



Transforming IT operations Integrated AI

April 2024

Challenges and opportunities

Today's IT environment consists of complex architectures and sophisticated systems created to address the ever-increasing and evolving demands of users and software requirements, in addition to overall performance. Fresh perspectives are required to observe events and understand where attention is needed to enhance the speed and quality modern users demand. As a result, many organizations are integrating artificial intelligence (AI) into their IT operations framework to achieve higher performance while driving better efficiencies at a lower cost.

IT organizations are undergoing a transformation due to the multitude of challenges they face, shifting from a reaction-based approach to a model that allows for anticipatory actions informed by data analytics. In other words, organizations are seeking solutions that are proactive and predictive, to prevent problems rather than respond to them. Artificial intelligence offers unique solutions that can address a range of IT operational challenges.

There are eight challenges to achieving data-driven operations:

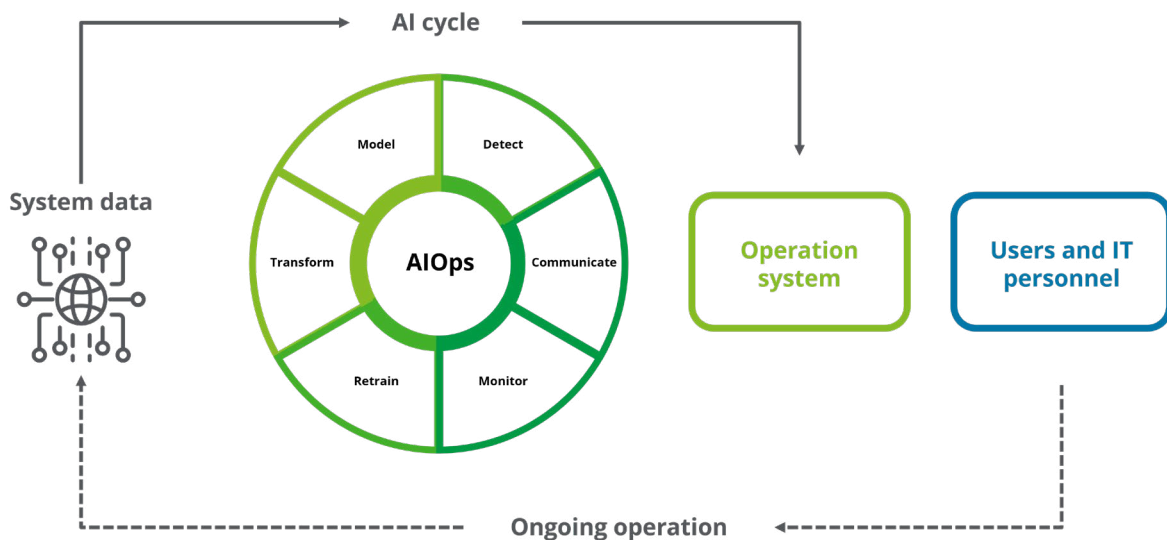
1. The need to build **resiliency to match** the growing **speed** and **complexity** of multi-cloud environments.
2. The **real-time monitoring deficiency** for dynamic microservices and containers is a result of the shift in application architecture.
3. IT operations are **overwhelmed with data** and struggle to navigate the sheer volume and complexity to find the actionable insights they need.
4. IT key performance indicators (KPIs) are misaligned and organizations are **unsuccessful at breaking down silos** between business, development, operations, legacy vs. cloud apps, etc. in line with evolving talent models.
5. Operations teams are **not structured to leverage next-gen technologies** to take advantage of automation and intelligence for day-to-day issue resolution.
6. The technical expertise of IT ops clashes with the **legal intricacies of evolving AI regulations**, hindering their ability to leverage AI effectively.
7. IT operations teams grapple with the dilemma of **adopting powerful AI technologies while ensuring their usage remains ethical**.
8. **Fear of change and established processes** often conflict with the revolutionary capabilities of AI, creating obstacles for its adoption.

The right AI can help solve many of these challenges. Modern infrastructures require the capacity to efficiently assimilate data at the pace of AI. The automated comprehension of this data facilitates automated detection and decision-making processes, which serve as a competitive advantage in today's environment. In addition, AI alleviates the burden on the IT workforce by automating manual and low-value tasks; enabling a better utilized workforce to focus on higher-impact initiatives and strategic problem-solving.



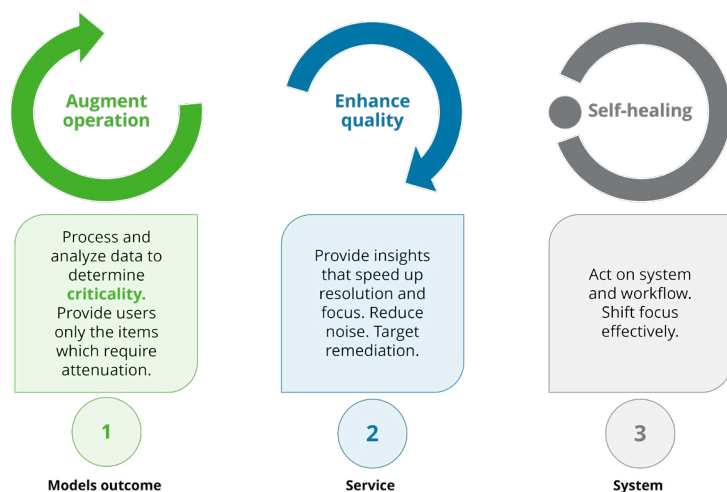
What is AIOps?

The term AIOps refers to the **application of machine learning** and **artificial intelligence** to monitor, predict, and **optimize IT operation** workflows. With the use of AIOps, organizations and agencies can use AI to augment operations across departments, from IT to HR, to provide real-time detection and insight while providing faster and higher-quality service with lower effort on both modeling and operator cost.



AIOps leverages machine learning models that learn underlying patterns from historical data. These historical and workflow patterns are used to continuously analyze data and provide insight with better speed and accuracy. These analytical outcomes support oversight while also aiding in the prevention and remediation of existing issues. Please refer to the *AIOps | Capabilities* section (page 7) to learn about AIOps cases for future system outage predictions, capacity planning, and classification of IT incident tickets.

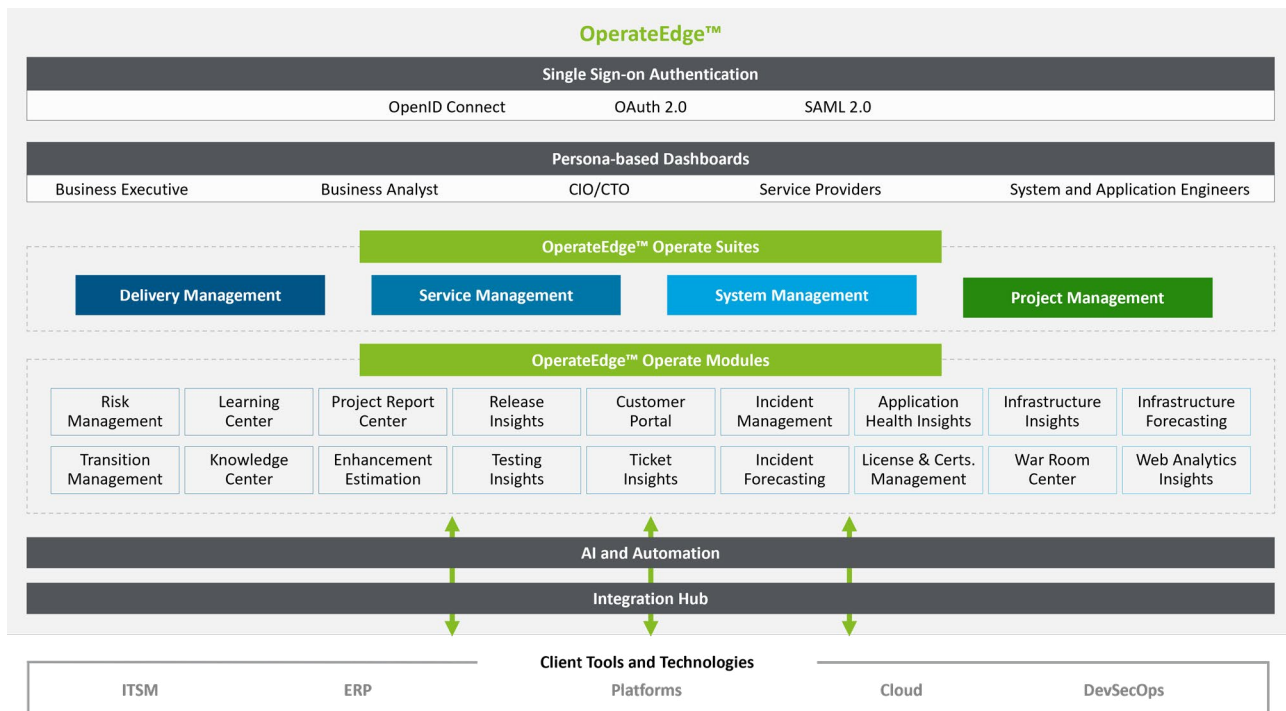
The AIOps models are designed to be plug-and-play prepackaged models crafted for seamless deployment, equipped to autonomously learn, and customized to suit the unique data of each individual client. Therefore, the models understand client-specific challenges, context, applications, and systems. These models automatically retrain on a periodic basis, continuously improving and leveraging the most relevant data.



OperateEdge™ is **Deloitte's IT Operations Management platform and an example of how AIOps can be leveraged**. It integrates with our client's existing application infrastructure, ITSM tools, and DevSecOps tools; and leverages AI to drive greater insight and automation into all activities associated with effectively managing enterprise IT operations.

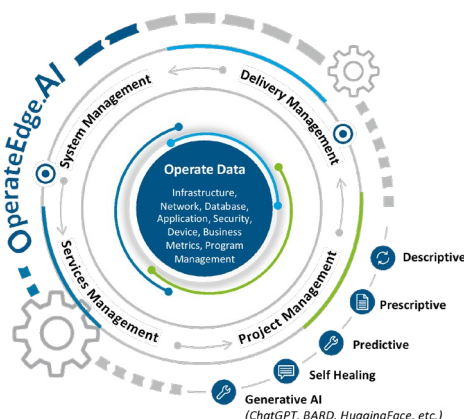
Key features

- Complements **Deloitte's methodologies, industry standards, and leading practices** for operations management
- Integrates with diverse infrastructure and tool sets for a **single-pane view of operations across the entire enterprise**
- Leverages **advanced/predictive analytics** for deeper insights and enhanced decision-making
- Available through **on-premise, software as a service (SaaS), and hybrid** deployment models



AIOps focuses on modeling and is not infrastructure dependent. This approach elevates the need to make tool decisions based on AI requirements. The Deloitte team would work with the IT infrastructure to adjust the deployment options to the required system design. OperateEdge™, powered by application programming interface (API) design, offers secure and customizable deployment options including on-premises, FedRAMP cloud, or hybrid, to aggregate operational data into a single, integrated IT operations platform. For example, if there is a need for a SaaS solution, the AIOps would be deployed and hosted on Deloitte's secure Cloud Management Services environment, offering secure, scalable, and reliable service.

Continuing to infuse AIOps and generative AI will be OperateEdge.AI, which will provide clients with intelligent and automated data integration across multiple tools/platforms for an enterprise "single pane of glass" view, especially for their IT maintenance and operations.



Why OperateEdge.AI?

Reduce human intervention

Leveraging deep learning to automate routine IT Operations processes, enabling IT teams to shift their focus from time-consuming manual tasks to more strategic ones.

Increase system availability

Quickly analyze large and complex datasets by cutting through alert noise and identifying patterns across IT operations and IT service management data, allowing teams to more quickly identify and execute targeted remediation activities.

Improve reliability and performance

Detecting potential system failures and performance issues more quickly, IT teams can trigger remediation workflows before business systems and end users are impacted.

Enhance AI/ML models with conversational prompts

Gen AI adoption is accelerated through pretrained models and large language models (LLMs) specific to programs, enabling clients to realize benefits by obtaining information through conversational English prompts.

Business impact

Users across various operational sectors can greatly benefit from infusing AI into their processes, creating a data-driven model that surpasses human capabilities.

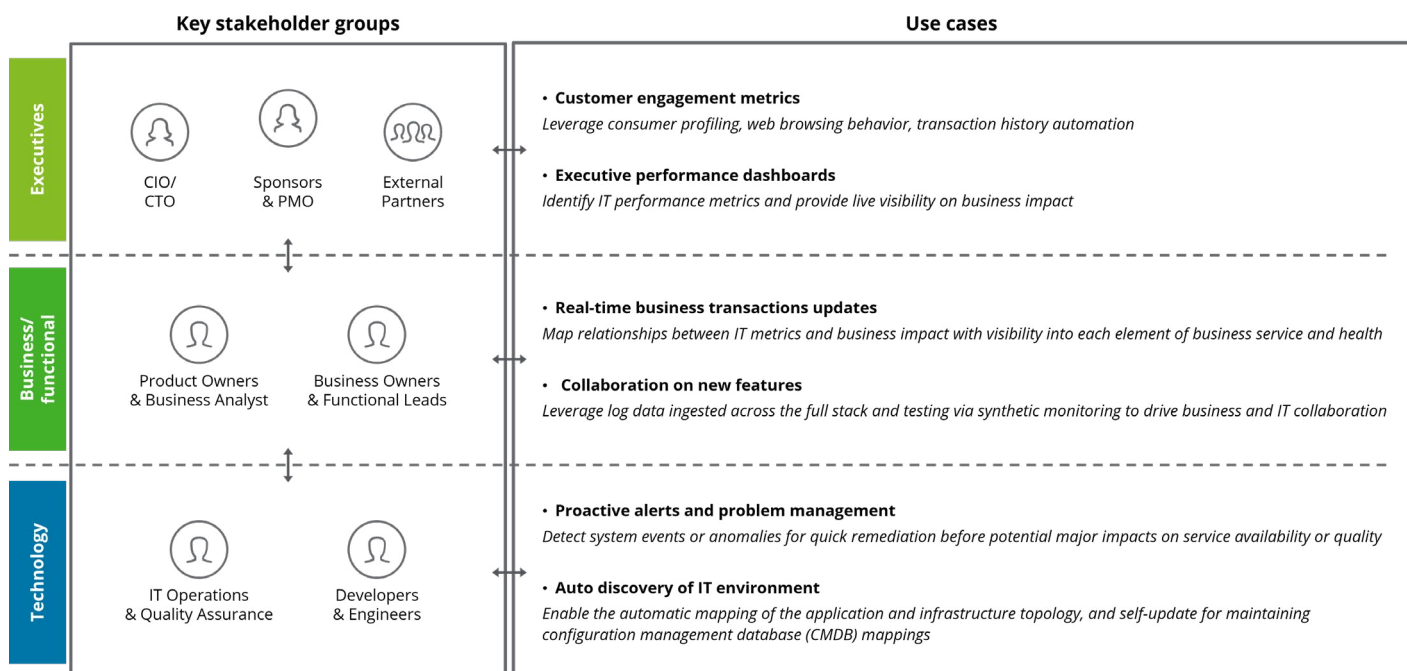
The AIOps operation integrates feedback and subject-matter expert (SME) informed decision-making to improve the model over time and ensure its relevancy.

As stated above, one of the core challenges IT operators face is the inability to find meaningful insights from an overwhelming amount of data. This is because IT operators receive multiple alerts and notifications from various tools and siloed data stores.

In addition, it takes a lot of subject-matter expertise and experience to connect the dots across multiple systems and identify the critical items to consider. AIOps addresses this issue by quickly analyzing large and complex datasets. AIOps cuts through alert noise and identifies patterns across IT operations and IT service management data. AIOps accomplishes this by leveraging machine learning models that analyze historical temporal data to identify patterns undetected by the human eye. The AIOps models use these patterns to proactively identify potential issues. This allows teams to gain a better understanding of applications and systems, as well as predicted future behavior. This reduces guesswork and manual activities like sifting through log files, which, in turn, enhances the productivity of IT personnel by allowing them to focus on more strategic tasks.

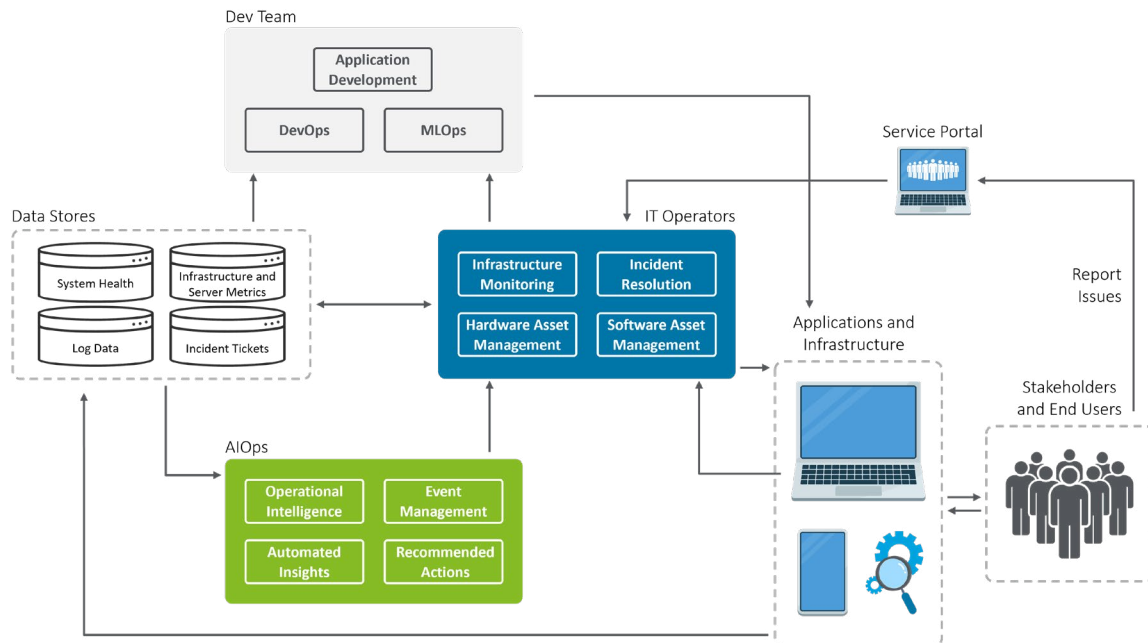
Another benefit of AIOps is the ability to transform existing systems into self-healing systems. Using predictive capabilities, IT practitioners can evolve from reactive measures to more proactive actions. Once a service health issue is detected, AIOps identifies the root cause and recommends corrective action. If the corrective action is approved, AIOps automatically triggers remediation workflows before business systems and end users are affected. This self-healing system will improve reliability, performance, service quality, and process efficiency. In addition, this will lead to a reduction in system downtime and operational costs.

As shown below, AIOps benefit multiple key stakeholder groups, not just IT personnel.



Logical architecture

AIOps seamlessly integrates into existing workflows



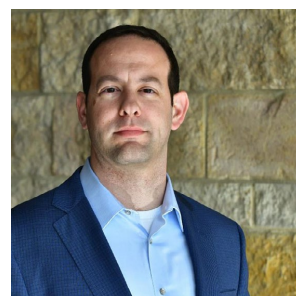
As shown above, AIOps connects to available data stores and can integrate into existing IT operations and management technologies. AIOps representational state transfer (REST) APIs can link to existing IT applications and dashboards for enhanced intelligence. AIOps can either be hosted on Deloitte Cloud or on a client's infrastructure, including cloud or on-prem servers.

Get in touch

Interested in implementing AIOps to a current or future initiative? Reach out to get started:



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AIOps | Capabilities

Incident management

Automates IT ticket classification and routing and operates in the background, providing group-related text, trend, title, and representative tickets.

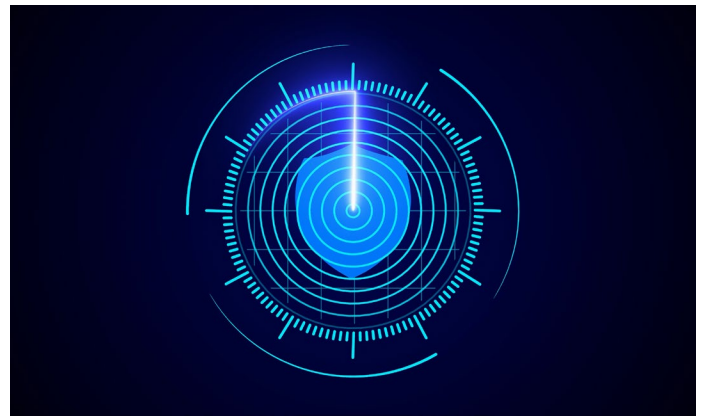
- Automation can help reduce resolution time, eliminating the need for manual selection or tuning by IT personnel. It has the ability to scale up or down and enhances its efficiency over time.



Anomaly and non-normality detection

Automates the monitoring of system metrics and identification of abnormal behavior, replacing the need for manually set static threshold values.

- Learns the standard behavior patterns, allowing it to detect and adjust to non-normal.



Capacity planning

Facilitates IT operations capacity planning by using AI to predict future capacity needs for applications based on past data and technology improvements.

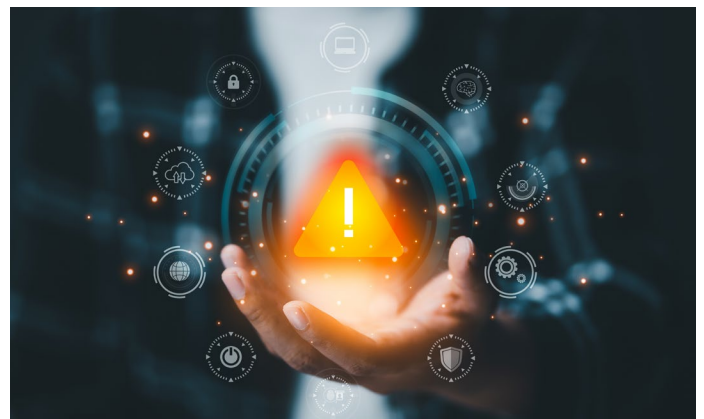
- Improves on traditional manual methods by providing a more accurate estimation of resource needs, thereby minimizing delays in adjusting resources.



Batch job monitoring

Automates the monitoring of batch job runs, identifying high-risk tasks and predicting potential job failures.

- With this module, IT personnel can prevent job failures before they happen and respond promptly to at-risk jobs, unlike the current manual method, which identifies risks after problems occur.



AIOps | Capabilities

Abnormal behavior in logs

Automatically parses through IT system log messages, identifying abnormal patterns and the root cause of issues in complex multi-tier applications and systems.

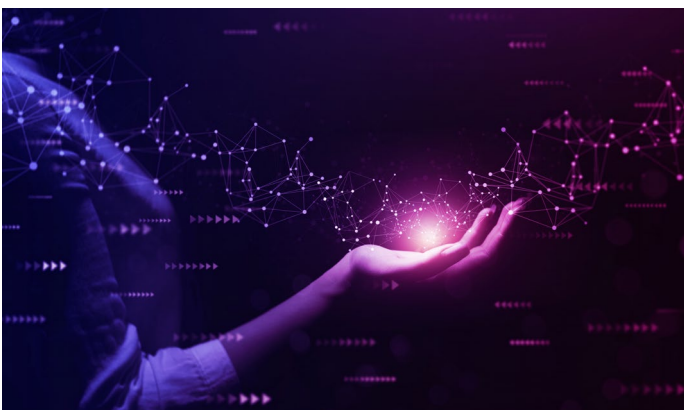
- Reduces the workload of IT personnel by flagging logs that may be attributed to an issue, effectively speeding up incident resolution times.



Capacity at risk

Quantifies and assesses infrastructure capacity risk, providing quantitative data that aids in future capacity planning—a task traditionally handled with manual estimation.

- Automatically identifies historically at-risk servers and dependent applications, allowing firms to anticipate and manage high under-capacity risk scenarios more efficiently.



Data quality measuring

Classifies and routes IT tickets to expedite resolution and automatically analyzes incoming data files to validate data quality, generating health reports that enhance data accuracy and consistency.

- As opposed to the conventional manual review of data that can be time-consuming and error-prone, this AI-driven solution can save time and reduce the chance of human error.



Coming soon | NextGen AIOps Insights

Our NextGen AIOps Insights, a Generative AI capability, is set to transform IT operations management by turning it into a conversational experience. Users can query their data in natural language to receive instant, clear, and context-aware insights, enabling proactive identification and resolution of system issues. The tool leverages sophisticated metadata analysis and real-time data visualization to analyze complex IT data, transforming it into actionable intelligence for streamlined decision-making. Designed with an intuitive user interface for ease of interaction, it allows clients to efficiently triage and address system errors, acquire comprehensive operational insights, and improve their cloud infrastructure within a conversational, question-and-answer framework.

Thank you

QUESTIONS?

Please reach out to

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Deloitte.

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