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# FinOps + AI: How To Hyper-Automate Cloud Cost Optimization

Using AI to Power the IT and Financial Operations Supporting Your FinOps Strategy

Introduction

It's a cloud-first world, which means every CFO, CIO, and CTO is keeping a close eye on cloud innovation and cloud expenditures too. Infrastructure as a Service (IaaS) and Software as a Service (SaaS) come with variable pricing models that can easily monopolize IT budgets if cost spikes aren't carefully watched. Gartner studies show 50% overspending in the cloud is commonplace. Cloud service providers acknowledge their bills spin out of control. Meanwhile, cloud-flation is now a thing and the act of reverting back to on-premise assets has become a trend called cloud repatriation. But as the realities set in, are there cloud hangover remedies? Can you use artificial intelligence to automatically monitor and govern cloud costs using a FinOps approach?

Hyper-automated cloud cost optimization isn't on the horizon – it's already here.

Advanced cloud cost management solutions infuse AI into their technology platforms to automate critical steps and workflows. The result? Fewer manual financial management tasks and accelerated results – which adds up to faster time to insight and time to cost savings. Let's take a look at the emerging hyper-automation driving efficiencies across the three Phases of FinOps and examine how companies can leverage AI to power their financial operations, turning a FinOps strategy into an ongoing practice.
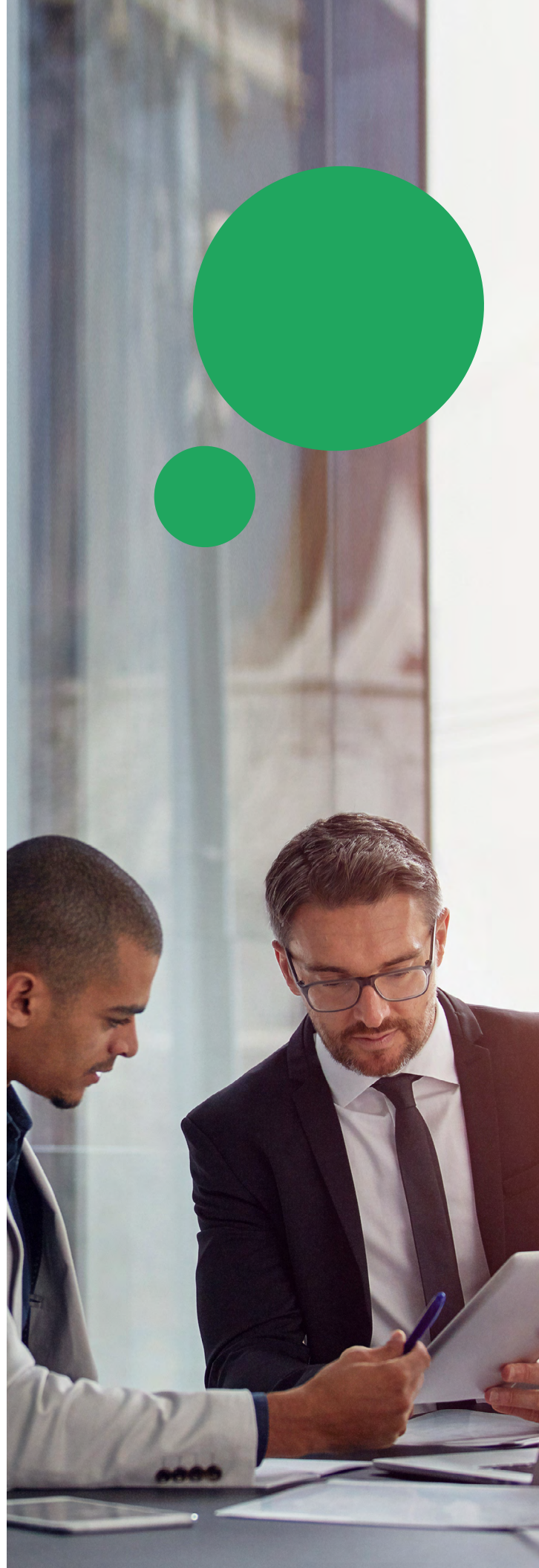
AI for FinOps Phase 1: Inform
## Automation for Informed Cost Cutting and Cloud Visibility

There are three key Phases to the FinOps Framework, the first of which is INFORM. At this stage, companies work to understand what IaaS and SaaS services they're using, and more importantly, how efficiently (or inefficiently) they're using them. You can't use data to cut costs without first having the critical information, and AI is the perfect fit for the INFORM Phase.

Cloud data capture and analysis is no simple task. SaaS applications and licenses often go undetected in the form of Shadow IT, and cloud service providers charge a fee when data limits are surpassed during storage and backup, making for extremely complex invoices. With IaaS, charges for 10GB per day are common. This makes it difficult to map usage back to projects and departmental use. And when IaaS and SaaS providers offer a variety of techniques to reduce the cost of service, cross-comparing every option becomes a brain-twisting exercise. Consider that there are 480,000 unique SKUs for a single hour or partial hour of EC2 Amazon Web Services, and there are over 1 million ways to purchase one server from AWS.

This level of number crunching is only fit for AI.

AI analytics are uniquely designed for large-scale data processing and invoice evaluation. Through machine learning, behavioral analytics, and predictive algorithms, IaaS and SaaS data can be continuously ingested and assessed. Real-time data comparisons on a massive scale are the true intelligence behind AI-powered recommendations for cloud cost savings. The primary goal is to derive insights from the client's own usage data, the provider's cost data, and consumption models and best practices known to be the most cost-effective. The secondary goal is to continually evaluate data to optimize costs, even as business needs change, application usage patterns change, and the list of SaaS applications currently in use evolves.

Applying AI to the 3 Phases of FinOps
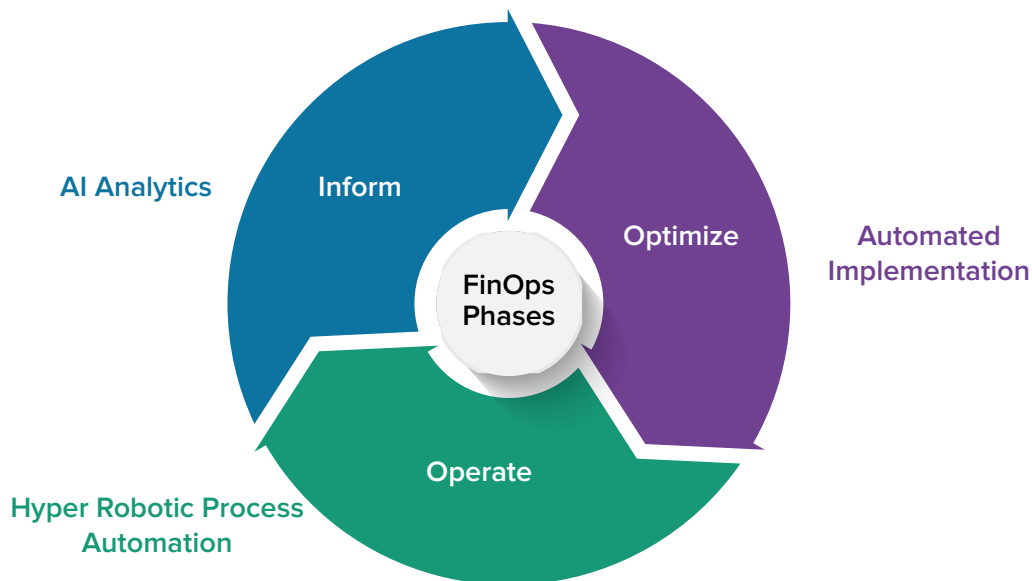
Source: FinOps Framework "3 Phases" by FinOps Foundation

Notable automation includes:

- **Vast and Frequent Data Ingestion for the Clearest Visibility:**
  AI analytics engines are only as smart as the data they are fed, which is to say the most intelligent cost-cutting recommendations come from engines that crunch data from a vast number of sources and observe data frequently, on an hourly basis or even in near real time. Data ingestion should include information gathered from both the client side and the provider side -- from the client's own IT and operational environment as well as from cloud service providers and a multitude of SaaS applications.

- **Consistent Data Deconstruction and Normalization:**
  Achieving apples-to-apples comparisons across diverse providers with different services, pricing models, and discounting structures is critical and requires data deconstruction and normalization capabilities. Without them, you won't be able to compare unit costs. Your AI optimization engine should be able to standardize data and glean insights in 15 minutes or less without installing any software.

- **Real-Time Intelligence for Preventing Cost Spikes:**
  Real-time data analysis can prevent expenses before they are charged, alerting teams of cost threshold violations. This is essential for proactive strategies that help avert the surprises of bill shock.

- **Tracking Dynamic Prices and New Features:**
  AI engines monitor daily fluctuations in service prices and keep tabs on any newly released capabilities that can help make corporate consumption more efficient.

- **Massive Data Analysis to Empower Swift Savings Discovery:**
  AI engines compare existing cloud usage data and current infrastructure configurations with millions of cost-optimized pricing schemas. This enables the immediate identification of cloud waste, showing companies where cost optimizations should be made.

- **Recommendations that Get Smarter with Time:**
  More data = smarter recommendations. AI engines get smarter with time as they continually ingest more information for sharper comparisons. Quarter over quarter, FinOps solutions should be able to compare historical information, making more informed recommendations based on usage patterns and habits.

But AI analytics are just the first way to automate the three Phases of FinOps.

AI for FinOps Phase 2: Optimize
Automating Cloud Usage and Rate Optimization

AI is also helpful in reaching the second Phase of FinOps, OPTIMIZE. This is when things get real -- action takes place to implement any identified cost savings recommendations coming out of Phase 1. At this stage, FinOps emphasizes cloud usage optimization and cloud contract rate optimization. For example, companies might adjust their consumption habits, right-size to reduce unused resources and more accurately match services to business needs. They might also modify their cloud network infrastructure configurations to make smarter use of the services already purchased or opt to change providers altogether based on pricing models.

AI is a critical enabler for turning potential savings into real dollars saved. Consider this: Actionable insights and cost savings recommendations are only as good as your ability to act on them rapidly. In fact, any FinOps solution lacking AI automation will quickly force the human IT engineer to manually implement any necessary changes. **But AI can close this gap using automated implementation. The customer can approve the recommendation and the system will take action to implement it for them.** Clients simply hit the APPROVE button and modifications are made for them in near real-time, capitalizing on the full potential and ROI of FinOps.

Some call this closed-loop automation. Others call it bi-directional optimization, because AI pulls data out of the cloud to analyze it and then pushes new, more cost-effective settings back into the cloud service control panel. Labels aside, the benefit is clear: Clients can recognize savings faster – with minimal effort and installation in one click.

Once approved by the client, AI can be used to automatically modify cloud services for optimization purposes. For example, AI might suspend or pause an unused IaaS service, change the type of service plan, edit a long-term commitment discount or savings plan, or even help you manage infrastructure upgrades (and downgrades) based on workloads.
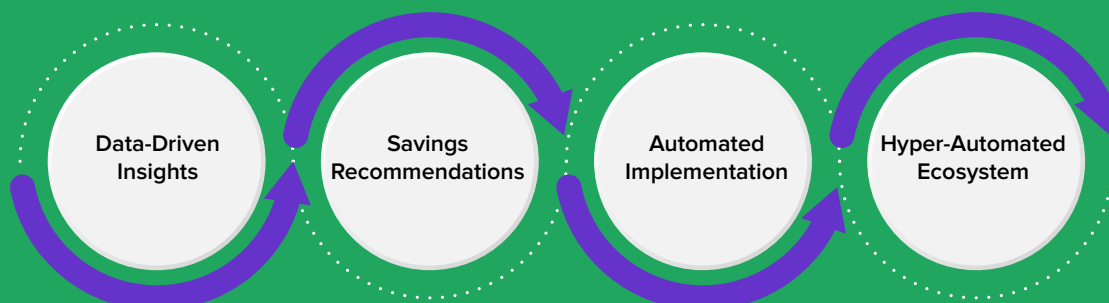
Automated Implementation: How AI Automates Cloud Cost Savings

So, how do you make sure your FinOps solution can really do all of this? Integration is everything; Automated implementation is only possible when the FinOps platform itself is deeply integrated into the APIs of Amazon Web Services, Microsoft Azure, Google Cloud Platform and other IaaS and SaaS services. Moreover, the AI engine can help company leaders prioritize their response plan based on which recommendations provide the most amount of savings, delivering the biggest payout.

The benefit of automated implementation is huge, particularly when you know in a matter of seconds how much a particular recommendation can save you, as this intelligence both reduces manual work and accelerates the time to savings. This is the little-known secret to hyper-automating cloud cost optimization, which can also be used to accelerate ROI on cloud investments.

FinOps AI Maturity Model

Data-Driven Insights

Savings Recommendations

Automated Implementation

Hyper-Automated Ecosystem
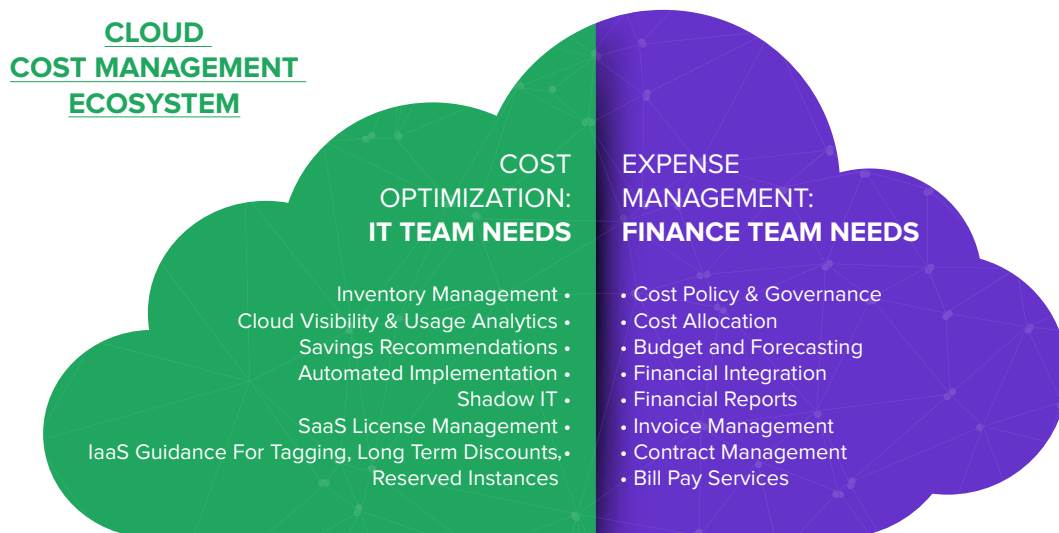
AI for FinOps Phase 3: Operate
Hyper-Automation Helps Operational Teams Manage the Cloud

Now that you've seen how AI analytics and automated implementations facilitate Phases 1 and 2 of the FinOps Framework, let's explore how robotic process automation streamlines FinOps Phase 3, OPERATE. We all know that the work of the FinOps Foundation says is never one-and-done. Nor is it a siloed effort confined to just one department. In fact, FinOps says organizations should build a cross-functional, collaborative approach to continuously measure and improve how tightly cloud networks and applications are aligned to business needs and financial budgets. But that requires an ecosystem of teams and tasks all working together.

Applying AI & RPA across the Cloud Cost Management Ecosystem

The work of cloud cost management encompasses a wide swath of responsibilities, making it another area ripe for AI automation. Robotic process automation (RPA) can usher in productivity for IT, financial, and procurement teams looking to digitize manual and repetitive tasks. When RPA is applied not just to individual steps but to expansive workflows, it offers broader value that moves beyond tasks and projects, elevating the benefit to the operations level. We call this "hyper-RPA."

FinOps hyper-RPA occurs when all processes, workflows, and interdependent "links" in the cloud cost management ecosystem are aligned and then streamlined. This spawns the synthesis FinOps is now famous for; IT and finance teams (as well as other stakeholders) become synergistic in their operational methodologies, tackling cost optimization and expense management together as one AI-driven motion. **Only when companies can automate the full ecosystem are they able to drive cost savings and process efficiencies simultaneously, which can create a multiplier effect on FinOps results.**

**CLOUD
COST MANAGEMENT
ECOSYSTEM**

COST
OPTIMIZATION:
IT TEAM NEEDS

Inventory Management •
Cloud Visibility & Usage Analytics •
Savings Recommendations •
Automated Implementation •
Shadow IT •
SaaS License Management •
IaaS Guidance For Tagging, Long Term Discounts, •
Reserved Instances

EXPENSE
MANAGEMENT:
FINANCE TEAM NEEDS

• Cost Policy & Governance
• Cost Allocation
• Budget and Forecasting
• Financial Integration
• Financial Reports
• Invoice Management
• Contract Management
• Bill Pay Services

A hyper-RPA solution for FinOps spawns synergy between cost optimization and expense management, bringing IT and financial initiatives together as one AI-driven motion. Only when the full ecosystem is hyper-automated can companies drive cost savings and process efficiencies simultaneously, which creates a multiplier effect on FinOps results.

This Sounds Ideal, but How do You Get There?

Doing all of this yourself can require ample in-house resources. In fact, hyper-RPA across the ecosystem is where some companies (and their tech stacks) fall short of all that FinOps promises. Forrester Senior Analyst, Tracy Woo, warns against this in a recent article saying, **"DIY tooling is on the rise. At Forrester, we vehemently dissuade FinOps teams from taking this route because of the level of complexity and the number of person-hours required to maintain it."**

This exposes why more companies are turning to off-the-shelf FinOps solutions and services frontloaded with hyper-RPA. But buyer beware! Not all solutions provide hyper-RPA across the entire ecosystem. Consider that cost-cutting measures can lose their luster quickly when they benefit IT operations but plague financial operations.

In a hyper-RPA ecosystem cloud waste insights and proposed solutions are complemented by the tangible value of expense management for financial operations. Thus, a solution might include:

- Automation to actually drive toward recognized savings — and do it in one click.

- The ability to predict and foresee use and spending for budgeting and forecasting purposes.

- Ongoing cost governance and protective controls to proactively search for as well as alert to any inactive IaaS services or unused SaaS licenses still generating expenses.

- Going a step further, the scope could expand to all the other needs in the cloud management ecosystem — specifically, SaaS license management, invoice management, bill pay, or even contract management and procurement or RFP services.

Many decision makers draw a clear distinction between point solutions (those that only optimize costs) and comprehensive solutions (those that both optimize costs and manage expenses).

Example of Hyper-RPA for SaaS and IaaS Optimization
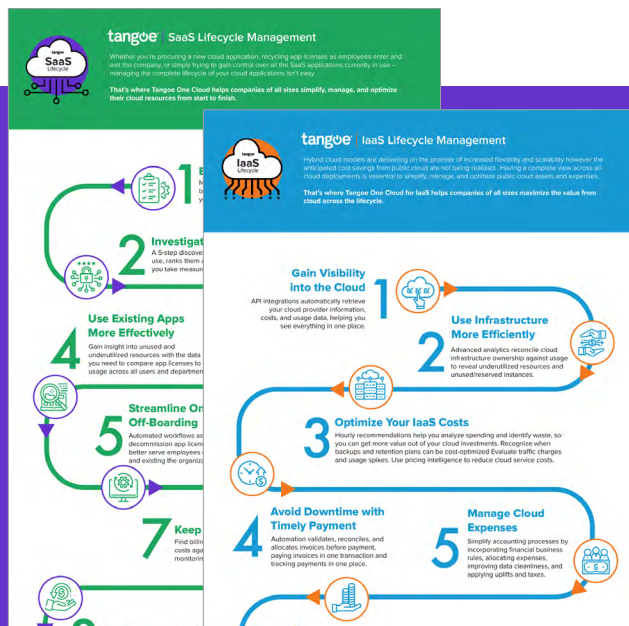
As one example of hyper-RPA for the full ecosystem, Tangoe's FinOps solution automates tasks across the lifecycle for both IaaS and SaaS.

IaaS Graphic   SaaS Graphic

Three Prerequisites for Hyper-RPA in FinOps Platforms

The following tools and capabilities may sound rudimentary, but these can be the dividing line between hyper-RPA and basic point solutions coming out of a slew of startup companies saturating the industry today.

1. Integration with Financial Systems

Without integration, hyper-RPA simply won't work. The FinOps Framework stresses the importance of finance integration, as the means for "mature FinOps practitioners to integrate insights programmatically into internal reporting systems and financial management tools." Indeed, the best way to operationalize IaaS and SaaS services into corporate financial practices is to unite the FinOps solution platform with financial software systems. Integration acts as a bridge between IT engineers focused on cloud utilization and financial analysts focused on managing cloud budgets, invoices, cost allocations, and vendor contracts.

Integration is essential in automating the burdens of:

Cost allocations, chargebacks and show backs

Comparing forecasted cloud costs and IT budgets to actual cloud costs

Preventing cost overruns and flagging any variances in budget vs. actual costs

Integration is necessary to apply corporate financial rules against cloud costs, normalizing information to accurately allocate costs to the appropriate lines of business.

2. Accounts Payable and General Ledger Files

If integration allows financial software and FinOps platforms to talk to each other, accounting files and General Ledger files are the messages they send to each other. When FinOps solutions are built to generate the exact financial files needed at the right time, cost allocations are fast and accurate.

Connecting cloud service charges to the correct departments is of high value, because holding business units fiscally responsible contextualizes costs and can be the missing element needed to rein in spending. Without AI and these support systems, carrying out this work can be prohibitively time- and resource-intensive.

3. Programmable Dashboards and Flexible Reports

Because financial management standards differ across every organization, it's important that hyper-RPA capabilities be customized to meet the individual needs of each business and each business unit. One important part of cloud financial management is curating cloud expense data for each department, user group, or project. Sometimes that may require highly aggregated views of cloud cost trends or very granular views of specific cloud consumption habits.

For example, you may want to allow more than one stakeholder to review and approve specific recommendations. On the other hand, you may want to isolate review to one stakeholder. Much of FinOps is about empowering people and teams to take ownership, making data-driven decisions on the environments they manage. Thus, you'll want the automation platform and its reports to be programmable, producing custom reports for each stakeholder on an ongoing basis. Otherwise, your IT financial analysts will be wasting hours and days compiling all the right information in just the right ways. See how a research firm turned 40-hour reports into 5-minute reports.

Overcoming Challenges

Accelerating a FinOps plan can be difficult due to visibility challenges and poor recordkeeping. Observability is obscured by distributed IT environments with multiple tools and dashboards. FinOps at scale doesn't work in a decentralized environment dominated by spreadsheets and manual processes. Equally daunting is maintaining an accurate inventory, including the details of all cloud computing technologies and SaaS users. To scale FinOps, a standardized approach and centralized solution are paramount.

These guides offer tips for avoiding common pitfalls related to inventory development, FinOps implementation, and one-size-fits-all solutions.

In Closing:
Without AI, Complexity Can Stymie Cloud Cost Optimization

AI plays a pivotal role in automating any cloud cost management program. In working through the three Phases of the FinOps Framework, AI technologies are already helping companies make sense of vast data feeds and control cloud expenditures more effectively. From visibility and automating the implementation of cost-saving measures to accelerating complex financial management workflows, hyper-automation introduces speed to the ongoing practice of FinOps. Any cloud-first company trying to manually govern multi-cloud estates will find that complexity quickly stymies them from winning the end game -- data-driven cost optimization.

The Smartest AI-Powered FinOps Solution

Managing cloud costs is no different from managing any other type of technology costs, and Tangoe pioneered technology expense management more than 20 years ago. Today, our deep expertise is powered by an automated technology platform layered with AI for the smartest approach to cloud cost control. When it's time to put FinOps strategies into action, Tangoe offers the widest cloud visibility in the industry and the broadest choice and flexibility in cost management. We save companies up to 40% on their cloud costs and take your savings further with telecom and mobile expense management. Start your Proof of Concept today!

- **Get the widest cloud visibility in the industry:**
  Tangoe's vast ecosystem of IaaS partners and SaaS integrations means we have the widest data ingestion when compared to our competitors

- **Leverage the smartest AI-powered FinOps solution:**
  Tangoe honed its technology expense platform with patented AI automation accelerating your time to insights, financial management processes, and your time to savings

- **Enjoy the broadest choice and flexibility in cloud cost management:**
  Tangoe unites customizable software and services to optimize IaaS, SaaS, and UCaaS for the needs of both IT and finance teams

- **Take your savings further than the cloud:**
  When you're ready to simplify, manage, and optimize more than just the cloud, Tangoe optimizes your entire tech landscape, stretching your FinOps strategy and savings further with telecom and mobile expense management

Learn more at Tangoe.com/cloud
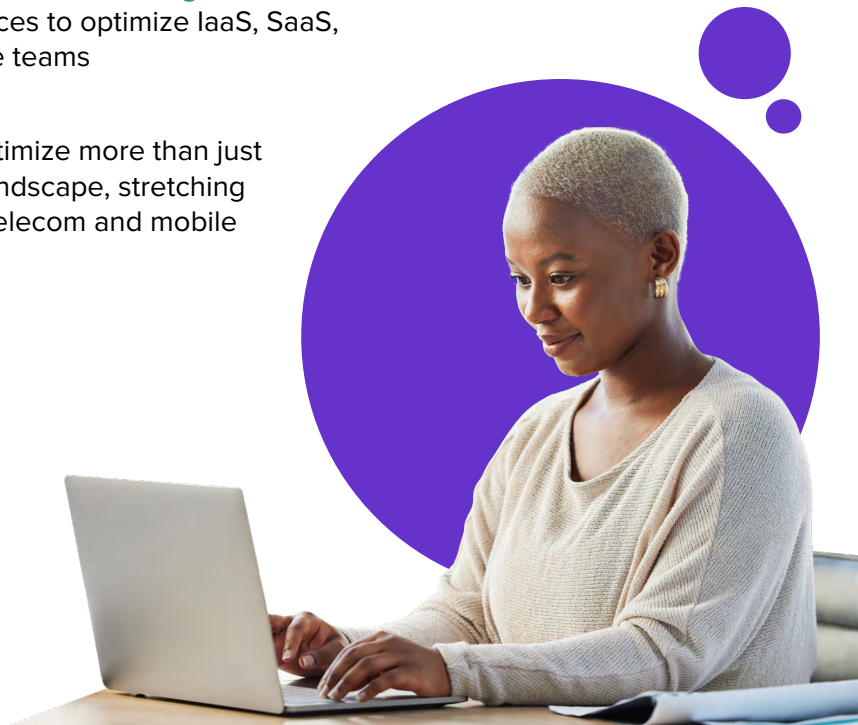
About Tangoe

Tangoe is the leading technology expense and asset management solution. Tangoe seamlessly integrates with hundreds of providers globally to deliver the reporting and insights needed by enterprises of all sizes and scales. Fueled by an innovative automation framework and unified customer experience, Tangoe optimizes spend and resources across telecom, mobile, cloud, and IoT. For more information on the power of Tangoe and how it can transform your business, visit www.tangoe.com or connect with the company on LinkedIn and Twitter.