Deloitte.
Insights

Accelerating agility with XaaS

Many companies are using IT as-a-service to steer their way to competitive advantage

Contents

Introduction

XaaS is increasingly about *business agility*

Today's fast-paced, disruption-driven marketplace often drives an increased need for agility.

TO THRIVE, COMPANIES should be able to see around corners, make quick course corrections, and harness technology to reimagine business models and reinvent how to deliver value to customers.

To create competitive advantage, technology companies are often looking beyond traditional infrastructure by migrating up the value chain—from products to platforms, software, and services.[1] At the same time, many of their corporate customers are demanding more control over what they consume and how they pay for it.

Consequently, many technology companies are shifting to a *flexible consumption* or *everything-as-a-service (XaaS)* model for their enterprise IT.[2] With this approach, products and services are paid for based on usage—as opposed to the traditional IT model that involves an up-front purchase or licensing.

IT leaders—both technology companies and their customers—typically cite reduction and avoidance of costs as the key benefits of adopting XaaS. They want to buy only what they use and sidestep IT infrastructure that requires active management. But Deloitte sensed that more strategic factors might also be driving the rapid growth of service-based IT. To learn more about how companies are adopting and gaining value from flexible-consumption/XaaS models, we conducted the Deloitte 2018 Flexible Consumption Models Study, surveying 1,170 IT

and line-of-business professionals from large US companies that consume at least 15 percent of their enterprise IT on an XaaS basis (see sidebar, "Methodology").

What we found was both surprising and encouraging: Rather than simply using flexible consumption models to cut costs and increase workforce efficiency, many organizations are adopting XaaS to *transform digitally and become more agile*. The shift can allow them to innovate faster and offer new products and services of their own.

Our survey results also show that XaaS solutions are delivering competitive advantage by *democratizing innovation*. Simply put, cloud-driven XaaS capabilities can make it cheaper and easier for broad ranges of users to access cutting-edge technologies and services. This is allowing organizations, for example, to accelerate deployments of artificial intelligence (AI)- and Internet of Things (IoT)-based solutions while enabling deep, analytics-driven insights and accelerated software delivery.[3] For an increasing number of applications, companies no longer need to shoulder the risk and cost of buying complex technologies and acquiring scarce expertise. Instead, they can leverage the investments and expertise of the world's biggest technology companies and savviest startups.

Powered by the twin benefits of enhanced business agility and increased operational efficiency, XaaS has already become a prominent model for

acquiring and using enterprise IT. In our survey, 71 percent of companies report that XaaS now makes up more than half of their organization's enterprise IT (with the remainder being traditional, non-service-based IT).[4] And the share of enterprise IT purchased and consumed as a service is rising: Currently, 16 percent of companies surveyed consume over three-quarters of their enterprise IT as a service; in the next one to two years, an additional 8 percent expect their companies to reach that mark.

In the pages that follow, we explore three key insights from our study, along with their implications for enterprises and technology providers.

METHODOLOGY

To obtain a cross-industry view of how organizations are adopting and benefiting from as-a-service enterprise IT, Deloitte conducted the 2018 Flexible Consumption Models Study, surveying 1,170 IT and line-of-business (LoB) professionals from US-based companies in Q3 2018. All respondents were required to be knowledgeable about their company's use of enterprise IT, and to represent organizations that consume 15 percent or more of their enterprise IT as a service.

The respondents represent 12 industries, with 27 percent coming from technology, media, and telecommunications (TMT). Fifty-seven percent are LoB professionals, with the rest IT professionals. Forty percent are C-level executives—including CEOs, presidents, and owners (19 percent), along with CIOs and CTOs (17 percent)—and 60 percent are below C-level. Eighty-five percent are executives, with the remainder working at the practitioner level.

Forty-five percent of the respondents represent companies with 500 to 5,000 employees; 55 percent come from companies with more than 5,000 employees. In terms of annual revenue, 32 percent of the surveyed companies are over $2 billion, 50 percent fall between $500 million to $2 billion, and 18 percent range from $100 million to $500 million.

Insight No. 1

Business agility is rivaling efficiency as the key benefit of XaaS

WHAT KEEPS CXOS up at night? A separate Deloitte study reveals that executives feel increased pressure to move faster due to competitive shifts fueled by technology-driven business models, along with changes in regulations and trade policy, which have suddenly become less predictable.[5] Given that technology is both a cause of this disruption and a remedy for it, the ability to harness advanced technology for business agility can be critical.

XaaS can help companies get nimbler. In fact, our survey indicates that business agility and innovation are well on their way to surpassing operational efficiency as primary drivers of XaaS adoption.

For example, respondents rated "access to newest technology" as their No. 3 XaaS objective (see table 1). With flexible consumption, companies don't have to wait for long procurement and installation cycles to test and make use of the latest technologies. Swifter experimentation and adoption can make it easier to stay on the leading edge of technology advancement. The goal of accelerating innovation—creating new products and services or even new business processes or models—is on par with the desire to reduce costs. In fact, in companies in which more than three-quarters of the enterprise IT is XaaS, and in companies that have been using flexible consumption more than three years, "accel-

TABLE 1

Business agility is beginning to rival operational efficiency as a goal of XaaS

Percentage of respondents rating each goal among their three top XaaS objectives.

Operational efficiency		Business agility	
Flexibility: Rapidly scale IT capacity, operations, costs up/down on demand	43%	Access to newest technology	40%
Increased workforce efficiency	41%	Accelerated innovation	37%
Reduced costs	38%	Faster time-to-market of our products/services	34%
Ease of deployment and use	33%		
Better maintenance and support	29%		

Source: Deloitte 2018 Flexible Consumption Models Study.

erated innovation" has overtaken "reduced costs" as a goal for their XaaS initiatives.

Indeed, adopting XaaS is no longer part of only the IT playbook. Seven in 10 companies report that XaaS is "very important" or "critically important" to their organization's *business success*. Over the next one to two years, respondents expect the number of companies that regard XaaS as "critically important" to grow from 16 percent to 25 percent.

Of course, operational efficiency remains a clear motivation for XaaS adoption. The top overall motivator is flexibility—the ability to quickly scale IT capacity, operations, and associated costs up or down on demand, as needs change. Increased workforce efficiency is a close second objective, and it's easy to understand why: 71 percent of companies report that XaaS allows them to reduce time spent on IT maintenance and upgrades—now squarely on the shoulders of the service provider. An equal number say that XaaS enables them to transition their IT staff to more important tasks. As a result, IT can spend more time helping the business to innovate.

And what of cost reduction, traditionally the leading driver of XaaS adoption? Our survey respondents rank it somewhat down the list, as their No. 4 overall goal for XaaS.

CIOs/CTOs are leading the charge for adopting and using XaaS at their companies (66 percent of respondents rated them as a top-3 XaaS leader), with CEOs/presidents in second place (56 percent). Corporate boards and IT executives below the C-level are jostling for third place (42 percent and 41 percent, respectively).

XaaS is delivering on the promise of both operational efficiency and business agility (see figure 1). That's a good thing: Companies should view operational efficiency and business agility as complementary rather than in opposition; when companies operate more efficiently, they can reallocate labor and investments to more strategic goals that promote increased business agility.

Our survey shows that companies are achieving business agility outcomes at about the same rates as operational efficiency outcomes. The realization of "reduced costs" is lagging somewhat behind other outcomes: 51 percent say they've mostly/fully achieved, versus above 60 percent for other outcomes. (For more on the cost-related challenges that many companies still face with XaaS, see "The cost conundrum" section, below.)

Sixty-one percent of companies report that they're mostly/fully achieving accelerated innovation with XaaS. And that innovation is broad, ranging from new products/services to new business processes to new business models. Three-quarters report that flexible consumption helps them rapidly design, develop, and deploy new products/services; an equal number note that XaaS helps them to reinvent business processes. Seven in 10 report that XaaS has led them to create new business models.

These dramatic impacts have not been lost on large cloud providers such as Amazon, Google, and Microsoft. They're working hard to attract cloud customers by providing digital transformation capabilities that accelerate innovation, rather than focusing just on enabling flexible workloads.

The Broad Institute, which studies the human genome to better understand diseases and discover therapies, illustrates how the use of cloud-based services can accelerate innovation. The institute had long relied upon on-premise resources to sequence genomic data. When its ever-increasing data storage and processing needs expanded beyond what its systems could handle, the institute turned to Google Cloud Platform for its analytics infrastructure. Now, it is able to scale capacity on demand to match changing needs, and analysts can process and interpret data four times faster than they could with on-site resources. The result: accelerated research.[6]

With the benefits it confers, XaaS no longer appears to be optional—companies that don't incorporate it may risk falling far behind the competition. Thirty-nine percent of companies report that XaaS adoption helps them catch up to or keep pace with their competitors, and another 32 percent believe it helps them edge slightly ahead. Twenty-eight percent believe their use of flexible consumption is giving them a sizable lead.

FIGURE 1

XaaS now delivers improved outcomes on two different fronts

■ Not at all/minimally achieved   ■ Somewhat achieved   ■ Mostly/fully achieved

Operational efficiency outcomes

Flexibility: Rapidly scale IT capacity, operations, costs up/down on-demand

| 9% | 24% | 62% |

Increased workforce efficiency

| 9% | 25% | 62% |

Reduced costs

| 13% | 31% | 51% |

Ease of deployment and use

| 10% | 24% | 63% |

Better maintenance and support

| 8% | 21% | 66% |

Business agility outcomes

Access to newest technology

| 7% | 23% | 65% |

Accelerated innovation

| 12% | 23% | 61% |

Faster time-to-market of our products/services

| 10% | 24% | 61% |

Note: Percentages do not total 100% because a small percentage of respondents reported they are unsure or not pursuing particular outcomes.
Source: Deloitte 2018 Flexible Consumption Models Study.

It's unsurprising, therefore, that the kinds of XaaS expected to be most critical to organizations in the next one to two years are led by higher-value, innovation-centric solutions—including data and analytical services, innovation capabilities (such as AI-as-a-service and IoT-as-a-service), as well as other software-as-a-service offerings (see table 2). Remarkably, innovation capabilities provided as a service are poised to surpass infrastructure-as-a-service, platform-as-a-service, and hardware in importance.

One example of a company using XaaS to accelerate innovation is the Formula One Group, which stages the popular Formula 1 series of auto races. The company is shifting its on-premise data centers to Amazon Web Services (AWS) to tap new capabilities such as machine learning and analytics. Those technologies can allow the company to stream real-time F1 race data to AWS, capture and process key performance metrics for each car, and then broadcast insights to viewers via television and digital

TABLE 2

Innovation-centric capabilities will soon be top of mind

Percentage of respondents rating each type of XaaS among the top two "most critical" to their company in 1-2 years	
Software-as-a-service (other than data/analytics)	35%
Data- and analytics-related services	30%
Professional and IT services (e.g., business process outsourcing, managed services)	29%
Innovation capabilities (e.g., AI-as-a-service, IoT-as-a-service)	27%
Infrastructure-as-a-service	26%
Platform-as-a-service	21%
Hardware paid according to consumption (e.g., pay per use)	16%

Source: Deloitte 2018 Flexible Consumption Models Study.

Nearly half of survey respondents say that a vendor's ability to provide easy-to-access innovation services is a must-have.

platforms. The result is an enhanced viewing experience for F1's 500 million-plus fans worldwide.[7]

As companies acquire various types of new enterprise IT, they may prefer to obtain them as a service and/or as traditional IT, or to build rather than buy (see figure 2). For each kind of enterprise IT, about three in 10 companies note that the situation dictates whether they prefer to use traditional IT or XaaS. Notably, companies outright prefer flexible consumption to traditional IT for all types of enterprise IT except for hardware. This predilection for XaaS is especially pronounced for advanced innovation capabilities, such as AI and advanced analytics: Companies are 2.6 times more likely to prefer obtaining these capabilities as a service.

When companies choose specific XaaS solutions, which factors are most important, beyond features and functionality? Training and continuous improvements top the wish list, with more than half of survey respondents calling these must-haves (see figure 3). The ability to provide continuous updates/improvements is a key element of the XaaS digital-agility story: Companies can now rely on cloud providers to keep their infrastructure and applications on the cutting edge.

Ranking close behind are self-service capabilities and the ability to integrate with other solutions—not too surprising, given the importance and challenges of integration. The fifth-most-desired factor brings us back to innovation: 45 percent say that a vendor's ability to provide easy-to-access innovation services is a must-have.
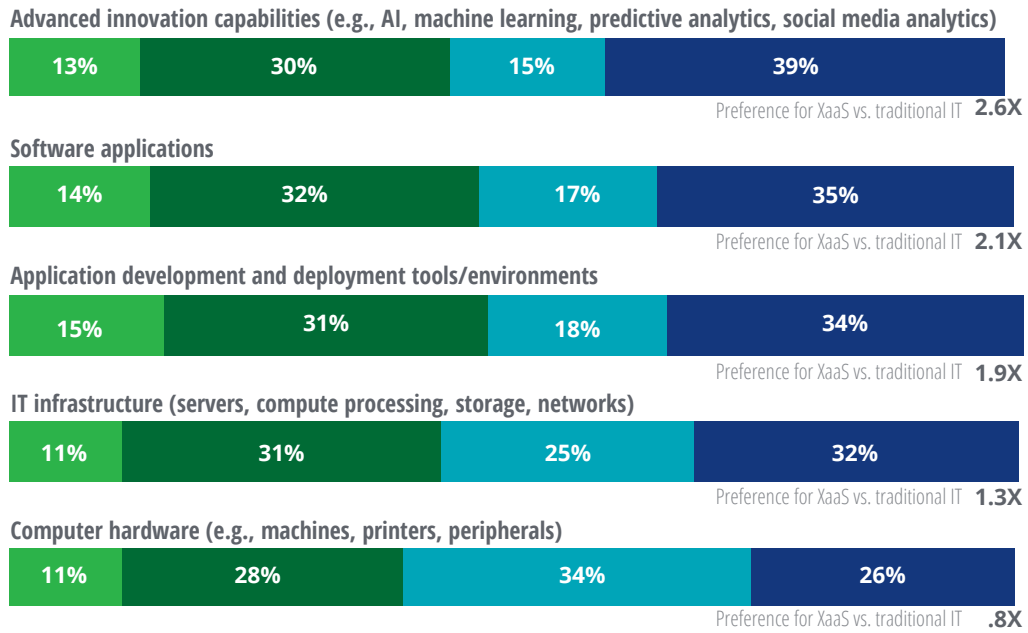
FIGURE 2

Respondents now prefer to acquire all enterprise IT—except for computer hardware—as a service

Percentages indicate respondents' preferences for acquiring different types of new enterprise IT products/solutions.

■ Prefer to build, not buy ■ Either traditional or as-a-service, depending on situation

■ Prefer traditional IT ■ Prefer as-a-service

Advanced innovation capabilities (e.g., AI, machine learning, predictive analytics, social media analytics)

| 13% | 30% | 15% | 39% |

Preference for XaaS vs. traditional IT **2.6X**

Software applications

| 14% | 32% | 17% | 35% |

Preference for XaaS vs. traditional IT **2.1X**

Application development and deployment tools/environments

| 15% | 31% | 18% | 34% |

Preference for XaaS vs. traditional IT **1.9X**

IT infrastructure (servers, compute processing, storage, networks)

| 11% | 31% | 25% | 32% |

Preference for XaaS vs. traditional IT **1.3X**

Computer hardware (e.g., machines, printers, peripherals)

| 11% | 28% | 34% | 26% |

Preference for XaaS vs. traditional IT **.8X**

Note: Percentages do not total 100% because a small percentage of respondents reported they are unsure.
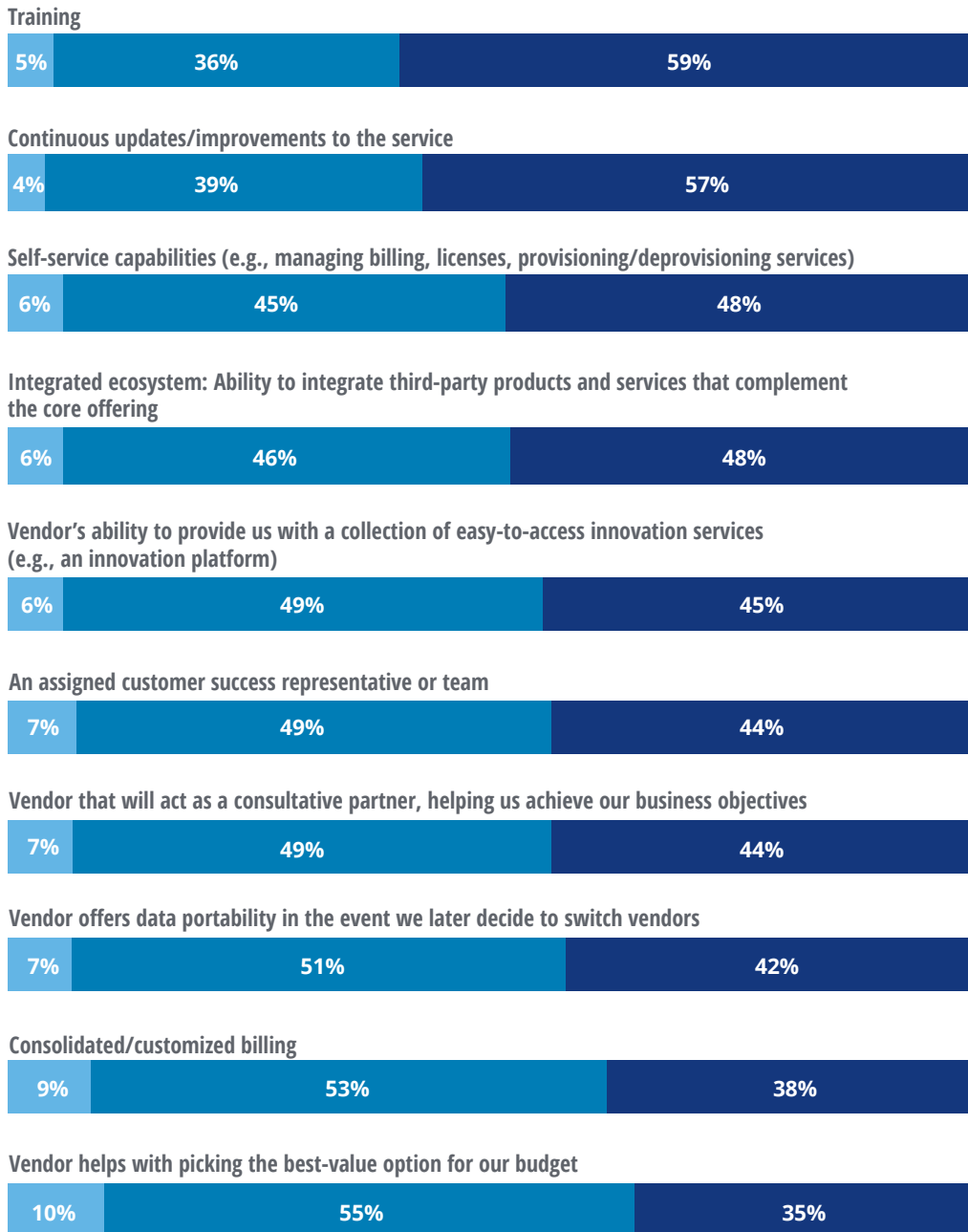Source: Deloitte 2018 Flexible Consumption Models Study.

FIGURE 3

Training and continuous updates/improvements are key factors in XaaS adoption

Percentages indicate responses regarding importance of factors in adopting XaaS solutions (beyond features/functionality).

■ Not important   ■ Nice-to-have   ■ Must have

Training
| 5% | 36% | 59% |

Continuous updates/improvements to the service
| 4% | 39% | 57% |

Self-service capabilities (e.g., managing billing, licenses, provisioning/deprovisioning services)
| 6% | 45% | 48% |

Integrated ecosystem: Ability to integrate third-party products and services that complement the core offering
| 6% | 46% | 48% |

Vendor's ability to provide us with a collection of easy-to-access innovation services (e.g., an innovation platform)
| 6% | 49% | 45% |

An assigned customer success representative or team
| 7% | 49% | 44% |

Vendor that will act as a consultative partner, helping us achieve our business objectives
| 7% | 49% | 44% |

Vendor offers data portability in the event we later decide to switch vendors
| 7% | 51% | 42% |

Consolidated/customized billing
| 9% | 53% | 38% |

Vendor helps with picking the best-value option for our budget
| 10% | 55% | 35% |

Note: Percentages may not total 100% due to rounding.
Source: Deloitte 2018 Flexible Consumption Models Study.

Insight No. 2
XaaS is democratizing innovation

NNOVATION ACCELERATION WITH XaaS is emerging as an essential part of many companies' strategic playbooks, particularly for the C-suite. A key factor contributing to that acceleration is *democratization of innovation*—making new technologies and tools more broadly and easily accessible, getting them into the hands of more diverse users across organizations, and fostering experimentation.

For example, middle-market companies can now access tools built by Google or Amazon to run their own businesses—and do so at an affordable price point that requires a minimum of internal talent to deploy. That is the essence of democratization, and it can lead to wider, more rapid deployment and adoption, thus accelerating the maturity of the technologies themselves.

In our survey, seven in 10 companies report that XaaS reduces their cost of entry for adopting products/services; an equal number say that flexible consumption allows them to access a product or solution that otherwise would be too expensive. XaaS also enables companies to deploy new technologies without hiring specialized internal IT talent. Indeed, eight in 10 companies report that XaaS gives them quicker access to the latest technologies and innovative capabilities.

XaaS is also helping a broader set of users within organizations to take advantage of these new capabilities. The IT department has traditionally acted as a technology gatekeeper, evaluating and recommending technologies, and then implementing and managing solutions.[8] With the emergence of XaaS, the relationship between IT and the rest of the business is evolving. The IT department often no longer has a monopoly on providing technology to the organization: 71 percent of surveyed companies report that their IT department now provides a framework and guidelines that allow business users to buy and use XaaS on their own, if they are compliant. Seventy-four percent agree that the IT department functions as an "IT orchestrator" by evaluating, procuring, and managing new XaaS options for the organization.

These findings suggest that democratization also fuels business agility. Business leaders can gain the cloud services they need within a framework set by IT, which is a partner in driving business outcomes. According to Deloitte's 2018 global CIO survey, companies are increasingly calling upon CIOs to co-create business strategy and outcomes with business leaders, and even to instigate organization-wide change.[9]

Despite IT departments' efforts to meet business leaders' evolving needs, our study indicates that collaboration between IT and the business involves more friction than is ideal. The high note: Eight in 10 companies say the IT department and business units collaborate to find, choose, and provide the best IT for their organization's needs. At the same time, 55 percent report that the IT department responds too slowly to business needs, forcing business users to select XaaS alternatives. Perhaps most interesting is that both IT and business respondents report this issue at the same levels—suggesting that there's more work to be done to create a well-oiled collaboration that gets technology into the hands of those who need it, when they need it, while still adhering to company guidelines.

Flexible consumption often fosters greater experimentation in organizations, by a broader set of

users than ever before. Our survey indicates that staffers in IT, lines of business, and engineering are using XaaS to find better tools to innovate and do their jobs more efficiently.

Seventy-five percent of respondents say XaaS makes it easier and faster for them to prototype and experiment with novel solutions, and quickly evaluate outcomes. In fact, the top impetus for organizations to adopt XaaS solutions is grassroots experimentation—and not just by the IT department. Experimentation by IT staff, business users, and product development/engineering are the primary means by which new XaaS products and solutions enter the organization (see table 3).

TABLE 3

Grassroots experimentation is the primary catalyst for XaaS adoption

Percentage of respondents rating each catalyst among the top three for adopting XaaS solutions	
IT staff experiment and introduce new products/solutions	47%
Business functions/users experiment and introduce new products/solutions	45%
Product development/engineering staff experiment and introduce new products/solutions	43%
Customer demand	37%
Mandates from senior executives or the Board	30%
Vendors introduce us to new products/solutions	30%
Regulatory pressures (e.g., the EU's GDPR regulation)	30%
Pressure from competitors	28%

Source: Deloitte 2018 Flexible Consumption Models Study.

Flexible consumption often fosters greater experimentation in organizations, by a broader set of users than ever before.

Beyond experimentation, the next catalyst for adoption is customer demand. Mandates from executive leadership, pressure from competitors, regulatory demands, and even vendors introducing new solutions appear to be less effective motivators for adopting XaaS solutions.

UK-based Redwood Bank provides an example of how democratization can drive agility and operational efficiency. Redwood faced the challenge of building and launching a new business bank in a highly regulated environment, with a relatively small team and challenging deadlines. To accomplish its goal, Redwood focused on minimizing its on-premise IT infrastructure. Utilizing Microsoft Azure to host its core banking system, Redwood achieved one of the fastest implementations in UK banking history. The cloud-based outsourcing strategy helped Redwood use sophisticated digital tools without building a big, in-house IT team.[10]

Armed with an innovative idea, a startup can use XaaS services to move quickly from proof of concept to fully scaled offering—without the capital investment that it likely can ill afford at an early stage. Gamefly saw an opportunity to offer high-end gaming as a streaming service. Many current games demand powerful PCs and gaming consoles, even when they are downloaded. Gamefly's technology can enable consumers to play high-end games on any internet-connected device—and the company used IBM Cloud to scale it and deliver the low-latency performance games require.[11] Electronic Arts acquired Gamefly and is launching its own streaming service based on the startup's offering.[12]

Insight No. 3

Data security, integration, and cost issues can hinder XaaS efforts

WHILE XAAS IS extremely popular and can deliver benefits in spades to organizations, challenges remain. Topping the list are data security and privacy concerns, integration/interoperability/IT management challenges, and cost issues; these outweigh challenges relating to regulatory compliance, skills, product features, customizability, and vendor-related problems.

One worrisome finding from our study: Only 24 percent of respondents say their organization has a comprehensive, enterprisewide strategy for adopting XaaS. Without a sound strategy, complexities can be magnified, increasing the likelihood that companies will encounter issues related to cost overruns, poor interoperability, and security breaches.

In this environment, partnerships can become critical. Increasingly, companies may need to place greater trust in vendors to provide capabilities—including security—that they're not equipped to handle themselves. In addition, it's of paramount importance that businesses build relationships with their own IT departments. Too often, disconnects between the business and IT breed "shadow IT" challenges that short-circuit XaaS initiatives.

Too often, disconnects between the business and IT breed "shadow IT" challenges that short-circuit XaaS initiatives.

The cost conundrum

XaaS cost concerns present a conundrum. Organizations express high satisfaction levels with their return on investment (ROI) from flexible consumption, and with the total cost of ownership: Seven in 10 say their organization's XaaS adoption results in a better ROI than traditional IT, and the same number report that their company's XaaS adoption generally results in a lower total cost of ownership than traditional IT.

Why, then, do XaaS cost concerns persist, with more than one-third of companies rating it a top-three challenge? The answer likely lies in cost unpredictability and duplicative costs, which can present issues for some companies as they adopt flexible consumption. Our study asked those respondents who cited cost as a top-three challenge to note the contributing factors: 45 percent reported that their XaaS costs are difficult to predict and budget for, 42 percent reported XaaS costs are greater than anticipated, and 34 percent indicated their renewal prices increased unexpectedly. Forty-four percent said that duplicative costs are an issue—in other words, they're continuing to pay for traditional IT (such as existing infrastructure) while also paying for XaaS.

While it's generally a good thing that XaaS costs align better with actual IT use, the fluctuations and inability to predict costs are creating anxiety for some companies. The duplicative-costs issue indicates that some are remaining too long in an unpleasant middle ground where they haven't fully completed their planned transitions to flexible

consumption, much like someone who is paying off two mortgages simultaneously—one for the house she's trying to sell, and another for the one she just bought. XaaS providers should take note: Those that can assist their customers in better understanding their XaaS usage patterns and predicting costs will likely deliver a much-needed value-add. In addition, those that can help ease transitions to XaaS (for example, by making their solutions easier to integrate with traditional IT or other XaaS products) may gain a competitive edge.

Cost issues are likely to diminish as companies become more mature XaaS users, and as they rev up the XaaS portion of their enterprise IT. As companies use XaaS for a longer time, they're more likely to report mostly/fully achieving reduced costs through use of flexible consumption: Fifty-five percent of companies using XaaS for three or more years say they've mostly/fully achieved cost reduction, versus 44 percent of companies using it for less than three years. Moreover, as companies increase the XaaS share of their enterprise IT, they're more likely to report mostly/fully achieving reduced costs through its use (see figure 4).

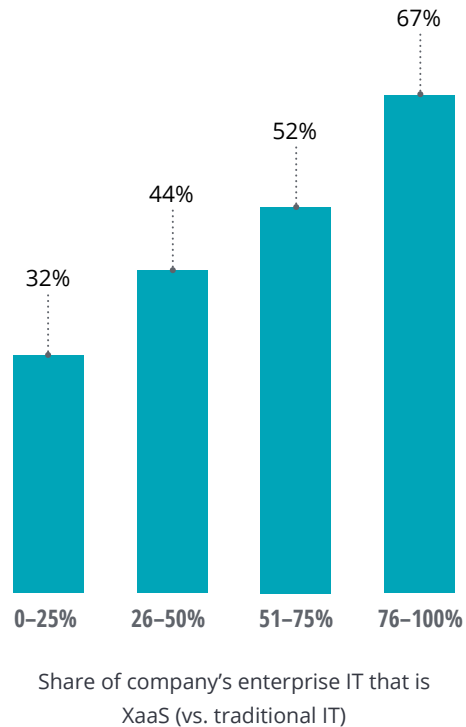## Integration: Getting caught in the middle

We've already noted that some organizations linger in a middle ground where they haven't fully completed their planned transitions to XaaS, and may incur duplicative costs.

We asked those respondents who cited "integration, interoperability, or IT management challenges" as a top-three issue to note the factors in play: 43 percent report they have difficulty transitioning away from highly integrated traditional IT solutions, and 39 percent cite difficulty integrating XaaS solutions with their traditional IT. Knitting together and managing various XaaS solutions also represents an obstacle: 40 percent say they're having integration

FIGURE 4

Companies with a greater proportion of XaaS are more likely to achieve cost reductions

Mostly/fully achieving cost reduction through XaaS

Share of company's enterprise IT that is XaaS (vs. traditional IT)

Source: Deloitte 2018 Flexible Consumption Models Study.

or interoperability problems among their various XaaS solutions; about the same number specifically point to data-sharing difficulties. Thirty-eight percent of those noting integration concerns say that the lack of a cohesive, comprehensive view and management of all their XaaS solutions presents a challenge.

The reality is that cost and integration complexity tend to be closely related: In many cases, companies' IT teams should devote additional time and effort to deal with the tangle of cloud and on-premise data, systems, and more.

XaaS providers may gain a competitive edge if they're able to help guide customers quickly and easily through the dreaded middle ground. Providers could do well to demonstrate that their flexible consumption solutions can be easily integrated with traditional IT and other XaaS products, as well as show how data can be shared between their solution and others. Savvy XaaS providers may even consider directly assisting their customers with integration challenges—perhaps even helping craft and execute integration plans.

Top of mind: Data security and privacy

Data is the lifeblood of most software applications, and service-based software is no exception. Smart companies can apply advanced analytics and AI to the volumes of data, creating better insights and products in the process. These days, companies should be mindful that directives such as the European Union's General Data Protection Regulation (GDPR) are imposing new rules on how the data of EU citizens can be collected, stored, and utilized—and that those directives' implications extend far beyond the European Union.[13] Indeed, the changing regulatory environment is the top issue that CXOs expect to impact organizations worldwide over the next five years.[14]

Why? The GDPR makes companies accountable for how they process and handle personal data, no matter where it's held, and that includes cloud providers. Losing track of how many cloud services a company is using, and which data is where, can cause serious headaches and compliance issues, especially since CIOs are finding that they have data residing with more cloud providers than they thought. That said, companies can—and, in many cases, should—still use cloud providers for their data. They just need to manage their data actively.[15]

It's hardly surprising, then, that 71 percent of our survey respondents agree that new privacy regulations are causing them to re-examine the data handling associated with their XaaS solutions (one-quarter strongly agree). They generally feel they have the situation under control: 69 percent believe they have adequate processes and policies in place to deal with data security for XaaS.

Data security and privacy concerns are reflected in where companies choose to keep their data when using XaaS, whether all or mostly on-premise, all or mostly in the cloud, or as an even blend of on-premise and cloud (see figure 5). About four in 10 say they keep less-sensitive data (XaaS usage data and nonpersonal organizational data) mostly or fully in the cloud. The willingness to use the cloud diminishes when it comes to data that's more sensitive: For customers' proprietary data, the company's own intellectual property or financial data, and personal information relating to employees or customers, only one-third keep it mostly or fully in the cloud.

Longer-term use of flexible consumption increases the comfort level with keeping more sensitive data in the cloud. Compared with those who have used XaaS for less time, companies with three or more years of XaaS experience are 24 percent more likely to keep employee or customer personal data mostly/fully in the cloud, 30 percent more likely to keep their company's intellectual property mostly/fully in the cloud, and 37 percent more likely to keep their company's financial data mostly/fully in the cloud. Most notably, they're 60 percent more likely to keep their customers' proprietary data mostly/fully in the cloud.
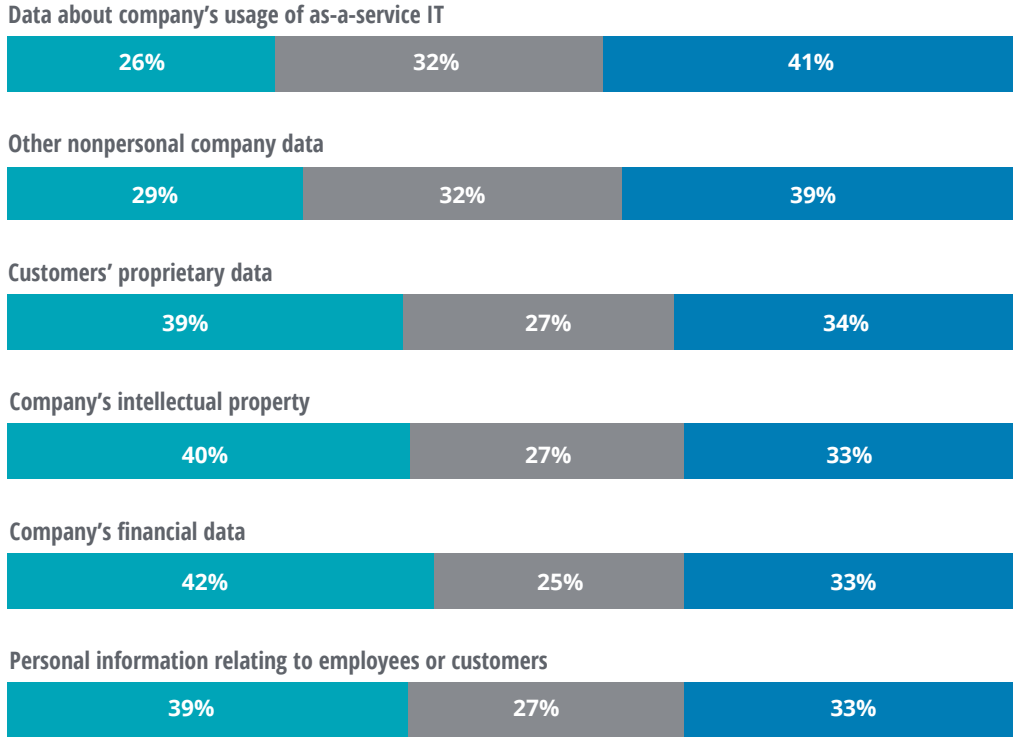
Most companies are taking a buck-stops-here approach to data security, with 55 percent saying it's entirely or somewhat more the responsibility of their own organization to ensure data security in XaaS initiatives (see figure 6). This shouldn't necessarily be surprising, since regulations generally hold companies responsible for any data breaches (GDPR states this explicitly).

However, 35 percent of respondents regard data security as a *joint responsibility* of their organiza-

XaaS companies are more likely to keep less-sensitive data mostly or fully in the cloud

■ Mostly/fully keep on premise   ■ Even blend of on-premise and cloud   ■ Mostly/fully keep in the cloud

Data about company's usage of as-a-service IT

| 26% | 32% | 41% |

Other nonpersonal company data

| 29% | 32% | 39% |

Customers' proprietary data

| 39% | 27% | 34% |

Company's intellectual property

| 40% | 27% | 33% |

Company's financial data

| 42% | 25% | 33% |

Personal information relating to employees or customers

| 39% | 27% | 33% |

Note: Percentages may not total 100% due to rounding.
Source: Deloitte 2018 Flexible Consumption Models Study.

tion and the service provider. Remarkably, only 10 percent believe that the XaaS provider bears more responsibility. This reluctance to rely on service providers more fully for ensuring data security may present a golden opportunity for providers: If an XaaS provider can establish itself as a trusted partner for ensuring data security in these efforts, it may stand to gain a competitive advantage.

Netflix, the world's leading streaming entertainment service, is one company that relies heavily on its cloud service provider, Amazon Web Services, to bolster its overall security. In addition to providing the infrastructure and computing resources that Netflix uses to operate, AWS helps its client spot potential anomalous behavior and misuse of login credentials.[16]
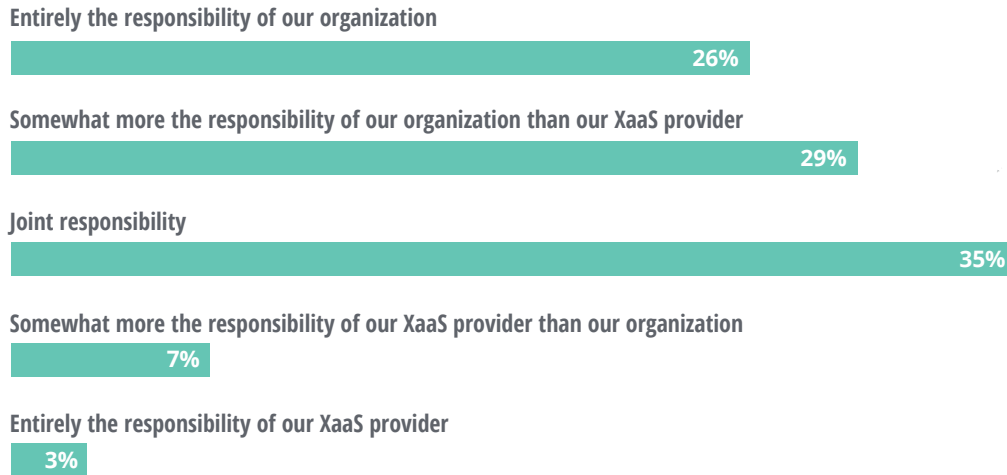
In closing, one important security-related question: Does having sensitive data in the cloud make it more vulnerable to hacks? While customer anxiety is understandable when so many headlines cite hacking, the two biggest sources of cybersecurity breaches are actually careless employees and poor corporate password policies.[17] The bottom line is that both cloud providers and customers should be mindful of their obligations and roles in ensuring data security. Indeed, many of the large cloud providers have explicitly outlined "shared responsibility" models for various XaaS models.[18]
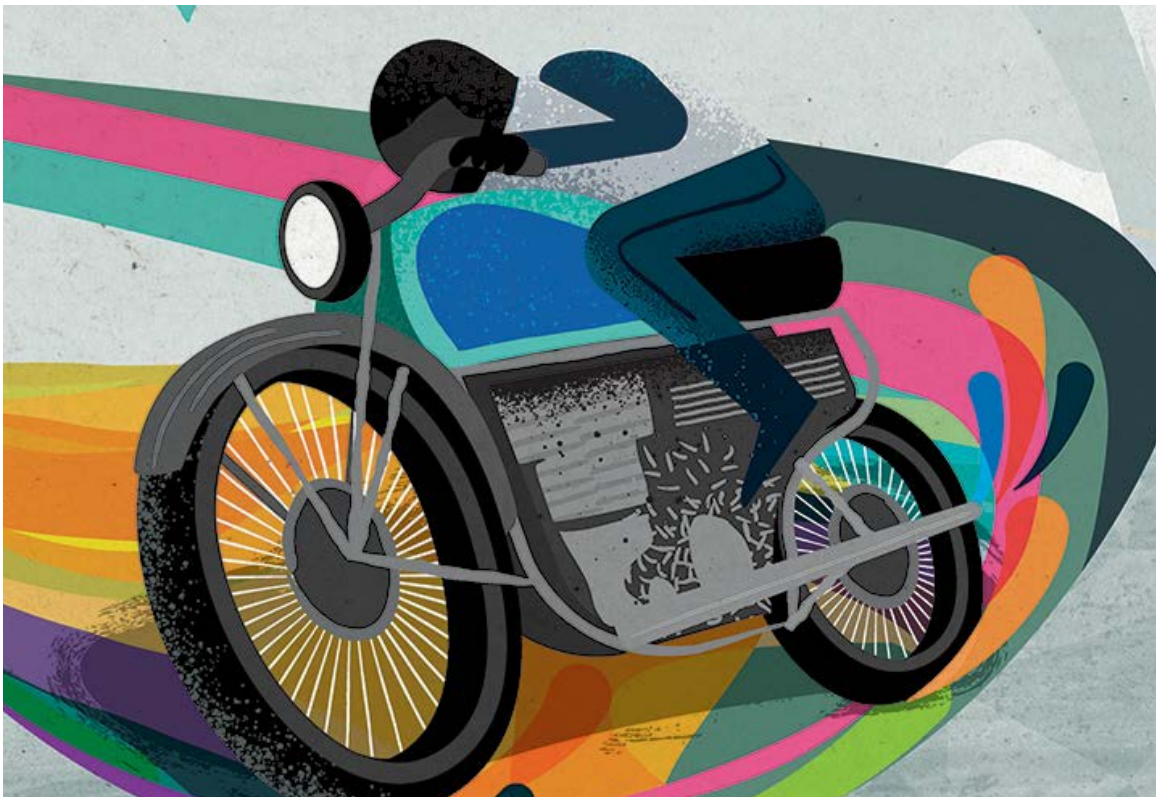
FIGURE 6

More than half of respondents view security primarily as a company (vs. provider) responsibility

Responsibility for managing and ensuring data security in XaaS initiatives

Entirely the responsibility of our organization

26%

Somewhat more the responsibility of our organization than our XaaS provider

29%

Joint responsibility

35%

Somewhat more the responsibility of our XaaS provider than our organization

7%

Entirely the responsibility of our XaaS provider

3%

Source: Deloitte 2018 Flexible Consumption Models Study.

Next steps

Harnessing XaaS to turn threat into opportunity

OUR SURVEY RESULTS make one thing clear: When it comes to accessing new technological capabilities as part of their digital transformation, many companies want them to be based on flexible consumption. Many recognize that XaaS-driven models are a key to boosting business agility, innovation, and operational efficiency. If you're a technology company and still trying to sell under old business models, you'll likely need to make changes to remain competitive.

The three critical insights our survey reveals can have significant implications for both consumers of XaaS technologies and XaaS providers. Here are some key takeaways that can help enterprises and providers harness flexible consumption to gain a competitive advantage.

For XaaS consumers

Business agility is beginning to eclipse operational efficiency as a prime motivator for XaaS—and as an outcome. Companies should consider adapting their XaaS strategies to include using advanced technologies. The ability to gain access to capabilities such as AI, big data analytics, and IoT applications can help companies to experiment early, understand how such capabilities can be used for competitive advantage, and accelerate their deployment—while limiting the investment in time and resources required to build them in-house.

However, less than a quarter of the companies we surveyed currently have a comprehensive XaaS strategy. As we have seen, one of the biggest benefits of flexible consumption can be the democratization of access to cutting-edge capabilities, which is driven by experimentation by IT, business, and engineering professionals. But without a strategy for how XaaS services are used for innovation—and approved and managed by IT—the result can fall short of expectations. It can create cost, interoperability, and security issues.

Enterprises should also consider making partnerships with XaaS providers part of their innovation strategies to accelerate the development of new offerings and business models. XaaS providers can give companies of all sizes access to new technologies, platform-as-a-service tools to develop proofs of concept, analytics that can crunch huge datasets, and IT infrastructure to scale offerings quickly. By including flexible consumption in their innovation strategies, companies can decide which parts of their innovation portfolios they want to build and manage themselves, and where it makes sense to leverage providers' investments and expertise.

Of course, to make the best use of advanced technologies—especially AI and analytics—companies will likely have to trust providers with sensitive information—customer data, even financials. We've seen that the more they use XaaS services, the more comfortable companies generally are in storing data with XaaS providers. The success that high-profile companies such as Netflix have had with their "all-in" cloud strategies could convince others to move in the same direction.

For tech companies

Flexible consumption models can present XaaS providers with substantial potential benefits. These range from predictable, recurring revenue streams and improved margins to higher customer retention driven by stickier, long-term relationships with those customers. Yet perhaps the biggest reason for some companies to consider transitioning to an XaaS model is that they can't afford not to. Providers should consider the following findings and suggested actions from our survey:

- Grassroots experimentation and democratization of technology access suggest that providers should design and deploy their products/services to allow for easy experimentation.
- Providers should broaden their discussions beyond IT executive leadership and bring business users and product development/engineering into the mix.
- The changing XaaS demand landscape presents opportunities for providers, especially for AI, analytics, and other advanced technologies.
- Providers that help their customers better understand and predict their XaaS usage patterns and costs can deliver a tangible value-add.
- XaaS providers may be able to gain a competitive edge if they're able to:
  - Demonstrate that their XaaS solutions can be easily integrated with traditional IT and other XaaS products;
  - Show how data can be shared between their solution and others;
  - Assist their customers with integration challenges, and even help craft an integration

plan; vendors that help with the migration to XaaS may ward off the duplicative-costs issue that bothers some consumers; and
  - Establish themselves as trusted partners by helping ensure data security for their customers.

Finally, tech companies that have not yet embraced flexible consumption models should consider adapting at least some of their offerings to XaaS. Nearly 40 percent of companies prefer to buy advanced capabilities—where a significant percentage of revenue and margin growth can come from—as a service. Tech companies that can offer these capabilities only as "traditional IT" are likely increasingly at a disadvantage.

The move to flexible consumption models can be challenging, especially for tech companies that get the lion's share of their revenue from hardware. But as a recent Deloitte study has shown, they can manage the shift by redesigning their legacy operating models as services operating models.[19]

Some companies are experiencing success adapting to XaaS models. Through a combination of acquisitions and adapting some of its networking products to as-a-service, Cisco is increasing the percentage of its revenue that is subscription-based,[20] which is helping to boost its stock price.[21] Software companies can face daunting challenges as they shift to flexible consumption models, too. Autodesk is in the midst of this transition, and has seen strong growth in its SaaS offerings.[22] Customers' growing demand for XaaS should encourage tech companies to determine which products they can offer through flexible consumption models, and to adapt their operating models accordingly.

These insights represent just a portion of the data included in the complete Flexible Consumption Models 2018 survey. If you are interested in additional insights, please contact the authors.

Endnotes

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2. For purposes of this paper, XaaS refers to all kinds of enterprise IT consumed as-a-service, such as infrastructure-as-a-service, platform-as-a-service, software-as-a-service, and advanced innovation capabilities provided as-a-service.

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