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Perspective on Evolution of AI in Cloud FinOps: From Insight to Intelligence

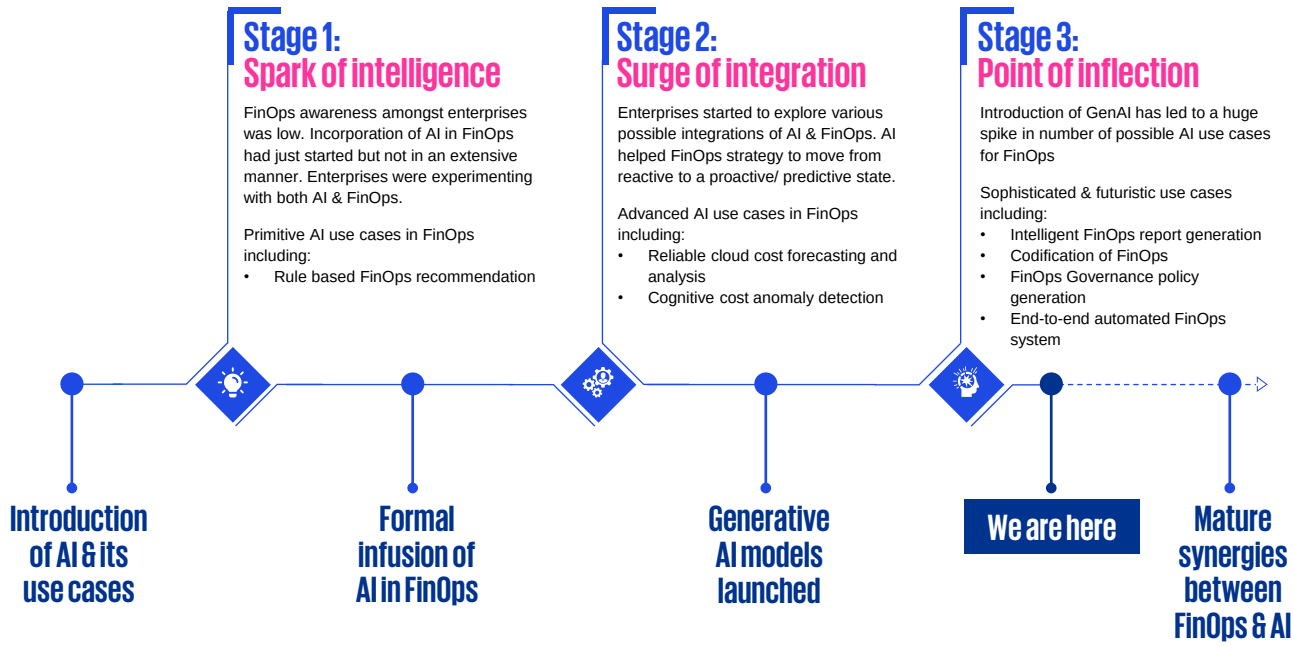
Introduction

In the post pandemic world, businesses have started adopting technology more rapidly than ever to gain a competitive edge in the market. Due to its potential to deliver immense business value, cloud adoption has been the frontrunner when it comes to a CIO's priority to undertake technology transformation initiative. However, businesses of late have been under enormous pressure to reduce cloud costs while ensuring that the value driven from cloud is maximised. This unique combination of cloud being a necessity for businesses and the need to optimise costs has fuelled widespread adoption of Cloud FinOps.

While establishing Cloud FinOps has become imperative, it comes with its share of challenges. According to a survey conducted by CloudBolt[1], 75% of companies believe that they will have to wait for at least 24-36 months before they see a positive outcome from their FinOps initiative(s). The challenge for enterprises is to shorten the time to realise value while ensuring that FinOps efficacy is enhanced. This is where Artificial Intelligence (AI) plays a pivotal role in the world of FinOps. For a long time, AI and FinOps had been seen as two powerful, yet mutually exclusive technologies. In due course of time, we saw some intersection between the two. More recently, with the democratisation of Generative AI (GenAI), the synergies between AI & FinOps have evolved further.

As per a recent Gartner research report[2], 73% of the tech executives have already increased funding for AI. The increased focus on AI coupled with widespread adoption of Cloud FinOps forms the perfect recipe for a successful & effective cloud cost management strategy. In this paper we will see how the synergies between AI & FinOps have evolved over the years and explore some key GenAI use cases that can enhance the effectiveness of FinOps.

The evolution of AI in FinOps could be categorised into three broad stages namely Stage 1- Spark of intelligence; Stage 2- Surge of integration; Stage 3- Point of inflection. The following figure depicts over the years how has AI made its foray into FinOps adoption and more recently, how has GenAI been making an impact on FinOps.



[1] https://www.gartner.com/en/doc/tech-ceo-insight-adotion-rates-for-ai-genai-acrossverticals#:~:text=73%25%20of%20of%20respondents%20to,have%20increased%20funding%20for%20AI.&text=Although%20artificial%20intelligence%20has%20been,Generative%20AI%20adoption

[2] https://resources.cloudbolt.io/industry-reports/the-real-state-of-finops

Stage 1 – Spark of intelligence

In the earliest phase, application of AI in Cloud FinOps focused on automating routine tasks including but not limited to data collection, reporting, and analytics, and tools were built to automate billing processes, generate standard reports, and provide basic insights into cloud spending.

Use case 1.1: Rule based FinOps recommendation

In its infancy stage, AI has been used to help organisations manage their cloud resources more effectively by scanning a given cloud environment comprehensively and providing actionable insights and recommendations to optimise costs, enhance performance, improve security, and ensure fault tolerance. This was done by using the well-architected principles as baseline to assess the environment.

Benefit: Focussed recommendations to enhance the footprint posture in terms of cost savings, security, operational efficiency, and reliability.

Stage 2 – Surge of integration

As AI technologies evolved, Cloud FinOps tools started incorporating advanced analytics to the existing capabilities, thus achieving deeper cost analysis, and introducing anomaly detection based on past financial data points. This led to the transformation of FinOps strategy from a reactive state to a proactive and predictive state.

Use case 2.1: Reliable cloud cost forecasting and analysis

As cloud provides the flexibility of dynamic and variable resource consumption based on business requirements, building a robust and custom cloud cost forecasting is perhaps most complex when pegged to accuracy (i.e., minimal deviation when compared to actual spend). This makes a very good case for GenAI adoption. In this case, GenAI that can synthesize large volumes of historical data, can be fed with numerous finance data points, organisation's IT product backlog, timelines, workload seasonality, business outlook, demand variations, and generate predictive models to create comprehensive financial models and simulate various cost scenarios.

Benefit: Achieve reliable and predictable cost forecasts thus allocating budgets with higher confidence levels, resulting in better workload planning and delivery.

Use case 2.2: Cognitive cost anomaly detection

There are numerous AI models that are trained in technical anomaly detection for issue fixing, pattern recognition to detect offshoots, pre-emptive incident alerting for preventive action, fraud alerting for proactive cybersecurity incident prevention. These models can be further trained by feeding client's cost data, business usage patterns, projected growth rates, to detect cost spend anomalies, and generate pre-emptive alerts for proactive remedial measures by FinOps SMEs.

Benefit: Achieve optimal cost spend and continual value sustenance.

Stage 3 – Point of inflection

Today, we see that AI and its applications have significantly evolved across all domains, and with the advent of GenAI, the possibilities are continuously growing multi-fold. We believe there are some promising use-cases that can exploit the potential of AI/GenAI to further enrich the experience of FinOps.

Use case 3.1: Intelligent FinOps report generation

Cost visibility is one of the most important pillars of Cloud FinOps. It not only helps executives understand where they are spending, but also provides insights such as historical trends, unit economics etc. Enterprises often spend a lot of effort/resources to build cost reports & dashboards that suit their business needs, which is further accentuated in a multi-cloud landscape. Today, GenAI models using natural language processing & machine learning algorithms can automatically comprehend cloud cost data, analyse them, and generate custom reports/dashboards in seconds.

Based on historical training data, the model can summarise key trends & insights on cloud cost specific to a particular enterprise.

Benefit: Faster time to Insights – instantaneous build of FinOps reports, helping unearth insights which may not be uncovered by human effort.

Use case 3.2: Codification of FinOps

While the principles of FinOps remain the same, the implementation of FinOps requires codification and deployment of scripts in the cloud platform used by clients. GenAI can be used to prompt and generate programmable scripts specific to each cloud platform based on pre-defined use-case for deployment.

Benefit: Rapid deployment of scripts in cloud environment to gain higher agility and instant value maximisation.

Use case 3.3: FinOps Governance policy generation

As organisations rapidly increase their cloud footprint with both foundational and newer services that are regularly launched/upgraded by Cloud Service Providers, governance becomes crucial and complex. GenAI models can be trained on different cloud platforms to power FinOps governance and generate sophisticated FinOps policies for financial oversight, policy enforcement and compliance at scale.

Benefit: Generation and application of FinOps governance policies specific to client's cloud footprint for continuous value sustenance at scale.

Use case 3.4: End-to-end automated FinOps system

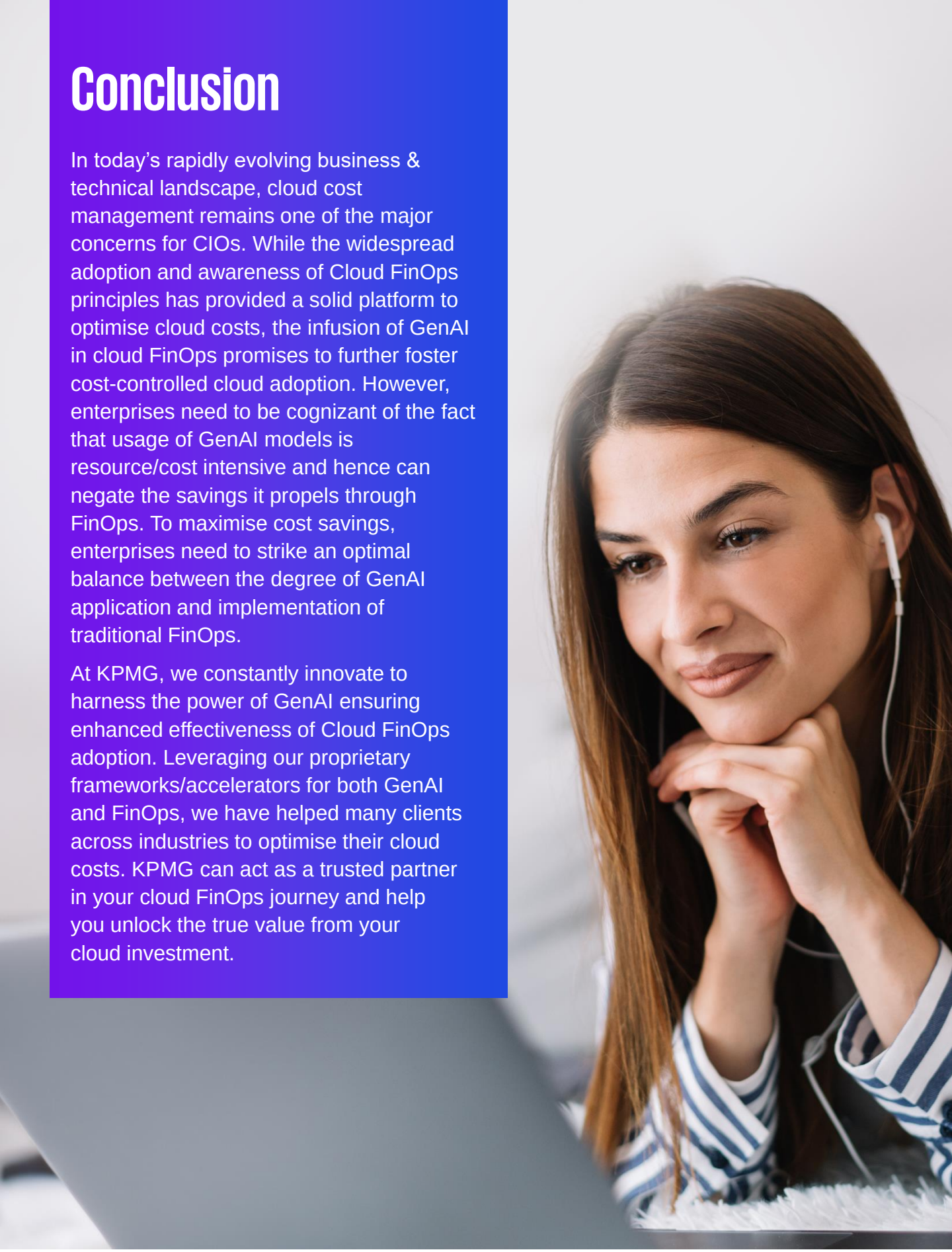
As GenAI models are rapidly evolving, we believe that systems will evolve from being an active enhancer or enabler (in the current state), to become highly autonomous and perform automated financial management (including all key FinOps aspects such as cost optimisation, policy automation, budgeting, forecasting, compliance, and reporting) with very minimal human intervention.

Benefit: Rapid time to market, minimal human effort, extreme minimisation of operational overhead.

Conclusion

In today's rapidly evolving business & technical landscape, cloud cost management remains one of the major concerns for CIOs. While the widespread adoption and awareness of Cloud FinOps principles has provided a solid platform to optimise cloud costs, the infusion of GenAI in cloud FinOps promises to further foster cost-controlled cloud adoption. However, enterprises need to be cognizant of the fact that usage of GenAI models is resource/cost intensive and hence can negate the savings it propels through FinOps. To maximise cost savings, enterprises need to strike an optimal balance between the degree of GenAI application and implementation of traditional FinOps.

At KPMG, we constantly innovate to harness the power of GenAI ensuring enhanced effectiveness of Cloud FinOps adoption. Leveraging our proprietary frameworks/accelerators for both GenAI and FinOps, we have helped many clients across industries to optimise their cloud costs. KPMG can act as a trusted partner in your cloud FinOps journey and help you unlock the true value from your cloud investment.



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Suharsh is part of KPMG’s Cloud Transformation team. He is passionate about solving clients' problems by using a blend of technology, business appreciation and commercial acumen to drive transformations in Enterprise Cloud, FinOps, SRE adoption, IT service management, and provide compelling solutions for Cloud and IT Infrastructure services.

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Rachit is a seasoned technology consultant in KPMG's Cloud Transformation practice with experience in crafting cloud strategy and solutions for clients across diverse domains. He has the right blend of technical knowledge & business acumen and is adept at constructing cloud transformation strategies, conducting cloud readiness assessments, curating cloud migration roadmaps and cloud migration business case analysis.

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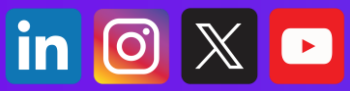

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