Building a Successful Cloud Financial Management Practice

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Executive summary

Enterprises look to the public cloud to improve agility, gain more flexibility and innovate rapidly. However, this leaves organizations with the monumental task of aligning cloud spend to business initiatives and ensuring that costs don't spiral out of control. The processes for accomplishing these tasks in an on-premises world don't translate well to the public cloud, where procurement, financial, operational and strategic models are very different. As a result, leading organizations are adopting a new approach called cloud financial management, one of the three key pillars that form the basis of a mature cloud strategy.

As cloud environments become more complex, collaboration across departments plays a vital role in introducing more accountability among business leaders. This paper details a set of organizational best practices and principles, outlining key stakeholder groups, roles and responsibilities to help you plan, build and execute a successful cloud financial management strategy.

Who will benefit from this paper?

With increased cloud complexity and adoption, the boundaries between various teams have blurred. Prior to this evolution, teams such as developers, finance, IT operations and security were siloed and would rarely know what other teams were doing. Now, collaboration across teams and stakeholders is crucial for any successful cloud journey.

While this paper is primarily aimed at IT operations and finance professionals who are tasked with optimizing and governing cloud costs, engineering teams and IT leadership will also find these best practices helpful in understanding dynamics within their organization and how they can better promote the right culture of financial awareness and accountability.

Building a successful cloud financial management practice

There's a big disparity between operating, procuring and managing cloud computing environments and on-premises IT. In a data center environment, everything is completely under your control and management. Change occurs at a relatively slow rate and costs are primarily fixed. However, in a cloud environment, teams across the organization can easily spin up cloud resources as needed, without waiting for procurement and setup. Because of this flexibility, engineering teams got into the habit of over-provisioning infrastructure so they wouldn't have to wait a long time for additional capacity if needed. In a cloud world, this translates to engineering teams quickly running over budget. Add to that mix the complexity of adopting multiple cloud services and costs quickly spiral out of control.

To address these concerns, leading organizations are establishing a formalized cloud center of excellence (CCoE), sometimes known as a cloud strategy office or cloud program office.

The cloud center of excellence is a cross-functional working group that governs the usage of the cloud across an organization, driving best practices across functions.

The key responsibilities of the CCoE

1. Executing the cloud strategy

Typically, a cloud strategy will come from the executive level and will answer questions such as which workloads or business units are best suited to use cloud computing services, how quickly the organization will migrate, which cloud providers best meet the business's overall objectives, and how application and infrastructure architectures will evolve. These strategies set high-level parameters for operating, but it's up to the CCoE to determine how to put these concepts into practice, and then continue to refine and enforce them.

2. Driving collaboration and best practices across key stakeholders

The first step is to identify who within the organization needs alignment to ensure business objectives are defined, measured and improved on an ongoing basis. This will typically include individuals responsible for managing cloud costs, cloud operations, cloud security, application development and enterprise architecture. At some organizations it will also make sense to include line of business leaders and stakeholders. Once assembled, this group will collect and develop best practices, workflows, alerts and actions for the relevant functions.

3. Evaluating and utilizing technology to support business initiatives

One of the key components of executing on a cloud strategy is determining how the organization will access, secure, manage, integrate and govern across public cloud and hybrid environments. To execute this, the CCoE must evaluate and implement a set of cloud management solutions for the enterprise.

Members of the CCoE should think of themselves as advisors providing published best practices, architectural standards and guidance to teams and departments across their organization. The leader of the CCoE at a large software company cautions that it's critical for the CCoE to take the time to establish a community of support with mutual trust to be effective. In addition, the CCoE should span three core areas of excellence: cloud financial management, cloud operations, and cloud security and compliance.
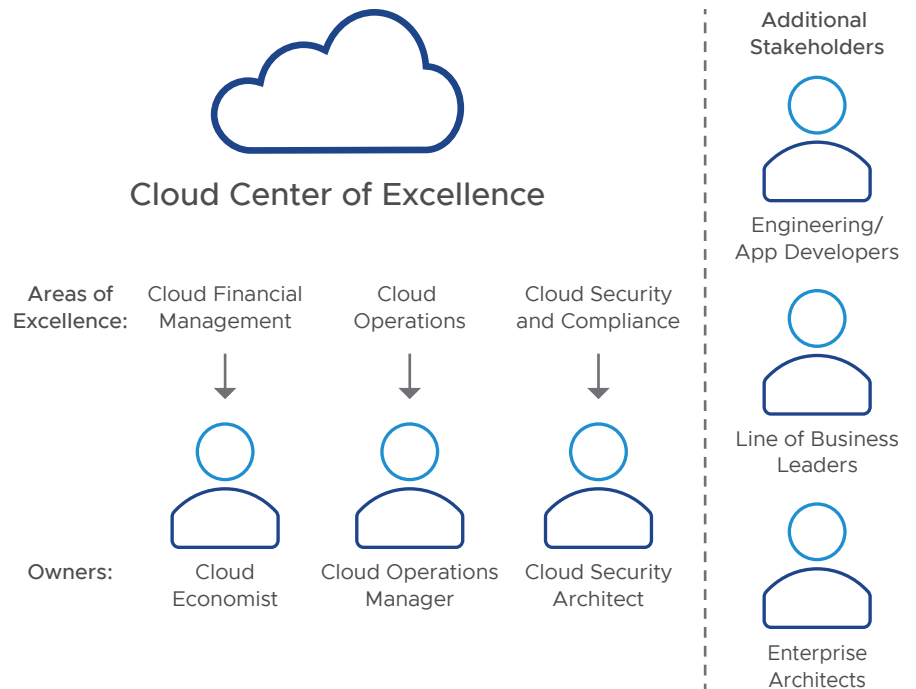
Figure 1: Elements of a cloud center of excellence.

While all three of these functions are critical for the success of a CCoE, this white paper will focus specifically on why cloud financial management (CFM) is a critical part of any cloud journey. As mentioned, public cloud democratizes and decentralizes access to cloud resources. This can lead to runaway costs, poor visibility and the inability for finance to close the books.

What is cloud financial management?

Cloud financial management—sometimes known as FinOps or cloud cost management—is a function that helps align and develop financial goals, drive a cost-conscious culture through best practices, establish guardrails to meet financial targets, and gain greater business efficiencies. However, cloud financial management isn't a one-time exercise—it's a continuous process.

CFM helps the business meet its goals and establish best practices within the CCoE. With the ever-changing nature of cloud, the goal of CFM is to continuously optimize and align cloud investments to strategic business initiatives.

A mature CFM function will:

• Drive financial accountability and ownership across groups

• Profoundly understand how all components of a modern cloud environment contribute to TCO

• Make business decisions based on accurate ROI analysis

• Identify best practices and scale those across the organization

What might happen if you don't establish a CFM:

• Ballooning cloud costs with limited or no visibility

• Failure to meet business goals due to firefighting

• Reduction in gross profit margins

• Less time spent on innovation

Who is responsible for leading the CFM initiative within the CCoE? We've observed several new financial roles beginning to emerge within organizations to help tackle these new challenges associated with managing cloud spend. One of the most strategic of these roles is a function that we call the cloud economist.

Knowing your cloud economist

The cloud economist, sometimes known as a FinOps professional, cloud finance manager or business system analyst, is responsible for leading the CFM practice within their organization. Cloud economists are advanced thinkers and come from various parts of the organization. They often come from finance, procurement, or from a more technical background where their knowledge of public and private clouds is particularly useful.

Cloud economists are involved in a broad range of initiatives, from defining IT financial strategy to implementing tactical cost-saving measures. They interact with cloud vendors to understand technology, help share best practices across the organization to drive consistency, and drive a culture of financial awareness and accountability. They also work closely with executives to drive initiatives and communication across different teams.

Driving a culture of financial accountability

A critical component to the success of a CFM initiative is instilling a culture of financial awareness and accountability. In traditional engineering teams, there's little awareness or credence given to cost. For many organizations, the mantra is to enable developer productivity at any cost. While the first and foremost goal must be to enable developer speed and quality, there are ways to increase awareness and accountability related to cost without sacrificing productivity. Some specific tactics include the following.

Gamification

Many organizations have seen success by gamifying optimization. For example, you might set up a contest where the teams that take the most optimization steps, for cost, security and operations, can win a prize. At one manufacturing enterprise, the head of their CCoE reports that some teams have cut costs in half by gamifying spend. At some companies, they also call out the low performing teams, although depending on your company culture, this may or may not be an effective or appropriate technique.

Visibility and alerts

Even if there is no game set up, just showing a leaderboard of the most optimized teams in rank order can drive positive results. Taking this a step further, another effective tactic for changing behavior is to show teams when there is an opportunity to optimize and what the outcome would be for taking action. For example, showing an engineer that if they were to pick a smaller virtual machine (VM), they could save the company 50 percent in cost and they would still have more than enough performance to run their workload can help adjust behavior. It's important to integrate these alerts and reports into the familiar tools that are already in use, such as Slack or Jira.

Showback/chargeback

Showback is done to show teams how much budget they're using and which resources they're consuming. Once showback becomes more acceptable, organizations can then advance toward chargeback (i.e., assigning charges to any team utilizing those services). When teams have direct financial responsibility for their actions, behavior changes rapidly.
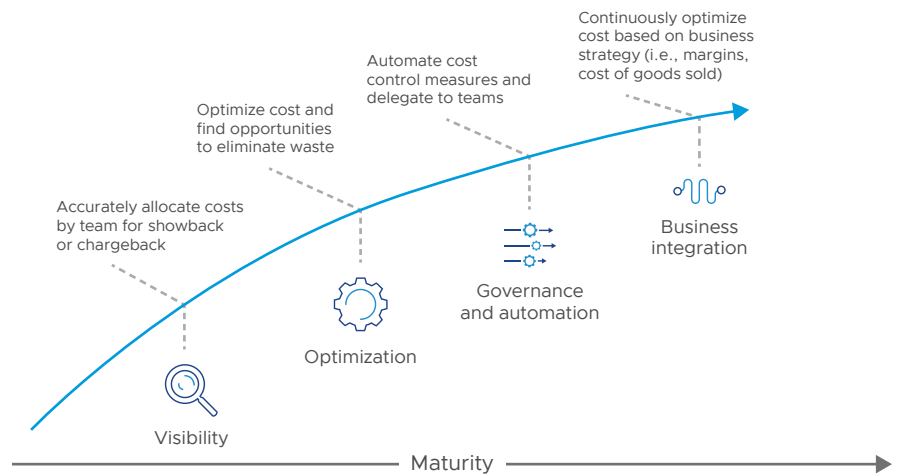
Key phases of cloud financial management

Figure 2: Phases of cloud financial management.

There are four key phases for a cloud financial management practice: visibility, optimization, governance and automation, and business integration. Because each phase builds upon the previous one, it's common for these phases to be tackled in the following order.

1. Improving cloud visibility

There are two types of visibility challenges related to financial management that a new organization might face while adopting any cloud. The first visibility challenge is companies who want to migrate to the cloud but can't identify which workloads to migrate and what their expected costs would be. The second is companies that are already in the cloud but don't know who is using which resources or how they are impacting cost. It's impossible to control what you can't see, and this problem is exacerbated by the increasing adoption of advanced technologies such as microservices, containers or other non-traditional services. A lack of proper forecasting and budgeting mechanisms coupled with improper visibility can cause miscalculations and unaccounted spending.

Take the following steps to improve financial visibility:

- Develop a consistent tagging strategy to better identify and allocate spend and usage. Utilize dashboards and trend reports to analyze information based on tags and business groupings.

- Gather clean, relevant data for your teams and ensure everyone is working from the same, accurate data set, and agree on key performance indicators (KPIs) and metrics that will be measured on an ongoing basis.

- Set budgets, align cost drivers to business decisions, and alert stakeholders of changes in cost and usage proactively through governance policies or alerting tools.

- Collaborate on best practices such as chargeback and showback across various teams to standardize operating in the cloud.

- Benchmark against industry peers to see how you can improve your cloud consumption.

"Because there's so much data and there are so many moving pieces and stakeholders, it's impossible to keep track of everything. We feel that we did not have the right level of visibility to make the decisions we needed."

Head of cloud financial management for a large airline based in Asia-Pacific

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Organizations that master cost visibility see additional benefits such as more predictable cloud bills, faster time to closing the books, and overall improved top-down confidence in cloud initiatives.

Additionally, as lines of business and teams gain awareness of spend and cost drivers, they'll naturally start to reduce spending. Other benefits include better budget alignment, improved forecasting and smarter decision-making.

As one airline company puts it, "We were trying to gather all the information and make sense of it. We quickly realized it was a mundane manual task to get the information together, and then analyze that through various tools. We needed the right KPIs and metrics to drive effective cloud strategy."

2. Optimizing your cloud spending

Optimization is the process of finding opportunities in your infrastructure to be more efficient, reduce spend, and/or save time. Early in your cloud journey, optimization activities may be manual to determine a process for which resources should and shouldn't be optimized. However, organizations should start documenting approaches they find beneficial to share across teams, whether that's scripts for cleaning up unused resources or metrics for analyzing resources in a standardized manner. For example, Segment, a data analytics company, treats a spike in their cloud cost as an incident (similar to security or availability incidents) so that it can be addressed effectively in a shorter time. Further, to avoid proliferation of these incidents, Segment does post-mortems on spikes and sets best practices around how to stop the same incidents from happening again.

While the cloud gives organizations flexibility to scale up and down while paying for what they consume, not having the right toolset in place to help manage your cloud might lead you to overspend and/or over-provision resources. Unpredictable cloud consumption, financial spikes and lack of resource management can derail your efforts and lead to confusion throughout your organization.

"Sometimes there are surprises, like when an intern starts something and goes home for the weekend and then the service is running all weekend. We could be spending $5,000 an hour or could easily be $50,000 an hour. And that's the strength of cloud, right, that it's essentially infinite when it comes to a single person doing something."

Head of cloud financial management for a business-to-business software company

There are many ways organizations can go about reducing spend in the cloud (for more details, see our ebook: 9 Best Practices for Reducing Spend in Your Multi-Cloud Environment), but some of the most common techniques include the following.

Leveraging upfront commitments

All of the major public cloud providers offer incentives for making an upfront commitment in exchange for a discount. These commitments, often called Reservations or Savings Plans, can offer up to 80 percent plus savings compared to consuming infrastructure on demand.

Deleting zombie infrastructure

Zombie assets are infrastructure components that are running in your cloud environment but are not being used for any purpose. Zombie assets can come in many forms, such as Amazon Elastic Compute Cloud (EC2) instances, Azure VMs, Google Compute Engine VMs, relational databases, unattached storage volumes, and more, that were once used for a particular purpose but are no longer in use and have not been turned off. They must be isolated, evaluated and immediately terminated if deemed nonessential.

Rightsizing your environment

Rightsizing is the process of analyzing the utilization and performance metrics of your infrastructure, determining whether or not they're running efficiently, and what actions you should take to improve efficiency, and then modifying the infrastructure as needed (upgrading, downgrading, terminating). This can be done for compute, database, storage, containers and many other infrastructure types.

Utilizing low-cost, short-lived compute options

One of the ways to optimize cost most aggressively is to adopt short-lived compute options, such as spot instances or preemptible VMs. While these options can reduce costs by up to 90 percent, they're also potentially the most disruptive to applications because infrastructure can disappear with relatively short notice. For organizations that build applications to tolerate this disruption, the savings are potentially significant.

As the head of cloud financial management at one business-to-business software company comments, "Sometimes there are surprises, like when an intern starts something and goes home for the weekend and then the service is running all weekend. We could be spending $5,000 an hour or could easily be $50,000 an hour. And that's the strength of cloud, right, that it's essentially infinite when it comes to a single person doing something."

An optimized cloud environment means less waste, more savings, and more accountability and control. For example, a major healthcare provider saved thousands of dollars by shutting down the resources that were idle on weekends or weeknights. As a result of optimizing their environment, the healthcare company also realized benefits such as ease of additional budget justification, better governance, reduced cloud spend, and faster decision-making, all by leveraging their best practices.
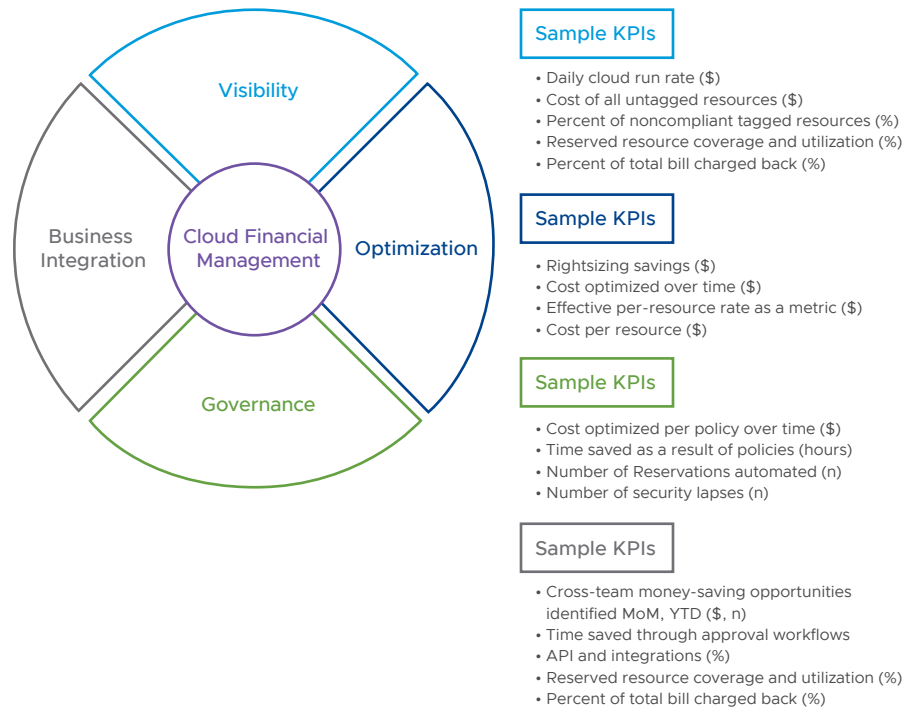
Figure 3: Sample KPIs for each phase.

3. Setting governance policies and automating repeatable tasks

Governance is the process of defining the ideal state and, through alerts and policies, getting notified when environments drift out of compliance. Many equate this process to setting guardrails, although the CIO at a media and publishing company describes it internally as bumpers on a bowling alley because it enables everyone to throw strikes and stay in control.

Governance is key to the successful execution of a cloud strategy and, in the context of CFM, includes guidance on the following.

Setting and monitoring budgets

The simplest form of financial governance is a budget. These are rules for how much a group should be spending over a period of time. Ensuring budgets are clearly defined and then proactively alerting necessary stakeholders about potential overspending is a critical basis for success in CFM.

Defining an unacceptable cost increase

Costs increase all the time, but at what point are they concerning? Most organizations will define this based on a percentage increase over a day or a week (i.e., if service or group X spend increases by 5 percent over a day, alert me).

KPIs for success

• Percentage of Reserved Instances compared to the total resources cost, usage (%, $)

• Rightsizing savings ($)

• Cost optimized over time ($)

• Efficiency score trended month over month (MoM) (%)

• Effective per-resource rate as a metric ($)

• Percent of instances underutilized (%)

• Cost per resource ($)

Defining how much infrastructure should run on demand

This provides guidance for what percentage of compute infrastructure should be consumed on demand (typically the most expensive option) compared to infrastructure covered by an upfront commitment plan (i.e., reservation, Savings Plan, committed use discount), or run as a spot (or preemptible VMs). Most organizations want to keep this to a minimum, around 20 percent or less of overall compute hours.

Specifying what constitutes a zombie infrastructure

When teams start looking for zombie infrastructure in their environments, what should their baseline be? For example, you could set a policy to flag any compute services that have a max CPU percent of less than 5 percent over the past 30 days. This doesn't automatically mean this asset is a zombie, but it's worth investigating further.

Defining which environments can be shut down during off-hours

Defining which systems must run 24x7 and which can be shut down is the first step to a lights-on/lights-off policy that can significantly reduce spend. Next, set a target for weekly hours that non-production systems should run. For example, the goal might be to keep non-production systems running less than 80 hours per week.

All of these governance policies will likely vary from team to team, but it helps to set an organization-wide standard and give teams a starting place for defining standards that work for their group. These are just a few examples of the types of governance policies a cloud financial management organization must set up.

After defining governance policies, the goal for many organizations is to eliminate the use of spreadsheets and automate as much of their environment as possible to free up employee time for more critical tasks.

Typical financial management tasks that businesses find beneficial to automate include:

• Manage existing reservations, such as converting reservations to the latest offering, or alerting owners of expiring reservations.

• Terminate low-hanging fruit, such as unattached storage volumes, unassociated elastic IPs, and aging snapshots through policies.

• Automate lights-on/lights-off tasks for non-production infrastructure on weekends or weeknights through scheduling.

KPIs for success

- Cross-team money-saving opportunities identified MoM, year to date (YTD) ($, n)

- Time saved through approval workflows, API and integrations (%)

- Cost per customer ($)

Taking the initial steps from governance alerting to governance automation can be a daunting one. Experts advise to start slow and ramp up over time. Begin with automation within an approval workflow so a human is giving the final OK before action is taken. You can then progress to low-stakes automation, such as terminating unattached storage or old snapshots. Eventually, you can progress up to more advanced automation, such as lights-on/lights-off policies. Many report that this is the most challenging phase of maturing a CFM practice, but once completed, it pays off.

Governance and automation helps you save money, effort and time on all your manual tasks. Additionally, automation helps you adopt technology faster (with better management practices), remove time-consuming bottlenecks, and justify your additional resource requirements better.

4. Driving collaboration with business integration

At this phase, you've already gained complete visibility into your cloud spend across your organization, built continuous optimization practices, and established well-defined governance policies that are automated as much as possible. The last step is to integrate your cloud processes into business processes. For some, this will be aligning cloud costs into go-to-market strategies for packaging and pricing. For others, this will be about transparent KPIs that cascade down from the business to the customer level. At this phase, your goal is to have cloud costs fully integrated into finance systems to enable chargeback.

Business integration isn't just about numbers and systems, however. It's also about people across different functions working together through adoption of effective communication. With a good collaborative culture, you can develop a do-it-right-first-time attitude and discard finger-pointing that can impede your business initiatives.

To encourage collaboration, there are some easy steps that can be taken:

- Undertake cross-organization optimization efforts using internal cost initiatives to help drive change in behavior and development across teams.

- Develop reports and dashboards for team collaboration (e.g., time required for projects/sprints, time lapsed before action was taken on a ticket).

- Automate entries for financial chargebacks and accruals through APIs and integrations.

- Align financial management metrics to business metrics such as gross margins and cost of goods sold to establish common goals.

- Integrate third-party tools, such as Slack and Jira, for effective alerting and communication.

Communication plays an essential role in managing your cloud and IT environment in general. Not having the right communication channels adds to overall complexity, negatively affects efficiency, and puts your cloud strategy at risk. It's important to communicate key metrics in business context (i.e., cost per customer) and, where possible, benchmark your organization against peers in the industry. Saying that you were able to reduce costs by 30 percent is a lot more powerful when you can provide the context that your peers only reduced spend by 15 percent in the same time frame. Lastly, considering the tools and technology you use for communication and collaboration is key. For example, using Excel spreadsheets might work well with a small team, but they become impossible to manage as you scale. This is one area where a cloud management platform can add immense value.

A large healthcare company CIO emphasized that collaboration plays a pivotal role for her team. With many different stakeholders and all the moving pieces, it's critical that collaboration isn't just limited vertically but also happens horizontally across business units and functions. Otherwise, this leads to confusion, missed outcomes, overshot IT budgets, or even causes frustration across teams.

Improved collaboration and integration helps in meeting the desired business goals faster. Other additional benefits with improved collaboration are:

• Improved productivity, efficiency and accountability through transparent communication

• Enhanced product quality and more innovation

• Reduced cost and accurate tracking against metrics

• Integration helps develop a single source of truth as opposed to disparate tools for different teams

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"Over the last couple years, we've taken shots at cost optimization working teams and SWAT teams across the company, but it really gained traction last year. Being tied very closely with the business now allows us to leverage the different teams across the organization, working cross-functionally with them and getting things done faster. The idea being that we're trying to shift from a cyclical finance organization on our specific team to being embedded in the business and really driving execution."

Head of cloud financial management for a business-to-business software company

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To learn more about how VMware Tanzu CloudHealth® can help you with your cloud financial management, get in touch with the team and [get a free trial](#).

As you think of leveraging the four phases, make a note that the end goal of cloud is to drive agility, increase productivity, and find opportunities to innovate for competitive advantage. It's important to think of the complete financial picture—more than just cost. Financial management is what will provide a 360-degree view of how your IT and business are using cloud. Plus, the more your financial management is aligned to your CCoE, the more you'll be able to achieve your desired goals by staying within budget.

Taking the next step begins with an action plan

To establish and operate a successful cloud financial management office, you must take the following steps:

- Establish – Kick-start your program with a well-defined charter. For example, identifying key stakeholders, cloud services to use, cloud budget, and strategy on financial transparency and so on.

- Collaborate – Form a cross-functional and collaborative team. Include members from engineering, finance and management teams at the least.

- Partner – Identify a proven cloud management platform to serve as a trusted partner.

- Measure – Establish KPIs to track progress and report out to stakeholders. Get the right data to your users.

- Document – Build a library of best practices and processes to be adopted across teams.

- Automate – Automate tasks; manual optimization is not scalable at the speed of cloud growth and change.

Conclusion

Agility, flexibility of costs and innovative technology are some of the primary reasons you went to the cloud in the first place. The cloud can enable you to reap immense benefits and help boost developer productivity. However, it's important to understand your cost drivers and agree on KPIs/metrics that are important to your business. Build your cloud environment around the four key phases to have complete control while you enjoy the benefits of cloud: visibility, optimization, governance and automation, and business integration.

Cloud costs can get out of hand very quickly. Therefore, it's important to build a cloud financial management function in your CCoE to keep costs under control.