Google Cloud Press Corner

Gamuda and Google Cloud Join Forces to Deliver AI for Engineering and Construction

A high-impact collaboration that infuses Google Cloud's generative AI into the delivery of regional large infrastructure projects through the Gamuda Digital Operating System

Kuala Lumpur, Malaysia, Mar. 8, 2024 – Gamuda Berhad (Gamuda) today announced an expansion of its long-standing collaboration with Google Cloud to make enterprise-grade generative AI (gen AI) capabilities accessible and useful to every Gamuda employee, empowering them to more efficiently and innovatively deliver engineering, construction, and public infrastructure projects in the region.

"Always a forerunner in technological adoption, gen AI for Gamuda is another step forward in our continuous digital innovation journey to transform a highly traditional industry, which is engineering and construction. Through the Gamuda Innovation Hub, we're breaking new ground with a digital and data-driven approach for construction while upskilling talent in Google Cloud competencies to set them on new career paths in our industry," said John Lim Ji Xiong, Group Chief Digital Officer, Gamuda Berhad. "Google Cloud is our cloud provider of choice because of their vast expertise in planetary-scale data management and cutting-edge AI, coupled with the intuitiveness of their developer platforms and tools. These make it very easy for our workforce to even build their own gen AI tools to address challenges in their work—in a manner that is private and secure."

A unified enterprise data platform to drive agile decision-making

To give employees enhanced operational visibility and lay the groundwork for gen AI adoption, Gamuda developed the Gamuda Digital Operating System (GDOS), which is a standard ecosystem of tools for every Gamuda project where enterprise data is consolidated and underpinned by a unified data cloud platform. This includes data from mission-critical systems like Autodesk Construction Cloud and SAP S4/HANA. Notably, this follows the successful migration of Gamuda's SAP S4/HANA systems from Amazon Web Services (AWS) to Google Cloud in 2023, supported by Google Cloud partner Cloudspace.

"Moving all our compute workloads, including SAP S4/HANA to Google Cloud, allowed us to harmonize our compute and data in a single cloud platform, thereby enabling the team to focus on driving value-creating use cases and shifting the focus away from managing infrastructure. Google Cloud's BigQuery data warehouse and workload-optimized infrastructure delivers cost savings, is easy to use, and helps us derive more value from our data footprint," said Lim.

A unified data cloud provides Gamuda's design, engineering, finance, supply chain, and field operations teams with a holistic, integrated, and real-time view of all project workflows. This enables agile, data-driven decision-making throughout the process of delivering complex, long-term projects in Malaysia, Australia, Singapore, and Taiwan.

To safeguard its enterprise data and core digital systems, Gamuda has implemented Google Cloud's Security Command Center Premium platform, which is powered by machine learning, for advanced threat detection and prevention, attack path simulation, and upholding regulatory compliance.

Combining enterprise data and gen AI for safer and faster tunneling

One initiative that digs deep into the core of Gamuda's tunneling competencies is the use of Google Cloud's Gemini models on the Vertex AI platform to build and integrate a gen AI-powered conversational agent into its cloud-based Tunnel Insight platform, with support from CloudMile, a Google Cloud partner,

Powered by Google Cloud, Tunnel Insight ingests, presents, and analyzes sensor data from the world's first autonomous tunnel boring machines (A-TBMs) developed in-house by Gamuda. Guided by sophisticated algorithms to automate repetitive operational tasks like machine steering, and advance and muck excavation, these A-TBMs are being used for better tunneling in construction projects like the Defu and West Coast Mass Rapid Transit stations and tunnels in Singapore and the Sydney Metro West-Western Tunnelling Package in Australia.

The vast amount of data that is continuously generated by such operations can make it challenging for staff to extract insights at pace for timelier responses to geological changes or maintenance needs. The gen AI-powered conversational agent is therefore being used by staff to quickly extract relevant summaries and instructions from a vast repository of machine documentation to ease the maintenance process, and easily interpret data charts on machine performance in natural language.

Enterprise-grade gen AI applications for every job role and function

Gamuda has also been using Vertex AI Search and Conversation to build generative search and chat applications for its market intelligence, design, and technical teams. These employees can now synthesize thousands of pages of research documentation into crisp summaries within minutes and query data from hundreds of past projects for insights to inform new project tender proposals.

This marks the start of Gamuda's efforts to empower more employees to build customized generative search and chat applications—with just a few clicks—to support their specific role or function, and make them accessible to the rest of the workforce through an internal marketplace called BotUnify. With Vertex AI Search and Conversation, Gamuda and its employees retain full control over what information sources their generative applications access, ingest, and index. This allows them to ground these applications' outputs in enterprise data and implement features like source citations, thereby boosting user confidence in the relevance and quality of their responses.

"Google Cloud's enterprise AI stack has accelerated our gen AI innovation cycles, allowing us to go from concept to impact much faster than we had hoped. With Vertex AI's out-of-box capabilities, even employees with zero specialist AI knowledge can build, deploy, and gain value from functional generative applications in a matter of weeks. With access to world-class foundation models and easy-to-use APIs, Google Cloud enables Gamuda to lay the groundwork for a marketplace of expertise and insight at our fingertips," said Lim.

Patrick Wee, Country Manager, Malaysia, Google Cloud, said: "Construction has traditionally been a labor- and process-intensive industry with lengthy project cycles, but Gamuda has swiftly transformed this paradigm by embracing digitalization and gen AI at scale on Google Cloud. They're merging diverse data streams to solve real-world challenges, while saving time and costs—and they're setting a powerful example for enterprises seeking rapid innovation through the convergence of modern infrastructure, data analytics, security, and AI. We're excited to be supporting Gamuda's gen AI-powered advancements across autonomous drilling, Building Information Modeling, augmented reality, and more, equipping its 4,200-strong workforce with future-forward tools to shape the built environment in Malaysia and beyond."

About Gamuda Berhad
Founded in 1976, Gamuda Berhad has grown into a regional engineering, property, and infrastructure leader. We're known for our innovative solutions and commitment to excellence, with a presence across Malaysia, Taiwan, Singapore, Australia, the United Kingdom, India, Vietnam, Bahrain, and Qatar.

Our digital transformation journey began five decades ago, exemplified by our early adoption during the Stormwater Management and Road Tunnel (SMART) project. Renowned for pioneering iconic solutions like the SMART and introducing cutting-edge tunnel boring technologies, such as the Variable Density Tunnel Boring Machine (VD TBM) and the Autonomous Tunnel Boring Machine (A-TBM), we continue to shape the infrastructure landscape with our vision: "Leading the region in breakthrough solutions."

About Google Cloud
Google Cloud is the new way to the cloud, providing AI, infrastructure, developer, data, security, and collaboration tools built for today and tomorrow. Google Cloud offers a powerful, fully integrated and optimized AI stack with its own planet-scale infrastructure, custom-built chips, generative AI models, and development platform, as well as AI-powered applications, to help organizations transform. Customers in more than 200 countries and territories turn to Google Cloud as their trusted technology partner.

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