAS

A primary factor in the growth in the enterprise software industry is software-as-a-service, commonly known as SaaS. During the past several years software companies and their customers – enterprises and governments have dramatically shifted to SaaS as the primary way to access and use software. An important driver of this shift and, accordingly, a key factor in the growth of the software industry, is several technology and business innovations enabled by SaaS (Cusumano, 2010; Miranda, 2015). These innovations have enabled significant increases in the number of software companies, a faster pace in the functionality of software and an increase in the types of software applications available to individuals, enterprises, and government agencies (Ansley, 2018).

EXTENDING EXISTING RESEARCH ON DISRUPTIVE INNOVATION AND SPECIFICALLY SAAS

Researchers have been interested in the diffusion of innovation for decades (Rogers, 1995). More recently, the impact of disruptive innovations has been a focus for many researchers in business schools and at corporations. One of the earliest published work on disruptive innovation focused on how disruptive technologies as compared to incremental technologies could change the marketplace "playing field" in an industry (Christensen and Bower, 1996).

Several researchers have expanded on that earlier research. The literature includes many articles that analyze disruptive innovation from the perspective of startup firms, incumbents, and in a variety of industries. Several papers

have been published that discuss inconsistencies between the theory of disruptive innovation and practice (Si and Chen, 2020; King and Baatartogtokn, 2015). The rapid growth in research and publications focused on disruptive innovations led the authors of one paper to note that "disruption innovation" had largely become a business buzzword (Nagy, et al., 2016), a criticism that many of us may need to be aware of when covering the topic of innovation in our courses.

Many researchers have focused on innovation in the software industry and strategies related to disruption (Bandulet, 2016; Katenecker, 2015). Other researchers have published articles covered broader issues related to SaaS, including cloud computing, Infrastructure as a Service "IaaS" and Platform as a Service "PaaS" (Mell and Grace, 2001).

The article builds on the prior research regarding disruptive innovation in general and specifically within the enterprise software industry. Drawing on the prior research and our experience in the field we analyze the impact of SaaS on innovation disruption in the enterprise software industry and the primary causes, business and technological driving the disruptions. Our work complements and extends the prior research by discussing how specific technology and business innovations in concert have driven the disruption including, but not limited to, the processes for acquiring and deploying SaaS software; the cloud infrastructure that has enabled SaaS, IaaS and PaaS; and accounting and finance metrics for assessing and valuing SaaS companies.

The article will be of value in courses covering innovation, the software industry, and in furthering student understanding about how SaaS companies and, more broadly, subscription businesses may be assessed and valued with financial metrics that complement GAAP standards and principles.

The paper is divided into three-related sections:

First, we provide an overview of the software industry, including a discussion of licensing and deployment. We cover the different ways that software has been sold and the migration to SaaS as the primary way to use software by enterprises and government agencies, as well as consumers.

Second, we review key innovations in SaaS that together have enabled the disruption from traditional licensing and provisioning of software by enterprises and government agencies. We discuss the impact of IaaS and SaaS leveraging cloud technologies to disrupt the software industry and cover several key innovations in SaaS that benefit enterprises and software companies (Mantz, 2023; Kursh and Schnure, 2015; Bhardwaj, Jain and Jain, 2010). In the last part of the section we discuss how SaaS has led to innovations in financial metrics that complement GAAP standards and principles for assessing and valuing SaaS companies.

Third, we provide conclusions and thoughts regarding what could be next regarding innovations in the software industry.

THE SOFTWARE INDUSTRY

Software is a generic term used to describe instructions known as computer programs that enable computer hardware, whether desktop, network, or mobile, to provide functionality. The software industry is comprised of companies that develop and provide software to individuals, enterprises, and governments. Additionally, many individuals, enterprises, and government agencies develop their own software for specific tasks. By way of example, those of us who create macros in Excel are writing software programs. Many enterprises also develop their own software, particularly in industries, like financial services and life sciences, where unique functionality is required, often through trade secrets and proprietary and confidential information in the software code, that provides a competitive advantage.

There are four primary categories of software:

1. Operating system – An operating system, like Microsoft Windows or Linux, is the core set of software on a device that keeps everything together. Operating systems communicate with the device's hardware. Operating systems handle everything from your keyboard and mice to the storage devices, and the display. The Apple iPhone's operating system is iOS; Android OS is a Linux-based operating system. It is used with Samsung, Google, and most other mobile devices other than Apple iPhones.

2. Application software – Application software is designed to sit on top of the operating system and perform a suite of functions, tasks, or activities for the end user. It includes the graphic user interface (GUI) that the user interacts with to control the computer. Programs such as Microsoft Word, an accounting program like Quicken, or video games, an industry larger than the movie or music industries (Arora, 2023), are examples of applications. There are numerous types of applications such as desktop applications for personal computers; web applications that are programs that run over the Internet; and mobile applications that run on smartphones and tablets.

3. Utility applications – Utility programs are meant to help system administrators and computer programmers maintain and service their computer networks. Cybersecurity software falls within this category and it is a rapidly growing vertical software market, as evidenced by the publicity after the recent July 2024 incident involving CrowdStrike that caused havoc in the airline industry and other industries.

4. System software – System software controls and directs certain functions of the hardware. Examples of system software include Boot programs, Embedded programs, and Microcode programs. All of these programs are installed as part of the computer hardware manufacturing process. An example of an embedded program is the software on a cable television box or router that provides internet access.

The Licensing and Provisioning of Software

Presently, there are two prevalent methods for how software is provided, what is called provisioned, for use.

The first method is "software as a product," which is when an enterprise, individual, or government agency purchases a license from the software company for rights to use the software. Typically, the software is provisioned and on the licensee's computer hardware or at a third-party site where the licensee controls the software and hardware. An example would be a software program that you would purchase and install on your computer for your sole use. Similarly, an enterprise could purchase a software product like an Oracle database, ERP (enterprise resource planning) software, or a vertical-market product, for example, electronic medical records management at a hospital or medical practice for its use on servers at its facilities or located at a third-party site.

The license fee, *i.e.*, the price of product, per software industry customs and practices, is based on metrics and scope of use determined by the software company (*e.g.*, number of seats, geographic region, period of time to use the software, simultaneous users, *etc*.). Individuals and SMB (small and medium-sized businesses) purchasing software typically cannot negotiate terms relating to the metrics. By contrast, the metrics and scope of use are often negotiated by software companies with enterprises and government agencies as part of the licensing process. The "purchase" of the license by the enterprise or government agency is typically done through a click-through agreement if the software is purchased online and/or via a formal document that is executed by the software company, the licensor, and the licensee, (*i.e*., the enterprise or government agency.)

There are also typically reoccurring costs for software support and updates with software as a product that is provisioned for on-premises installations. These recurring costs are usually negotiated by enterprises and government agencies. Enterprises and governments often negotiate terms regarding the type and level of the bugs and the response times by the software company to fix the bugs. As with the license fees associated with purchasing the software product, individuals SMB rarely have negotiating leverage with software companies regarding these reoccurring costs.

Critically with software as a product, the licensee has to account for additional costs such as hardware, IT labor, physical space, as well as other expenses. The elimination or significant reduction of these infrastructure and transaction-related expenditures is a significant driver for demand for SaaS, a topic we discuss below.

Software as a product was once the primary way that software was provisioned to enterprises, governments, and individuals. The only real exception was software embedded in hardware that was sold to end users, for example, calculators and medical devices.
The second method, which is the focus of this paper is SaaS, which is when an enterprise or government agency purchases the rights to use the software and accesses the software via a computer, tablet and/or mobile phone. (Consumers do the same, but consumer software, except in setting context, is not a subject in this paper.) At a high level the purchase of usage rights is not significantly different than with the purchase of usage rights with the software as a product sale, the traditional provisioning method (Amazon Web Services, 2024).

The pricing for SaaS application software typically takes the form of a reoccurring fee, hence, the term "subscriber" for users. The fee for enterprises and governments is based on a metric (*e.g.*, users, numbers of sites, location of sites, scope, functionality, *etc.*) For individuals and SMB the fees are usually not negotiable and the subscriber's rights to use and scope of use are limited.

Despite the use of the term "subscribers," the enterprises and governments also have licenses as with software as a product provisioned on premises. The major difference is that the user rights are limited to access and are terminated once the subscription is no longer paid. These are called Access Licensees – *i.e.*, the user has access to a SaaS product until the subscription is terminated, at which point the vendor (or licensor) prohibits further access absent renewal.

Shift from On Premise to SaaS

Although enterprises have used computers as early as about seventy-five years ago, the development and use of SaaS for enterprises largely began in the late 1990s with NetSuite, an accounting and financial management SaaS targeting SMB, and Salesforce's CRM (customer relationship management). With the dotcom crash in the year 2000 along with other factors it took several years for SaaS to become readily acceptable as an alternative to on-premises deployment of applications by most enterprises, individuals, and governments.

SaaS is now the primary method for selling rights to use software (Datanami, 2024). Most major software companies, for example, SAP, no longer license software only for on premise installations and now offer SaaS (Lin, 2024). Many of these software companies still provide support and maintenance for existing on premise licensees due to some licensees preferring not to make the switch to SaaS due to among other factors, financial reasons, inertia, security, and regulatory factors. Some software companies, for example, Oracle, Adobe, and Citrix, have taken a more aggressive posture and have sought to force licensees to switch to SaaS, often because investors prefer the income streams from SaaS compared with the income streams with software sold as a product. Many software companies license software for both on-premises deployment and SaaS due to demands by their targeted customer groups.

IDC, a leading IT-research company, forecasts that public cloud spending by enterprises (*i.e.*, spending for SaaS and ASP (application service provider; Aiken et al, 2002) accounted for over 70 percent of the market as of 2024. IDC also forecasts that SaaS will grow at about a 50 percent higher rate than software for on-premises deployment in the immediate future (Ascendix Technologies, 2024). Another leading research organization, Gartner, found similar growth numbers for SaaS. More specifically, Gartner forecasts that SaaS will grow by 20 percent in 2024 and 19.4 percent in 2025 (Datanami, 2024).

Looking at SaaS data from the perspective of enterprises, the number of SaaS applications being used by enterprises now accounts for 70 percent of software use by those enterprises. The number of SaaS applications an enterprise uses on average has grown from eight in 2015 to 130 in 2022 (Ascendix Technologies, 2024).

One of the ways that SaaS has disrupted the software industry is by enabling many software companies to target relatively small vertical market opportunities, the classic "long-tail." Indeed, there are literally over one thousand known SaaS applications (Finances Online, 2024).

Clearly, there are a wide and deep range of categories of SaaS products available to enterprises and government agencies, particularly compared to licensed software as a product options. This is likely due to the economics of SaaS enabling the creation of SaaS companies that sell subscriptions designed for specific vertical-market niches. Based on our experience this wide and deep range of categories far exceeds what was ever available with on-premises deployment software.

SAAS HAS DISRUPTED THE SOFTWARE INDUSTRY

Obviously, no one single factor explains why SaaS has disrupted the software industry. Many researchers have discussed how most disruptions in industries occur due to multiple factors (Ridley, 2017; McGrath, 2019; Satell, 2017). These innovations are typically interrelated and often encompass technology, economics, business design (*i.e.*, models) and other factors.

Technology

The major technology innovation that enabled SaaS is the cloud and specifically Infrastructure as a Service (Mantz, 2023). The key difference between SaaS and traditional on-premises deployment with software is that SaaS applications are designed to be hosted on the cloud by the software vendors versus at the enterprises' facilities. A SaaS vendor can host its application(s) with cloud service providers like Microsoft's Azure, Amazon's AWS, IBM Cloud, Google Cloud, Rackspace, or other hosting services. Alternatively, a SaaS vendor can host its application(s) on its own cloud, which we have seen particularly prominent in vertical markets where security, regulatory, and unique business factors may be relevant. Some cloud services vendors, for example, IBM, offer a hybrid cloud option (a combination of a public cloud and private cloud) in response to these needs from enterprises and governments.

SaaS provides several technology-related advantages that result in significant business advantages as compared with on-premises deployment. One set of important cost advantages is that an enterprise does not need to invest in large upfront costs for hardware, networking, and other critical infrastructure, including even physical facilities, thus, reducing the TCO (total cost of ownership).

Another cost benefit with SaaS is that enterprises using the software don't need to have as many technical and support staff compared with on-premises deployment. Consider alone the cost savings that favor SaaS such as no hassles with data backup, not having to install and test upgrades and patches, and, critically important for most enterprises, security and data protection.

In fact, one research firm found that TCO with SaaS could be reduced by over 70 percent as compared with on-premises deployments. Even if this finding of an over 70 percent reduction is off by half, a cut in TCO by 35 percent is significant, particularly in today's environment where IT management are continually asked to do more with less (Datanami, 2024).

Additionally, from the perspective of an enterprise facing peak demand for its software, say, for example, a retailer that needs to process transactions at peak periods such as the holiday shopping season, that SaaS combined with IaaS provides elasticity. In other words, the software capability can quickly scale with increases in demand during peak periods and with growth in subscribers overall.

This elasticity enables scale. It significantly decreases the investment costs for subscribers since there is no need to acquire expensive hardware with the capability of handling future growth demand needs. It also reduces, importantly, transaction costs. When demand peaks happen the software scales immediately.

Another benefit is that the software company doesn't need to pay for all of the cloud infrastructure it needs just for peak period demands, *i.e*. like renting versus owning. By way of example, think about when someone moves and hires a company with large trucks and crews to do the move. Once the move is completed the consumer no longer needs to pay for the moving truck and crew.

The technology benefit of SaaS is that a user at an enterprise, assuming s/he has rights to use the SaaS application, may access the application from a web browser. This includes not just desktop computers, but also mobile devices, *i.e.*, phones and tablets.

In effect, user interfaces (UI) and, more broadly, user experiences (UX) with SaaS facilitates training time of personnel. Almost all of us are comfortable with using SaaS applications like Gmail, Quicken, and apps on our mobile devices. These personal experiences enable most of us to learn and adopt SaaS applications relatively easily and certainly faster than what many people did in the past with most on-premises software sold as a product. From the perspective of an IT manager and C-level personnel, this ease of use and faster learning period often resulting in faster implementations further provides support for going with SaaS applications, even if the available SaaS applications are not as customizable or flexible as on-premises deployed software.

Another critical difference between SaaS as compared to on-premises software is that SaaS leverages a multi-tenant architecture which allows multiple organizations to access the same application or what is called an "instance." In other words, although the software application is the same among all of the subscribing enterprises, enterprise-specific configuration, data and security is isolated between enterprises subscribers (Miranda, 2015). A similar paradigm applies with consumer SaaS applications like Google's Gmail.

The multi-tenant architecture makes development and support of the software by the software company much easier and more efficient as compared with traditional on-premises deployment or ASP (application service provider solutions ([Microsoft, 2024]). This is particularly relevant for enterprises and government customers. Putting aside subscriber training and general on boarding issues, a SaaS solution can get up and running and provide near-immediate returns to enterprise subscribers as compared with on-premise software which has a much longer implementation period.

In our experience the faster positive returns help to create success stores and build credibility among an enterprise's users. Just as someone can quickly setup a Gmail address and most other SaaS software products for individual use as compared with what was done in the past with traditional software loaded on the user's hardware, an enterprise can get up and running relatively quickly with a SaaS application. This enables an overall positive experience that builds momentum and enhances the software company's credibility.

Additionally, SaaS enables much a faster and easier process for rolling out new features and fixing software bugs. In contrast to software running on premises, a SaaS company monitors the real-time use of its software, detects and resolves issues, and make incremental changes that can be easily assimilated by subscribers. In turn, the SaaS becomes more "locked in" with many subscribers. More importantly, by controlling the upgrades SaaS companies can innovate continually, creating a faster and more efficient innovation cycle.

Another benefit, referenced above, provided by SaaS is better security. Although each of us should have security software installed and operational on our computers and other devices, security-related risks are lower with software that runs in the cloud at vendors like AWS, Microsoft Azure, Google Cloud and others as compared with an organization obtaining, installing, and updating security software on its own hardware. (The recent incident with CrowdStrike was internal, *i.e*., a bug in the CrowdStrike software, not from external malware or bad actors.)

The reality is that no software application can be entirely free of security risks, but having a SaaS application is less risky than if the software runs on premises (Kursh and Patel, 2022). It is also more economical for SaaS application providers to utilize security solutions offered by their IaaS provider instead of trying to do it themselves which allows them to concentrate on building and running software applications.

In sum, SaaS came about with the internet and through a series of technology and business innovations (discussed below) has effectively replaced traditional, on-premises software for most users, whether, enterprises, government or individuals. The technology innovations have enabled software companies to provide a superior product to users at a lower cost, with lower risk, better features and better performance.

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Economics and Business Models

Another category of innovations that has powered SaaS to disrupt the software industry relates to economics and business models. We will now discuss SaaS innovations in regards to subscribers and then buyers.

SaaS for Subscribers

Consider first the perspective of enterprises and government agencies – *i.e*., the subscribers. The fact that subscription payments are on a "pay-as-you go" basis versus software sold as a product and deployed on premises where the licensee pays for rights, often without a limitation to length of time of use. Hence, and this is critical from the perspective of reducing the risk of purchase of SaaS software, there is much less risk given the lower initial financial investment, for the subscriber if the software fails.

Similarly, should the subscriber's needs change due to business factors, concerns about the software, macroeconomics or any other reason, the subscriber can simply cancel the relationship. The amount of money invested in the no-longer-needed SaaS software is much less than as compared with traditional deployment because it is much easier to turn it off and end the relationship with the vendor.

The combination of ease of access, lower costs, scalability, and managed infrastructure makes SaaS a more attractive option for businesses to experiment with new software solutions without significant upfront investments or in-house technical expertise. Hence, if a SaaS application doesn't work as expected, an enterprise can cancel its subscription and move in a different direction with another vendor.

On-premises software licensed as a product is different – it requires greater financial, personnel, and investments along with greater risks of failure (Fruhlinger, 2022). In contrast to the economic adage that one should never make a decision on sunk costs, in our experience enterprises and government agencies are hesitant to accept their losses with a failed software (purchased as a product) implementation project. These losses include not just financial losses, but losses in time spent by personnel with the failed implementation; hardware and infrastructure not needed and declining in value due to technology obsolescence factors; reputation downsides, particularly if the software is part of an overall restructuring; and the risks associated with acquiring a different software product.

The total financial, time, and reputation investments made, even including customization work and staff training, is much lower with SaaS as compared to on-premises deployment (Amazon Web Services, 2024). Plus, the faster implementation time creates opportunities for small successes with immediate positive financial returns, a critical factor in ensuring overall acceptance of the software among users at enterprises.

Another economic factor that benefits SaaS for enterprises is how the software acquisition is handled for accounting and tax-reporting purposes. Unlike deployments of software as a product where enterprises usually have to capitalize the investment in software, SaaS subscriptions are an expense that is deducted each tax period. Given that the SaaS

subscription fees are expensed there is not a material "hit" on an enterprise's financials and reporting if the SaaS doesn't work out as intended.

SaaS for Software Companies

SaaS has also enabled innovations for software companies that have also contributed to the disruptions in the software industry. Consider first that a software vendor can quickly build and scale SaaS applications at a much lower cost and at a faster pace compared with the development and scaling of software that is deployed on premises.

More specifically, IaaS provides startups and growing software companies a robust infrastructure to leverage at a much lower cost than what was available in the past. Software companies no longer need to invest as much in hardware, physical facilities, and deep technical teams as in the past. This reduces a major cost for a startup and a growing concern, which, in turn, results in achieving positive cashflows and returns much faster.

The lower investment costs for infrastructure means, in turn, that venture capitalists, angel investors, and other sources of capital don't need to invest as much money and resources to get a good financial return. Additionally, a new SaaS company can quickly take advantage of innovations in the cloud to build better offerings, for example, use of AI resources provided by cloud vendors. These factors are likely one of the critical drivers of the vast number of SaaS companies, particularly those focused on long-tail market opportunities in small-sized vertical market revenue opportunities.

Consider as well that SaaS companies have the benefit of developing software that only needs to work with a web browser. The software is built using modern tools that make software development less complex enabling faster and easier development. Software development and support resources can also be contracted globally so labor costs can be better managed. In sum, an important innovation with SaaS that has enabled disruption of the enterprise software industry is that it reduces the levels of investment and expenses to build and sell.
Additionally, SaaS is also easier to maintain for the software vendor because it has been built on modern technology and there is no need to maintain legacy code and functionality. Updating software to subscribers is simple, cheap, and easy; just change the software that runs in the cloud versus having to update the software at each subscriber's site, which involves a lot of coordination including support services if the update is not done correctly or the customer needs assistance.

In fact, in our experience many enterprise and government licensees chose not to load updates to their on-premises software out of a concern that the update may cause problems and reduce overall functionality. The edict of "if something works, don't fix it" is often applied by with their installed on premises software. But, as noted above, maintenance and update changes with SaaS are handled by the software vendor. This innovation saves time and resources as well as reduces risks compared with on-premises deployment for both subscribers and software companies.

Another innovation of SaaS that benefits software companies is that the sales cycle for selling SaaS to enterprises, while certainly much longer than the sales cycle for consumer SaaS, is generally shorter than with enterprise software sold via licenses and provisioned to be delivered on-premises. Selling a "pilot" commonly known as a POC (proof of concept) is easier and faster than selling a on-premise software solution that requires a prospective enterprise or government to invest substantial resources in hardware, software configuration/customization, training, and time, nearly all of which would have to written off if the software fails to meet expectations.

Think for the moment about the position of a CTO or CIO; s/he would likely suffer a career impact if the software fails after the investment has been made. By contrast, with SaaS, a pilot can be quickly setup, the software evaluated, and issues raised regarding what needs to be done with the software at a very low financial price and minimal risk – the subscription fees for at most a year, but more likely a few months. This reduction in risks translates into faster sales cycles for many SaaS applications which further reduces capital needs for a SaaS company, a further innovation.

Finally, the overall development model for SaaS makes it easy and less expensive to experiment, learn from the experience, and make better software and revisions to the software company's business design as a result. One example would be testing the use of reseller partners and updating the software per what is learnt in the field from reseller partners.

INDUSTRY FINANCIAL METRICS HAVE CHANGED

One of the more interesting innovations related to SaaS disrupting the enterprise software industry is the fact that the metrics used to value SaaS companies as well as to assess a SaaS company as an investment opportunity have changed (Damodaran, 2018). Following GAAP standards and principles software companies selling on-premises licenses to software products have traditionally been assessed and valued on income statement finance metrics like gross margins, net margins, cash flows, and other metrics including the size of their license base, churn (customer loyalty), and value of intellectual property assets.

GAAP standards and principles related to income statement analysis, however, inadequately reflect the earnings potential of growing SaaS companies (Bandulet, 2016). While company management decisions obviously vary by the company, their SaaS subscription base, macro factors, and other variables, in our experience SaaS companies that are rapidly growing often reach a tipping point where the cost of subscriber acquisitions declines and margins, already high, grow. Additionally, management, particularly at publicly-traded SaaS companies may choose to make decisions that further reduce expenses, thus, increasing profitability and shareholder value. For example, SaaS companies will often implement policies that reduce expenses while having relatively minor impacts on churn. This tradeoff decision is reflected in one of the metrics now in use with SaaS companies, the Rule of 40, as we discuss below.

In fact, analysts now consider a range of additional metrics for SaaS companies that complement GAAP standards and principles (Mosaic, 2024). While we could write an entire paper on SaaS metrics, we will discuss only a small set here and emphasize that these metrics and other SaaS metrics should be considered along with GAAP principles when assessing and valuing SaaS companies.

Among the more prominent metrics we have seen the following being used by SaaS companies, investors, and analysts: Rule of 40, noted above, ARR, MRR, CAC, and CLTV.
The Rule of 40 suggests that for a SaaS company to be considered healthy and well-balanced in terms of growth and profitability, the sum of its revenue growth rate and EBITDA margin should be at least 40 percent. A healthy SaaS company should see its EBITDA margin increase once the reach a certain size where revenue growth slows down (Scaleview Partners, 2024).

The metrics ARR and MRR represent the annualized and monthly value of recurring revenue from subscriptions or contracts with customers and excludes one-time fees and non-recurring revenue. These metrics provide insight on the predictability and growth of revenue for a SaaS businesses.

CAC means customer acquisition cost and measures the cost of acquiring a new customer for a company. CAC is important because it helps companies better understand how much it is costing them to acquire a new subscriber.

Finally, the metric CLTV which stands for customer lifetime value which estimates the average gross revenue a customer will generate before they exit. This is calculated based on multiplying the average revenue per customer by the average customer lifespan. A company can better understand how changes in their products and pricing are impacting their overall financial health.

CONCLUSIONS

Our objective in this paper was to discuss how SaaS has benefited from technology and business innovations to disrupt the enterprise software industry. We discussed the software industry and how SaaS companies by leveraging cloud technologies have achieved a dominant position relative to software licensed as a product and deployed on premises. We also covered some of the specific advantages that SaaS provides to users and sellers of SaaS software. Lastly, we provided another example of the downstream impact of SaaS on innovations – metrics used to assess and value SaaS companies that complement GAAP principles.

Looking ahead, we can expect SaaS revenue growth as an industry to continue to grow at a reasonably fast pace due to several factors. Consider, first, since SaaS is now the default method for acquiring access to enterprise software, software vendors that have not transitioned from on premise licensing software as a product will do so to remain relevant in the marketplace. Second, existing SaaS vendors will continue to grow the functionality of their applications

to compete against niche vendors creating more revenue opportunities. Third, AI is a buzz now and is rapidly being introduced into our lives. We expect SaaS vendors to weave AI into their offerings which will result in their revenue increasing faster due to greater functionality and efficiencies generated for enterprise subscribers. Finally, with AI, we expect to see many new SaaS companies entering the marketplace with new applications having unique and powerful functionality in financial services, health care, retail, e-commerce, distribution, education and other sectors.

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Steven R. Kursh, Ph.D., CSDP, CLP is the founder of the Software Analysis Group. Previously he was an Executive Professor at Northeastern University for over twenty years where he developed and taught courses in the D'Amore-McKim School of Business (DMSB) and in the College of Engineering. More recently he held the appointment of an Adjunct Professor in the School of Engineering at Vanderbilt University. He has also developed and taught courses at Harvard University, MIT and the University of Pennsylvania.

Pratik Patel joined Software Analysis Group in 2006 as a Senior Consultant. He received his B.S. in mechanical engineering from Rensselaer Polytechnic Institute, Troy, NY, and his MBA from Northeastern University.