



ESG RESEARCH INSIGHTS BRIEF

How HCI Elevates On-premises Environments and Can Drive Effective Multi-cloud Strategies

Research Exploring the Impact HCI Has on Cloud Consistency, Acceleration, and Efficiency

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Executive Summary

Organizations are aggressively adopting a range of private and public cloud infrastructure solutions to respond to their evolving business needs and make the most of their digital assets. However, successful cloud adoption varies and the use of hyperconverged infrastructure (HCI) has a correlation to the success of cloud initiatives. This paper is intended to quantify this correlation and explain the likely causal factors.

- HCI is driving real benefits for organizations; most often, users report faster service delivery (54%), faster infrastructure deployment (45%), and simplified management (43%).
- Organizations using HCI reported 41% time savings when it comes to system deployment tasks, and 40% time savings in system management tasks compared with before HCI was in use.
- Organizations extensively using HCI today are 6.7x more likely than organizations not using HCI to describe their hybrid cloud initiatives as very effective at driving value for their organizations.
- Organizations extensively using HCI today are enjoying more success when it comes to cloud agility. Extensive users of HCI complete 36% more of their cloud projects ahead of schedule, relative to non-HCI users.
- Organizations extensively using HCI are 5.5x more likely than those not using HCI to view the IT organization as a competitive differentiator.

Introduction

The way organizations approach workload placement decisions has shifted over the past few years. As remote and mobile workforce enablement continues to become more mission-critical, organizations must have the ability to run workloads where they best meet the needs of the user. This means any cloud, public or private, with the decision made after careful inspection of end-user experience, security, performance, and, of course, cost.

Line-of-business teams often make application decisions in a siloed nature, opting to use public cloud apps and infrastructure services without consulting IT organizations or their counterparts in other line-of-business teams. For many organizations, the result is multiple public cloud service providers (CSPs) in use today, without a consistent approach, policy, or oversight.

At the same time, IT organizations are rapidly evolving their on-premises IT environments to be increasingly scalable, flexible, and self-service, all while retaining fundamental on-premises differentiators like full organizational control and not outsourcing security or data protection to a CSP.

The result of these parallel activities is that organizations have several differing public cloud services in use spread over many pockets of users, while at the same time having a compelling private cloud option on hand. Ultimately, these organizations have many options when it comes to putting the right workload in the right location based on the business's requirements.

ESG's research shows that a critical component tied cloud acceleration and effectiveness is the adoption of hyperconverged infrastructure (HCI) solutions, like [Dell EMC VxRail](#). The research, conducted in partnership with Dell Technologies, VMware, and Intel Corporation, included a survey of 1,257 IT infrastructure decision makers and line-of-business decision makers in enterprise and midmarket organizations located in North America, Europe, Asia-Pacific, and Latin America.

ESG believes this linkage between HCI and cloud has two core causal factors:

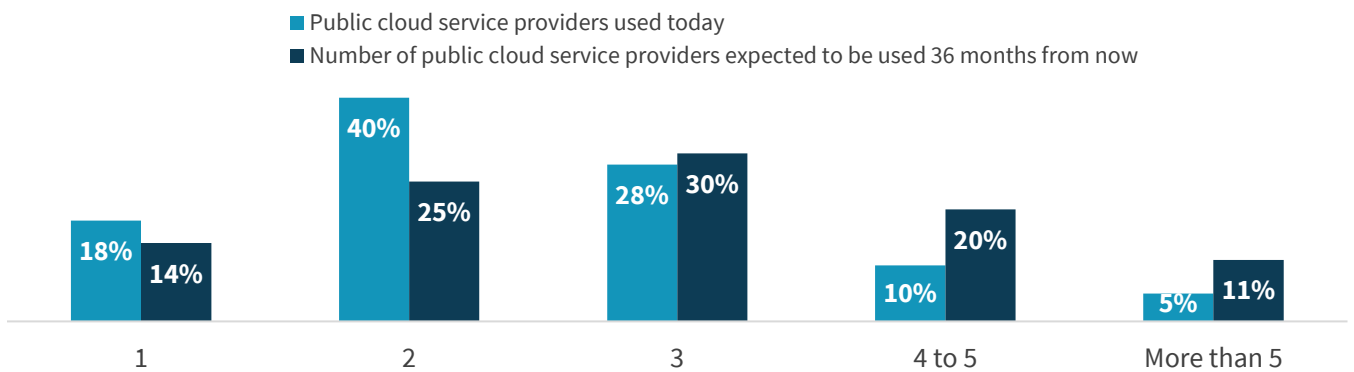
1. As has been well established since their introduction to the market, HCI offerings are easy to deploy and scale due to their pre-integrated natures. That pre-integration, along with common management tools, means HCI is also easier to operate for IT teams, creating efficiencies and freeing staff to focus on other initiatives. ESG believes that by transforming the on-premises environment into an easy-to-operate private cloud, HCI gives teams valuable time back to plan, optimize, and manage public cloud-resident workloads.
2. In a more recent development, HCI solutions are increasingly paired with operations tools aimed at driving more efficient hybrid cloud operations. For example, [VMware Cloud Foundation on VxRail](#) focuses on providing organizations with a consistent way to manage all their on-premises workloads, from traditional to container-based, on the same infrastructure, with operational VMware tools that enterprises are familiar with. This also provides a frictionless path to hybrid cloud, allowing workloads and data to be seamlessly migrated to VMware environments deployed on public cloud infrastructure. Here, HCI and, more importantly, the software it is integrated with are a means for organizations to leverage a consistent, efficient management plane across all workloads regardless of locations—enabling multi-cloud environments while eliminating the complexity that can accompany them.

The Distributed Modern IT Ecosystem

Many organizations are already well down the path toward operating a multi-cloud IT infrastructure environment. Based on ESG’s latest research, 67% of enterprises use public cloud infrastructure in some capacity today.¹ This survey of cloud infrastructure users shows that the vast majority of these organizations—83%—actually use multiple cloud infrastructure service providers today. The data also shows this trend is likely to persist and accelerate. When asked to project the number of public CSPs that will be in use 36 months out, 86% reported two or more, and the percentage reporting four or more had more than doubled (from 15% currently to 31%) (see Figure 1).

Figure 1. Multi-cloud IT Is Pervasive and Increasing

Approximately how many unique public cloud infrastructure service providers does your organization currently use? How many do you expect to use 36 months from now? (Percent of respondents, N=1,257)



Source: Enterprise Strategy Group

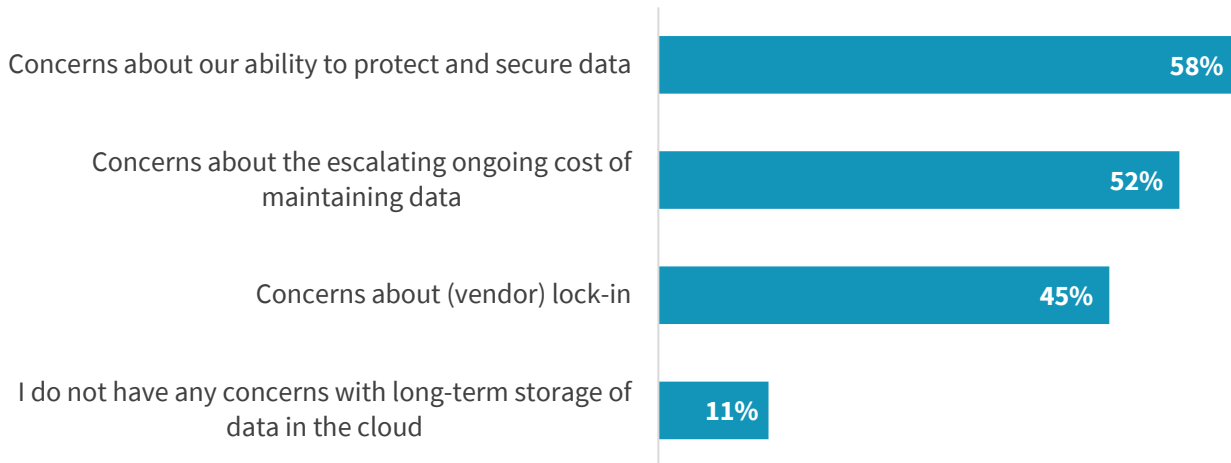
The integration of public cloud infrastructure into an IT environment can offer benefits like faster deployment times and the ability to quickly scale infrastructure based on demand, but these capabilities are not risk-free. Data is a company’s

¹ Source: ESG Research Report, [2020 Technology Spending Intentions Survey](#), March 2020.

most important asset, and nearly 9 out of 10 respondents at organizations moving more of those assets out of their control have concerns. Specifically, 58% identify concerns over data protection and security, and 52% identified concerns over the ongoing cost of storing data.

Figure 2. Data-related Concerns Emerge with Public Cloud Use

As more of your organization's data moves to public cloud infrastructure, which of the following concerns do you have (if any)? (Percent of respondents, N=1,007, multiple responses accepted)



Source: Enterprise Strategy Group

Two potential ways for organizations to remediate these issues present themselves:

1. Organizations can stem the flow of data to public clouds. But a central mandate is likely to be ineffective due to application owners' ability to purchase shadow IT services. Rather, organizations must convince application owners that the best location for data-intensive workloads or sensitive data is on-premises based on the merits of the environment. One way to do that is with broad-based adoption of agile, scalable, performant, and reliable HCI.
2. More ambitiously, if the organization implements a consistent multi-cloud management plane that ensures that infrastructure tools, workflows, and visibility are consistent across all clouds in use, the organization will have more control and peace of mind over security and protection policies. And the improved workload migration capabilities essentially eliminate cloud lock-in.

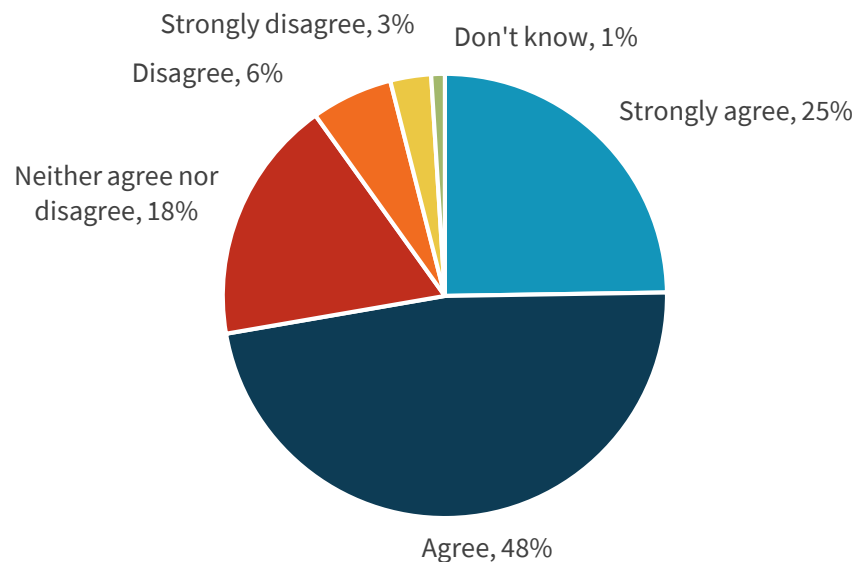
Most Organizations Have Not Optimized Their Multi-cloud Environments

While solutions exist to optimize multi-cloud environments, ESG's data indicates that many organizations have yet to implement them and would benefit from either transforming on-premises IT to a true private cloud, likely built on HCI, and making users aware of its capabilities, or implementing a more consistent approach to multi-cloud infrastructure management.

An effective multi-cloud strategy should make IT staff more efficient and their jobs easier as large portions of infrastructure maintenance are offloaded to CSPs in use. However, the research shows the opposite is often the case. ESG asked respondents if they agreed or disagreed that adding public cloud(s) to their existing on-premises environment had added complexity to IT operations. A resounding 73% agreed, outnumbering those who disagreed by 8 to 1.

Figure 3. Public Cloud Adoption's Impact on IT Complexity

Please rate your agreement or disagreement with the following statement: Using infrastructure in the public cloud (or multiple public clouds) in addition to our on-premises infrastructure has added complexity to our IT operations. (Percent of respondents, N=1,257)



Source: Enterprise Strategy Group

Another clear indication that cloud strategies and solutions need improvement is the fact that 77% of respondents reported having moved at least one public cloud-resident workload back on-premises due to unforeseen challenges or satisfaction issues.

These issues are often driven by public cloud over exuberance. Public cloud solutions are often seen as a way to drive innovation and agility. In turn, some organizations have pivoted to a cloud-first mindset, meaning they believe everything or almost everything should move to the cloud. This approach can create challenges from varying and unexpectedly high egress costs, latency issues, and lock-in, to compliance and control issues. Understanding how public cloud architectures will impact workloads is a critical step, and when skipped, organizations expose themselves to risks.

The Connection between HCI and Multi-cloud Enablement

This paper previously outlined two theoretical ways in which HCI adoption can help optimize cloud outcomes. The data bolsters the credibility of the statement that HCI can improve cloud enablement.

HCI to Enable Private Clouds, Driving Repatriation

Cloud consumption models have value. Self-service provisioning speeds deployment and the ability to scale infrastructure on the fly based on demand enables cost optimization (when done well). However, public cloud utilization can have drawbacks. Security can be complicated based on uncertainty related to the shared responsibility models CSPs use. Independent of that, many organizations are not comfortable storing sensitive data within another company's data center. Performance can sometimes be problematic. Workloads that require ultra-low latency or that need to account for real-time changes to data are not ideal for public cloud as the workload runs far away from app users and data sources. Similarly, bandwidth and connectivity issues can result in a poor user experience. Finally, complexity and questions about ongoing

costs as cloud proliferation expands can give organizations pause. For these reasons, many organizations may decide that for the foreseeable future the public cloud makes sense, but only in moderation.

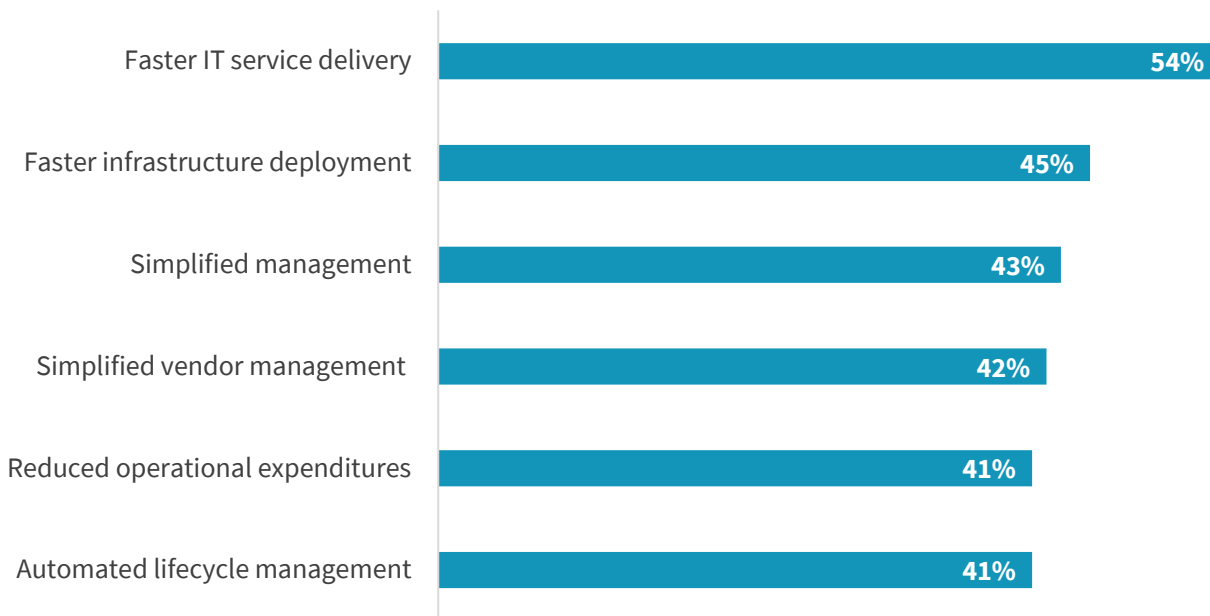
However, to limit public cloud sprawl, the on-premises environment must be competitive with, or better than, public cloud alternatives. That means drawbacks associated with legacy infrastructure must be solved, such as complex lifecycle management, the inability to adjust resources to workload requirements on the fly, and highly manual operations. HCI as a software-defined solution helps achieve this. And with advances in management technologies like VCF on top of VxRail, a cloud-like experience is achievable on-premises, while setting the stage for true multi-cloud operations down the road.

HCI is broadly adopted today; the survey showed that 65% of organizations participating had deployed HCI in their environments, with an additional 23% planning to do so in the next 12-24 months. Beyond asking *how* HCI is deployed, the survey asked respondents about the reasons why. ESG asked current users about the benefits they've achieved thus far, and speed and simplification are both areas that broad swaths of organizations reported achieving in, including faster service delivery (54%), faster infrastructure deployment (45%), and simplified management (43%) (see Figure 4).

Furthermore, the magnitude of the benefits achieved is large. Organizations that have measured their improvement in infrastructure deployment time say the person-hours required for HCI is an average of 41% less. When it comes to systems management, respondents told us the person-hours saved with HCI is 40%. In either case, organizations claim valuable time back for over-taxed IT organizations, freeing them up to focus on other initiatives.

Figure 4. Benefits Achieved by HCI Adopters

Which of the following benefits has your company has realized by deploying a hyperconverged infrastructure technology solution(s)? (Percent of respondents, N=814, multiple responses accepted)

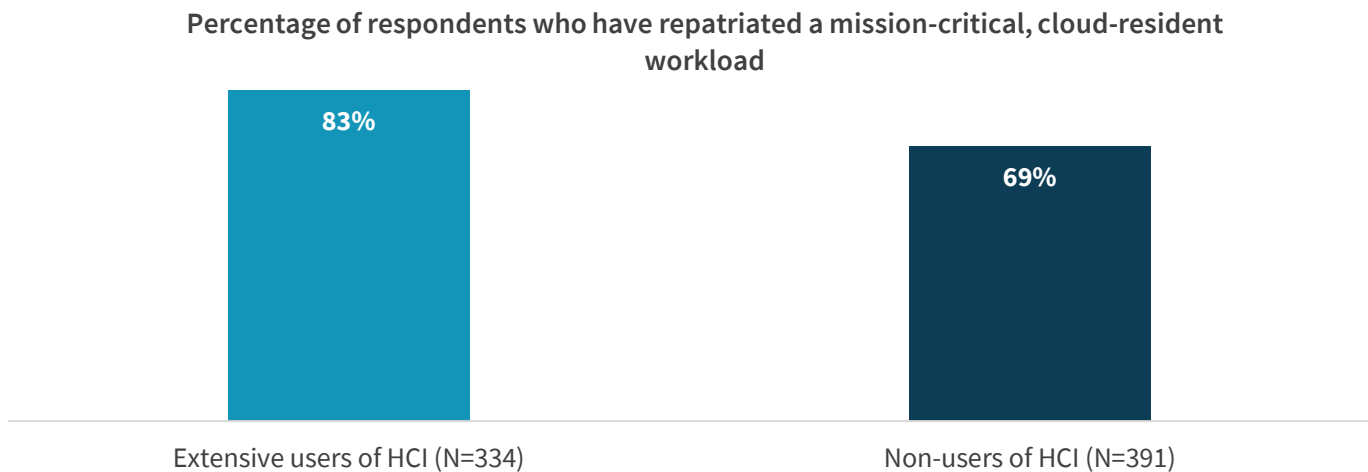


Source: Enterprise Strategy Group

As mentioned, depending on the organization's perspective, one way to achieve an optimized multi-cloud profile is to actually stem the flow of data and apps to the public cloud that would be better served on-premises. The data shows that this methodology is correlated with HCI use. ESG compared the percentage of organizations using HCI extensively that have repatriated mission-critical cloud workloads with the percentage of non-HCI users reporting repatriation. The data

shows a statistically significant difference in the behaviors of these two groups, with 83% of extensive HCI users having repatriated one or more workloads compared with 69% of non-HCI users (see Figure 5). ESG believes that the improvements in on-premises IT operations enabled by HCI plays a significant role in these repatriation behaviors.

Figure 5. Respondents Who Have Repatriated a Mission-critical, Cloud-resident Workload



Source: Enterprise Strategy Group

HCI as an Engine for Hybrid Cloud Acceleration

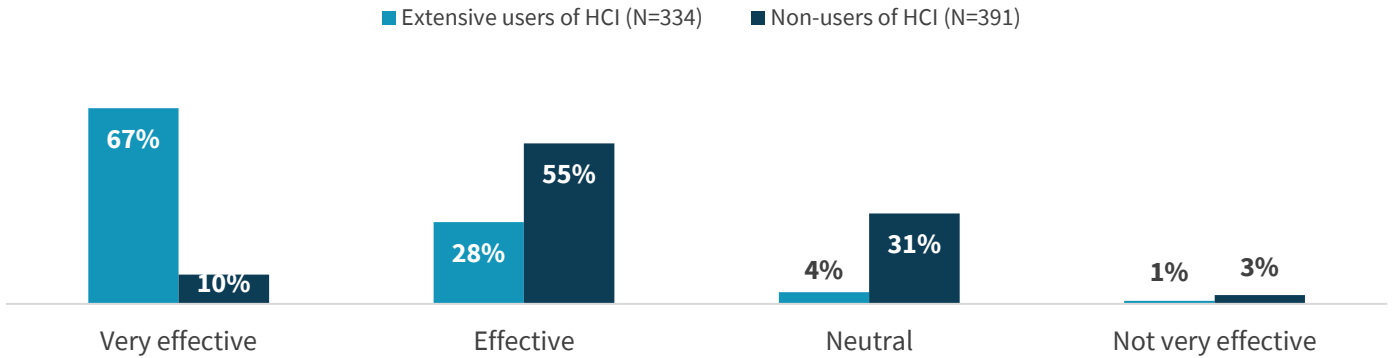
“Hybrid cloud” is a somewhat subjective term. Some organizations view hybrid cloud as simply running some workloads on-premises and some in the public cloud. In this context, the previous scenario is one way an organization may further hybrid cloud initiatives, repatriating workloads deemed to be better run on-premises, with the help of HCI.

Alternatively, some organizations view hybrid cloud as the disaggregation of workload tiers and running the workload’s components in different locations. More recently, the idea of having a consistent management plane that spans all workloads is gaining traction as a measure of hybrid cloud effectiveness. Here again HCI can help, as vendors evolve operating systems and integrate management tools with virtualization platforms to achieve an end-state where the management experience and application behavior on-premises on HCI are identical to public cloud operations. VCF on VxRail is a prime example of this approach.

While ESG’s research did not measure these concepts directly, the data suggests that HCI use is tied to hybrid cloud success for organizations. While the causation may vary from organization to organization, in the aggregate, ESG believes both of these concepts are at play in the data. ESG asked organizations to generally rate the effectiveness of hybrid cloud initiatives at driving value for the organization; two-thirds (67%) of organizations extensively using HCI are very effective at driving value for the organization with hybrid cloud, 6.7x the frequency of organizations not using HCI (10%) (see Figure 7).

Figure 6. Hybrid Cloud Initiatives Are More Effective with HCI On-premises

Generally speaking, how effective would you say your organization’s hybrid cloud initiatives have been at driving value for the organization? (Percent of respondents)

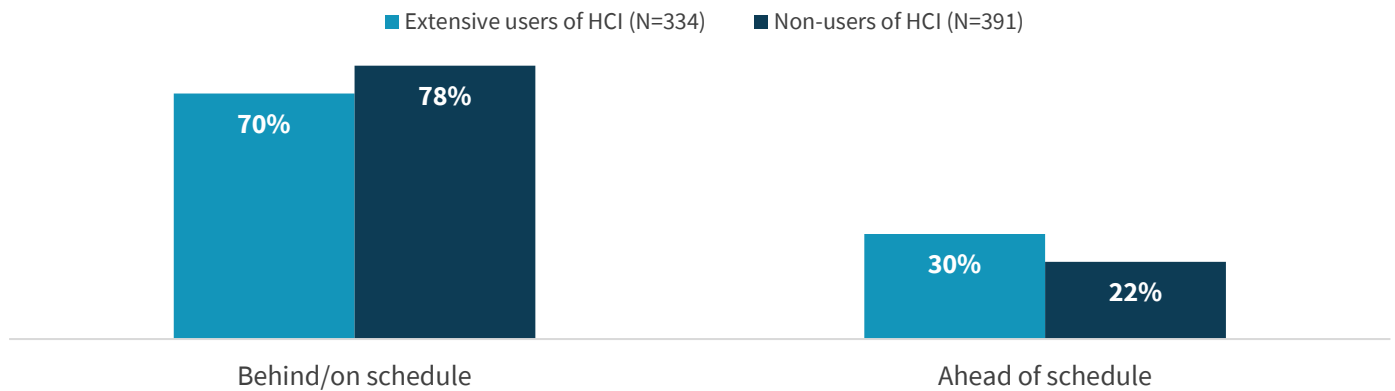


Source: Enterprise Strategy Group

While it is possible that the link between HCI use and hybrid cloud effectiveness is coming entirely from the on-premises side of the hybrid cloud equation, the data suggests to ESG that HCI use is also tied to public cloud progress. ESG asked respondents to consider their cloud migrations and development projects in the context of timelines. Extensive users of HCI reported that 36% more of their cloud projects have been completed ahead of schedule relative to non-HCI users (30% versus 22%) (see Figure 7). This difference could be driven by the fact that IT operations teams extensively using HCI have more time to focus on cloud projects, or it could be indicative of the efficiencies these organizations are gaining by adopting more consistent management tools integrated with HCI.

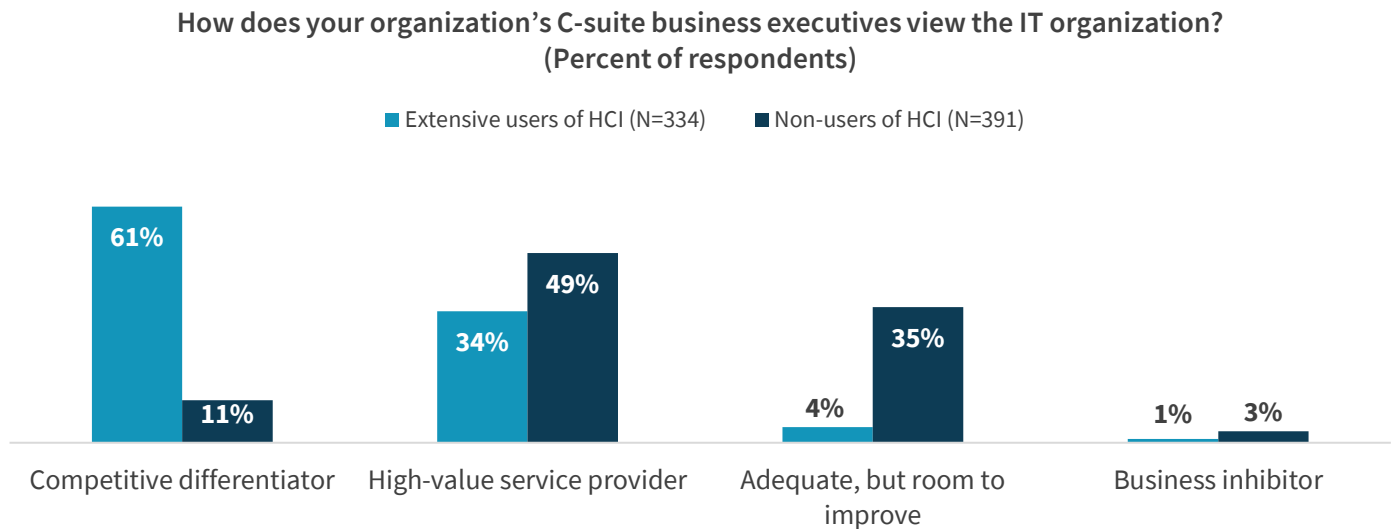
Figure 7. Cloud Projects Are Completed Ahead of Schedule More Often at Organizations with HCI

Please consider the cloud migrations and development projects your organization has undertaken to date. Roughly what percentage of these projects have been completed in each of the following timeframes? (Percent of respondents)



Source: Enterprise Strategy Group

While definitively identifying the causation behind these trends is slightly speculative, it is clear that the use of HCI is strongly correlated to an improved standing of the IT organization in the eyes of C-suite business executives. Three-fifths (61%) of IT organizations extensively using HCI are viewed as competitive differentiators, 5.5x the frequency of organizations not using HCI (11%) (see Figure 8). IT executives clearly have a lot to gain by driving HCI utilization up.

Figure 8. HCI Use Is Correlated to an Improved Opinion of IT Teams

Source: Enterprise Strategy Group

The Bigger Truth

IT organizations that utilize HCI are having more cloud success than organizations that do not. The reasons are nuanced: HCI's enhancements on-premises may free up IT to focus on effective public cloud use; it may allow the organization to repatriate workloads ill-suited to the public cloud, improving the overall cloud mix; or it may be that HCI management tools like VCF are driving improved multi-cloud orchestration capabilities. Whatever the root cause for a specific organization, the aggregate data is clear:

- HCI increases service delivery speed (54%), infrastructure deployment (45%), and eases management (43%) for many users.
- Users of HCI reported 41% time savings when it comes to system deployment tasks and 40% time savings in system management tasks compared to before HCI was in use.
- Users of HCI are 6.7x more likely than organizations not using HCI to describe their hybrid cloud initiatives as very effective at driving value for their organizations.
- Users of HCI are enjoying more success when it comes to cloud agility. Extensive users of HCI complete 36% more of their cloud projects ahead of schedule relative to non-HCI users.
- Leadership at companies using HCI is 5.5x more likely than leadership at companies not using HCI to view the IT organization as a competitive differentiator.

How Dell Technologies Can Help

Together, Dell Technologies, VMware, and Intel Corporation are driving innovation and next-generation capabilities to move, store, and process data and workloads with the broadest portfolio of trusted infrastructure, cloud, and data solutions—enabling businesses to adopt transformative technologies to maximize performance, compete, and thrive in the new digital economy.

Regardless of where organizations are on their cloud journey, Dell Technologies can help.

For those eager to drive private cloud-fueled transformation with an HCI-powered data center, [Dell EMC VxRail Hyperconverged Infrastructure](#) delivers a turnkey experience that enables innovation. VxRail eases infrastructure scaling, simplifies lifecycle management, and enhances VMware environments, while meeting the performance needs of the most demanding workloads.

For those more interested in implementing a broad, consistent multi-cloud operations model, [Dell Technologies Cloud](#) is a set of cloud infrastructure solutions—including [VMware Cloud Foundation on Dell EMC VxRail](#), the foundation for Dell Technologies Cloud Platform—powered by embedded optimized performance acceleration delivered by Intel’s data-centric technologies (compute, memory, storage, and networking) and designed to bring consistency and control across private clouds, public clouds, and edge locations, reducing the barriers of cloud adoption and letting application and business requirements determine where workloads reside.

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.

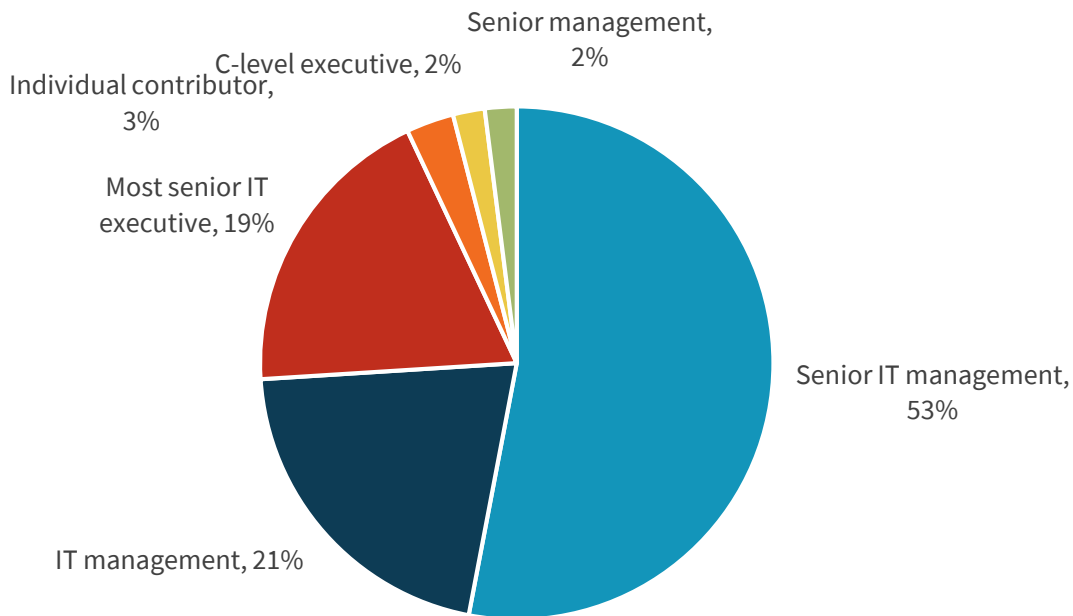
After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on several criteria) for data integrity, a final sample of 1,257 respondents remained.

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 and primary industry.

Figure 9. Survey Respondents, by Job Title/Level

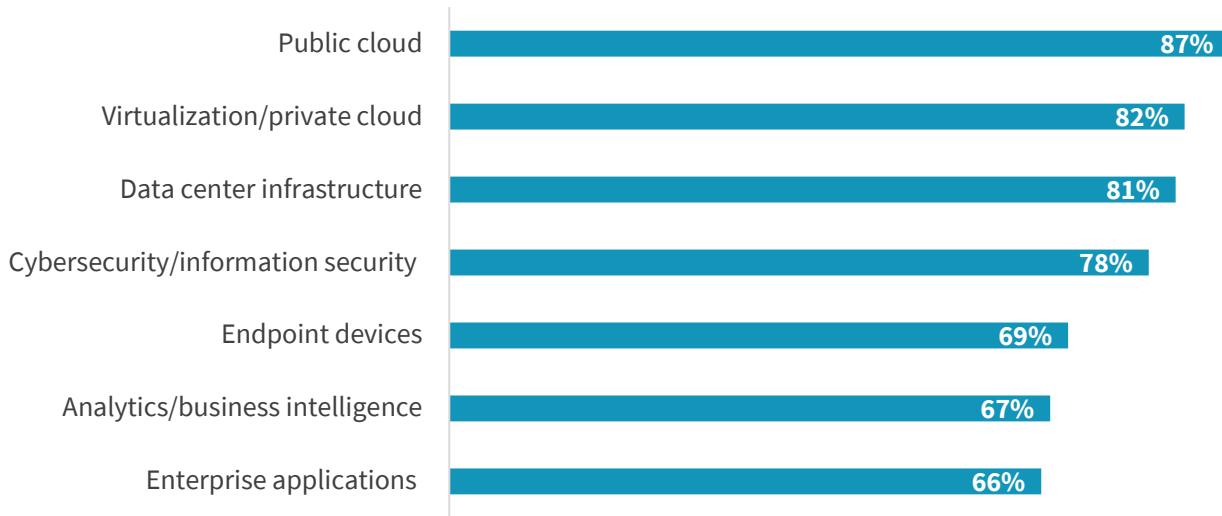
Which of the following best describes your current job title/level? (Percent of respondents, N=1,257)



Source: Enterprise Strategy Group

Figure 10. Survey Respondents, by IT Responsibility Areas

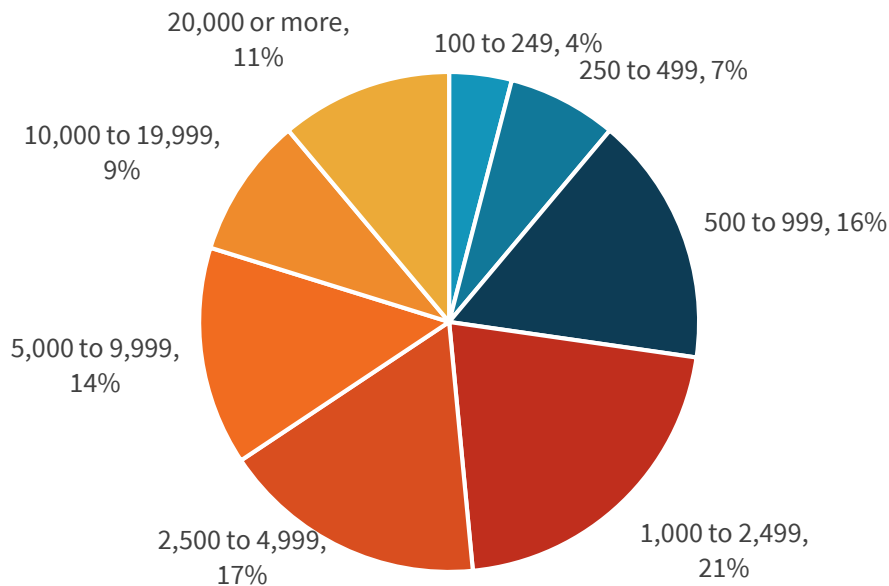
In which of the following areas of IT do you have significant involvement in the purchase process for your company? (Percent of respondents, N=1,257, multiple responses accepted)



Source: Enterprise Strategy Group

Figure 11. Survey Respondents, by Company Size (Number of Employees)

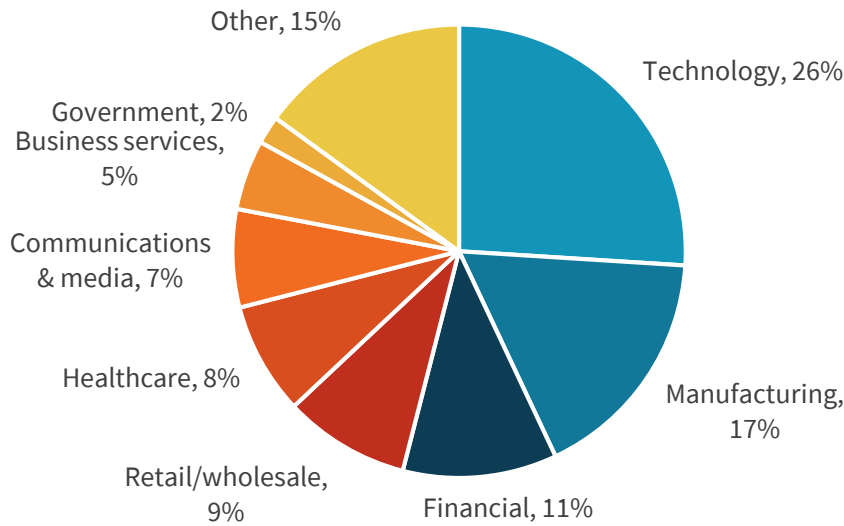
How many total employees does your organization have worldwide? (Percent of respondents, N=1,257)



Source: Enterprise Strategy Group

Figure 12. Survey Respondents, by Industry

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



Source: Enterprise Strategy Group

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