nagarro

Value creation: A Guide to Cloud Cost Governance to achieve higher profitability

Table of contents

Introduction

In the dynamic landscape of private equity-backed platform companies, growth is often synonymous with expansion through bolt-on acquisitions. However, each new addition to the portfolio brings the challenge of managing cloud and infrastructure costs.
As these companies migrate their workloads to the cloud, overseeing costs across the entire portfolio becomes increasingly complex.

While expanding, some companies often struggle with the inherited diverse infrastructure setups, managed contracts, and on-premises infrastructure of the acquired entities. Transitioning these workloads to the cloud promises scalability and efficiency but can escalate costs if not carefully managed.

Similar considerations apply to portfolio companies undertaking cloud modernization initiatives or private equity organizations using cost as a lever to unlock value.

Failure to effectively manage cloud costs can lead to the risky "cloud trap" and:

- Surpass expenses quickly from the industry benchmarks by 5-8%
- Erode profit margins
- Hinder the realization of strategic objectives

This whitepaper serves as a comprehensive guide to navigate the intricacies of cloud cost governance in the context of portfolio growth. Here, we'll cover the following aspects:

- Identify the strategies for gaining cloud cost visibility
- Foster a culture of cost consciousness
- Deploy effective governance measures to control cloud costs
- Master budgeting and forecasting

Our aim is to equip private equity firms and portfolio companies with the framework or playbook they need to optimize cloud spending and drive sustainable growth. By embracing the principles outlined in this guide, platform companies can avoid the pitfalls of unchecked spending and unlock the full potential of their portfolio expansions.

1. Understanding the challenge: Importance of Cloud Cost Governance

Enterprises undertaking cloud modernization initiatives to seek rapid growth have multiple moving components in their roadmaps. Teams prioritize their time determining an optimal path to move the workloads to the cloud, dealing with diverse application and infrastructure portfolios to make informed choices about the architecture and the landing zones. When these applications' infrastructure setups are migrated to the cloud, managing their costs presents a formidable challenge. In fact, governing cloud spend remains the "topmost" challenge for organizations.

Even though the cloud is a different operating model posing unique challenges, the core issue emerges when there is absence of:

A structured approach to cost governance

Centralized visibility into cloud costs

A cost-aware culture

1.1 Cost visibility challenge

The fundamental obstacle to effective cost governance is the lack of comprehensive visibility into cloud spending across the organization. The following practices obstruct the organization from gaining a holistic view of expenditure making it susceptible to cost overruns and inefficiencies:

- Siloed data
- Fragmented reporting mechanisms
- Multiple reports
- Decentralized procurement

A methodical cost allocation strategy based on well-defined tagging strategy is the key to better cost visibility in the cloud.

1.2 Cost optimization dilemma

Optimizing cloud infrastructure is not simple. One must maintain a delicate balance between resource allocation and cost optimization. This balance is a challenge when teams need to go through a learning curve. While scalability and flexibility are inherent benefits of cloud infrastructure, the unchecked over-provisioning of resources can lead to underutilization, redundancy, and wastage, leading to inflated costs. Needless to say, these costs erode profit margins and hinder strategic initiatives.

1.3 Cost-aware culture

Fostering a cost-aware culture is easier said than done. The challenge an organization faces when tasked with managing cloud costs is getting the engineers to act on the identified cost-saving opportunities. The challenge is further elevated by the lack of standardized enablement, learning, and training.

1.4 Strategic objectives alignment - Unit Cost Economics

Aligning cloud spending with strategic objectives is paramount while driving sustainable growth and building a competitive advantage. However, the lack of alignment between IT investments and business priorities often results in:

- Misallocated resources
- Missed opportunities
- Widened gap between organizational aspirations and operational realities

Hence, it is necessary to define key business metrics to keep things under check. Considering these challenges, it becomes imperative for companies to:

- Implement a robust cloud cost governance solution.
- Take proactive measures to enhance cost visibility with higher granularity across business functions.
- Optimize costs through innovative governance measures
- Align investments with strategic imperatives.

These measures help navigate the complexities of cloud spending and unlock the full potential of cloud modernization initiatives.

2. Cloud trap: Understanding the consequences

The challenges outlined above aren't that simple to solve; they are complex, and the consequences of failing to address them are significant. Some of the far-reaching ramifications of inadequate cloud cost governance, are:

- **Unchecked growth in cloud spending** strains financial resources and undermines the organization's financial stability. As operational expenses increase, profit margins shrink, limiting the headroom to invest in innovation. The decreased financial resources hamper the organization's ability to stay competitive in the industry and capitalize on growth opportunities.
- **Resource constraints** from cloud budget overruns divert critical team members' attention away from strategic initiatives. This stagnation not only frustrates the team but also exposes it to the risk of talent churn.
- **Unpredictable expenditure patterns** make the job even tougher. It creates uncertainty and may hinder the ability of platform companies to secure financing for strategic initiatives or future acquisitions.

Failure to implement effective cost governance measures perpetuates a vicious cycle known as the "cloud trap." Breaking free from this cycle requires a concerted effort to prioritize cost transparency, accountability, and optimization.

3. Cloud trap: Preventing it and discovering the solution

#designprinciples

To build solutions that empower teams to gain control of cloud spending and build a cost-aware culture, the team should focus on following aspects.

3.1 Enhance cost visibility and control

Implementing a solution to enhance cost visibility gives companies an opportunity to centralize cloud cost information and the control needed to manage cloud spending effectively. The enterprise can unlock real-time insights into cloud usage, costs, and performance by:

- Consolidating cost data from disparate sources in a centralized dashboard
- Implementing robust tagging through automation for cost allocation
- Standardizing reporting mechanisms

Enhanced cloud cost visibility enables proactive decision-making, drives accountability, and promotes cost optimization efforts by shortening the feedback cycle of cloud costs.

3.2 Automate governance

Manual processes to govern different aspects of the cloud will not work at a large scale. This particularly holds true when there is a need to centralize many best practices and ensure compliance throughout the portfolio organizations. A holistic but automated cloud governance solution is essential to:

- Navigate the complexities of cloud environments
- Right-sized resource utilization
- Identify cloud waste
- Control compliance on standardized infrastructure
- Ensure cost efficiency

3.3 Fostering a cost-aware culture

Fostering a cost-aware culture involves instilling a mindset of accountability, transparency, and optimization throughout the organization. You can achieve this by implementing some of the following measures:

- **Education and training** by organizing FinOps workshops across all levels. For example, you can host FinOps workshops or "Learning Tuesdays" sessions where cross-functional teams learn about best practices for cloud cost management. Some of the best practices are tagging strategies, cost allocation methodologies, and cost optimization techniques for various services. These sessions can include hands-on exercises and case studies to reinforce learning from real applications or cloud accounts. As a result, teams will feel more confident about how certain quick wins can reap long-term cost optimization benefits.
- **Visibility and transparency** through real-time visibility into their cloud usage and costs. For example, you can publish cost visibility dashboards and reports showing real-time usage and costs across different teams and projects. Teams can access these dashboards to monitor their spending, identify areas for optimization, and make informed decisions. These reports break down costs by service, instance type, or project, helping teams understand their cost drivers.
- **Ownership and accountability** by defining clear structures and letting teams manage their cloud budgets. You can assign each team a cloud budget and hold them accountable for staying within their allocated budget percentage variance. Teams can track spending, optimize resources, and report on cost-saving initiatives. Example: Setting aside a team budget and giving accountability to an engineering squad would mean a senior engineer collaborating with product managers to map usage metrics of various features against execution times of data pipelines to optimize those executions.
- **Incentives and Recognition** through leaderboards. Recognize and reward teams that demonstrate cost-conscious behavior and achieve cost-optimization goals. Example: We helped one of the organizations introduce a "Cost Optimization Champion" program, where the teams' nominated individuals who demonstrated exceptional cost-conscious behavior. During the PI Planning events, champions received recognition and rewards for their contributions. This program can easily be implemented for teams instead of individuals, helping to develop a practice of healthy competition between them.
- **Empower teams** with the right tools and bandwidth to automate cost optimizations. You can provide your teams with tools that can implement automated policies to enforce cost-saving measures. Some policies that can be automated are scheduling non-production instances to shut down outside of business hours, automatically resizing underutilized resources, or cleaning up unused resources. These policies can help optimize costs without manual intervention, saving developers' bandwidth to focus on product development/innovation.
- **Encourage teams** to share learnings, success stories, and best practices to drive collective improvement and innovation. Example: Establishing a monthly cost optimization review or retrospective meeting provides an opportunity for teams to review their cloud spending, share lessons learned, and brainstorm new cost-saving ideas. Action items from these meetings were tracked and followed up on to ensure continuous improvement. To enhance time utilization, we suggested that one of the aforementioned "Learning Tuesdays" sessions be replaced by the review meeting. After all, implementing learnings and success stories amongst all the teams is the goal.

Hence, the holistic solution needed to gain control over cloud spending must support enablement in the above-highlighted focus areas of Cloud FinOps. A cultural shift is fundamental to instil a mindset of continuous optimization and cost -consciousness throughout the organization.

3.4 Aligning cloud investments with business priorities

An effective cloud governance solution facilitates alignment between cloud investments and business priorities. Organizations can ensure that cloud spending is directed towards initiatives that deliver the greatest value and support strategic objectives by establishing governance over:

- Centralized set of best practices
- Cost allocation methodologies
- Business metrics to drive unit economics and budgeting processes

This alignment fosters agility, innovation, and competitive advantage in an increasingly digital and data-driven landscape.

3.5 Driving Continuous Improvement

Cloud governance is not a one-time initiative but rather an ongoing continuous improvement process.
A holistic cloud governance solution enables platform companies to measure the success of their processes through maturity models. It should allow companies to measure and track their maturity against known frameworks such as Cloud FinOps and Well-Architected Framework.
The solution must provide meaningful recommendations on which organizations can act to continuously improve their maturity in various areas of the standardized Cloud frameworks.

4. Offerings from existing solutions in the market

4.1 Native tools

Native tools are provided by cloud service providers (CSPs) to manage cloud costs within their respective environments. They help understand cloud costs to a certain extent and are fully integrated with that cloud service provider for easy management of cloud costs and usage. They provide real-time tracking of cloud spend on different services and can help in cost allocation if understood properly.

The in-built Advisor services also suggest some basic yet obvious recommendations for effective cost optimization.

Overall, these native tools provide a good start to FinOps. But very soon, there is the realization that even as of 2024, these native tools are certainly not enough to give complete control over cloud spending and govern the maturity progression in FinOps practices.

Enter the third-party tools!

4.2 Other tools in the market

These third-party tools provide a more comprehensive solution for managing cloud costs and usage while supporting multiple cloud providers and advanced analytics capabilities. Some of their features include:

- **Multi-cloud support:** One of the major differentiators between native and third-party tools is that the latter supports multiple cloud service providers, enabling cost management and usage across all the cloud accounts in one place.
- **Customizable dashboards:** These dashboards help visualization and analysis of cloud spending and usage data as per business requirements.
- **Automation:** Automating tasks such as resource tagging, resource optimization, and cost allocation creates headroom in the team's bandwidth to focus on other business-critical tasks.
- **Advanced analytics:** These are provided to help analyze and optimize cloud usage patterns, identify trends, and predict future costs.
- **Cost anomaly detection:** FinOps third-party tools use machine learning algorithms to identify cost anomalies and provide recommendations on optimizing cloud spending.

4.3 Choose the right solution

Consider following factors when selecting a FinOps tool:

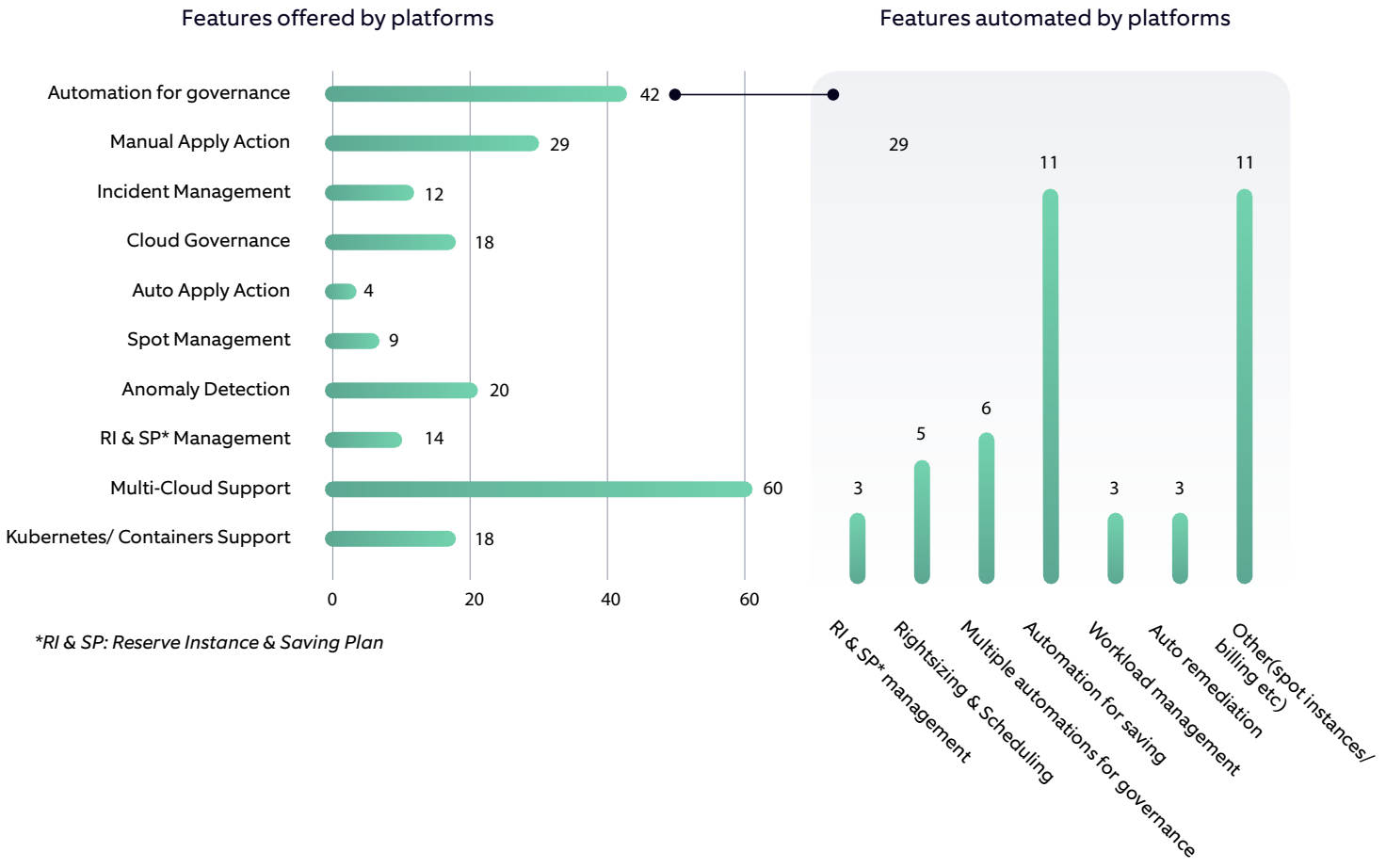
1. Prefer to buy or "buy & extend" over building bespoke: Developing a bespoke tool where the teams' have full control sounds enticing, but it needs substantial time and money. It involves a high level of complexity, effort, development costs, and ongoing maintenance costs. CSPs keep adding new features, so keeping track of them and updating the tool becomes an add-on task. Factor in the development time, and the time to value will be very high. Buying a third-party tool that provides high insights and guidance on reducing cloud bills is recommended. Or, better yet, investing in a solution that can be extended to satisfy business needs. Few such platforms exist that allow full control over configurations while offering extension capabilities.

2. Assess functionality beyond cost optimization: While selecting a Cloud FinOps tool, check for features such as reporting, forecasting, anomaly detection, and active support in a multi-cloud/hybrid environment. If the enterprise leverages containers/Kubernetes, look for tools that can provide insights into container costs, too. Don't forget though; to achieve value faster in the Cloud FinOps initiative, automation is the key.

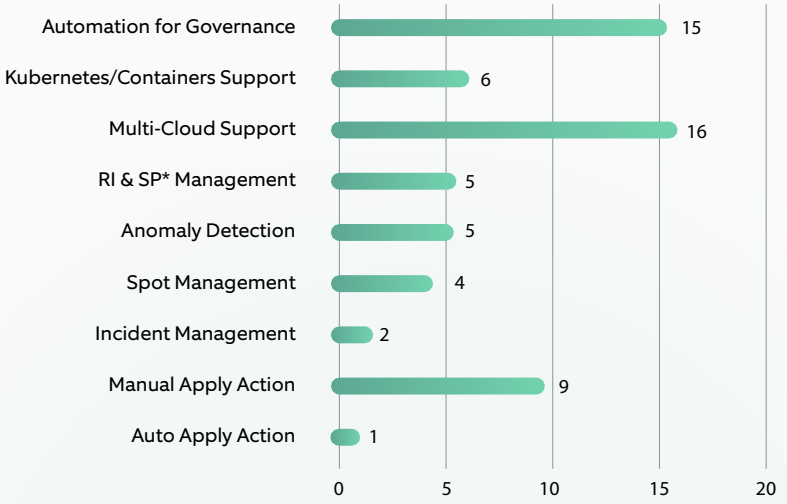
Here are a few other points to consider while choosing a FinOps tool:

- Advanced features like automating the management of reserve instances, auto-rightsizing and scheduling as per requirement, and auto recommendations for saving or remediation. Solutions that can extend to support these automations will be a better fit.
- Licensing cost (which may be a concern for organizations with strict budget constraints). A fixed-cost solution will help with better forecasting and budgeting.
- The tool offers a level of customization and integration for your custom needs and internal data/tools integrations.
- Customization to align with enterprise needs
- Provides API support, and enables integration with the enterprise software ecosystem
- Training support to fully utilize the tool's capabilities

Nagarro's team conducted a comprehensive study of all 85 FinOps Certified Platforms available on FinOps.Org website. Below are the key findings from the research:

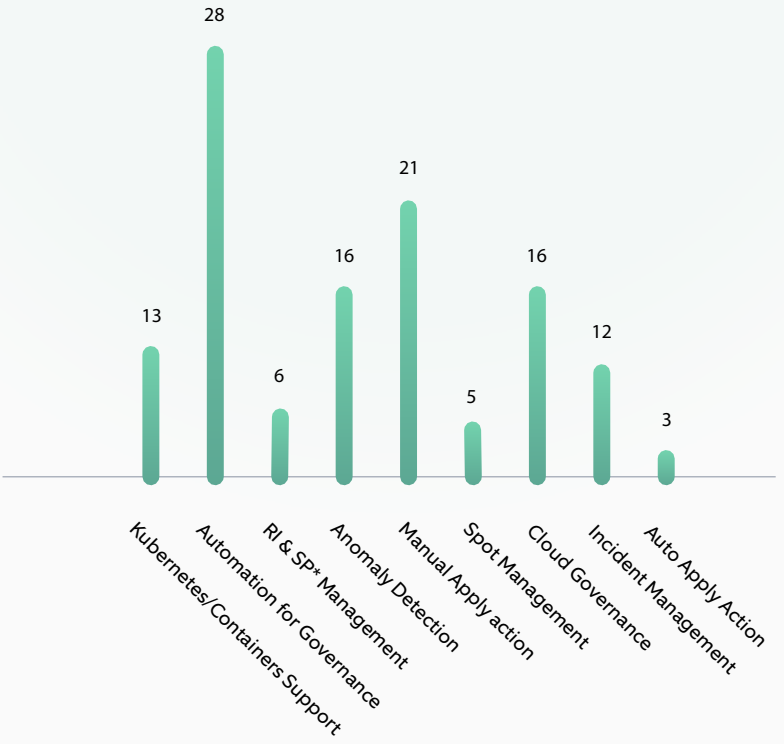


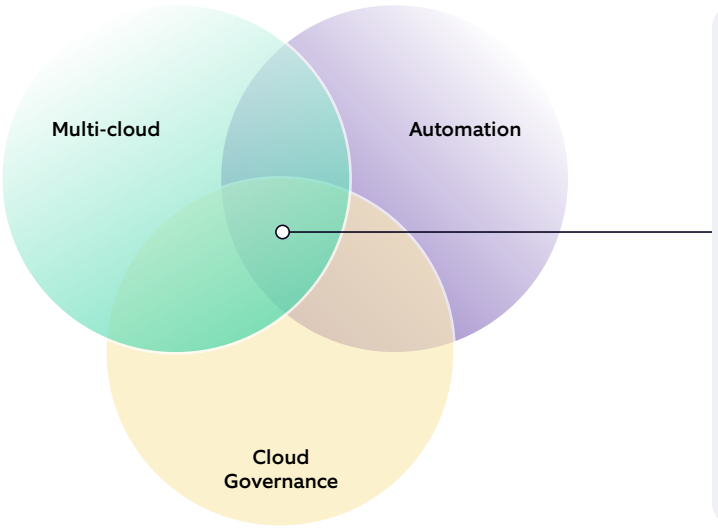
Features offered by Cloud Governing platforms



**RI & SP: Reserve Instance & Saving Plan*

Features offered by Multi-Cloud Supporting platforms





Platforms providing all three features

Cloudfit - Simba Innovation
Flexera One
Vega Platform
VMware Tanzu Cloud-Health
Pepperdata - Capacity Optimizer
Clockwork.io
CloudBolt Software
Microsoft Cost Management & Billing
Spot by NetApp
Stacklet Platform
IBM Turbonomic
Cast AI
CloudSaver
CloudPulse

Understanding the types of tools available in the market for cloud cost management is crucial for any enterprise. The tool selected by the enterprise should perfectly fit the dynamically changing and fast-paced ecosystem and should have extensive cost management features.

To summarize, an ideal solution to manage cloud costs should focus on the following:

- An automated solution for governance
- Accelerate cost efficiencies with faster time-to-value
- Flexibility with customizations for varied bolt-on acquisitions
- License offering fixed-predictable cost over percentage of cloud bills that diminishes the ROI for subsequent years
- Comprehensive visualization of cloud costs across portfolios and measure performance improvements over time

5. Achieve cloud cost excellence in the long run

In the section Cloud Trap: Preventing it and discovering the solution, the ideal characteristics of a Cloud FinOps solution or Cloud governance solution was covered. Subsequently, what is available in the market and what any enterprise should consider in the tool when evaluating them was also shared.

Now, let's discuss a Cloud FinOps Playbook and how it helps in getting into a rhythm of cloud ops.

The Cloud FinOps playbook consisted of three goals, five phases, and twelve key activities to achieve cloud cost excellence and go beyond the cost pillar of the Well-Architected Framework.

5.1 Make cloud cost visible

Showback and chargeback are critical strategies of cloud cost governance to drive accountability and transparency while helping organizations optimize their cloud spending. Enhancing cloud cost visibility would imply implementing a systematic approach to execute these strategies.

To make cloud spending visible across the board, an organization can follow the listed steps:

1. Define objectives: Determine the insights to gain, the stakeholders, and how the data will be used.
2. Maintain inventory and tagging: Implementing a thoughtful tagging strategy is the key to laying a solid foundation for cloud cost visibility. Inventory all cloud resources and ensure they are properly tagged with metadata, allowing cost allocation. Tags can include information such as department, business units, product, team, environment (e.g., production, development), owner, and cost center.
3. Implement cost visibility dashboards: Set up cloud cost dashboards that provide comprehensive reports and analytics that break down costs by accounts, team, resource, service, project, team, tags, etc. These dashboards should be available for the teams and should provide detailed breakdowns of costs by resource, service, and tag, allowing teams to understand their cost drivers and make informed decisions.
4. Communicate and educate: Communicate the importance of cloud cost visibility and explain the showback and chargeback strategies to all stakeholders. Provide training and education to teams on interpreting showback reports, optimizing costs, and adhering to cost allocation policies.
5. Implement Chargeback (Optional): Once a process is set up for showback and teams are accustomed to managing their cloud costs, consider implementing chargeback if it applies to your organization's structure. Chargeback involves billing departments or projects for the actual costs they incur, incentivizing cost-conscious behavior.
6. Iterate and Improve: Continuously refine showback reports based on feedback from stakeholders. Tailor reports to meet the specific needs of different teams and departments, providing relevant and actionable insights. Set up a cadence to review and iterate how showback and chargeback work to ensure alignment with organizational goals and evolving business needs. Proactive and responsive adjustments are necessary to improve effectiveness and adoption.

5.2 Identify cloud waste

By making your cloud spending visible across the board, you gain control and can pinpoint these inefficiencies. This visibility, achieved by following the above steps, empowers organizations to take action. Regular audits can also arrest some of the cloud waste stemming from inefficiencies.

The following are the focus areas:

- Deleting idle resources like Virtual Machines (VMs), orphan public IPs, and unattached storage volumes
- Rightsizing over-provisioned resources like excessive capacity for computing and databases, instances with low CPU utilization, or overall low memory utilization
- Deleting obsolete and redundant resources that include old snapshots and backups or redundant data storage or replication across geography in a lower environment
- Removing unutilized software licenses and unused subscriptions/services or leveraging the discounts with hybrid licenses
- Reviewing and optimizing any unnecessary network and data transfer costs
- Leveraging committed usage discounts by using reserved instances savings plan and keeping their utilization maximized

Organizations can initiate actions to optimize their cloud infrastructure and reduce unnecessary expenditures by identifying the sources of waste.

5.3 Clean cloud waste

Once cloud waste is detected, the next step is to clean it to realize cost savings and improve operational efficiency. Cleaning cloud waste involves a detailed, multi-faceted approach that ensures efficient, consistent, and ongoing management of cloud resources. It needs systematic processes to manage cloud resources, including automating the detection and remediation of unused or underutilized cloud resources. Implementation of auto-apply actions and manual-apply actions are two of the most crucial aspects of the process.

Manually applied actions require human review and approval for complex or high-risk tasks such as decommissioning large databases or handling exceptions. The manual actions provide oversight, flexibility, and a layer of accountability, ensuring that sensitive and high-risk operations are carefully managed. However, organizations can continuously mature their implementations to the Auto-apply actions category for quick resource clean-ups as they build confidence in their processes. [Auto-apply actions utilize predefined rules and automation tools to automatically identify and remediate cloud waste, such as shutting down idle instances, resizing over-provisioned resources, and deleting unused storage, ensuring quick and consistent policy enforcement.]

Integrating these actions with Incident Management tools like Jira and ServiceNow enhances tracking, management, and transparency for operationalization. Organizations can mature these processes by allowing automatic ticket creation for detected cloud waste, embedding tasks into existing DevOps workflows, and facilitating comprehensive reporting and tracking of cloud waste tickets.

Establishing a robust feedback loop is essential for continuous improvement. A feedback loop incorporates performance insights and stakeholder feedback to refine and improve policies and processes continuously. This iterative approach ensures that the cloud waste management strategy evolves with changing needs and technologies, enhancing its effectiveness over time.

By systematically cleaning cloud waste, organizations can continuously refine their cloud usage and sustain cost excellence over the long term.

5.4. Automate cost governance

Automation tools can play a significant role in identifying waste and cleaning it up. These tools can help you enable the automatic shutdown or termination of unused resources and scale services to match actual demand. Adopting practices such as scheduled resource optimization reviews and enforcing compliance with cost optimization policies can maintain a clean and efficient cloud environment.

Implementing policies for resource lifecycle management ensures that temporary resources do not persist longer than necessary. As an implementation example, one of our customers implemented the following process to ensure automated remediation:

1. **Noncompliance identification**: Establish weekly audits to identify resources lacking proper tags and notify stakeholders of non-compliant resources to raise awareness of potential cost inefficiencies.
2. **Noncompliance escalation**: Daily audits are conducted to identify remaining non-compliant resources from the non-compliance identification stage and notify stakeholders of non-compliant resources for actions.
3. **Automatic Remediation**: Daily checks are performed to identify Stage 2 non-compliant resources that require action and automate termination processes for Stage 2 non-compliant resources to mitigate cost waste.

5.5 Continuous improvement

An automated and reliable approach must be implemented to assess an organization's overall FinOps maturity. Such an approach helps in the following ways:

- Ensures continuous improvements in the already established cost management processes in the organization.

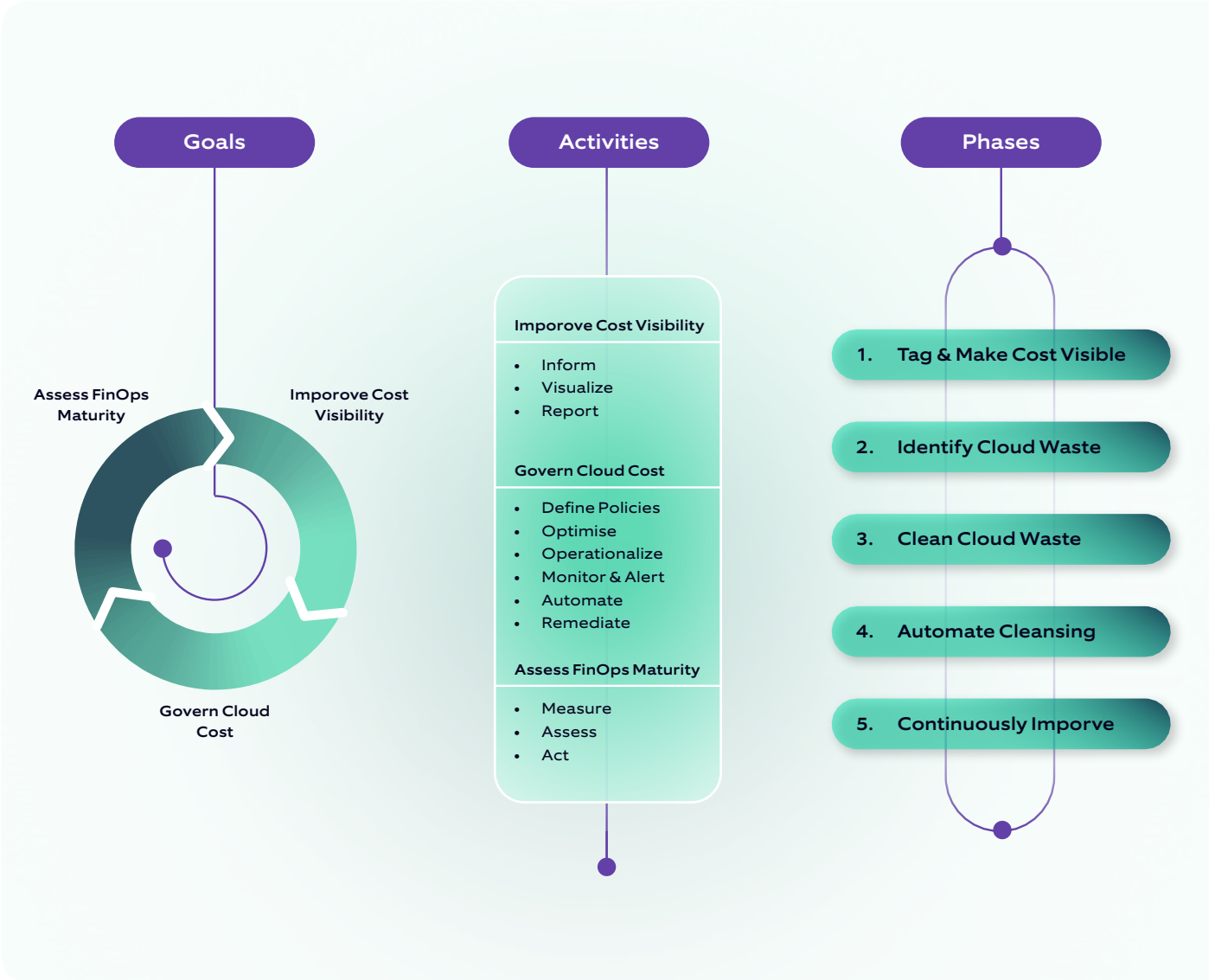
- Measures performance improvements over a period by assessing the current state of FinOps maturity, which aligns with the industry-standard measures.

Organizations should leverage a solution to help them track and visualize past, present, and future process maturity trends. Any FinOps maturity assessment should at least target the following capabilities if not all:

- Optimization of cloud usage & cost
- Anomaly management
- Forecasting and budgeting
- Cloud policy and governance
- Unit economics
- FinOps culture alignment

An organization can conduct a FinOps maturity assessment by following chronological stages:

1. **Well-designed Q&A**: Answer a curated questionnaire designed in alignment with different domains and capabilities of FinOps
2. **Aligned to FinOps domains and capabilities**: Baseline your current level of FinOps maturity across FinOps domains and capabilities
3. **Analysis of responses**: Get a measurable and meaningful analysis of your current operating FinOps maturity
4. **Provide a holistic view**: Check out the recommendation report generated for a holistic view of current and future maturity level
5. **Recommendations**: Act on recommendations generated for each FinOps domain and capability to move to the next maturity level



6. Expand the horizon: Beyond cloud cost optimization

6.1 Well-Architected Framework reviews

Implementing a holistic cloud governance solution not only optimizes cloud costs and establishes governance of the cost pillar, but it also enables organizations to automate audits/reviews across other pillars of the CSP's Well-Architected Framework or similar best practices.

6.2 Security posture audits and industry-standard compliances

Conducting security posture audits and automating compliance checks can help organizations to:

- Mitigate security risks
- Safeguard sensitive data
- Build trust with customers and stakeholders

These automated reviews can help standardize the centrally defined security practices across all the portfolio companies.

A strong security and compliance posture protects the organization's reputation and enables it to pursue growth opportunities with confidence and peace of mind.

6.3 Application resiliency and disaster recovery audits

Maintaining business continuity and resilience is crucial for organizations navigating expansion and growth. By conducting resiliency audits and developing comprehensive disaster recovery plans, organizations can:

- Minimize the impact of disruptions
- Mitigate operational risks
- Ensure the availability of critical services

Investing in resiliency measures protects the organization's assets and enhances its ability to adapt and thrive in the face of adversity.
Automating such audits will help ensure that the centrally defined standards/ best practices are followed across all the portfolio companies.

6.3 Application resiliency and disaster recovery audits

A holistic cloud governance solution in an organization

should support integrations through APIs, both inwards and outwards:

- Integration with DevOps tools, data analytics platforms, financial systems, IT service management systems, and other solutions can streamline workflows and automate processes.
- Integration with Incident management platforms helps operationalize processes and elevates the maturity of Ops.

7. Summary

Cost control and governance are key value-creation levers. Private equity-backed portfolio companies implementing Cloud FinOps playbooks can build long-term value in their assets and exit with high profitability.

It's imperative to recognize the importance of implementing a holistic yet automated cloud governance solution that goes beyond cloud cost optimization while executing the playbook. organizations can build a foundation that supports strategic objectives and enables long-term success by addressing aspects such as security, compliance, resilience, and continuous improvement.

With the right strategy, tools, and mindset, organizations can simplify expansion, maximize value creation, and achieve their full potential in today's digital economy