

GETTING CLOUD

GOVERNANCE RIGHT

**Putting the Right Controls
in Place to Ensure Your
Company Reaps the
Rewards of Cloud Migration**

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We live in a golden age in which smart digital capabilities help us make better choices, accomplish more each day, and ultimately, make life a little easier. All things being equal, people will choose brands and services that offer the best of these capabilities. So to compete in this digital economy, every company—from established enterprises to startups—must consider how it will meet this growing demand for new digital experiences to engage both customers and employees.

Building these experiences is not easy. It's an iterative, ongoing process that continues to shift along with the changing dynamics of customer needs and preferences. It takes a lot of learning, pivoting, and fine-tuning to get the experience right. When you finally hit the mark, you'll need to quickly scale to address market demand and continue to innovate to keep users satisfied and maintain your lead.

This continuous development cycle requires businesses to be faster and more agile than ever before if they hope to keep up with market demand. The good news is that cloud technology and DevOps practices like CICD give businesses a scalable, flexible dev environment that enables unprecedented speed and agility.

But going fast isn't the only criterion for success. With greater speed, proper control and compliance become even more critical. Otherwise, we create another set of problems including security vulnerability, cost overruns, falling short of customer SLAs, and failure to comply with regulations and standards that are becoming mandatory for many businesses across every industry.

Fortunately, the cloud provides another powerful benefit that helps businesses address security and compliance requirements. Because all cloud operations and resources are software-defined, organizations can monitor and control every activity and resource setting. Azure, for example, provides an industry-leading control plane that facilitates all cloud deployment operations and centralizes governance at scale. By allowing cloud engineers to declare their intent of control in simple yet powerful expression, Azure's control plane and governance capabilities deliver an exceptional level of automated control designed for massive scale right within the platform.

In the past, enforcing proper security controls meant slowing down innovation. But today, with the power of the cloud, we can employ a robust governance structure that enables speed, agility, and breakthrough innovation.



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GETTING CLOUD GOVERNANCE RIGHT

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Organizations of all sizes are migrating their data centers onto the cloud, attracted by the prospect of cost savings, elastic computing, more efficient data storage, and more reliable disaster recovery.

Harvard Business Review Analytic Services and *CIO* magazine recently surveyed executives at more than 550 companies around the world about their plans for cloud migration, and followed up with a series of one-on-one conversations with cloud services and security officers at leading companies. The survey found that 60% have completed or are currently carrying out a public cloud migration, while 18% are planning to do so, confirming that this has become a powerful trend. [FIGURE 1](#)

Meanwhile, 71% of larger companies (with 1,000 or more employees) and 44% of smaller companies have either completed or are planning a migration to a hybrid cloud, which combines a private cloud and a public cloud, highlighting the growing popularity of this structure.

More and more companies are at home moving all of their data from traditional, on-premises systems to a public or hybrid cloud data center. Eighty-two percent of survey respondents from larger companies and 69% from smaller companies said their employer either has already done so or plans to do so within the next three years.

Demand for cloud conversion is coming from functional and business units within companies and is becoming more pressing. At Société Générale, which is now executing a migration to the public cloud, “we have some business leaders who are traditionally very conservative and don’t want to externalize anything” but who have pushed for it very vocally, says Arnaud Domard, IT global head of digital transformation and e-business IT manager for Société Générale Corporate and Investment Banking. The principal attractions, he says, are the prospect of shorter time to market for their new products and services, the ability to automate and speed up parts of the regulatory process, and greater confidence in the cloud provider’s reliability (“It’s never, never down.”).

HIGHLIGHTS

60%

OF RESPONDENTS HAVE COMPLETED OR ARE CURRENTLY CARRYING OUT A PUBLIC CLOUD MIGRATION WHILE 18% ARE PLANNING TO DO SO.

71%

OF LARGER COMPANIES (WITH 1,000 OR MORE EMPLOYEES) HAVE EITHER COMPLETED OR ARE PLANNING A MIGRATION TO A HYBRID CLOUD.

44%

OF SMALLER COMPANIES HAVE EITHER COMPLETED OR ARE PLANNING A MIGRATION TO A HYBRID CLOUD.

A robust cloud governance structure is crucial to any organization moving data and related resources to the cloud.

As the balance shifts, cloud operations become more important to the company's success and cloud governance becomes critical to the success of the migration; 73% of larger companies and 63% of smaller companies agree it's very important. When companies migrate rapidly, often using multiple service providers and without having first put governance structures and processes in place, they run the risk of losing control of their environment and data. While most companies strive to centralize cloud migration and cloud governance, in practice this can require careful structuring in order to keep control of data within the right business or functional areas and maintain internal and external firewalls. Having a dedicated team in charge of cloud governance and compliance is therefore optimal, but the C-suite needs to be actively involved as well to make sure that the company's cloud

operations and IT and business strategy are closely aligned.

Perhaps most importantly, cloud governance must reflect a strategic rather than a merely operational view of the cloud's role. Otherwise, companies will find it more difficult to focus on the cloud's potential for creating longer-term competitive advantages in areas like resource management, deployment agility, and customer service.

Larger companies are clearly making greater progress than smaller companies in most of these respects, our survey revealed, particularly regarding prioritization of governance objectives and what steps they have taken to achieve them, who makes or influences decisions, and how they measure performance. But even at larger companies, there is much room for improvement.

Why Cloud Governance Is Critical

The survey findings support for the view that cloud governance is crucial to any organization moving data and related resources to the cloud. Our survey respondents broadly agree, with 73% of larger companies and 63% of smaller companies saying governance is very or extremely important to the success of their organization's cloud-based data center.

Digging deeper, respondents were asked how important a successful cloud governance framework is to the outcomes they most hoped to achieve through cloud migration. The results were powerful: 54% said that improved service to customers, employees, and other stakeholders was one of the top three benefits of cloud migration and almost one-third (32%) cited reduction of potential risks to information resources and improved cost control.

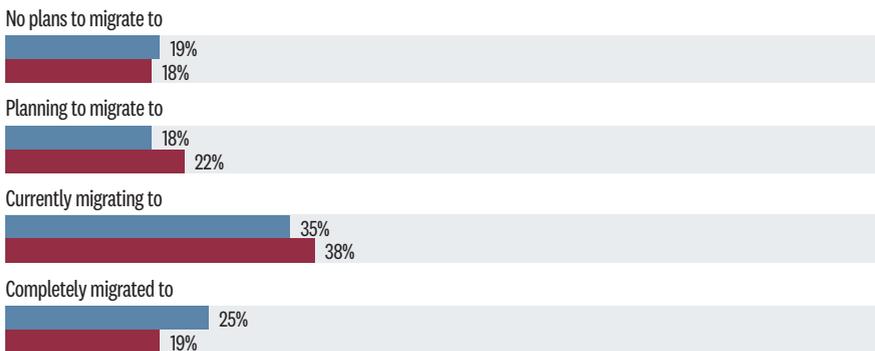
FIGURE 1

CLOUD CONVERGENCE

Public and hybrid cloud data centers are now in place at most companies surveyed.

Has your organization established a public or hybrid cloud data center, or is it planning to do so?

- PUBLIC CLOUD (COMPUTING SERVICES OFFERED OVER THE PUBLIC INTERNET)
- HYBRID CLOUD (COMBINATION OF PRIVATE CLOUD [ON-PREMISES INFRASTRUCTURE] WITH PUBLIC CLOUD)



SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MAY 2019

FIGURE 2 But larger companies are far more focused on two outcomes that are critical for establishing a competitive advantage through the cloud: strategic alignment of cloud operations with IT and business strategies (49% versus 35% of smaller companies) and increased deployment agility (44% versus 35%).

Not surprisingly, cloud governance now receives closer attention from the C-suite. Almost half (47%) of respondents say their organization's top decision makers (CEO, president, owner, partner) were involved in decisions regarding cloud governance and more than one in three (36%) say the CEO, president, owner, or partner is most responsible for decisions involving cloud governance.

But larger and smaller companies differ considerably in regard to the level of direct control the C-suite and the IT function exercise, possibly reflecting the amount of resources they have to devote to cloud governance. At larger companies, only 27% of survey respondents said the CEO, president, owner, or partner is involved in decisions, and only 17% said this official is most responsible for decision making. By contrast, 75% said the cloud engineer, architect, or leader of the cloud center of excellence is involved, followed by the CIO (73%) and the CISO (53%). By a larger margin, the CIO is cited as being most responsible for decision making (68%), followed by the CISO (40%).

The results were almost exactly opposite at smaller companies, where almost two-thirds (65%) said the CEO, president, owner, or partner is involved in decisions, and 53% said he or she is most responsible for decision making. Executives in the IT function play a more limited role in cloud governance at smaller companies; while 55% said the CIO is involved in decision making, only 30% cited the cloud engineer, architect, or leader of the cloud center of excellence, and only 23% mentioned the CISO. Only 19% said the CISO is most responsible for decisions, and only 11% cited the cloud engineer, architect, or leader of the cloud center of excellence.

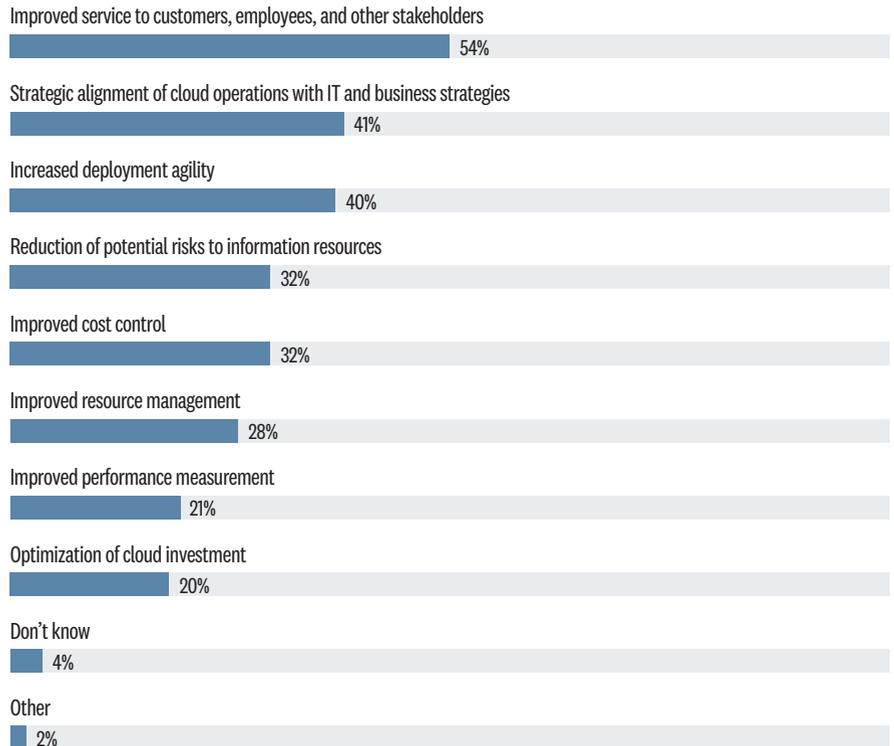
FIGURE 2

CUSTOMER SERVICE A TOP PRIORITY

Companies also emphasize strategic alignment of cloud operations with IT, business strategy.

What are the most important outcomes of a successful cloud governance framework?

[UP TO THREE SELECTIONS ALLOWED]



SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MAY 2019

At larger companies, the principal decision makers in cloud governance tend to be executives situated closest to day-to-day cloud operations, while at smaller ones, the CEO or another top executive must take a more hands-on role. This suggests that larger companies are building larger dedicated teams to direct this growing and increasingly important part of their operations, whereas their smaller counterparts have fewer resources to do so.

Often, too, cloud governance is a collaborative effort, run by teams rather than a single leader. At consulting firm Willis Towers Watson, for example, the cloud platform is run by Mike Fleming, senior director of cloud services, whose

“WE’RE TRANSFORMING FROM A TRADITIONAL OPERATIONS AND SECURITY WORLD INTO A DEVOPS WORLD, AND SO IT’S IMPORTANT FOR OUR OPERATIONS AND SECURITY PEOPLE TO UNDERSTAND THE NEED TO WORK IN A MORE AGILE WAY.” RICKARD ÖH, IF INSURANCE



Nearly **one in four** respondents (38%) said their company crafted its cloud governance policies internally.

group provides tools and migrates applications for all lines of business, and the firm's CISO, who is in charge of security. At Sweden's If Insurance, the team similarly consists of Rickard Öh, cloud solution architect, and Kristoffer Arfvidson, lead account security consultant; major strategic decisions are directed by a Platform Decisions Group made up of Öh, Arfvidson, and leaders selected from each LOB by the CEO and top management.

Customizing Cloud Governance

Regardless of size, however, most companies that have adopted a cloud governance strategy are taking care to structure it with their specific profile in mind.

Nearly one in four respondents (38%) said their company crafted its cloud governance policies internally, using cloud provider-supplied documents as a basis, and 34% say they started with policies and procedures developed by a third party, then customized them. Only 6% say they adopted policies and procedures developed by a third party, with little or no customization. [FIGURE 3](#)

Other organizations say they based their policies and procedures on industry best-practice research and advice from outside consultants. A small number say their cloud governance policies were developed entirely internally. And one respondent said his organization created a specific "data governance role" and that person then "developed policies and procedures based on best practices."

Companies differ as well in the larger business objectives they seek from cloud migration. Insurance is becoming a more technology-heavy business, Öh notes, and at If Insurance, developers are churning out a nearly continuous stream of tools and updates for their internal customers. "Developer

productivity is what helps us run faster than our competitors," Öh says. Much of cloud governance therefore is centered on making it easier for If's developers to operate in the new environment.

As a result, Öh and Arfvidson try to build their teams from people who either have a background as software developers or have worked closely with them and understand how to help them achieve their goals. "We're transforming from a traditional operations and security world into a DevOps world, and so it's important for our operations and security people to understand the need to work in a more agile way," Öh says.

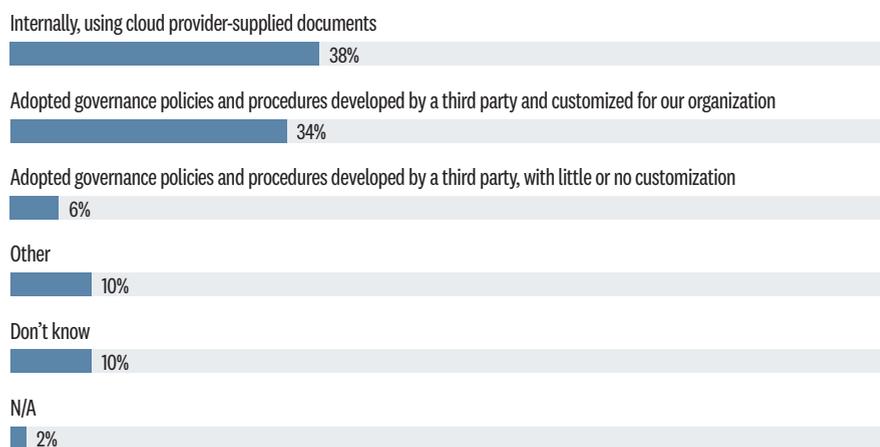
While their specific approaches and objectives may differ, the common thread is the understanding that a

FIGURE 3

CUSTOMIZED CLOUD GOVERNANCE

Cloud governance policies, procedures are most often developed by a third party.

How did your organization develop its organization-wide cloud governance policies and procedures?



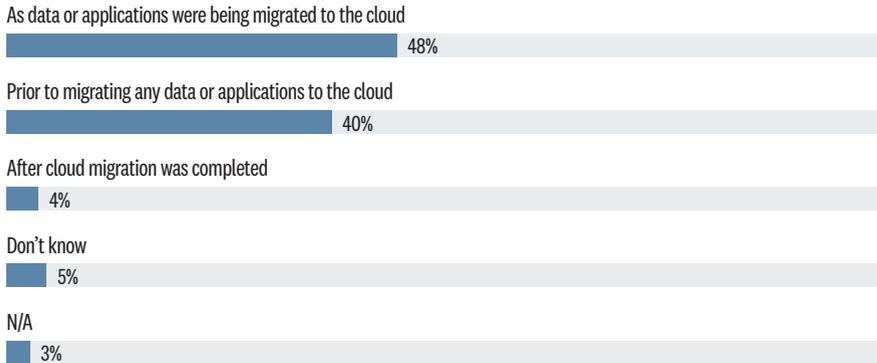
SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MAY 2019

FIGURE 4

LATE START

Most companies put their cloud governance strategy in place after beginning migration.

At what stage was your organization-wide cloud governance strategy adopted?



SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MAY 2019

successful governance model can also be a competitive advantage, building trust with customers and allowing the business to more aggressively adopt cloud services to improve agility and accelerate innovation. All of this requires that cloud governance be structured to serve the company's unique business goals and proposition.

Creating a formal structure for cloud governance early in the process can also be critical to success, since it helps the company minimize mistakes resulting from lack of direction during migration. Yet more than half of survey respondents (52%) said they adopted their organization-wide cloud governance strategy during or after migration, and only 40% said they did so prior. **FIGURE 4**

As a practical matter, however, some elements of governance have to be decided at a very early stage of migration if not beforehand, due to the complexity of the process. At Société Générale, Domard says, defining ownership of a given set of data has to be done early, especially because "in a more DevOps world," multiple teams or business units can claim control.

In some cases, the line is not finely drawn.

If Insurance began its cloud migration project in 2014 with just one application, and its cloud governance structure at the time was minimal. Today, it has more than 100 applications on its cloud platform with 40 DevOps teams working on them. However, Öh and Arfvidson stress the importance to their success of developing a cloud governance structure soon after If started to accelerate migration, as this made it easier for them to update and refine the structure as cloud usage expanded.

Most organizations surveyed recognize, too, that to be most effective, decisions about cloud governance must be centralized and integrated with their broader resource, data governance, and risk management policies. Almost three out of five respondents (59%) that have adopted a cloud governance strategy say that decision making for cloud governance is very or completely centralized at their organization; only a small fraction (5%) said it is mostly or completely decentralized.

In practice, however, centralization at many companies means that cloud architecture, security, tools, and overall governance are managed centrally while control of the data itself remains at the functional and LOB levels, which Fleming says helps to maintain boundaries around sensitive information. Since Willis Towers Watson operates in some jurisdictions with data residency requirements, it's important that units operating in those locations are able to set their own data access policies even if the data itself is located on a cloud-based platform, Fleming says. Similarly, at Société Générale, cloud migration is directed at the business unit level, for example, by the heads of the investment banking and business-to-business divisions, each having its own digital transformation team.

At Willis Towers Watson, eight CIOs cover 32 separate LOBs, "and it's their job to make sure that all our security tenets are followed by their team," Fleming adds. At the same time, Fleming's team continuously runs samples and records any unusual activity. For instance, "if we get



CREATING A FORMAL STRUCTURE FOR CLOUD GOVERNANCE EARLY IN THE PROCESS CAN BE CRITICAL TO SUCCESS.

59%

ALMOST THREE OUT OF FIVE RESPONDENTS THAT HAVE ADOPTED A CLOUD GOVERNANCE STRATEGY SAY THAT DECISION MAKING FOR CLOUD GOVERNANCE IS VERY OR COMPLETELY CENTRALIZED AT THEIR ORGANIZATION.

someone who keeps trying to gain access and keeps getting denied for a policy reason, we can see that and follow up. We take all that logged data, aggregate it into analytics for each subscription, then put it in a data lake where the team can look at it for threat vectors.”

Running Risks

Just because most organizations are opting for a centralized cloud governance strategy doesn't mean they have put all the elements in place or adopted metrics to measure their strategy's performance.

While more than half of larger companies (53%) say they have developed an organization-wide strategy for cloud governance, only 40% of smaller companies say they have done so. More than

three-quarters (76%) of larger companies have defined their cloud governance objectives, compared with less than half (47%) of smaller companies. **FIGURE 5** And slightly more than one-third of respondents from smaller companies (35%) said their organization has no cloud governance strategies in place today, while only 19% from larger companies said the same.

Even among larger companies, however, a substantial proportion are not taking the steps needed to implement a smoothly run, centralized governance strategy. At one in four larger companies (25%), respondents say that departments and/or locations are developing their own strategies, and almost one in five (19%) say they have no cloud governance strategy in place. Fewer than half have customized their applications to better fit the cloud environment (46%), implemented data classification and security policies directly into the platform (44%), or streamlined their approval processes and external documentation for the cloud (38%).

While Société Générale is still completing its cloud migration, “we're already starting to think about what will be the drivers” of success, Domard says, anticipating the need to establish metrics after the conversion is complete. However, only a little more than one in three survey respondents from larger companies (37%) say their has established key performance indicators (KPIs) to measure cloud governance performance, while 43% say they haven't and 21% said they don't know. Only 39% said they have established performance and utilization metrics. For smaller companies, the numbers are even more unpromising; 60% say they have no KPIs in place, almost twice the proportion that do (31%).

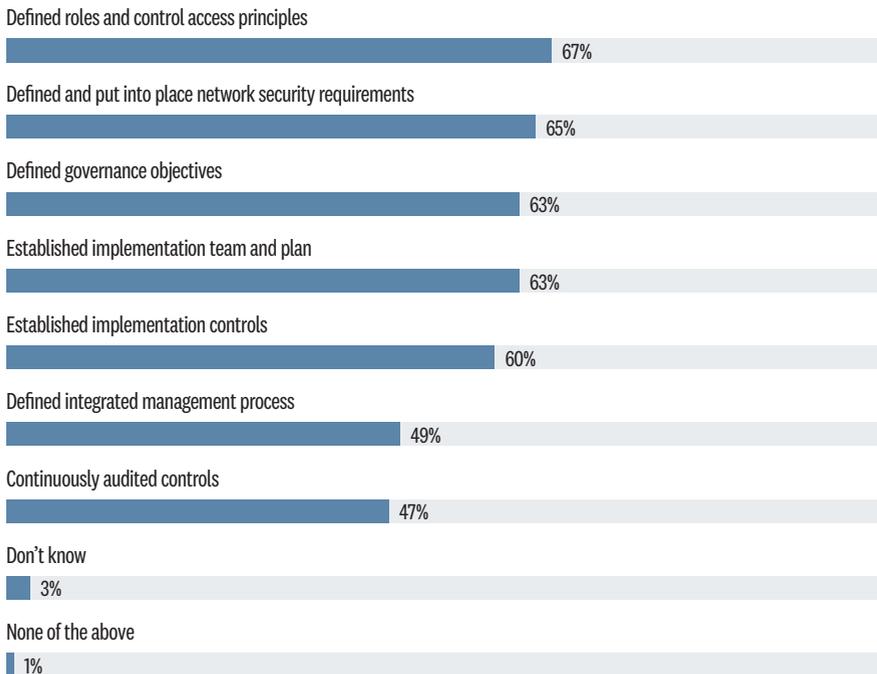
A majority of the organizations surveyed, then, are running the risk of missing out on the advantages that a successful cloud governance model can provide and lack the metrics needed to gauge whether they are getting the most out of theirs.

FIGURE 5

STRATEGY DEFINED

Most companies have established the basic principles, components of cloud governance.

Which of the following steps has your organization taken to implement its organization-wide cloud governance strategy? [MULTIPLE SELECTIONS PERMITTED]



SOURCE: HARVARD BUSINESS REVIEW ANALYTIC SERVICES SURVEY, MAY 2019

The continuing use of **legacy systems** on premises, with which the cloud data center must interact, **complicates cloud governance** and makes it harder to keep objectives aligned.

Weak governance leaves the organization open to breaches and regulatory noncompliance, which can hurt both reputation and the bottom line. What difficulties are organizations encountering as they seek to develop a cloud governance strategy? By far the biggest obstacle or deficiency cited was a skills gap. Almost half (48%) of respondents mentioned this, which suggests that even organizations that are accustomed to running sophisticated data centers may not have the specific expertise to run a cloud-based operation.

Uncertainty about the sensitivity of data in cloud storage was cited by 30%, while 23% mentioned inability to determine whether cloud resources are appropriately secured and 20% lack visibility into cloud-based data and applications.

Some concerns appear to be tied to the size and complexity of the organization itself, and the challenges this poses. Forty percent of respondents from larger companies cited lack of coordination or alignment between business leadership and IT as a cloud governance deficiency, compared with only 20% of smaller companies; 31% of larger companies complained of cumbersome security and compliance policies, while only 19% of smaller companies did so. More than a third (35%) of respondents from larger companies also cited inconsistent processes across lines of business, while only 28% of those from smaller companies did so.

The Four Disciplines

These concerns suggest that many organizations have considerable work to do getting their data governance house in order before they can move

ahead with creating a cloud data center, while others—including many larger, more sophisticated companies—are still far away from reaping the full benefits. Fortunately, the survey results suggest they have a clear picture of what they need to do to get there. Their responses, together with observations from one-on-one interviews, form a four-part roadmap to cloud governance excellence.

GETTING ON THE SAME PAGE

More than half of respondents at larger companies (52%) and two out of five smaller companies (41%) placed achieving a closer alignment between their organization's business objectives and cloud strategy among the top three improvements they would like to see in cloud governance.

Getting there is a cultural as well as a procedural challenge. The continuing use of legacy systems on premises, with which the cloud data center must interact, complicates cloud governance and makes it harder to keep objectives aligned, Fleming says.

“Culture is the biggest challenge,” says Öh. “We try to get our people to work with the cloud tooling, but a lot of them are used to a specific tooling that works well in an on-premises environment. So we have to get our on-premises people to start thinking in a cloud-native way. But we live in a hybrid world where all of our systems talk to each other, so sometimes we just have to meet them halfway.”

GETTING ROLES STRAIGHT

Similarly, 33% of all respondents emphasized the need for a clearer set of policies defining the interaction between stakeholders. This underscores the need for a “revolution in roles” if cloud governance is to be effective. A large majority (62%) of



BY FAR THE BIGGEST OBSTACLE OR DEFICIENCY CITED IN DEVELOPING A CLOUD GOVERNANCE STRATEGY WAS A SKILLS GAP.

respondents said their role has become more strategic since their organization began establishing its public or hybrid cloud data center. This allows them to make more-considered decisions about the organization's cloud configuration, how it should be governed, and to whom to delegate responsibilities.

Öh suggests this is a natural progression as cloud usage expands at large companies. At If Insurance, much of compliance related to the cloud data center has been automated and developers are now more familiar with the platform's processes, freeing Öh and Arfvidson to focus on educating top executives on the benefits of the cloud platform.

Fleming sees cloud governance superseding or absorbing much of companies' IT governance in coming years, but requiring far fewer personnel to do so, since they don't manage hardware. "I have 15 people here dealing with the cloud across the organization," he says, "and I expect that to get to 30 or so—small but powerful. In corporate IT, we have 1,500 people."

MEASURING RESULTS

Better and clearer metrics around performance and utilization of their organization's cloud data center are a priority for 40% of respondents. Among organizations that have adopted metrics, operational efficiency (69%), cost reduction (59%), and risk mitigation (40%) emerge as the most commonly applied.

Here, too, companies of different sizes have different priorities. More than half (54%) use business value alignment as a benchmark, compared with 49% of smaller companies, while the latter, with fewer resources, are more likely to be using cost reduction as a yardstick: 68%, compared with 53% of larger companies.

While costs may not go down, at least at first, cloud services execs noted in interviews that moving to a cloud-based data center allows them to obtain a more granular view of expenditures across all areas of the company, which can help them achieve wider cost control. "Our KPIs started

with cost containment," says Fleming. "My team can look at each subscription and how they're using the top five Azure components, and say to them, 'Do you realize you have that server up? You're paying \$2,000 a day for that.'"

Another metric that some organizations focus on is frequency of deployment. For any company that delivers its product in digital form, the ability to launch and update new applications and services quickly is a competitive necessity. "On premise, we could maybe deploy four times a year," says Öh of If Insurance, "but in the cloud, we can deploy much more often."

COMPLIANCE AND MONITORING

Thirty-two percent of all respondents said the ability to undertake continuous monitoring of cloud governance processes is one of the top three advantages they would like to achieve from cloud migration, while 29% emphasized improving compliance with policies and standards. Thirty-one percent cited increased automation of policy enforcement, and 29% mentioned better compliance with policies and standards across the organization.

All of this underscores why compliance is a critical matter for cloud governance. "We didn't move to the cloud because it's cheaper," says Öh. "In some cases we're spending more, because we keep adding new workloads." But in a competitive field, he says, speed to market is essential, and compliance can easily create bottlenecks—a problem that an automated, cloud-based compliance process can solve. "This is key for speed of delivery."

These four cloud governance disciplines allow organizations to build a viable platform quickly and develop it efficiently in line with their changing guidelines and regulatory requirements. And they will only become more important as systems and workloads grow, data migration accelerates, and the advantages of a cloud data center—in operational efficiency, deployment agility, and risk mitigation—become integral to organizations' business strategy.



EACH COMPANY, LARGE OR SMALL, WILL NEED TO FIND ITS OWN SCALABLE FORMULA FOR CLOUD GOVERNANCE.

Better and clearer metrics around performance and utilization of their organization's cloud data center are a **priority for 40%** of respondents.

Conclusion: Scaling Up

These disciplines also help the organization scale the advantages of its cloud data center as it grows and becomes more sophisticated. This creates a baseline set of controls that can be codified into the platform and that embrace its evolution as a secondary platform that can adapt when new subscribers are added and updates are made based on changes in company policy or regulations. "That's the value of a simplified infrastructure and simplified, repeatable processes, which is what the cloud provides," says Fleming.

Achieving and holding on to these advantages will not be easy, however. "When we grow horizontally, adding more development teams, the governance process works well," Öh says. "What's more difficult is when we add services; they look different, and different policies are needed to make sure they're implemented in a compliant way." Each company, large or small, will need to find its own scalable formula for cloud governance.

METHODOLOGY AND PARTICIPANT PROFILE

A total of 376 respondents were drawn from the HBR audience of readers (magazine/newsletter readers, customers, HBR.org users) and 183 respondents from *CIO* magazine's audience.

Figures may not add up to 100% due to rounding.

SIZE OF ORGANIZATION

38% LESS THAN 250 EMPLOYEES	9% 250-499 EMPLOYEES	6% 500-999 EMPLOYEES	16% 1,000-4,999 EMPLOYEES	7% 5,000-9,999 EMPLOYEES	24% MORE THAN 10,000 EMPLOYEES
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SENIORITY

47% EXECUTIVE MANAGEMENT	37% SENIOR MANAGEMENT	17% OTHER
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KEY INDUSTRY SECTORS

ALL OTHER INDUSTRIES ARE LESS THAN 8% EACH

22% TECHNOLOGY	11% BUSINESS/ PROFESSIONAL SERVICES	11% FINANCIAL SERVICES	10% CONSULTING SERVICES	8% GOVERNMENT/ NOT FOR PROFIT
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JOB FUNCTION

ALL OTHER INDUSTRIES ARE LESS THAN 8% EACH

25% GENERAL/EXECUTIVE MANAGEMENT	24% IT/TECHNOLOGY	13% CONSULTING
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REGIONS

56% NORTH AMERICA	16% EUROPE	15% ASIA/PACIFIC	8% LATIN AMERICA	5% MIDDLE EAST/ AFRICA	1% OTHER
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Harvard Business Review Analytic Services partnered with IDG's *CIO* magazine to survey executives around the world about their plans for cloud migration.



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