EPAM CONTINUUM

MAY 2023 REPORT

From Taming Cloud Complexity to Achieving Cloud Mastery

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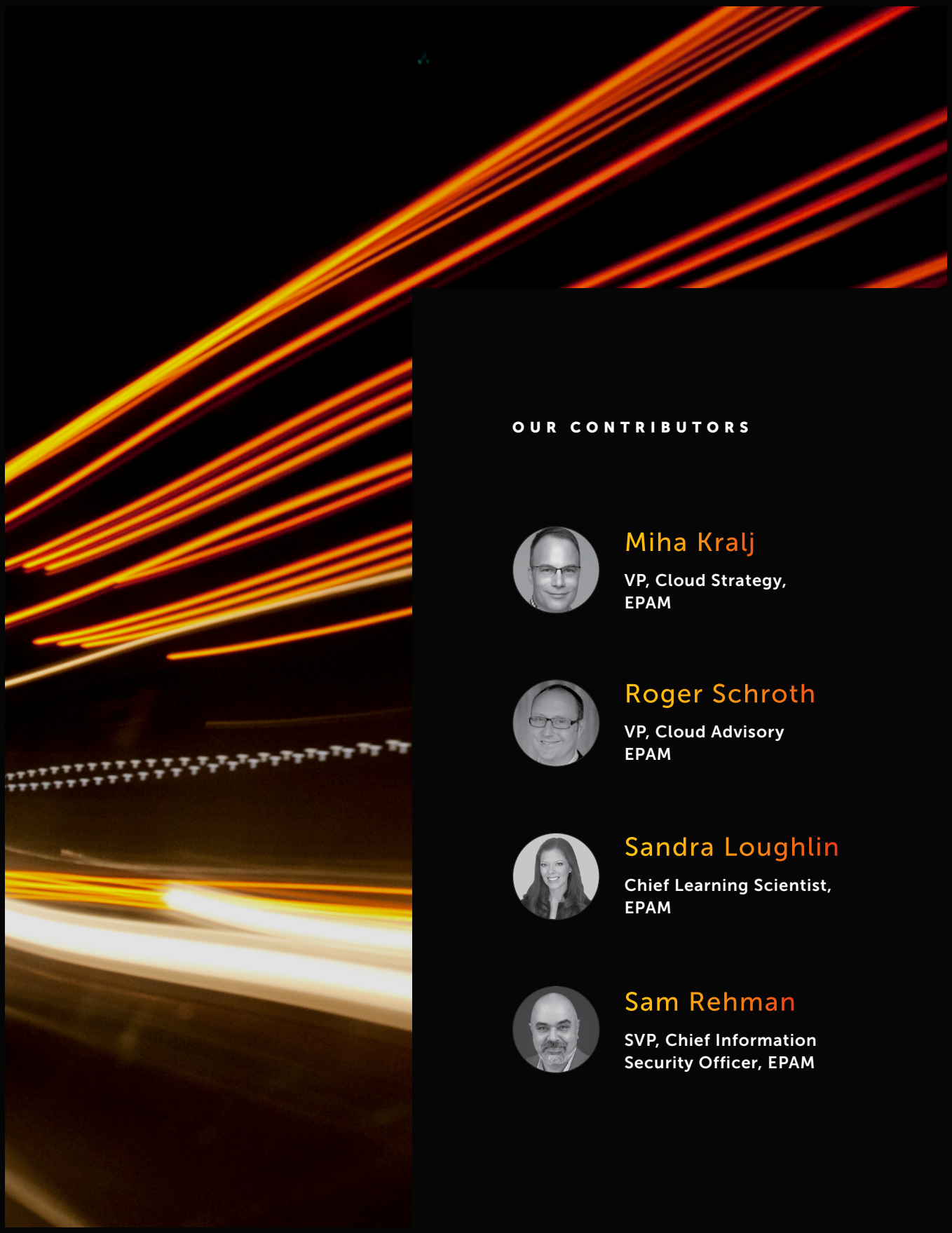

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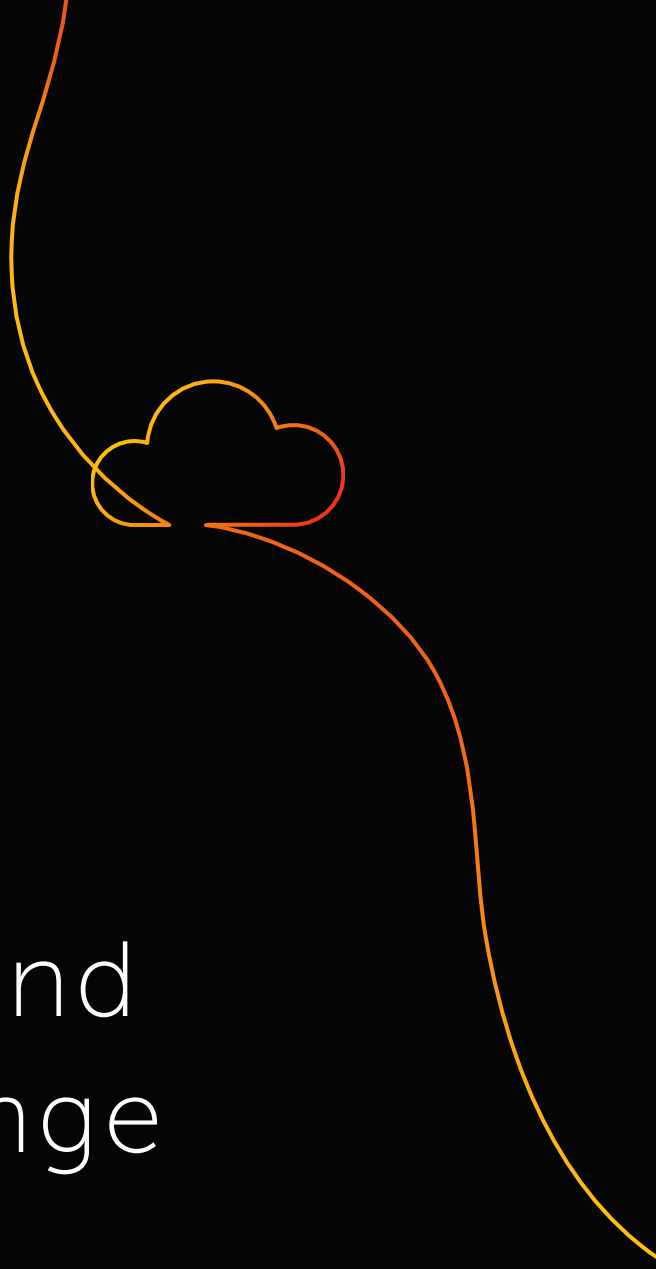


01

Mastering the Cloud is the Grand Business Challenge of Our Time

Mastering the Cloud is the Grand Business Challenge of Our Time

There's little question that cloud computing has driven, and continues to drive, a paradigm shift for enterprise IT. By relocating applications and data out of on-prem data centers and into the cloud, enterprises hoped to realize both cost efficiencies and IT agility. Over the course of their migrations, many discovered that the cloud was both more complex than they thought — requiring new methodologies and processes — and also provided new opportunities, not only for IT but for the businesses it supported.

It soon became apparent that *mastering* cloud computing represented a tectonic, and absolutely essential, change for enterprises that sought to thrive in the 21st century. And unlike other such paradigm shifts, the transition to cloud computing happened almost overnight due to the COVID-19 pandemic. But that doesn't mean it was easy. To get the most from this new model, organizations had to adapt, reskill, migrate and manage the cloud — in a word, *master* it.

Questions arise. What does the industry mean by "cloud mastery?" Are organizations currently, and truly, mastering the cloud? What's needed to be a cloud master? And finally, how is the cloud benefitting not just IT but the bottom line?

We wanted to know.

That's why we surveyed over 400 senior IT leaders across North America and the United Kingdom, all of whom have extensive experience using the cloud in their enterprises. They represented a cross-section of industries: financial services, healthcare and life sciences, insurance and retail. We asked them about their experiences: what worked, what didn't and how they felt overall about this new model of computing. Did the cloud help them save money — or did it cost more? Were they able to deliver better business results? What challenges did they encounter and are still facing? How are their organizations responding to them?

How far along are they on their respective cloud journeys, and what are their expectations and goals?

Here's what they said.

OUR SURVEY SAID THAT CLOUD ADOPTION IS STRONG, BUT:

↑ 60%

Over 60% of organizations have been surprised by high cloud bills

↑ 1/3

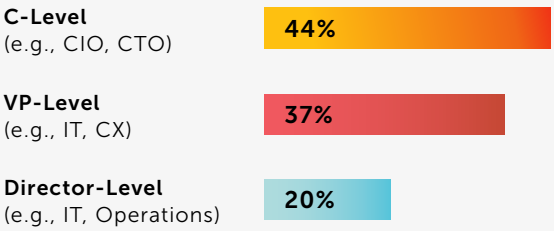
Organizations worry about outages; *more than a third* say a *cloud outage would be catastrophic*

34%

Only 34% of organizations say they have the necessary cloud skills in house

↓ 1/3

Less than one in three have heard the term "cloud-native"



02

Cloud Mastery is Achievable

Cloud Mastery is Achievable

The last few years have been filled with change for enterprise IT, as organizations increasingly take advantage of the efficiency, scale, elasticity and resiliency of the cloud to meet new business challenges, achieve new levels of IT efficiency and support the need for remote work during the pandemic.

However, IT professionals have learned, sometimes painfully, that cloud computing can be complex. Enabling a fully secure, robust enterprise ecosystem in the cloud requires numerous moving parts, many of which involve new models of configuration and deployment, as well as new processes – like for cost management, staying ahead of external cyberthreats and compliance with the ever-growing number of government regulations and industry standards. This all has to happen while driving new innovations in an increasingly competitive business environment. But first things first: What does "mastery" truly mean?

Our Definition of Cloud Mastery

Cloud mastery both acknowledges the complexity of cloud technology and employs that complexity to achieve continuous, ongoing value both for IT and for the business. In short:

Cloud computing, while incredibly powerful and filled with exciting new capabilities, is also complex. To fully exploit its potential requires correctly deploying a huge number of moving parts, ranging from infrastructure (servers, load balancers, databases, security, compliance, DNS and so on) to application and data architecture, security and compliance, just to name a few. **Cloud mastery means getting all this right so that you are getting the most value for your cloud dollar.**

We asked our respondents if achieving mastery according to our definition would be possible.

> "Absolutely," one executive replied. "It's just this time we're going through is shifting. Infrastructure is very slow to move, so it will take some time. It is achievable, but it will take some time for organizations small to large."

Another added that cloud mastery means a continuously evolving process of learning and evolution.

> "It's not an end goal, so it's about improving relative to your understanding. Just compare yourself to how you were on your understanding of the cloud and its services a month ago, a year ago."

Cloud Mastery Isn't the Same as Knowing Everything about the Cloud

Cloud technologies have appeared and matured at a dizzying rate. Mastering the cloud doesn't necessarily imply that any one individual knows everything to know about the cloud — an impossible aspiration, to be sure. Instead, it's about bringing together an experienced team that understands the art of the possible, ensures that value is realized and enables IT and business transformation to deliver the best results.

As one executive wryly remarked, **"As far as knowledge is concerned, I don't think anybody actually knows everything."**

Experienced cloud organizations have learned mastery is really about an ongoing evolution, and that *command* over a complex, ever-changing ecosystem is key. "Cloud computing is not straightforward; it's quite complicated and there are many metrics," one executive said. "So, mastery refers really to understanding those metrics and getting the best value out of the solutions that we have. That may mean that we are fine-tuning databases; we're fine-tuning our security measures; we're bringing in new security measures; we're looking at our infrastructure and seeing how we can fine-tune that to make sure it's more efficient."

Cloud mastery is about ensuring that the ecosystem functions as expected, that issues can be handled without excessive drama, and that new, innovative solutions can be added to it seamlessly.

Is Cloud Mastery about Technology Optimization or Business Enablement?

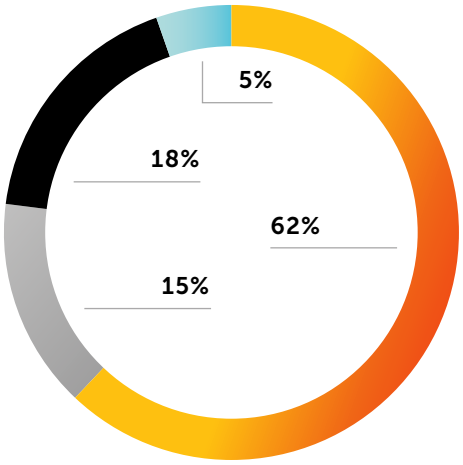
A decade ago, cloud computing was seen by most companies as just the next in a series of technological innovations that IT organizations needed to address. And to be clear, technology *is* where cloud mastery starts. Developing a strategy for migrating IT to the cloud is a critical first step. According to one respondent: "Once you get beyond a certain level, [cloud] gets very complex very quickly. I see cloud mastery clearing away that noise and helping an organization really identify the right path to cloud adoption."

Now, many increasingly believe that, with the core capabilities that the cloud provides, organizations can exploit new business models, reach new markets and create new revenue streams. That is, the cloud can support an overall transformation. Having moved to cloud, the definition of mastery changes to include enabling business agility in new ways. "That has been basically my focus, so in terms of digital transformation, moving to the cloud, and making sure that we are able to leverage the cloud technologies for a lot of our applications," said an executive we surveyed.

We wanted to know more, so we drilled down, asking: What can mastery of cloud computing bring to an organization? and: What are the critical success factors upon which mastery rests?

WHAT'S YOUR FIRST REACTION TO THE TERM "CLOUD MASTERY?"

About Technology	
About Business	
About Expertise	
Other	



03

Cloud Mastery Fuels IT and Business Innovation

Cloud Mastery Fuels IT and Business Innovation

Cloud computing has stimulated remarkable innovation not only in IT, where organizations are deploying new technologies and architectures, but also enabling imaginative new scenarios driven by a solid, scalable foundation in the cloud — even to the point of changing the very definition of "developer" to include pretty much, well, everyone!

Wait: Isn't Cloud Just a New Version of IT?

In the early days of cloud computing, the cloud was largely considered an "IT thing," not dissimilar to other technological innovations that were solely the responsibility of IT to implement and deploy. Indeed, most thought of the cloud as a cost-cutting extension to their data centers, in which organizations could potentially cut capital expenses by hosting applications in the cloud.

88%

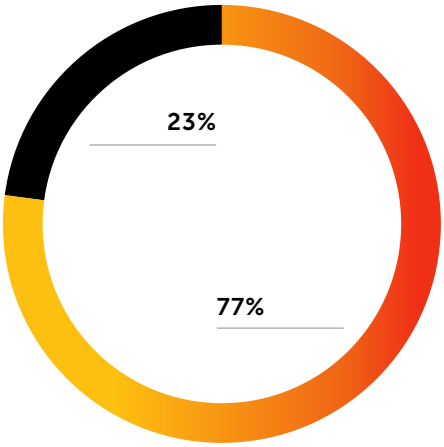
of organizations now see IT as a true partner to the business.

That the cloud could be more proved difficult to imagine in the beginning. "The business experts, the specialists that would run the business today, they really struggled to ever perceive it happening in a different way," said one executive.

Over time, however, most organizations experienced a realization that the cloud represented a sea change not only in enterprise computing but for businesses as well, recognizing that "cloud as technology" evolves to "cloud as business strategy."

Business leaders gradually came to understand that the cloud can drive new business models, new markets and new revenue streams. More and more see the cloud as transformative, as shown below:

MOST ORGANIZATIONS SEE BUSINESS TRANSFORMATION AS A KEY BENEFIT OF THE CLOUD



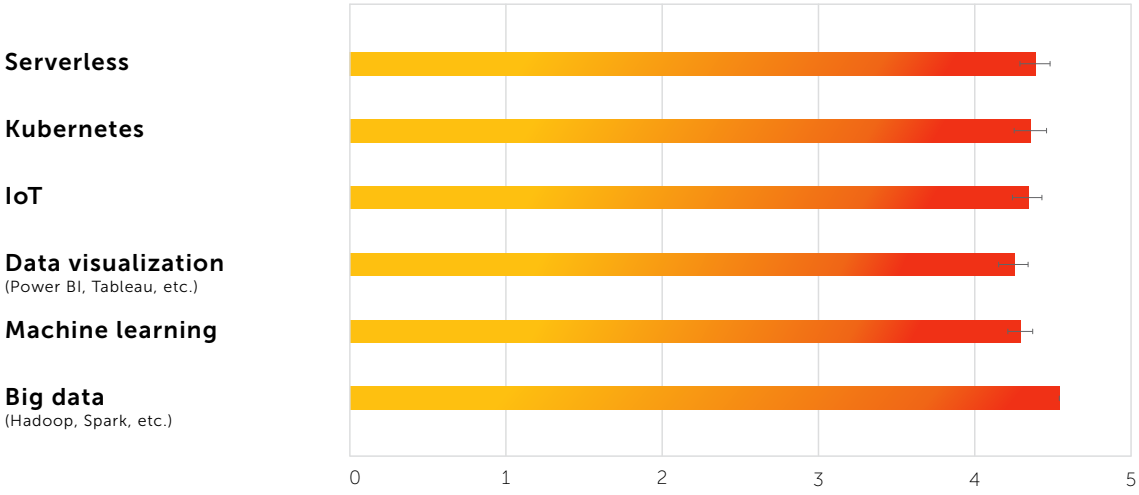
Wholly or in part about business transformation

Primarily an IT concern

New Technologies Spur IT Innovation

The cloud certainly possesses many advantages for IT. With the advent of cloud-native computing — that is, applications that take full advantage of the elastic, resilient nature of the cloud and the myriad of services made available by cloud vendors — IT has a whole new toolset at its disposal. These new services can drive increased agility, accelerate time-to-business value, reduce costs and expand capabilities. IT leaders are rapidly adopting them, as shown in the chart below:

PLEASE RATE THE CLOUD SERVICES ON A SCALE OF 1 TO 5 IN TERMS OF VALUE RECEIVED (1 BEING VERY LOW VALUE RECEIVED, 5 BEING VERY HIGH VALUE RECEIVED).



IT is seeing true benefit here. "We have today about five instances of a serverless application," said one respondent. "I'm really keen that we explore it more."

Another leader utilized Kubernetes on AWS to realize a high level of resilience: "The starting point of [our cloud] blueprint was to enable a highly-available, cross availability zone-based Kubernetes infrastructure. So, underpinning the requirement really was that we could have a complete failure in an availability zone and basically nothing would change. Everything would just keep working perfectly."

Unquestionably, however, adoption of new technologies takes time. When asked if their organization had serverless applications, one executive replied: "There's just so much to be done at the moment. I have to prioritize, and although it would be lovely to get there in the future, there's only so many things we can do at one time. You have to come up with the plan of what is your priority and what are the business needs at this moment in time."

Everyone is a Developer

Much has been made of "citizen developers," individuals who, with tools that require little or no coding skills, can quickly create robust business applications. But such applications depend upon professional cloud developers to provide safe, secure access to underlying enterprise resources, such as databases.

Said one leader: "There are a lot of people with a lot of good ideas in the business. I think one of the things I want to achieve is **a form of digital democracy to really create those kind of citizen developers**, kind of low-code, no-code stuff, and have a center of excellence around that… giving people in the business these tools to create their own business applications."

Providing end users the ability to quickly create their own applications — and thus enabling them to respond quickly to new business requirements — gives organizations a level of agility impossible before the cloud.

The Cloud Underpins the Next Generation of Business Innovation

Modern IT professionals now understand how business can benefit from the capabilities of the cloud. One leader noted: "I often like to say **that I prefer my engineering team to spend 80-90% of their time just developing new functionality for the business**, things that add value to our business that make us unique – not spending time trying to do things that everybody's done a hundred times before and you can get off the shelf of a better configuration."

Looking ahead to the next generation of technologies that will drive IT and business innovation is a critical skill for IT leaders. "How," asked one, "are we are going to adapt things to Web3 or the metaverse or things like that? Those are some of the things that we are very much interested in."

Another, a financial services executive, opined that the cloud will underlie the metaverse, which in turn will enable many new and transformation applications:

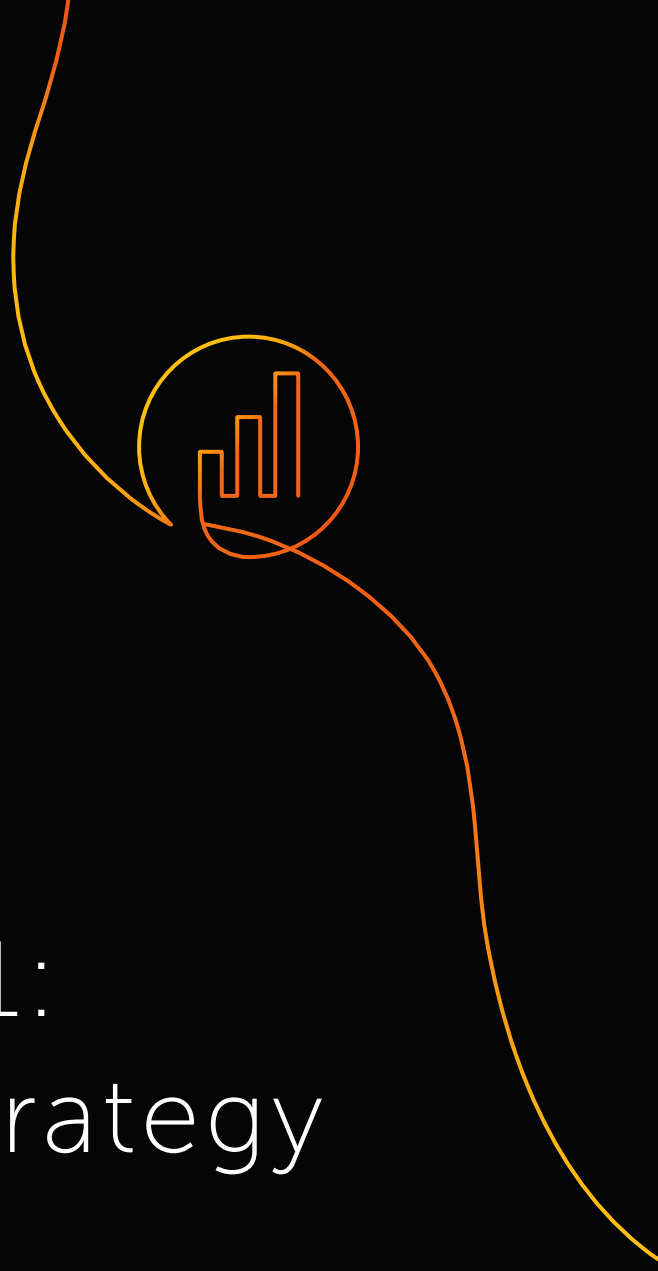
"My aim is to look at the metaverse because that will be the new technology in the next 10 years, as was cloud 10 years ago... because we will have virtual offices, so I'll be sitting in an office and I can virtually see you next door. This means there will be more customers moving into our banks, they'll be using our banks more often, and then what we'll be doing is closing physical banks. Everybody will be banking in the metaverse."

And many also discussed the remarkable new opportunities unlocked by big data and machine learning, which can reveal new insights. Said one:

> "The question is...how can we really leverage the cloud model more efficiently? For example, AI machine learning is something that we want to use... we have to drive innovations."

What Drives Success?

Our findings led us to ask: What enables success in the cloud? As we analyzed the data from our survey, five key themes emerged that suggested that a thoughtful, intentional approach to cloud adoption and exploitation was the key to successful migrations. In the following sections, we present these cloud mastery success factors and show how each contributes to breakthrough business and IT results.



04

Cloud Mastery Success Factor 1: Managing the Strategy

Cloud Mastery Success Factor 1: Managing the Strategy

A strategic, thoughtful and intentional approach to cloud computing is the path to success – we've seen many examples that demonstrate this. A simple "go-do" from senior management is hardly enough. Success in the cloud requires a strategy based on guiding principles and the engagement of a number of professionals representing different disciplines.

Our respondents confirm what we have learned: Nothing is more essential for success in the cloud than executive support and a centralized, managed strategy.

What is a cloud strategy, and how is it developed and implemented? Successful organizations set themselves short- and long-term goals, which might include some or all of the following:

- The majority (or all) of enterprise applications are hosted in the cloud
- Costs are reduced on activities that don't create business value (like data center operations)
- Markets are expanded to new regions or geographies
- New business models, enabled by the cloud, are deployed

Realizing a strategy – and prioritizing among the many possible goals – requires a team to create it, draw up a roadmap with measurable metrics and report on progress to senior management.

The Cloud Center of Excellence

A Cloud Center of Excellence defines such an organization-wide cloud blueprint, providing a guiding voice for the cloud journey. It typically involves individuals from many professions: human resources to set in place training programs, hiring and creating new talent ladders; legal to evaluate relevant regulatory requirements and ensure compliance is achieved; procurement to manage cloud vendor relationships; and of course technical professionals to evaluate and select among the many technological choices. Ultimately, a Cloud Center of Excellence sets the organization up for success, while the lack of one can lead to chaos, regulatory risk and cost overruns.

97%

of organizations we surveyed have a Cloud Center of Excellence.

> "You need to have a set of principles, principles are very important. Principles need to be values and statements that the entire company recognizes as North Stars," one executive commented.

As a VP of infrastructure for a large financial organization pointed out, the Cloud Center of Excellence critically examines questions like: "Do we have an existing service? Can we use custom or is there something already pre-built that we're already using or pre-built from one of the cloud providers? How does this align to our other controls and our policy? Where does this fit from a cost perspective? So, that committee helps reconcile those questions and then approves or sends back the project for forming the basis of building out what will become an adoptable solution. But it's really **that Cloud Center of Excellence at the center of that process**."

Many understood that *flexibility* in a blueprint was important. As one executive noted: "Parts of this will probably need to be changed as we deconstruct and we realize that some of the manual processes are inefficient or not required or they can be improved... Overall in 10 years' time, it could still look like the blueprint, but we could change every single bit underneath."

Cloud Governance

That's not all that's required, however. You need a cloud *governance* team, which typically has more day-to-day operational control and ensures that development teams comply with organizational standards, as well as security and compliance requirements.

91%

of organizations we surveyed have a cloud governance function.

Prior to deployment, infrastructure, security and compliance teams should address:

- What the networking and connectivity requirements are
- Which laws, regulations and standards apply, and how to comply with them in the cloud
- How to protect applications and data from attacks

Similarly, application teams have a broad variety of technology choices before them, including:

- Which cloud provider to use
- Which relational database technology to employ (for example, a premium managed service such as Azure SQL Database or an open-source database such as MySQL or PostgreSQL)
- What application architecture is best (virtual machine, containers, serverless and so on)
- Which development and deployment methodology is suitable (CI/CD provider)
- Which landing zones to use

Having prescribed technology choices simplifies ongoing maintenance, support and upgrades; thus, the governance team examines new project proposals and determines if capabilities already exist. Cloud governance can determine if, as one leader said: "[A proposed application] can mold into a service we already have or something that the cloud provided or offers… we do not want to customize. **We don't want to create anything unique. We want to drive towards the standard approach**."

Nearly half thought a cloud governance function was essential to achieve their cloud goals. This was not surprising given the complexities of modern enterprise computing, the standards and regulations that must be complied with and the need for consistent approaches across their organizations.

Security and Compliance Present New Challenges and Opportunities

Nearly all respondents noted that, early on, security and compliance were top concerns with the cloud. As new regulatory regimes with penalties — such as the EU's General Data Protection Regulation (GDPR) — came into effect, organizations were rightly concerned about how cloud platforms could support their efforts. As the number of sophisticated attacks – such as Advanced Persistent Threats (APTs) and ransomware – increased, security became an existential concern, not just for IT leaders but CXOs and board members.

But as one IT leader pointed out: "We were moving to the Oracle cloud so had to vet them out, [and ensure] they met all our info-sec requirements, our privacy standards and so forth. At that time, the cloud was a very foreign concept. I think a lot of the business users thought it was like the wild, wild west, where anybody can get up there and they're going to be able to access the different information. It wasn't secure. We found out at the time, **they had better security and better infrastructure than we had**."

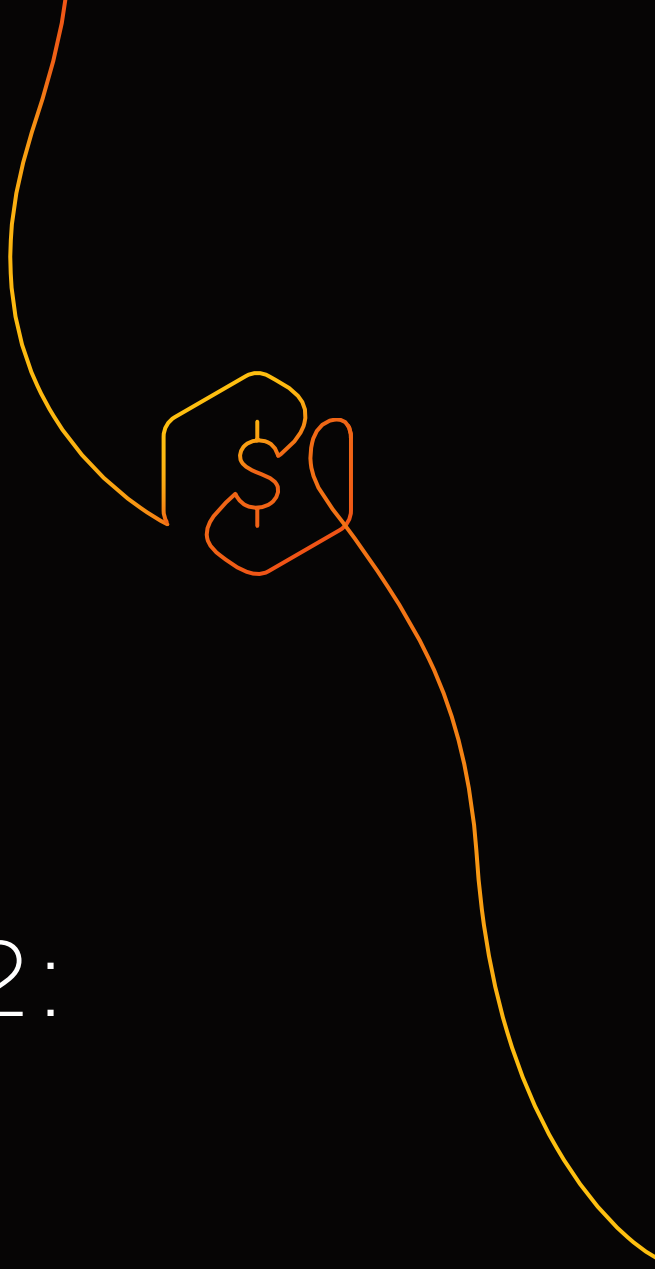
Sam Rehman, EPAM's CISO and SVP/Head of Cybersecurity Business, suggests some underlying reasons for this new confidence. First, a wealth of tools – which until recently had to be evaluated and acquired individually for on-prem environments – are easily available in the cloud, and in most cases developed and provided by the cloud vendors themselves. Automation helps both security and compliance teams scale and understand where sensitive data is located and how to protect it. Finally, with monitoring and observing capabilities, organizations can be alerted in real time to potential breaches or violations. However, it's critical that organizations both be alert to an ever-evolving threat landscape and establish both new processes and teams with the appropriate skill sets in order to use all these new capabilities.

GO DEEPER

For more insights on cloud security, check out Rehman's podcast on "Securing the Cloud." And for more on governance, see EPAM VP Paul Nau's blog post "Governance in the Cloud Era."

Sam Rehman

SVP, Chief Information Security Officer, EPAM



05

Cloud Mastery Success Factor 2: Mastering the Costs of Cloud

Cloud Mastery Success Factor 2: Mastering the Costs of Cloud

The cloud's new utility computing model — in which those resources and rented rather than purchased and are hosted in a cloud provider's data center — forces huge changes in traditional IT financial processes. Organizations often begin by migrating applications to the cloud with the assumption that cloud is little more than an extension to their existing data centers and that costs can be managed in much the same way as before.

Cost Management Misconceptions

Nothing could be further from the truth, as we described in detail in our blog post "Mastering Cloud Costs." Some lessons that every organization learns include:

- **It's essentially impossible to do an apples-to-apples comparison of data center and cloud costs.** Data centers, servers, storage, networks and software licenses are depreciated capital expenses with perpetual rights, and often they are used long after the costs are written off. The cloud, whose costs are consumption-based, has an entirely different model for analyzing run rates.
- **Common data center practices**, such as overprovisioning and always-on, can result in unnecessarily high costs in the cloud.
- **Migration is just the start of a cost management journey.** Using cloud-native technologies, like containers, orchestration and serverless, can not only improve application performance and reliability but can also save money, by being cheaper overall to operate and requiring less human supervision.

Navigating these new models can be a challenge. Not recognizing that new financial processes are required can result in unexpected consequences.

60%

of organizations were "unpleasantly" surprised by a cloud bill.

Achieving Financial Value

Cloud value can be achieved but requires a thoughtful approach. One respondent said: "It's expensive. It chews up cash. No matter how we skin it, being in the cloud and having your estate and your infrastructure in the cloud is very expensive, so I think you've got to make sure, as it says right there, you're getting the most value for your buck." Or as another noted, "You want to give flexibility to the engineers to do great things, but you want to be sure that they're using the technology right and without a huge expense to the company."

> "So the biggest fallacy is that it's going to be cheap..." said one executive.

A strong cloud financial strategy includes:

01

A calculation for migration break-even. Ensure you're recouping the costs by having a strategy to effectively use cloud resources.

02

Departmental cost accountability. Use accounts, subscriptions, tenancies and resource tagging to help you correctly assign charges.

03

Appropriate discount use. Leverage resource reservations and/or spot instances where appropriate.

04

Negotiation leverage. For instance, when entering into a long-term agreement, you can agree upon pricing for the duration of the agreement often at a lower rate.

05

Adoption of a FinOps culture mindset. Solution teams should use cost-management tools, in which they can see historical trends in resource usage, identify causes of spikes and find opportunities for savings.

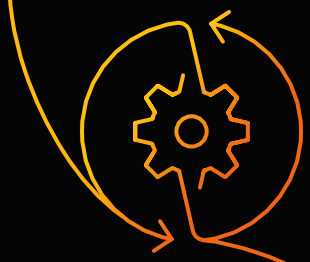
As they matured in their use of the cloud, many respondents discovered the rental model of the cloud to be a way to save money over the long term. One financial services leader noted that future compute requirements, primarily for complex analytical applications, were expected to grow, but "once you've bought hardware, it's going to be there" in the data center, consuming resources and being depreciated. Instead, he argued: "We will run out of capacity and the amount of money that we have to spend doubling up our hardware on-premises, we might as well spend it on a more strategic solution, which is cloud-based services, where you can pay on the go and you don't have to have that fixed cost in your accounts."

GO DEEPER

For more insights on cloud cost management, check out our blog post on "Mastering Cloud Costs."

Miha Kralj

VP, Cloud Strategy, EPAM



06

Cloud Mastery Success Factor 3: Transforming the Culture

Cloud Mastery Success Factor 3: Transforming the Culture

As management savant Peter Drucker once said, "Culture eats strategy for breakfast." Without culture change, any strategy for cloud computing – or any technology initiative – will likely suffer.

For decades, leaders internalized a set of operating principles and paradigms that govern how a large on-prem IT estate should be managed. They developed annual processes for allocating budgets and procuring resources; they utilized the slow but risk-mitigating waterfall development methodology; they hired and groomed professionals skilled in these models.

The cloud has turned those paradigms on their head, and organizations have discovered that the transition to the cloud meant not just one, but many forms of transformation. And culture change is hard. How ready is *your* culture to switch?

To Grow the Culture, Grow the People

Every culture change starts and ends with the people. Effective migration to the cloud, development and deployment, cost management and security and compliance all require new skills different from those used to manage on-prem data centers. And these skills can be hard to find.

34%

Only 34% of organizations surveyed claimed they had the cloud skills they needed.

Most successful organizations therefore put in place education and training programs for their employees, often leveraging partners (see next section).

DO YOU FEEL YOU AND YOUR TEAM POSSESS THE NECESSARY SKILLS FOR CLOUD? WHICH OF THE BELOW STATEMENTS BEST DESCRIBE YOUR SITUATION?

"Everyone loves transformation until they have to do it," remarked one executive.

Thus, upskilling was job one for a CISO at a large academic institution: "[We began with a] current state analysis. I'll describe it as understanding our internal capabilities, where we needed to reskill or upskill internal staff, where we could do our own research... We branched this off to a couple different parallel projects related to our cloud initiative. First was learning, so there was some basic education track teaching us. So, we had these lunch and learn type of sessions on how we could use the cloud, definition of cloud, common use cases and how they can be aligned to our needs and objectives."

Sandra Loughlin, EPAM's Chief Learning Scientist, puts it concisely: "Two other factors are critical for successful upskilling. First, organizations should design competency and skill strategies in accordance with their business goals, understanding that, for example, what an executive needs to know about cloud differs substantially from what a cloud engineer must learn.

"Second, an effective pedagogical program — one that ensures that employees will put their learnings into practice, reinforced by mentoring and carefully designed growth plans and career ladders – can dramatically improve the chances for success."

Sandra Loughlin

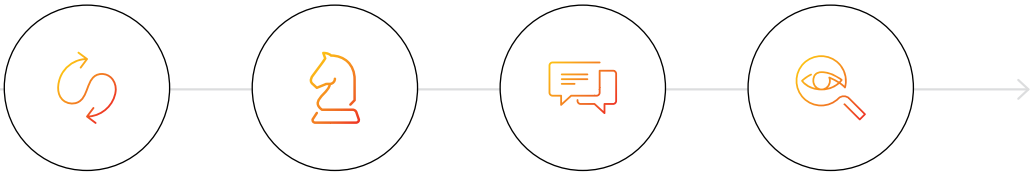
Chief Learning Scientist, EPAM

ORIENT

Align target skills with business needs and develop an integrated, incentivized pathway to achieve them.

DRIVE

Teach the right things, the right way, at the right time and create high-quality assessments to track progress.



In other words, the organization should *orient* itself to the new realities and goals, and then *drive* the changes with relevant courses and employee growth.

Transform the Processes

New cloud-centric processes can make both IT and business more effective, more efficient and more responsive.

Consider *experimentation*. In the past, deploying new IT capabilities meant writing a requirements document, a functional specification, procuring hardware and software, allocating data center space and developing and carefully testing any new software.

Why?

Because of the high capital costs of IT, these lengthy processes (the "waterfall" methodology) were used to *mitigate risk*.

But in today's cloud-based environment, organizations find that experimentation (often using short, informal hackathons) is simple, educational and cost-effective — and can be fun. If the technology proves itself, excellent; but if not, little time and money has been spent. As one CTO said: "Because we've not got that sort of expertise, what we need to do is sort of experiment with that process itself to work out, 'Can it do it?' and if it can do it, 'What are some of the pros and cons to this new approach?'"

Consider, too, development. Methodologies, such as DevOps and continuous integration/continuous delivery (CI/CD), based in the cloud with services like GitHub and taking advantage of fast, scripted automation can ensure that deployments are streamlined, secure and predictable.

81%

of respondents say they have "implemented DevOps pipelines and can get stuff into production fast."

Developing a Cloud Culture

Companies recognize that the transformation from on-prem computing to the cloud requires a cohesive, organization-wide approach — with the change management that every such transformative action implies. As one healthcare executive remarked: "It failed at first because the organization failed to realize they were hammering customization and unreasonable processes into the business... and it was too much change all at once." EPAM's Sandra Loughlin notes that change requires "addressing the hidden architecture of the organization" — that is, its culture.

In short, as an IT director for a large pharmaceutical company said: "The culture is everything. You have to have a team that is really up for the challenge, up for the journey and hungry to learn new skills. That really is one of the key things of success for me."

GO DEEPER

For more insights on transforming culture, listen to our podcast with EPAM VP of Cloud Strategy Miha Kralj and Sandra Loughlin on what it takes to master cloud operating models.

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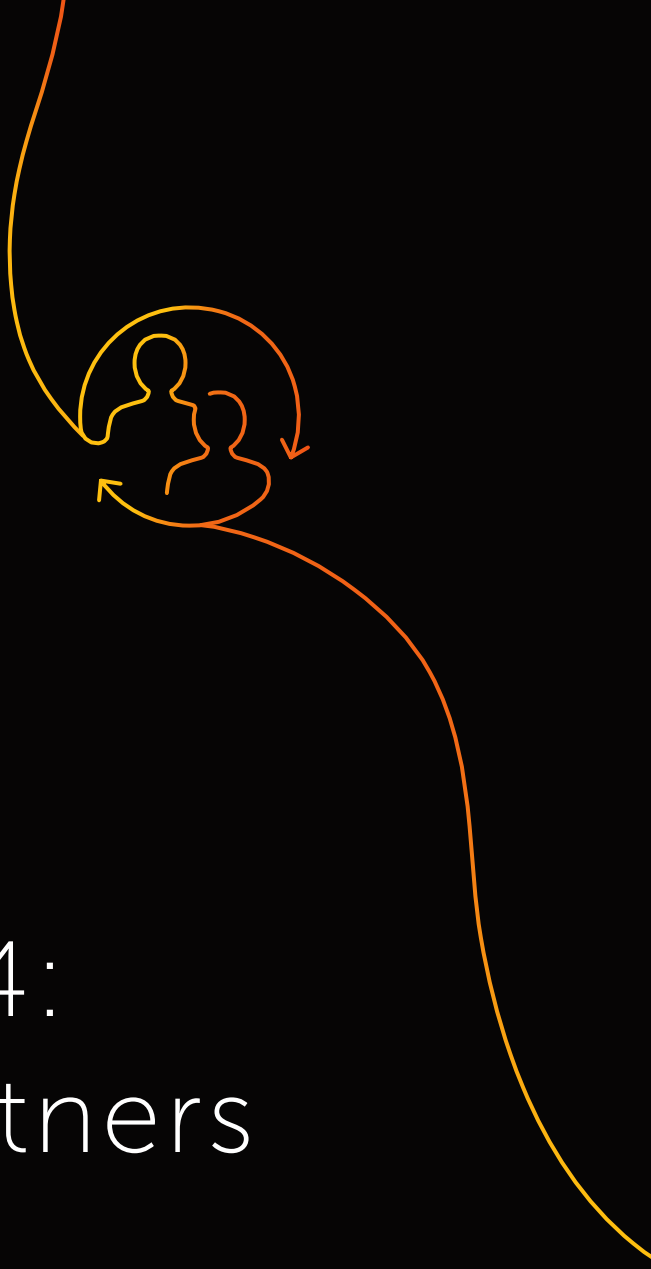


07

Cloud Mastery Success Factor 4: Experienced Partners

Cloud Mastery Success Factor 4: Experienced Partners

An experienced, trusted partner can accelerate an organization's adoption and mastery of the cloud; not taking advantage of partners' expertise, conversely, can lead to profound business trouble.

Nearly all the respondents we spoke to — over 85% — agreed, emphasizing the need for relationships with strong, experienced partners. We're talking about partners who have migrated applications to the cloud, who deeply understand cloud security and compliance, who can ensure the highest efficiency and cost-effectiveness and who can help drive the short- and long-term cloud strategy and roadmap.

93%

of respondents said they were satisfied or very satisfied with their collaborations with partners.

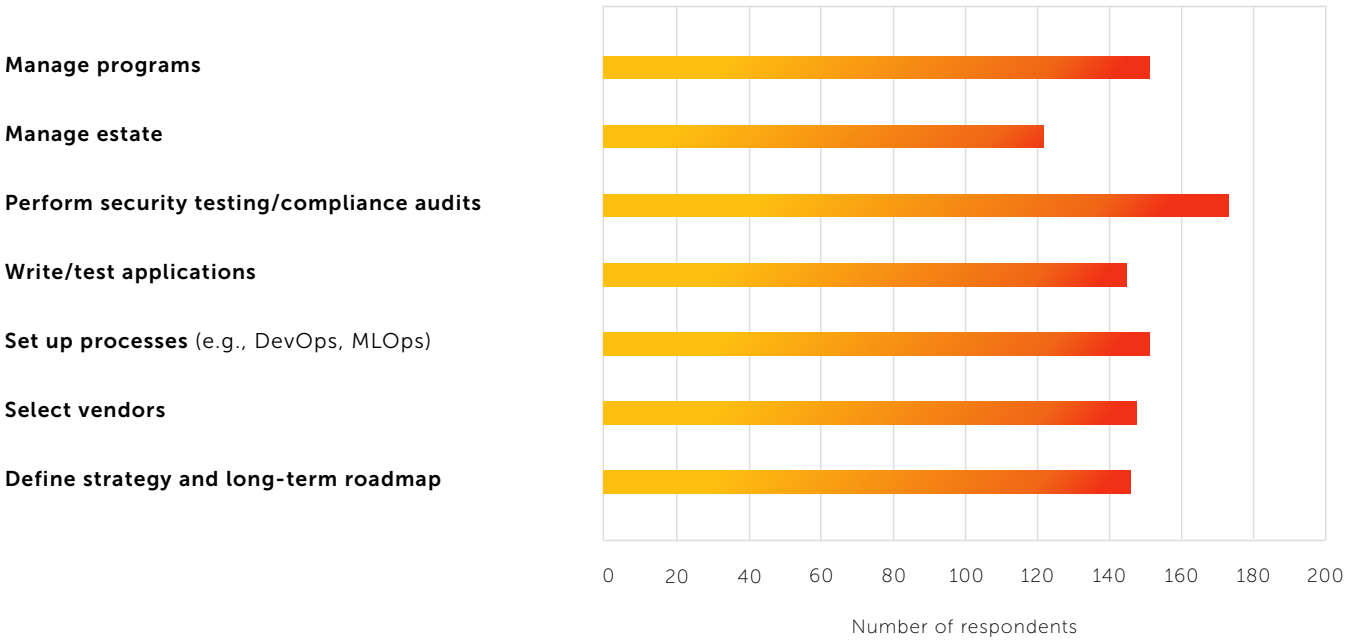
Where Do Organizations Use Partners?

Organizations utilize partners in all aspects of their cloud strategy, development and operations:

What do organizations look for in choosing partners? One of the most important factors is experience. Said one respondent, "I think the partner has to have credentials... credits, references and case studies of implementations they've done previously."

Another notes that experienced partners can help understand and pass on the knowledge of new technologies: "I rely on my partners a lot... Your partners are going to be the ones who educate you on how it works as well."

PLEASE SELECT ALL THE TASKS YOUR PARTNERS ARE INVOLVED IN

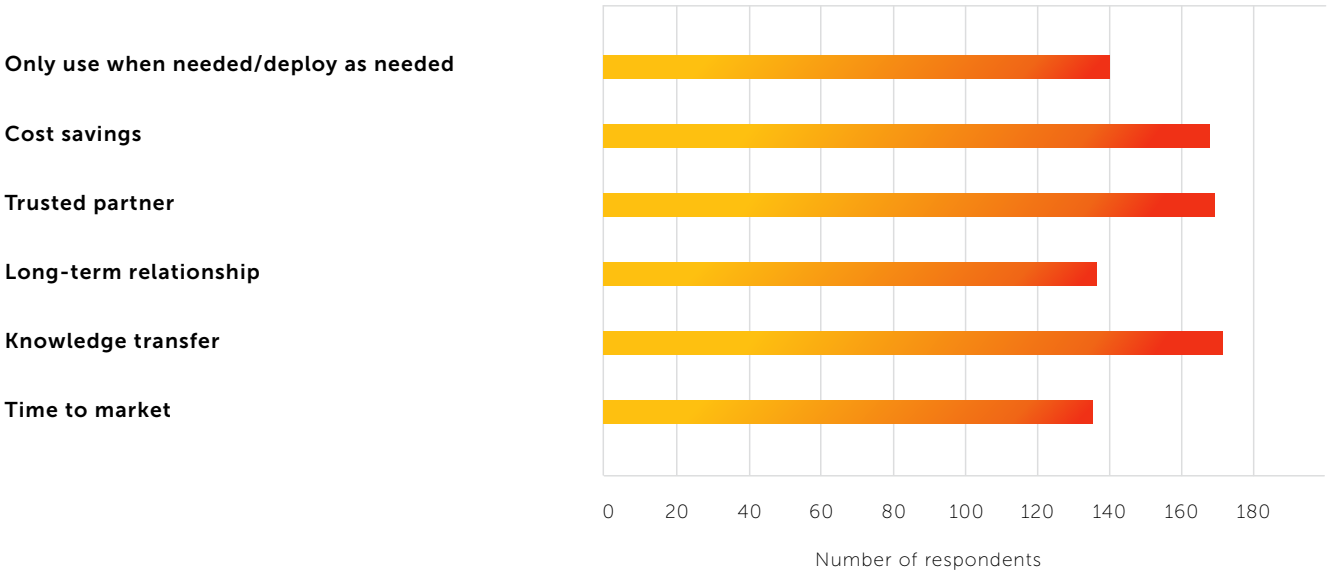


Partners Bring Cloud Experience and Expertise

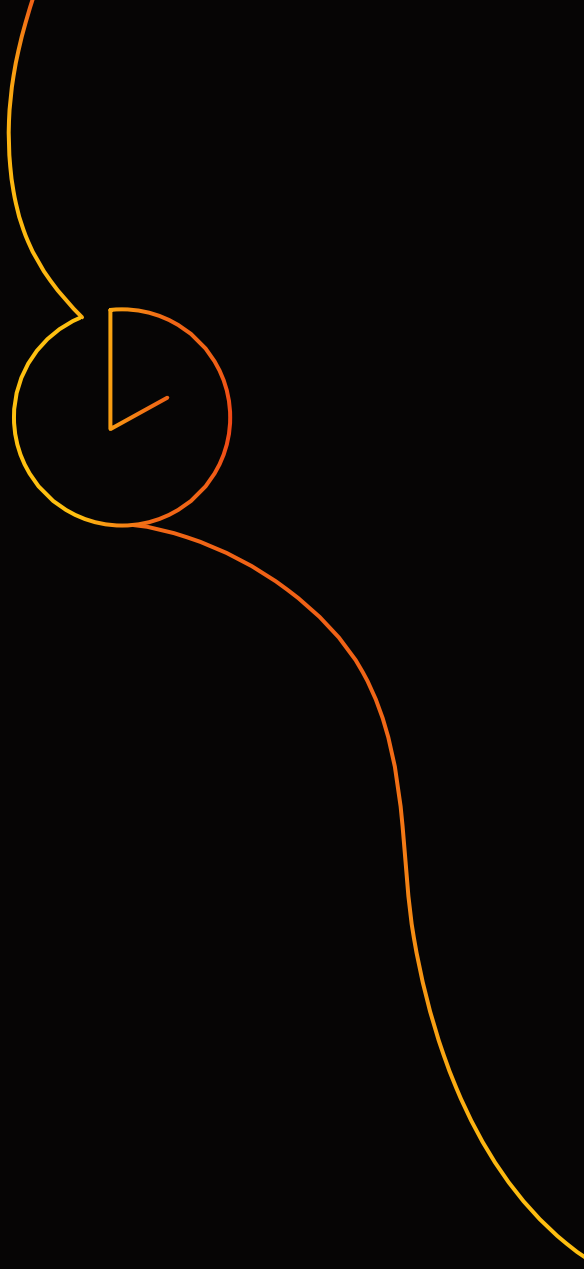
As they skill up, organizations find themselves using partners to bridge the experience gap. Experienced consultants and partners bring a depth of industry knowledge that many organizations neither have nor can quickly hire for. "There are probably consultants that we can hire for a six-month project," one leader said. "Hey, can you help put this together? ...We have a new cool idea, but we don't know how to do it ourselves."

As the chart below illustrates, organizations leverage partners in many ways. Partners can quickly come on board to build and deploy new systems and can help identify areas to maximize cost savings. The best partners, we've found, not only do these things but also educate the organization's employees as they work.

WHAT ARE THE ADVANTAGES OF WORKING WITH PARTNERS?



In sum: Organizations can certainly embark upon a cloud journey by themselves. But, our survey shows, taking advantage of partners' experience and expertise accelerates the realization of value from the cloud.



08

Cloud Mastery Success Factor 5: Mastering the Pace of Change

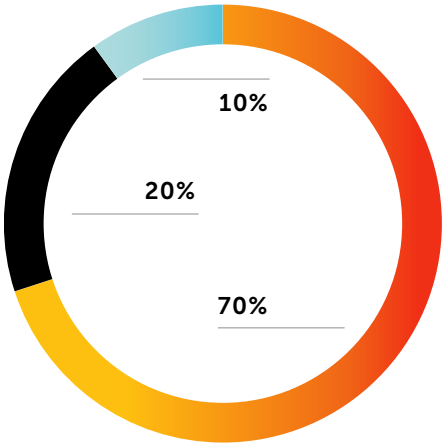
Cloud Mastery Success Factor 5: Mastering the Pace of Change

Few technology advances have occurred with greater rapidity than the cloud. Amazon Web Services announced its very first cloud services — the Simple Storage Service and Elastic Compute Cloud (S3 and EC2, respectively) — in 2006. Microsoft Azure was not launched until 2010, less than 15 years ago! Now Amazon Web Services boasts some 200 cloud services, each with a mass of features and functions. Microsoft Azure and Google Cloud Services have similar quantities, and new features are added seemingly every week.

The Pace of Change is Daunting... or is it?

Can organizations absorb all this change? Initially, we asked our respondents if the pace of technological change was too fast. Could they consume new cloud services as they appear? The answer surprised us: 70% said that they were doing so.

IS THE PACE OF TECHNOLOGY TOO FAST, TOO SLOW OR JUST RIGHT?



- **About the right speed, we can consume them as they appear**
- **Too fast for us to be able to use**
- **Not fast enough for us**

But the Reality of Adoption Differs

While the perception of the pace of change is relatively high, the adoption of advanced cloud-native technologies lags far behind.

19%

Only 19% have applications deployed on the container orchestration platform Kubernetes.

17%

Only 17% have serverless applications.

Other cloud technologies, such as IoT (39%), Big Data and analytics (45%) and advanced dashboarding and data visualization (46%) remain in early stages of adoption.

Yet, many IT leaders recognize that fully embracing cloud is their goal, as one respondent answered our question, *"And so the end goal is cloud native for the organization?"* with: *"That is correct."*

> "So technology is moving a lot, lot faster than people," one executive said.

09

Your Organization Can — No, *Must* — Master the Cloud

Your Organization Can — No, *Must* — Master the Cloud

Since its introduction, cloud computing has grown from a technological curiosity to the core underpinning of nearly every enterprise IT organization. Today, nearly all software innovation — from cloud vendors, partners, software developers or customers — is based in the cloud. The cloud is truly mainstream.

Yet organizations continue to grapple with its complexity. Executives see that mastering the cloud, leveraging its full potential to achieve breakthrough business goals while controlling costs, is both business-critical and unquestionably within reach… but they're not there yet.

All recognize that mastering the cloud is the essential IT imperative for the 21st century. Successful organizations see it as the means to stay competitive and to keep moving forward at an ever-accelerating pace.

So, how do you get there?

Nearly all our respondents said that partners accelerated their cloud journeys. From providing the benefit of their long experience in the cloud to filling skills gaps to helping create an achievable strategy, partners were crucial to attaining cloud mastery. Said one: "**Because we didn't have the fully formed architecture and thought processes — we needed to partner**."

The cloud is now at the center of enterprise IT. It's time to master it.

As one enterprise architect noted:

> "When I came on board, I viewed our expertise in the cloud like being teenagers, but now we are college students recovering from a long weekend. We're gaining knowledge, we're getting smarter. We're not where we need to be, but we are learning the important lessons that are needed for us to mature the enterprise."

Cloud Resources

Hungry for more cloud-based knowledge? We've assembled some useful pieces around some essential cloud topics mentioned in our report. Bon appetit!

Cloud Operating Models & Organizational Change.

Is your IT ecosystem prepared for the transformation that cloud will surely bring? This lively podcast will equip you to begin thinking about cloud operating models.

Business Value and the Cloud.

Eli Feldman, EPAM's CTO of Advanced Technology, and Miha Kralj, our VP of Cloud Strategy, talk through how to shake true business value from the cloud.

Cloud Mastery.

In this series of podcasts, three cloud experts — Miha Kralj, Norm Judah and Jim Wilt — discuss the essential topic of cloud mastery. Listen to Part I *and* Part II!

Cloud Security.

EPAM's CISO and VP, Sam Rehman, spells out the details of securing the cloud.

Employee Alignment in the Changing Face of Technology.

In this post, Sandra Loughlin, EPAM's Chief Learning Scientist, divulges the secret to folding employees into your tech strategy.

The Human Dimensions of Business Transformation.

Tune into this informative, on-demand webinar with Loughlin.

Mastering Cloud Costs.

Read this concise introduction to the art and science of controlling cloud spend.

Cloud Governance.

A well-governed cloud is an effective cloud. Read all about it.

CONTACT US

Questions?

Email us.