Research Insights Paper

The Cloud Complexity Imperative

Why Organizations Must Unify and Simplify the Management of Their Sprawling Multicloud Environments

A Benchmark Study Assessing What Organizations Stand to Gain by Streamlining Their Cloud Management Experience

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Executive Summary

One of the biggest transformations in IT service delivery over the past decade has been the emergence of public cloud infrastructure consumption. ESG has been tracking organizational adoption of cloud infrastructure over this period of time in its annual IT spending intentions survey, observing that the number of organizations leveraging public cloud infrastructure services like AWS or Microsoft Azure has more than tripled (17% versus 58%) since 2011 (see Figure 1).[1]

Figure 1. Percentage of Organizations Currently Using Infrastructure-as-a-Service (IaaS), 2011-2019

Please indicate your organization's usage of or plans for Infrastructure-as-a-Service (IaaS). (Percent of respondents)
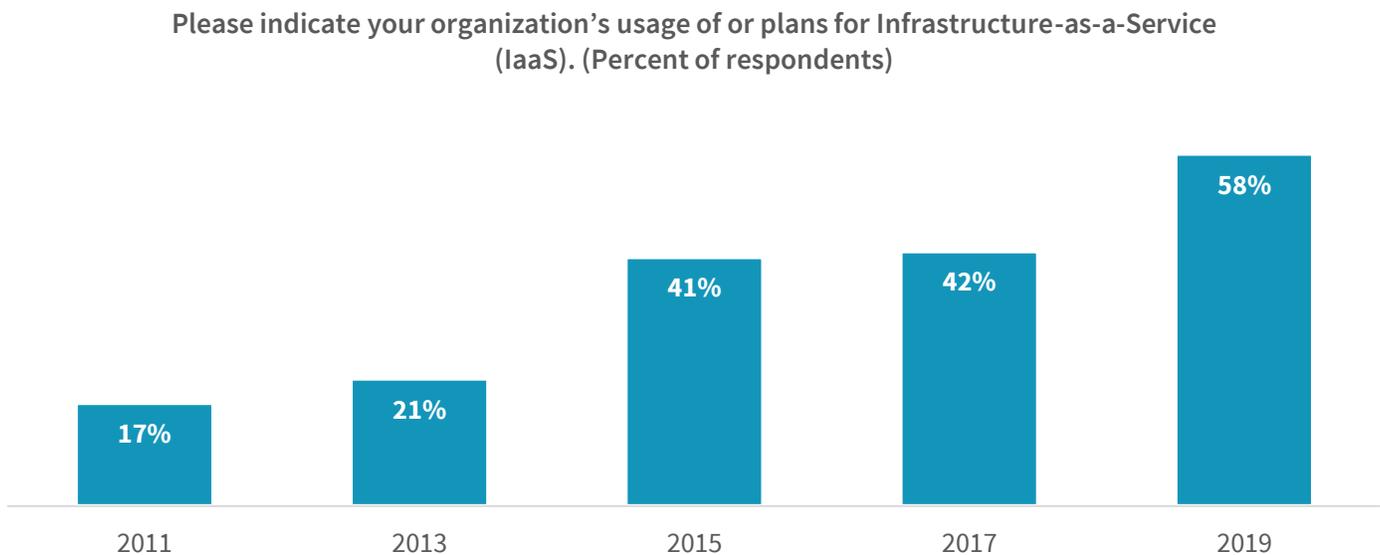
Source: Enterprise Strategy Group

Additional data shows that this trend is not losing steam. ESG asked IT decision makers to share their 2019 spending plans for a number of specific technology segments. Public cloud was forecasted to continue to draw bigger allocations of IT budgets as organizations provision new cloud services and expand the scope of existing deployments. Nearly two-thirds (64%) of organizations expected to increase spending on cloud compared with the prior year, and cloud was the most likely technology area to receive a spending increase versus other categories.[2] The agility and flexibility of public cloud services clearly drives value for organizations, and value drives utilization.

At the same time, organizations are rapidly evolving their on-premises IT environments to keep pace, investing in solutions which can enable a public cloud-like operating model, in terms of both agility and economics, on-premises. The majority (55%) of organizations forecasted that their IT organization would increase spending in 2019 for both virtualization/private cloud initiatives and cloud-optimized converged and hyperconverged infrastructure platforms.[3] Why? According to the survey conducted for the purposes of this paper, on average, users of HCI report these technologies free up staff from infrastructure management tasks. On average, users of HCI reported a 40% time savings on system management tasks compared with before HCI was in use.

These time savings can be reinvested toward architecting and orchestrating a more effective hybrid cloud environment. This relationship is borne out by the data: Users of HCI were 6.7x more likely than non-users to have hybrid cloud initiatives

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[1] Source: ESG Master Survey Results, *2019 Technology Spending Intentions Survey*, March 2019.
[2] ibid.
[3] ibid.

underway that were "highly effective" at driving value for the organization (67% versus just 10%). Ultimately, an effective hybrid cloud environment means infrastructure parity across public and private environments, allowing organizations to choose a location for a workload, on-premises or off-premises, based on requirements and business needs, not arbitrary outside factors. Once again, this correlation is bolstered by the survey data: 83% of organizations extensively using HCI have repatriated one or more mission-critical workloads, migrating them from public cloud infrastructure back on-premises—a figure 20% higher than among organizations not using HCI (69%).

Organizations are investing in solutions that allow them to modernize their on-premises service delivery so that it can match the scalability, elasticity, and self-service nature (via employee-accessible service catalogues) of public cloud environments for the many workloads organizations operate that may not be well-suited for public cloud environments.

IT leaders have many options when deciding where to run IT infrastructure to support their evolving business needs. There are multiple, viable public cloud infrastructure providers to choose from and many organizations are also considering modern, on-premises options. However, the unintended consequence of leveraging the many options is complexity. Despite the increasing propensity of organizations to offload their infrastructure to public cloud service providers and their continued progress optimizing their on-premises environments, 73% of respondents agree that using infrastructure in the public cloud (or multiple public clouds) in addition to on-premises infrastructure has added complexity to IT operations.

One way for organizations to blunt the impact of multicloud complexity is the use of improved systems management solutions like those available in modern server solutions. ESG asked respondents how "cloud competitive" their server infrastructure is with public cloud alternatives across features like time to deploy, simple management, and automation. Those with modern servers, cloud competitive across all or almost all features, enjoy a 41% increase in their propensity to complete cloud projects under budget and a 60% increase in the number of cloud projects completed ahead of schedule.

That said, organizations need a better way to holistically and efficiently manage all of their infrastructure regardless of running workloads in the public cloud, in a private cloud, at the edge, or on-premises. To validate this belief, and in partnership with Dell Technologies, VMware, and Intel, ESG conducted a global survey of 1,257 IT decision makers at enterprises (those with 1,000+ employees, 72% of the respondent base) and midmarket organizations (those with 100-999 employees, 28% of the respondent base) using both public cloud infrastructure and operating a modern on-premises private cloud environment.

Key Findings

What did we learn from the research? Organizations are struggling with overly complex multicloud environments, and fragmentation is only expected to increase over time. Unsurprisingly, organizations see tremendous value in the concept of management simplification. When respondents were asked about the prospect of using consistent infrastructure management tools across private and public cloud locations, they told us they would expect to:

Organizations see tremendous value in the concept of management simplification; among the few organizations that have actually made material progress implementing cloud management consistency, realized benefits often outstripped the expectations.

- Reduce costs by 19% on average.

- Reduce the number of security breaches, application outages, or other events affecting their public cloud-resident data by 30% on average.

- Shorten the calendar time needed to migrate a cloud workload from one cloud to another, or back on-premises, by 35% on average.

- Free up an average of 70.5 person-hours per week (or nearly 2 full-time equivalents) in infrastructure management time.

- Improve developer experience and performance: 96% believe it will be easier for developers to push code to production, with 56% saying they would expect at least daily code pushes.

- Reduce the frequency of problematic cloud projects, shrinking the frequency of budget overages and timeline overruns by 28% and 38% respectively.

- Increase their pace of innovation (74% reported), ultimately resulting in five incremental products/services launched annually.

More importantly, we observed that among the few organizations that have actually made material progress implementing cloud management consistency, realized benefits often outstripped the expectations.

Defining What It Means to Have Cloud Management Consistency

To assess cloud management consistency, ESG included three questions in its survey:

1. How many infrastructure management tools are in use to administer public cloud resources?

2. Is the organization able to use any of the same infrastructure management tools on-premises as it does for public cloud resources?

3. Are the infrastructure management tools used across on- and off-premises locations extensively relied upon?

Only organizations that have consolidated their cloud management tools (three discrete tools or fewer), which are usable regardless of infrastructure locality (on-premises or off-premises), and are using those same tools to manage the majority of their on-premises environment were considered to have a high degree of cloud management consistency. Just 5% of the respondents surveyed reported their organization met all of these criteria today (see Figure 2).

Figure 2. Characteristics and Scarcity of Consistent Cloud Managers

Consolidated cloud management tools

The organization must be using a manageable number of tools to administer public cloud-resident infrastructure.

Used across both public and private clouds

Tools in use to manage public cloud infrastructure must also be usable for infrastructure in an on-premises private cloud environment.

Used extensively on-premises

Organizations must be actively using these tools to manage a material proportion of their on-premises infrastructure.

Only 5% of all qualified respondents met all three criteria.

Source: Enterprise Strategy Group

The remainder of this report details the benefits expected by the 95% of survey respondents that have a fragmented cloud environment, presuming a successful shift toward a much more consistent cloud management experience. The report also
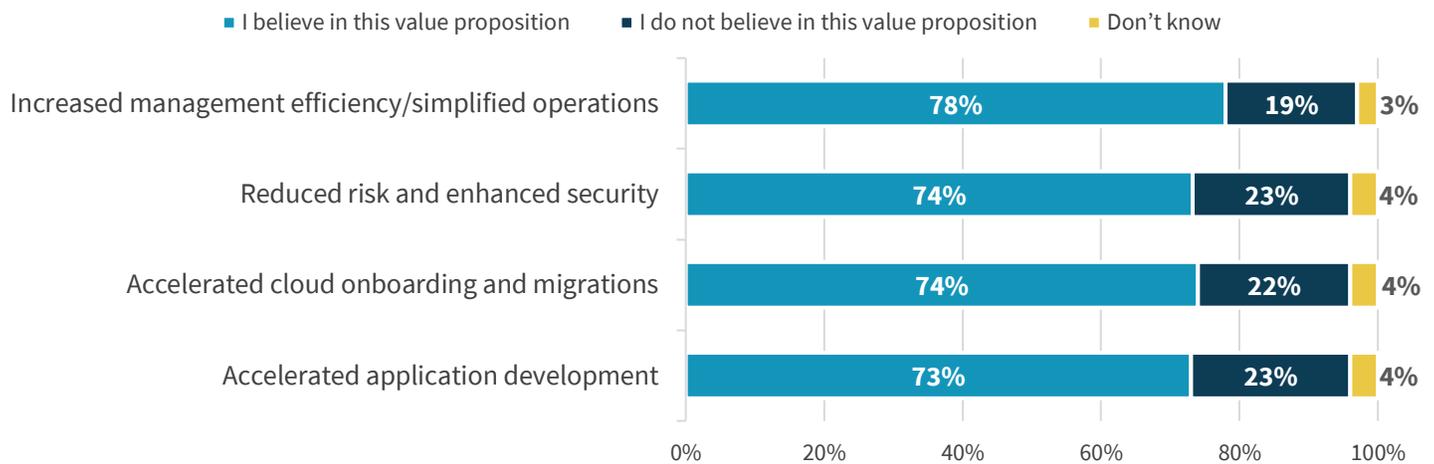
discusses the early returns the 5% of organizations on the leading edge of cloud management consistency have received to date and, where applicable, compares expected benefits to realized benefits.

The More Consistent the Management Experience, the Better the Expected Technical Outcomes

There is broad-based agreement among organizations that increased cloud management consistency will deliver critical technical improvements (see Figure 3). Nearly three-quarters of respondents believe increased consistency would yield faster application development, reduced security risk, and greater cloud agility while nearly four-fifths say it would net them improved operational efficiency.

Figure 3. Perceived Technical Value of Increased Cloud Management Consistency

Which of the following benefits, if any, do you believe your organization would receive if it were able to significantly consolidate the management tools it uses to manage infrastructure across environments on-premises and in the public cloud? (Percent of respondents, N=1,195)

■ I believe in this value proposition   ■ I do not believe in this value proposition   ■ Don't know

	I believe in this value proposition	I do not believe in this value proposition	Don't know
Increased management efficiency/simplified operations	78%	19%	3%
Reduced risk and enhanced security	74%	23%	4%
Accelerated cloud onboarding and migrations	74%	22%	4%
Accelerated application development	73%	23%	4%

Source: Enterprise Strategy Group

Management Consistency Is Expected to Drive IT Operations Efficiency

IT staff have many competing priorities. Performing basic operational tasks on their infrastructure should not be at the top of their task list. Their time is better spent strategizing hybrid cloud initiatives, collaborating with lines of business on digital transformation projects, or finding other ways to drive innovation and competitive differentiation for the company. However, VMs and infrastructure do need to be provisioned, configured, and deprovisioned when no longer needed; applications need to be patched; and alerts and issues need to be investigated and remediated. How can organizations optimize these tasks?

One opportunity: Minimize the number of management consoles administrators need to use in order to operate their environment. First, this cuts down on time wasted toggling between tools to manage infrastructure. Second, with fewer tools to master, administrators can ramp productivity faster rather than struggling with a variety of different interfaces and functional capabilities. Finally, there is a real cost component to consider in the form of training and support. By providing staff with fewer tools aligned to their existing skills, organizations can reduce dollars and time tied up in training and consulting services. Data from respondents supports this: 78% of respondents with fragmented cloud management experiences agreed that greater consistency would provide their organization with increased efficiency and simplified operations.

Additionally, when ESG asked respondents to quantify the person-hours that would be saved on infrastructure management if their organization were able to increase cloud management consistency, the mean response was 70.5 hours per week—the equivalent of nearly two full-time employees. Clearly IT organizations could make tremendous progress toward accelerating strategic projects with this type of efficiency gain.

Respondents believe consistent cloud management will save them 70.5 person-hours per week.

Figure 4. Efficiency Gains Expected Due to Increased Cloud Management Consistency

How many full-time equivalents (FTEs)/person-hours do you think your organization would save on infrastructure management if your organization were able to use consistent infrastructure management tools across on-premises and cloud locations? (Percent of respondents, N=1,195)

Estimated mean: 70.5 person-hours to be saved per week

None	Less than .5 FTEs/less than 20 person-hours per week	Between .5-1 FTEs/20-40 person-hours per week	Between 1-2 FTEs/40 – 80 person-hours per week	Between than 3-5 FTEs/120-200 person-hours per week	More than 5 FTEs/201 person-hours per week	Don't know/have not quantified
2%	10%	34%	29%	15%	7%	4%

Source: Enterprise Strategy Group

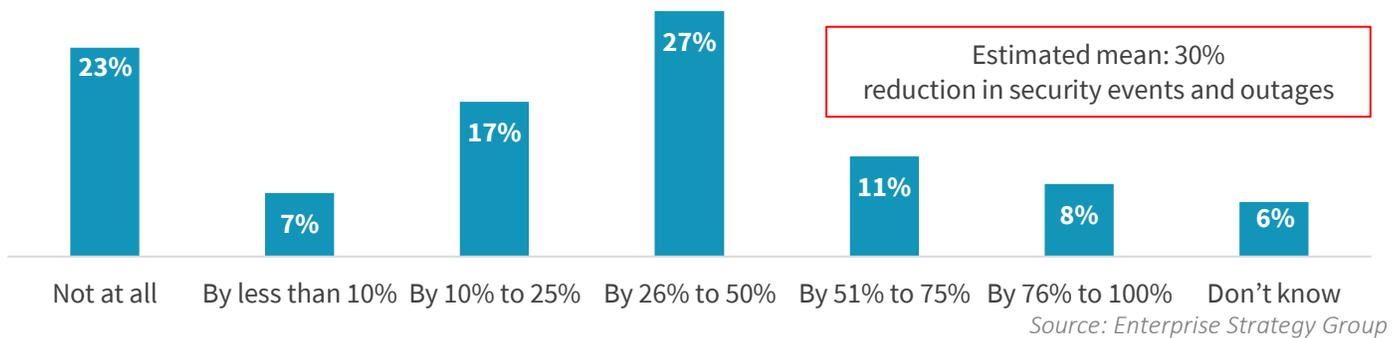## Management Consistency Will Reduce Risk Exposure

As discussed, toggling between numerous management consoles creates inefficiencies. It also contributes to risk. Ensuring that cloud instances are configured properly and patched efficiently is a critical step to preventing exploits and data loss as well as minimizing downtime associated with attacks. As the number of cloud instances running on different cloud platforms rises, so does the difficulty associated with ensuring the proper security and configuration of all those instances. In fact, it is possible that organizations may need to source security-fluent administrators specializing in each cloud environment, creating cost and staff resourcing challenges as environments scale up. Again, one solution is to consolidate the management of cloud instances to a single interface, allowing administrators greater visibility and eliminating configuration and patching blind spots.

Nearly three-quarters (74%) of respondents grappling with a fragmented cloud management experience agreed that greater consistency would reduce risk and enhance security for their organization. To quantify that impact, ESG asked respondents the percentage reduction in the number of security breaches, application outages, or other events affecting its public cloud-resident data they would expect if their organization had more infrastructure management consistency across clouds. On average, respondents reported a 30% anticipated reduction (see Figure 5).

Of course, another potential solution available to organizations is to standardize on a single public cloud vendor. However, this type of consolidation leaves organizations at risk to infrastructure pricing changes, service level agreement modifications, the public cloud vendor's ability to satisfy compliance mandates, being locked into a single vendor's technology roadmap, and a host of other "single point of failure" risk vectors. Organizations appear to recognize these issues as the propensity for them to partner with multiple public cloud infrastructure providers, which is already considerable, is trending up. ESG asked respondents how many cloud infrastructure providers were in use at their organizations today and how this will change over the next three years. More than four out of five (82%) utilize multiple infrastructure CSPs today and 86% expect to do so three years from now. Moreover, the proportion using more than three infrastructure CSPs is expected to double over this time horizon (31% versus 15%).

Figure 5. Reduction in Cloud Security Incidents Expected Due to Increased Cloud Management Consistency

By what percentage do you believe your organization would reduce the number of security breaches, application outages, or other events affecting its public cloud-resident data if it had more infrastructure management consistency across clouds? (Percent of respondents, N=1,195)

Estimated mean: 30% reduction in security events and outages

Not at all	By less than 10%	By 10% to 25%	By 26% to 50%	By 51% to 75%	By 76% to 100%	Don't know
23%	7%	17%	27%	11%	8%	6%

Source: Enterprise Strategy Group

Consistency Will Enable Developer Efficiency

Increasing infrastructure environment consistency not only helps IT and security teams do their jobs better, but it is also a positive for development teams. By creating consistency between public cloud and private cloud infrastructure, organizations allow developers to code for a single environment. This accelerates releases while giving organizations the flexibility to deploy code to either on-premises or public cloud infrastructure based on the application's requirements and without needing to refactor an application if the desired location changes over time. ESG's research shows this level of flexibility is highly sought after, with 83% of organizations reporting that achieving workload placement flexibility is a top-five priority among all of their existing technology initiatives.

97% of respondents believe consistent cloud management will make it easier for developers to do their jobs.

When ESG asked respondents about the impact of increasing infrastructure consistency between on-premises and public cloud locations on developers, 97% stated it would make developers' lives easier if they only needed to build for one environment. Similarly, 96% stated it would be easier for developers to push code to production. In fact, when ESG asked respondents how often their organization would deploy new code to production if cross-cloud consistency were improved, the majority (56%) thought they would be able to achieve daily code push frequency (see Figure 6).

Figure 6. Expected Frequency of Code Deployment After Increasing Infrastructure Consistency

How often do you think your organization would deploy new code to production if it used the
same management tools regardless of infrastructure location? (Percent of respondents, N=1,190)
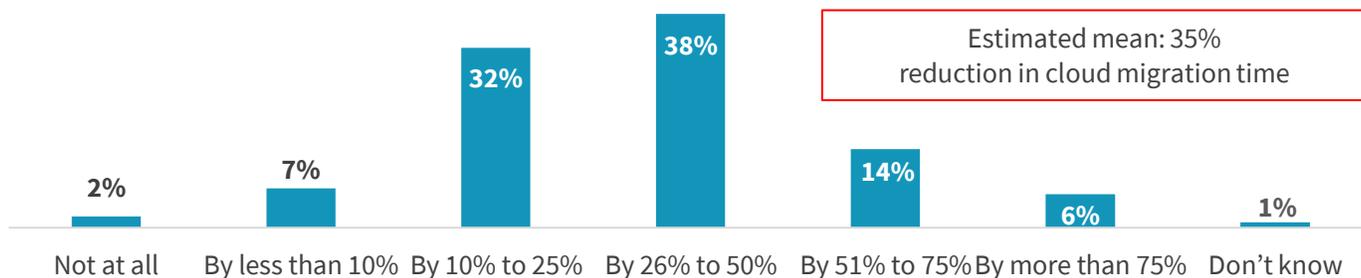

Source: Enterprise Strategy Group

Consistency Will Enable Workload Mobility

Respondents broadly agree that increasing infrastructure and operations consistency across environments helps
organizations achieve one of their most important technology priorities: workload placement flexibility. As noted, 83% of
respondents consider the freedom to deploy workloads wherever they want one of their top-five technology initiatives.
Slightly fewer, though still an impressive proportion (74%) of respondents, see increasing infrastructure consistency as
helping cloud onboarding and migrations. Why? Using familiar tools and models for application deployments and
migrations creates efficiencies for administrators, increasing their comfort with tasks while reducing their errors.

To measure the magnitude of the expected benefit, ESG asked respondents to estimate the percentage reduction in the
calendar time it would take to change where an application is run if it had more infrastructure management consistency
across clouds. On average, respondents reported a 35% reduction (see Figure 7). Put another way, if it typically takes an
organization a quarter to modify a workload so that it can migrate it from one cloud to another (or back on-premises), that
organization could make that migration a full month faster by improving its cloud management consistency.

**Figure 7. Reduction in Expected Workload Migration Time Due to Increased Cloud Management
Consistency**

By what percentage do you believe your organization would reduce the time it takes
to change where an application is run if it had more infrastructure management
consistency across clouds? (Percent of respondents, N=1,186)

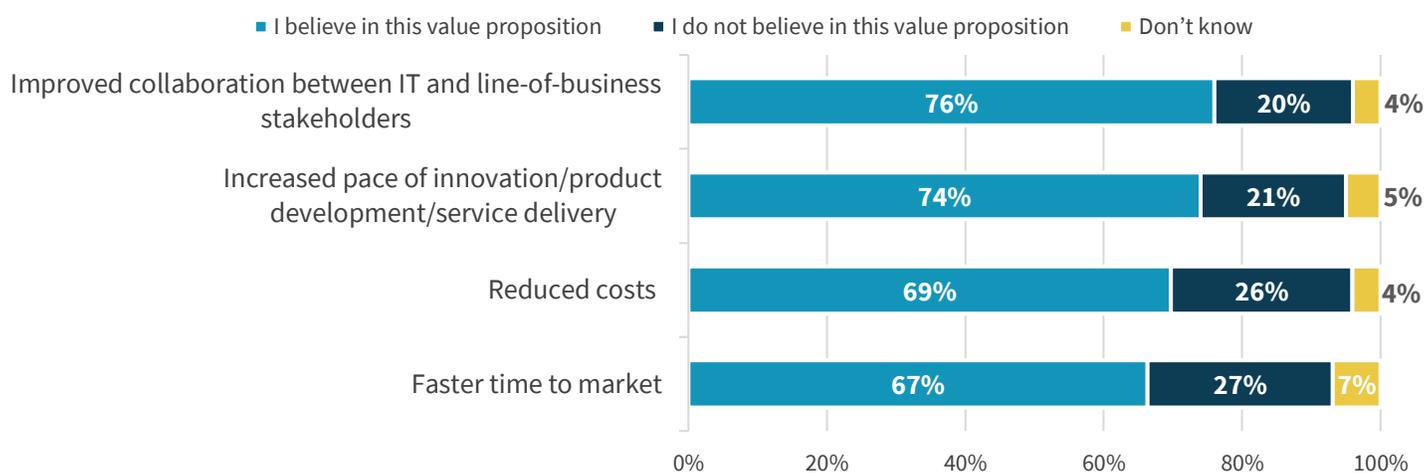

Source: Enterprise Strategy Group

The More Consistent the Management Experience, the Better the Expected Business Outcomes

Technical benefits in a vacuum are nice. Making technology teams more efficient and more effective, while making their lives easier, is a win. But the true value driver for the IT organization is how those technical benefits manifest themselves as business benefits. The research shows that organizations see not only technical benefits on the horizon as cloud management capabilities mature, but also business benefits (see Figure 8).

Most often respondents say they believe cloud management consistency would deliver benefits to IT/line-of-business collaboration. Better understanding of business needs and requirements is a critical first step to IT value creation and can help IT organizations align their performance metrics to real business outcomes. Additionally, nearly three-quarters of respondents believe increased consistency would deliver faster innovation for the organization, while two-thirds (67%) expect accelerated time to market, and nearly seven out of ten (69%) believe they would reduce costs.

Figure 8. Perceived Business Value of Increased Cloud Management Consistency

Which of the following benefits, if any, do you believe your organization would receive if it were able to significantly consolidate the management tools it uses to manage infrastructure across environments on-premises and in the public cloud? (Percent of respondents, N=1,195)

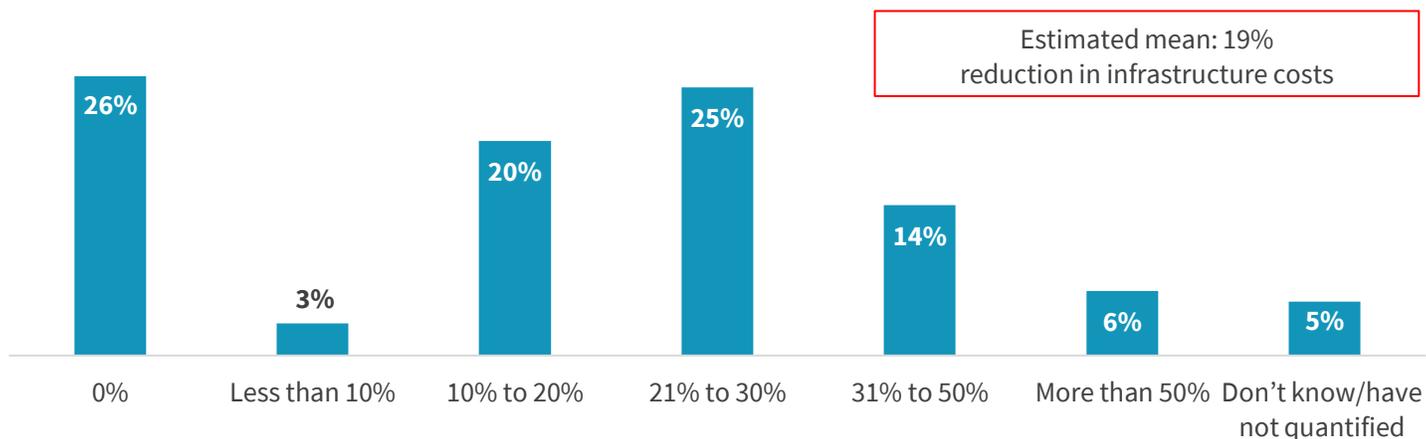|	I believe in this value proposition	I do not believe in this value proposition	Don't know
Improved collaboration between IT and line-of-business stakeholders	76%	20%	4%
Increased pace of innovation/product development/service delivery	74%	21%	5%
Reduced costs	69%	26%	4%
Faster time to market	67%	27%	7%

Source: Enterprise Strategy Group

How Management Consistency Will Reduce Costs

As discussed, respondents expect increased cloud management consistency will drive infrastructure management efficiency for IT teams. Similarly, application developers, and their code, are expected to be more efficient. By optimizing applications for a unified infrastructure platform—wherever it resides—developers improve their expertise and may eliminate or reduce application architecture decisions that can drive up costs in a cloud world, such as applications with unnecessary data egress to an external microservice. As applications become more portable, organizations will be able to adjust where workloads run in real time to capitalize on changing economic profiles among clouds—for example, if a public cloud provider cuts their prices or if an on-premises technology refresh dramatically reduces on-premises operational costs.

Each of these technical impacts, and many others, have a direct effect on the overall cost of the environment. It is no wonder that nearly seven out of ten respondents foresee increased cloud management consistency driving down overall costs. In fact, when ESG asked respondents how much increasing infrastructure management consistency would reduce infrastructure costs, the mean response was 19% (see Figure 9).

Figure 9. Reduction in Infrastructure Costs Expected Due to Increased Cloud Management Consistency

By how much do you believe your organization could reduce infrastructure costs by utilizing more consistent management tools? (Percent of respondents, N=1,195)

Estimated mean: 19% reduction in infrastructure costs

0%	Less than 10%	10% to 20%	21% to 30%	31% to 50%	More than 50%	Don't know/have not quantified
26%	3%	20%	25%	14%	6%	5%

Source: Enterprise Strategy Group

How Management Consistency Will Improve Business Agility

In the digital economy, data and software are often the enterprise's secret sauce. This is the case whether it be an auto manufacturer's IoT-powered predictive maintenance algorithm that helps eliminate production downtime, an oil and gas company using AI to better predict resource deposits, or a financial services firm that rolls out a commission-free securities trading service due to extreme levels of automation. In each case, technology innovation and business innovation are synonymous.

This underscores the importance of a modern approach to data storage and protection in general and to hybrid cloud success in particular. ESG asked respondents how "cloud competitive" their storage and data protection infrastructure is with public cloud alternatives across features like data security, assurance of data quality, and automated insights/analytics. Eighty-nine percent of organizations with modern storage, cloud competitive across all or almost all features, report they are effective at driving value with hybrid cloud initiatives, while 91% of organizations with modern data protection infrastructure report the same. Increased agility and operational speed are of critical value to organizations looking at hybrid cloud infrastructure solutions to grow and support their business. Organizations with the most mature on-premises data storage and protection environments complete 57% more of their cloud projects ahead of schedule, and they are 2.3x more likely to be very confident in their ability to meet their organization's hybrid cloud goals.

With this backdrop in mind, it is easy to understand how the expected technology benefits of increased cloud management consistency will also drive business agility. Application developers will push code more frequently, releasing new features faster to customers and employees alike. IT operations teams will be freed up from mundane infrastructure break-fix tasks and able to collaborate with their line-of-business counterparts on more important priorities—from rationalizing application portfolios, through advancing analytics initiatives, to discussing the requirements of the next game-changing business application. Nearly all respondents (97%) believe that if their organization were able to
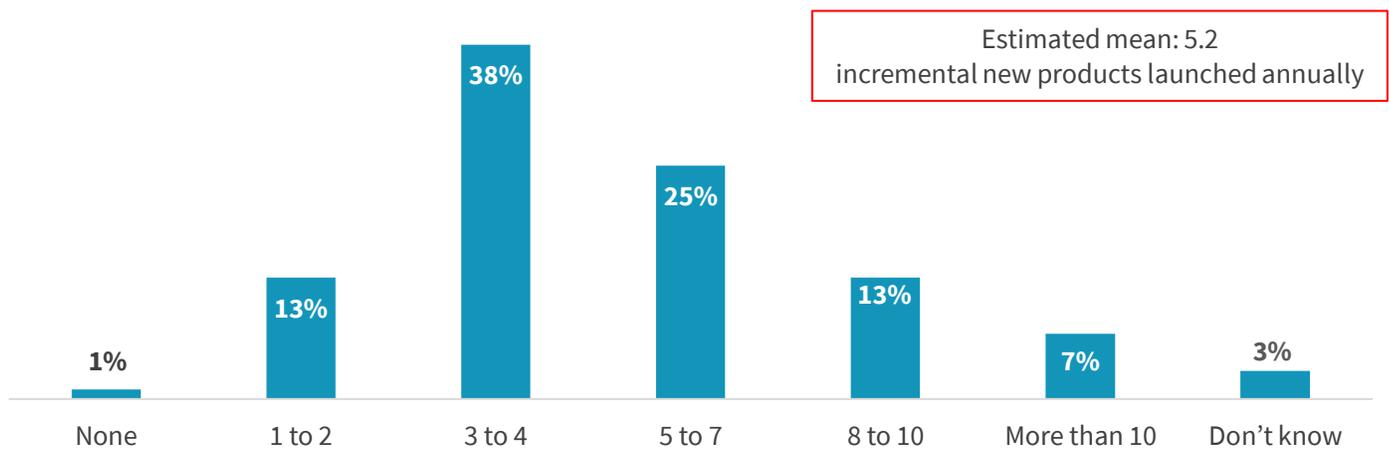
97% of respondents believe consistent cloud management will free up IT staff to refocus on new projects.

use consistent infrastructure management tools across on-premises and cloud locations, their IT staff would be more flexible to refocus on new projects based on need.

ESG quantified the expected improvement in business agility enabled by cloud consistency in two ways: First, we asked respondents how much they felt management consistency would impact time to market. On average, respondents expected to reduce their launch or product cycle time by 6.1 weeks. Second, we asked respondents how many additional new products/services they expected their organization could launch annually if they were able to dramatically improve cloud management consistency. The average response was 5.2 net-new products or services rolled out annually (see Figure 10). Whether getting products into the hands of customers sooner, getting products to market that wouldn't have existed otherwise, or both, cloud management consistency is expected to dramatically transform organizational innovation.

Figure 10. Accelerated Innovation Expected Due to Increased Cloud Management Consistency

How many additional new products/services do you think your organization could launch annually if it had better management tool consistency across public cloud and on-premises locations? (Percent of respondents, N=886)

Estimated mean: 5.2 incremental new products launched annually

None 1% / 1 to 2 13% / 3 to 4 38% / 5 to 7 25% / 8 to 10 13% / More than 10 7% / Don't know 3%
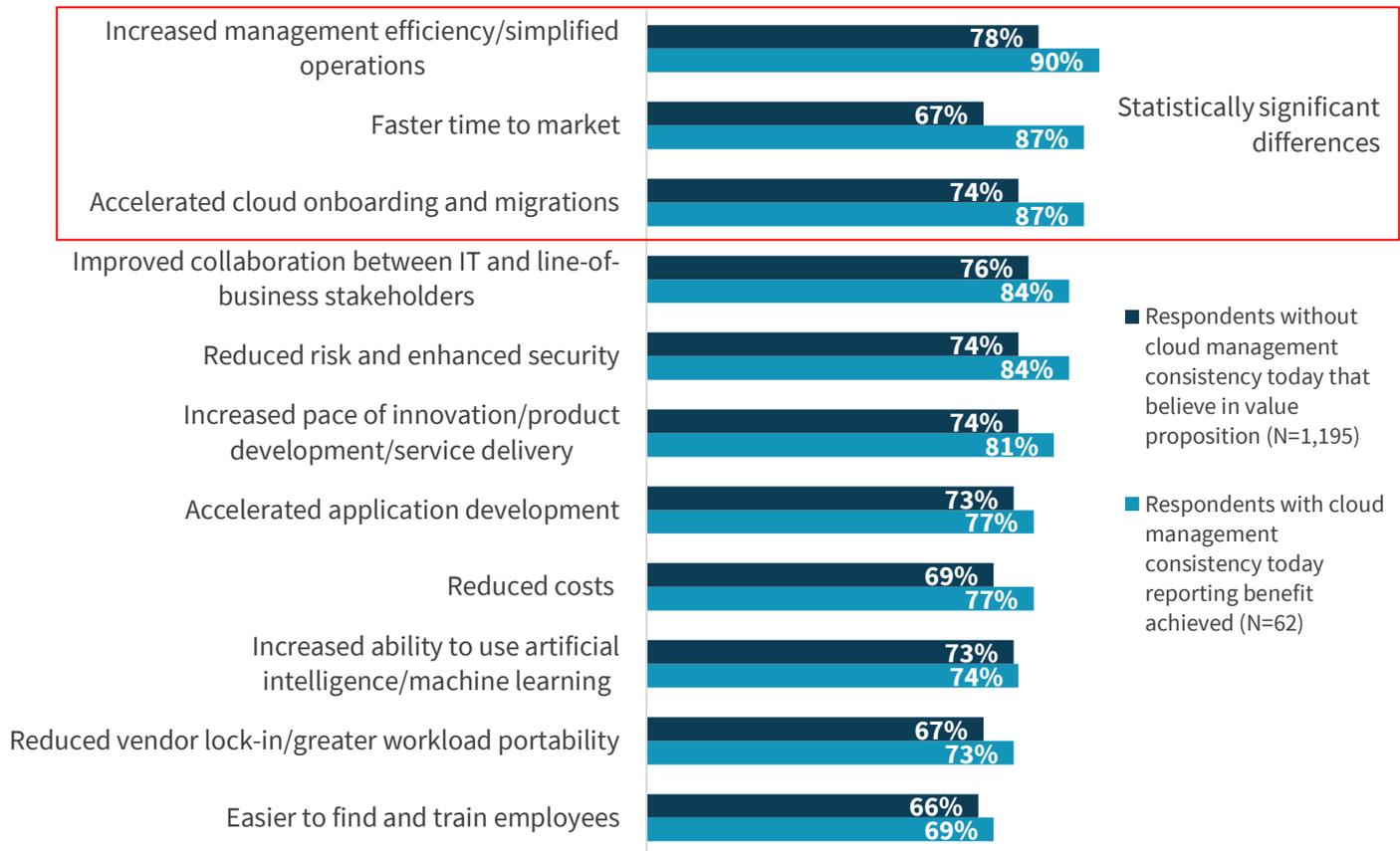
Source: Enterprise Strategy Group

More than Just Optimism: Consistent Cloud Management Is a Game Changer for Organizations on the Leading Edge

Almost all respondents (95%) in ESG's survey worked at organizations with fragmented cloud management environments. These individuals were asked about the *expected* benefits of improving cloud management consistency. However, a very small portion of organizations represented in the survey (5%) had already made meaningful progress toward increasing management consistency. These organizations were asked about the *actual* improvements they have seen to date. While these organizations are few and far between, the early returns they are reaping are noteworthy. In many cases, actual benefits achieved outpace the magnitude of benefits expected.

For example, 90% of organizations with consistent cloud management reported they have increased efficiency and simplified operations as a result. This compares favorably with the 78% of organizations with fragmented cloud management today who anticipate that benefit. Additional statistically significant differences exist between the proportion of respondents achieving/expecting faster time to market and accelerated cloud onboarding and migrations; however, ESG observed a positive trend across all benefits included in the survey (see Figure 11).

Figure 11. Differences between Actualized and Expected Benefits for Consistent Cloud Management

Incidence of Actual Benefits vs. Incidence of Expected Benefits (Percent of respondents)

Benefit	Without consistency (believe in value)	With consistency (benefit achieved)
Increased management efficiency/simplified operations	78%	90%
Faster time to market	67%	87%
Accelerated cloud onboarding and migrations	74%	87%
Improved collaboration between IT and line-of-business stakeholders	76%	84%
Reduced risk and enhanced security	74%	84%
Increased pace of innovation/product development/service delivery	74%	81%
Accelerated application development	73%	77%
Reduced costs	69%	77%
Increased ability to use artificial intelligence/machine learning	73%	74%
Reduced vendor lock-in/greater workload portability	67%	73%
Easier to find and train employees	66%	69%

Statistically significant differences

■ Respondents without cloud management consistency today that believe in value proposition (N=1,195)

■ Respondents with cloud management consistency today reporting benefit achieved (N=62)

Source: Enterprise Strategy Group

Validating Real Risk Reductions with a Consistent Cloud Management Experience

We observed that respondents both expect and report that cloud management consistency improves security capabilities and reduces risk. In addition to questioning respondents about their perception, we asked respondents how many times in the past 12 months their organization experienced a security breach, application outage, or other event resulting in data loss

Organizations with fragmented cloud environments have experienced 3.6x more cloud-related security and availability incidents in the past 12 months.

or improper exposure of public cloud-resident data. When comparing organizations with fragmented cloud environments to those with consistent cloud environments, the differences are stark: On average, those with fragmented environments reported between 2.6 and 3 of each type of events in the past year, and in total they have experienced 3.6x more security and availability incidents compared with those few organizations achieving consistent cloud operations (see Figure 12).
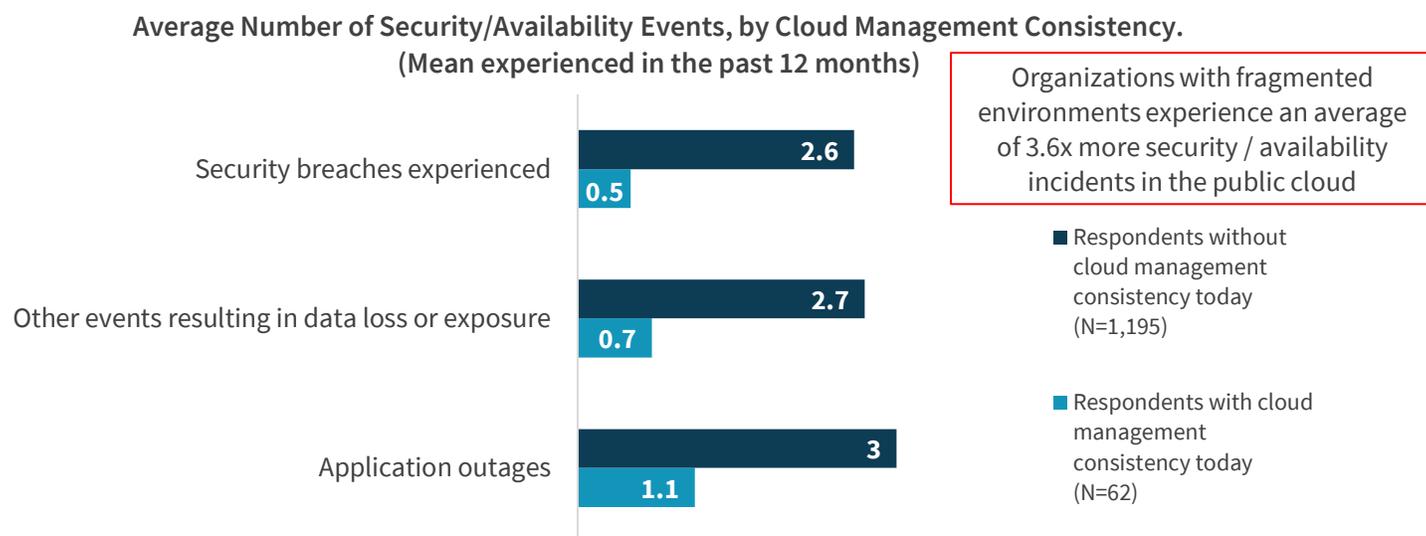
How are consistent cloud managers effecting such dramatic change to their risk outcomes? Visibility is one major reason. When ESG asked respondents to characterize the level of visibility and control their organization has over its public cloud infrastructure, 44% of respondents with a consistent management experience said they had total visibility and control, 3.4x the incidence observed among organizations with fragmented cloud management (13%). Unifying the cloud management

experience allows organizations to manage all their cloud infrastructure holistically, eliminating blind spots, maximizing control, and—as the data shows—dramatically improving security efficacy.

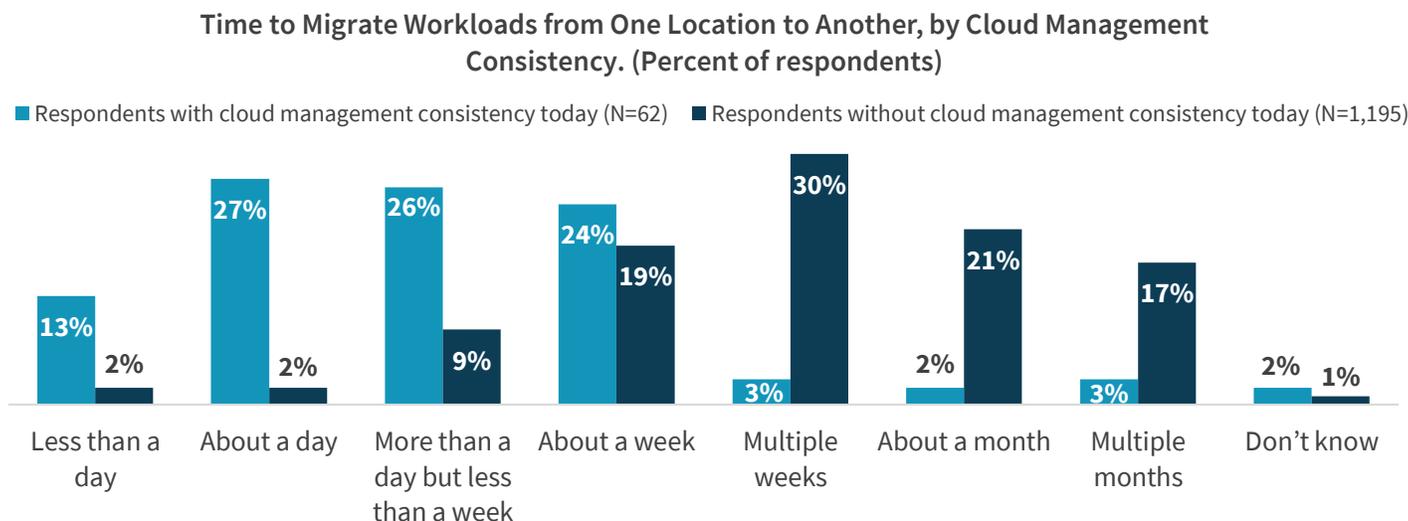**Figure 12. Differences in Security Event Frequency, by Cloud Management Consistency**

Average Number of Security/Availability Events, by Cloud Management Consistency.
(Mean experienced in the past 12 months)

Organizations with fragmented environments experience an average of 3.6x more security / availability incidents in the public cloud

- Respondents without cloud management consistency today (N=1,195)
- Respondents with cloud management consistency today (N=62)

Security breaches experienced: 2.6 / 0.5
Other events resulting in data loss or exposure: 2.7 / 0.7
Application outages: 3 / 1.1

Source: Enterprise Strategy Group

Validating Real Workload Mobility Improvements with a Consistent Cloud Management Experience

We observed that many respondents both expect and report that cloud management consistency improves cloud onboarding and migrations, while reducing vendor lock-in. In addition to asking respondents if they would receive this benefit and its expected magnitude, ESG asked respondents how long it typically takes for their organization to change where an application is run (i.e., move a workload from one public cloud to another or to on-premises infrastructure). Once again, the delta observed between organizations with fragmented cloud environments and those with consistent cloud management is significant (see Figure 13). While two-thirds (66%) of organizations with consistent cloud management report they can port a workload from one cloud to another in less than a week, 68% of organizations with fragmented cloud environments report the timeline would be multiple weeks or even months.

Figure 13. Differences in Workload Portability, by Cloud Management Consistency

Time to Migrate Workloads from One Location to Another, by Cloud Management Consistency. (Percent of respondents)

- Respondents with cloud management consistency today (N=62)
- Respondents without cloud management consistency today (N=1,195)

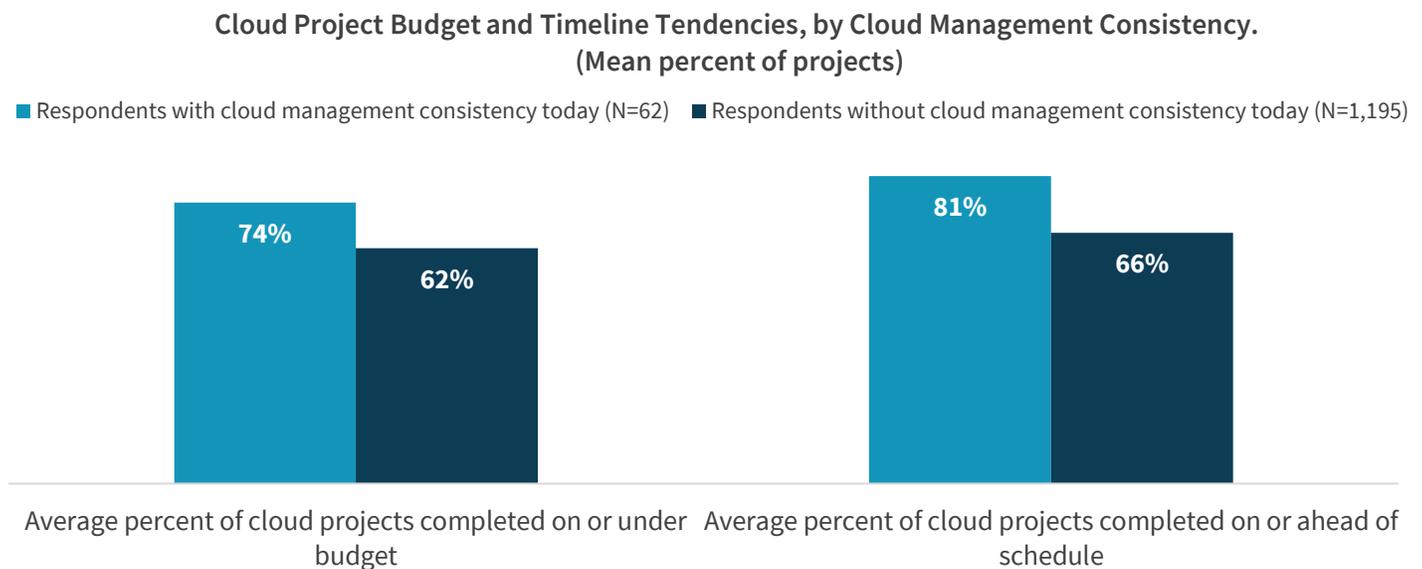|	Less than a day	About a day	More than a day but less than a week	About a week	Multiple weeks	About a month	Multiple months	Don't know
With consistency	13%	27%	26%	24%	3%	2%	3%	2%
Without consistency	2%	2%	9%	19%	30%	21%	17%	1%

Source: Enterprise Strategy Group

Crunching the numbers, the average calendar time advantage enjoyed by organizations with a consistent cloud management experience relative to those without is about 2.4 work-weeks per cloud migration. The ability to shave time off these types of moves can be the difference between an organization gaining a competitive edge over its peer group or being left behind, bogged down in a prolonged migration effort.

Validating Real Cloud Cost and Agility Benefits with a Consistent Cloud Management Experience

Respondents with fragmented cloud environments were quite optimistic about the cost and agility gains they could achieve via cloud management consistency. In order to assess the extent to which these gains are materializing, ESG asked all respondents about their performance completing cloud projects relative to budget and timeline expectations. Once again, the data provides evidence that supports the idea that cloud management consistency drives real cost and agility improvements for organizations.

Respondents at organizations that have achieved cloud management consistency complete 19% more of the cloud projects they have undertaken to date on or under budget (74% versus 62% at organizations with fragmented cloud management environments). Similarly, these organizations complete 23% more of the cloud projects undertaken on or ahead of schedule relative to those with fragmented management environments (81% versus 66%) (see Figure 14).

Figure 14. Differences in the Ability to Complete Cloud Projects, by Cloud Management Consistency

**Cloud Project Budget and Timeline Tendencies, by Cloud Management Consistency.
(Mean percent of projects)**

■ Respondents with cloud management consistency today (N=62)   ■ Respondents without cloud management consistency today (N=1,195)

74%   62%   81%   66%

Average percent of cloud projects completed on or under budget   Average percent of cloud projects completed on or ahead of schedule

Source: Enterprise Strategy Group

The Big Picture: Consistent Cloud Management Drives Hybrid Cloud Value and Helps Make IT a Hero
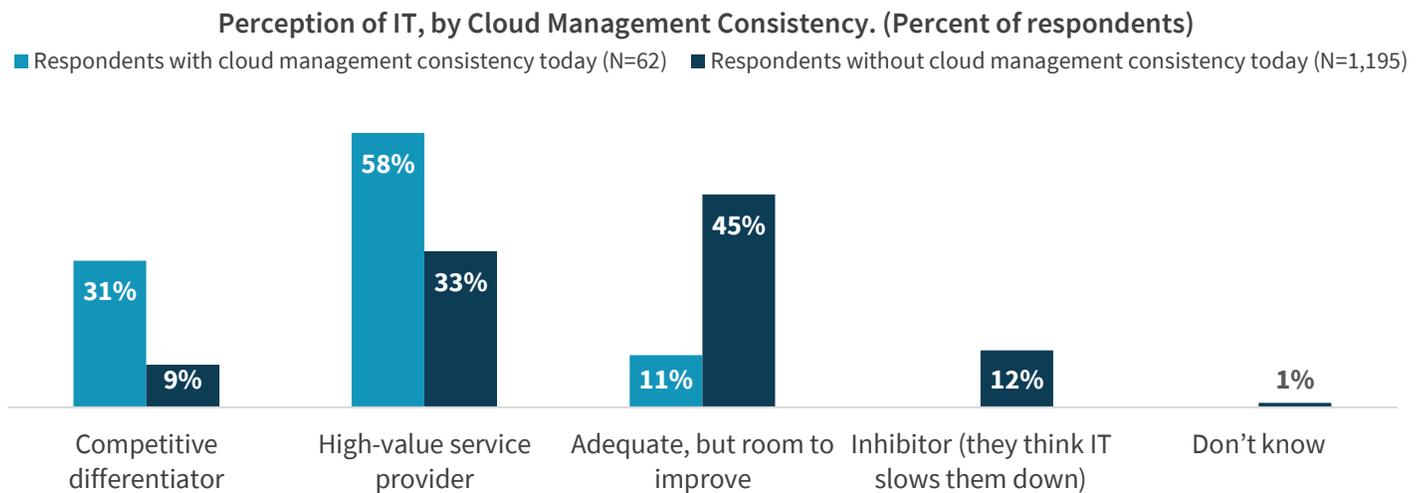
It's clear that whether discussing expectations or reality, respondents see multifaceted value from increasing the consistency of hybrid cloud management. It's important to understand how these various technical and business benefits roll up to impact bigger picture considerations. For example, all respondent organizations are operating a hybrid environment, but how effective have their hybrid cloud initiatives been to date at driving value for the organization? The answer is generally positive, though there is a clear divide based on management consistency: 38% of organizations with cloud management consistency report these initiatives have been *very* effective at driving value for the organizations compared with 27% of organizations without cloud management consistency.

38% of consistent cloud managers report hybrid cloud initiatives have been very effective at driving value for the organizations compared with 27% of organizations without cloud management consistency.

IT's role in enacting cloud management consistency was also an area of interest in the research. We assessed whether IT's standing in the organization was related to their ability to enact cloud management consistency. The answer to that question was an emphatic "Yes!" ESG asked all respondents to characterize how the IT organization is viewed by others in the organization, specifically in this case by developer constituents. IT is viewed positively at nine out of ten (89%) organizations with cloud management consistency today, meaning IT is viewed as either a competitive differentiator or a high-value service

provider. By contrast, the plurality of organizations lacking cloud management consistency rate IT as just adequate. Said another way, IT organizations with consistent cloud management operations are 3.4x more likely to be viewed as a competitive differentiator (see Figure 15).

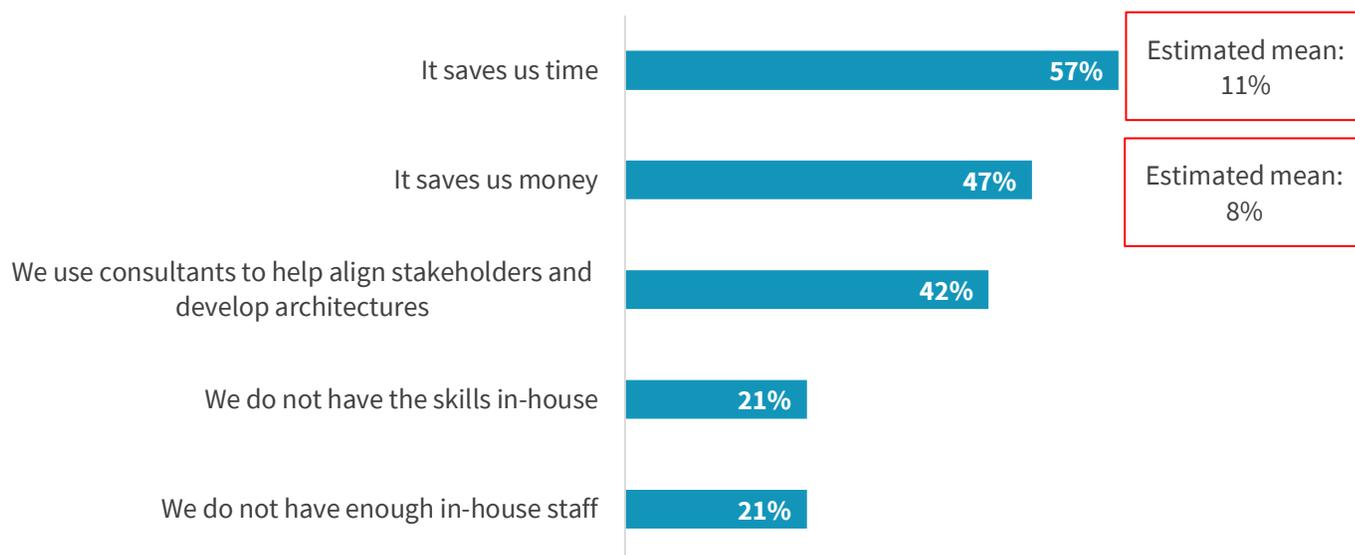**Figure 15. Differences in IT's Standing, by Cloud Management Consistency**

Perception of IT, by Cloud Management Consistency. (Percent of respondents)

■ Respondents with cloud management consistency today (N=62) ■ Respondents without cloud management consistency today (N=1,195)

	Competitive differentiator	High-value service provider	Adequate, but room to improve	Inhibitor (they think IT slows them down)	Don't know
With consistency	31%	58%	11%		
Without consistency	9%	33%	45%	12%	1%

Source: Enterprise Strategy Group

Where to Start: Ask for Help from the Experts

For many organizations, enacting cloud management consistency now may feel like trying to squeeze toothpaste back into the tube: Rationalizing cloud services in use as well as the native controls to manage them may seem daunting. If this describes you, you are not alone. ESG's research shows that more than nine out of ten organizations (91%) work with third parties, be they IT vendors, system integrators, value-added resellers, or all three, to help architect and implement cloud infrastructure projects. Why? Key among the many reasons are the abilities to save time and money (see Figure 16).

Figure 16. The Benefits of Partnering with Third Parties on Cloud Projects

For which of the following reasons has your organization engaged third parties for professional services to architect and implement cloud infrastructure projects? (Percent of respondents, N=1,139, multiple responses accepted)

It saves us time — 57% (Estimated mean: 11%)
It saves us money — 47% (Estimated mean: 8%)
We use consultants to help align stakeholders and develop architectures — 42%
We do not have the skills in-house — 21%
We do not have enough in-house staff — 21%

Source: Enterprise Strategy Group

While cloud transformation projects, including efforts to reshape cloud management experience, will drive dramatic business and technical benefits, organizations would be well served to explore partnerships with cloud solution architects who can help remove the friction from these transformations rather than going it alone. This includes seeking out partners that can implement solutions in both private and public cloud environments, and which deliver openness and choice across public cloud providers to organizations rather than proprietary solutions optimized for a single public cloud.

The Bigger Truth

For almost all organizations, cloud adoption has outpaced the implementation of common management tools to span those clouds (both off-premises and on-premises). Indeed, one of the value propositions of cloud consumption models is simplicity in purchasing with "swipe-and-go" ability. However, if left unchecked, unmanaged cloud sprawl can create challenges such as learning how to use a plethora of native management tools, inefficient and ineffective infrastructure management and security workflows, and budget and timeline overages for cloud projects.

ESG research shows reducing the management complexity of multicloud by introducing consistent infrastructure and operations is expected to drive significant results. Respondents with fragmented, siloed, complex cloud management experiences forecast that consolidation and simplification will deliver meaningful cost savings, hardened security, reclaimed productive time, accelerated innovation and app development, and overall business agility.

More than just expectations, organizations on the leading edge of the unified cloud management and orchestration spectrum have already achieved significant early gains. In many cases, benefits from security, through agility, to cost savings are larger in practice relative to expectations. For organizations struggling on their cloud journey, or just getting started and fearful of making a misstep, thoughtful analysis should be applied for how best to move toward a more consistent infrastructure management experience to simplify operations and drive cloud efficiency and effectiveness.

How APEX Cloud Services Can Help

This ESG Research Insights Paper was commissioned by Dell Technologies, VMware, and Intel Corporation, all of which are keenly focused on helping organizations achieve their cloud goals with APEX Cloud Services. As has been discussed in depth in this paper, any technology decision must be made with consideration for the people, processes, and current state accounted for. Dell Technologies is focused on meeting organizations where they are and delivering the technology and services solutions necessary to help them architect a winning multicloud IT strategy that builds on existing tools and skillsets to unlock better outcomes. APEX Cloud Services is a set of cloud infrastructure solutions designed to enable a consistent operating model and simplified management across private clouds, public clouds, and edge locations, which reduces the barriers of cloud adoption and provides the ability to let application and business requirements determine where workloads reside. This vision for the Dell Technologies portfolio is based on Dell's understanding of cloud as an operating model, not a place, and ambition to become the trusted technology partner for organizations that are looking to reduce the complexity of multiple cloud environments with a consistent infrastructure and operations layer.

To learn more about how APEX Cloud Services can help you, start [here](#).

Appendix – Research Methodology and Respondent Demographics

To gather data for this report, ESG conducted a comprehensive online survey of IT decision makers from private- and public-sector organizations in 11 countries: US (33%), Canada (4%), UK (13%), France (9%), Germany (7%), Singapore (5%), Australia (5%), India (4%), Hong Kong (3%), Brazil (8%), and Mexico (8%). The survey was fielded between September 17, 2019 and October 12, 2019. To qualify for this survey, respondents were required to have influence in the purchase of cloud investments (public or private) at organizations utilizing public cloud infrastructure and operating modernized on-premises data center environments.

After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on several criteria) for data integrity, a final sample of 1,257 respondents remained.

All respondents were provided an incentive to complete the survey in the form of cash awards and/or cash equivalents. Note: Totals in figures and tables throughout this report may not add up to 100% due to rounding.

The figures below detail the demographics of the respondent base: individual respondents' current job responsibilities, as well as respondent organizations' total number of employees, primary industry, and annual revenue.

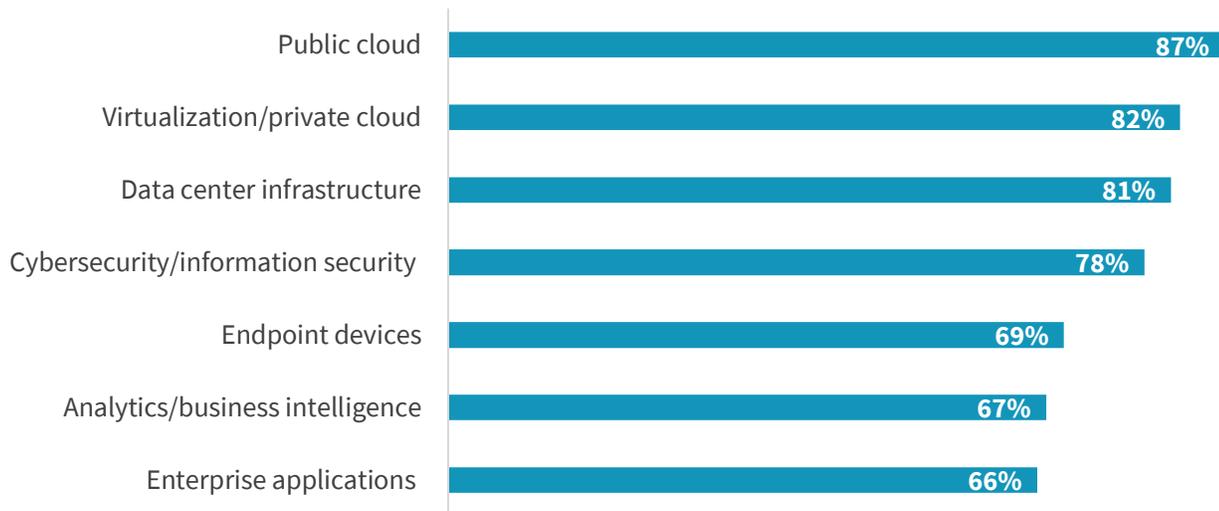**Figure 17. Survey Respondents, by Job Responsibility**

Which of the following best describes your current job title/level? (Percent of respondents, N=1,257)

C-level executive, 2%
Senior management, 2%
Individual contributor, 3%
Most senior IT executive, 19%
Senior IT management, 53%
IT management, 21%
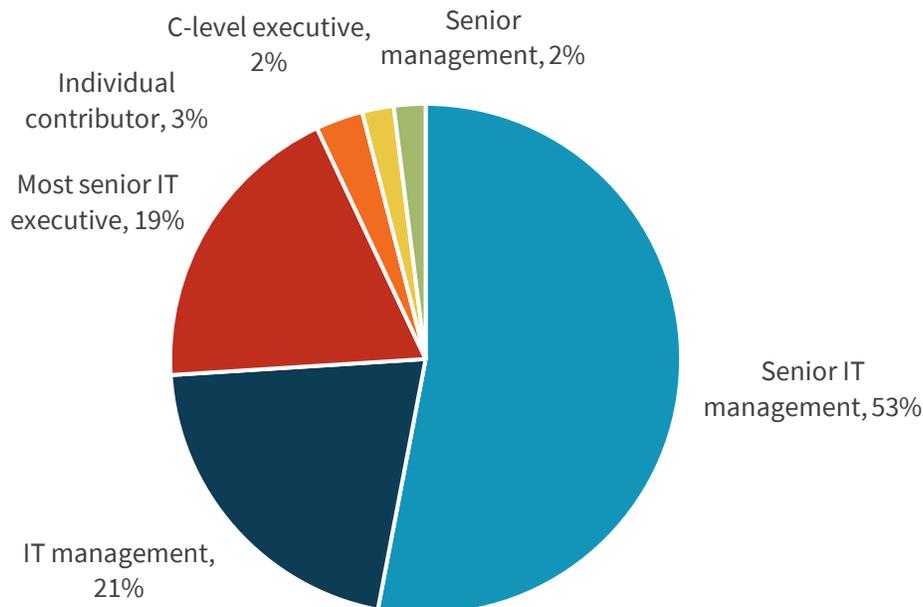
Source: Enterprise Strategy Group

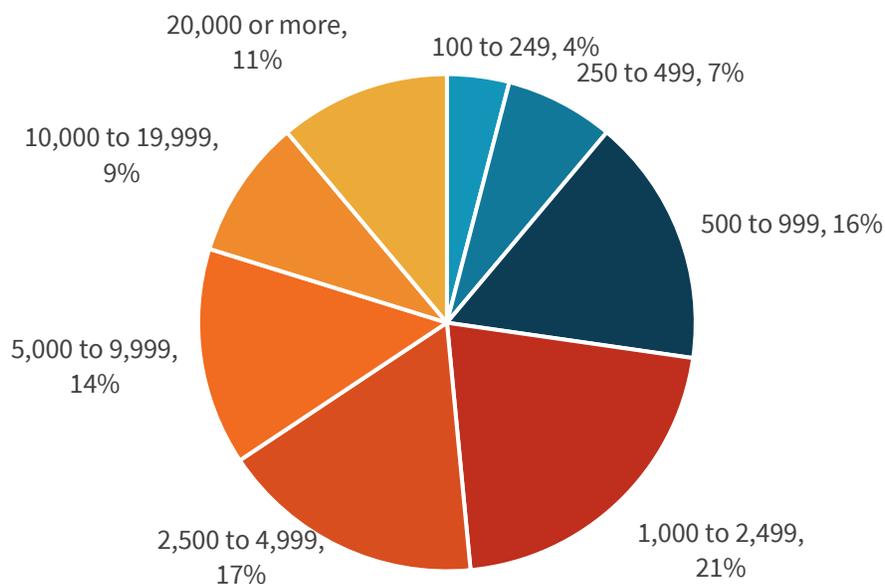**Figure 18. Survey Respondents, by IT Responsibility Areas**

In which of the following areas of IT do you have significant involvement in the purchase process for your company? (Percent of respondents, N=1,257, multiple responses accepted)

Area	Percent
Public cloud	87%
Virtualization/private cloud	82%
Data center infrastructure	81%
Cybersecurity/information security	78%
Endpoint devices	69%
Analytics/business intelligence	67%
Enterprise applications	66%

Source: Enterprise Strategy Group

Figure 19. Survey Respondents, by Company Size (Number of Employees)

How many total employees does your organization have worldwide? (Percent of respondents, N=1,257)

- 20,000 or more, 11%
- 10,000 to 19,999, 9%
- 5,000 to 9,999, 14%
- 2,500 to 4,999, 17%
- 1,000 to 2,499, 21%
- 500 to 999, 16%
- 250 to 499, 7%
- 100 to 249, 4%

Source: Enterprise Strategy Group

Figure 20. Survey Respondents, by Industry

What is your organization's primary industry? (Percent of respondents, N=1,257)

- Other, 15%
- Government, 2%
- Business Services, 5%
- Communications & Media, 7%
- Health Care, 8%
- Retail/Wholesale, 9%
- Financial, 11%
- Manufacturing, 17%
- Technology, 26%

Source: Enterprise Strategy Group

Enterprise Strategy Group is an IT analyst, research, validation, and strategy firm that provides actionable insight and intelligence to the global IT community.