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The *dual transition*

The path to a digital and sustainable economy

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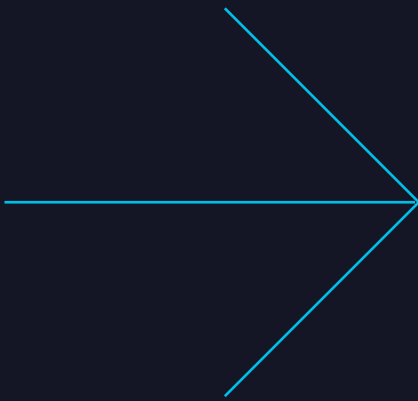
Thomas Kurian
Chief Executive Officer,
Google Cloud

Google Cloud

The CEO Corner

in discussion with

Aiman Ezzat
Chief Executive Officer,
Capgemini

Capgemini

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Thomas Kurian,
Chief Executive Officer,
Google Cloud

Thomas joined Google in November 2018 as the Chief Executive Officer of Google Cloud. Prior to Google, Thomas spent 22 years at Oracle, where most recently he was President of Product Development. Before that, Thomas worked at McKinsey as a business analyst and engagement manager. His nearly 30 years of experience have given him a deep knowledge of engineering, enterprise relationships, and leadership of large organizations.

Aiman Ezzat,
Chief Executive Officer,
Capgemini

With more than 20 years' experience at Capgemini, Aiman Ezzat has a deep knowledge of the Group's main businesses. He has worked in many countries, notably the UK and the US, where he lived for more than 15 years. Aiman was appointed Chief Executive Officer in May 2020; prior to that, from 2018 to 2020, he served as the Group's Chief Operating Officer and, from 2012 to 2018, as Chief Financial Officer. Aiman is also on the Board of Directors of Air Liquide and is a member of the Business Council and the European Round Table for Industry.

THE RISE OF THE ECO-DIGITAL ECONOMY

What is your view of the dual transition to a more sustainable and digital economy?

— Thomas: We believe that digitization and sustainability go hand in hand.

Today we are seeing digital services span virtually every part of a consumer's life from the way they find information to the way they buy products and pay for them. We are focused on enhancing the consumer experience and bringing in new experiences in search and maps, as well as conversational assistants and more. We believe these digital services can help people make more sustainable decisions—in fact, in 2022, we reached our goal to help one billion people make more sustainable choices through our products, and we continue on this journey.

Through our cloud business, we offer organizations a new way to drive impact for their business and sustainability. We help organizations harness AI for improved sustainability measurement to build resilience, AI-powered insights to use energy and resources more efficiently in operations and supply chains to reduce costs, and AI tools to unlock new growth opportunities and markets while accelerating sustainability impact.

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— **Aiman:** We are today at a crossroads – organizations need to deliver growth and prosperity in a sustainable and ecologically safe way. The ongoing shift towards a more digital and sustainable world not only boosts economic strength but also aligns with social and environmental responsibilities. By putting digital inside everything, from product development to manufacturing and operations, businesses can leverage vast amounts of data and become insights-driven, in real time – creating opportunities for more efficient, resilient, and sustainable business models. Hence, we are totally aligned with the idea of an eco-digital economy. In scale and impact, the eco-digital era™ is comparable to the industrial revolution. It is unlike anything that has come before and, to date, society has harnessed only a fraction of the overarching potential of digital technologies. In the same vein, going forward, sustainability will be embedded in all business practices, driven by digital, to deliver economic, environmental, and social value. Technology will drive this dual transition, not just in the way we enable business, but in the way we create value. In a nutshell, technology can enable business leaders to do more, or better, even with less.

Achieving the necessary dramatic decrease in carbon emissions will require massive investment and a huge creative effort. Organizations will need to harness digital to streamline their core businesses, in order to free up investment to support their dual transition. I believe we are at the dawn of a new transformative era, and we have only scratched the surface of how digital technologies can help expedite the delivery of substantial economic, environmental, and societal benefits.

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In this digital and sustainable era, why do you think organizations, irrespective of size, are now thinking cloud-first?

— Thomas: Cloud has always been about simplifying technology, making it more intuitive. The original premise of cloud computing is ease of access to technology without the responsibility of running it yourself. For example, for an organization to understand its inventory position or to understand how to segment its customers, it requires access to large-scale data-processing infrastructure. Hence, data is essentially the foundation of digitization. You must have a strong data foundation, and cloud platforms such as Google's BigQuery enable this.

On top of that, people increasingly want to use AI to automate workflow, streamline processes, and reach customers more effectively. For all these reasons, they need the scale of processing that cloud providers can offer for packaged AI models, facilitating training and operational efficiency. Cloud solutions also protect data, systems, and critical infrastructure from cyberattacks.

Google Cloud not only helps organizations digitally transform, we help customers run their businesses more sustainably. We have matched 100% of our annual global electricity use with renewable energy every year since 2017, and we have made strides towards our goal of running 24/7 carbon-free by 2030, providing a more sustainable infrastructure for customers.

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— **Aiman:** Cloud technologies and solutions today deliver an easy adoption path while improving upon legacy systems. The ability to scale and manage the ever-growing volume of data makes it an economic and sustainable option. Cloud enables us to deliver our leading capabilities in business transformation, infrastructure, applications, data, AI and engineering, in an array of industry-specific use cases and accelerators, to assist clients in their digital and sustainable transformation journeys. Cloud solutions provide us a path to leverage emerging technologies such as AI in a sustainable and economically feasible way.

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AI FOR DRIVING VALUE

Where do you think AI can add the most value for large organizations?

— **Thomas:** AI applies to large organizations, typically in four places.

First, some organizations, like Home Depot, are using AI to streamline and improve core internal processes, such as accounts receivable management, their HR/IT helpdesk, procurement processes, and supply chain.

A second area is productivity. AI can help onboard employees more quickly, helping to scale support to more customers. An example is the work we're doing with Victoria's Secret, where we're helping them build AI systems and agents that can identify the best products for a customer while they are shopping in a store.

The third area is innovating around customer interfaces. This takes many forms: helping Wendy's streamline how people order food, helping Instacart streamline customer service, and helping Verizon streamline the call center. It's all about integrating that customer experience across all interfaces and channels: web, mobile, point of sale, and call center.

The fourth area is experimenting to build completely new experiences featuring our products, essentially changing the nature of their businesses. Organizations are using AI to create new products or fundamentally change how their existing products function.

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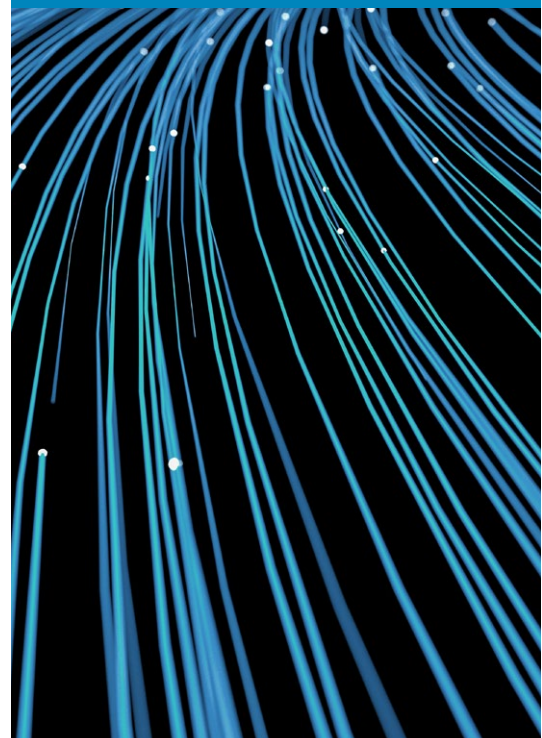
— **Aiman:** Today, generative AI is already a top agenda item in boardrooms, and most organizations view the technology as a disruptor. The potential of generative AI to drive innovation and improve efficiency and productivity extends to nearly all functions and has applications across all industries. We have been working with clients on generative AI for several years – much before the technology drew mainstream attention - and have been leveraging it to drive specific business benefits, in particular in the areas of life sciences, consumer product and retail, and financial services. Use cases are wide-ranging, from creating unique content and automating and accelerating tasks to shaping personalized experiences and generating synthetic data. Our own research reveals that generative AI has the greatest potential within the IT, sales and customer service, and marketing functions.

Organizations can use generative AI for personalization; extracting real-time insights; intelligent customer service; predictive analytics; continuous improvement; and optimized customer journeys. These benefits ultimately lead to greater customer engagement, satisfaction, and loyalty.

Generative AI is also great at producing personalized marketing; pricing optimization, demand forecasting, improved customer experience, enhanced sales support; and data-driven decision-making. This helps organizations attract more customers, foster life-long content-driven conversations, and boost conversions.

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How does Google Cloud help organizations develop AI responsibly, safeguarding security and privacy?

— Thomas: Our vision for generative AI is to build agents that assist people in their work every day. We are doing this in three ways.

First, our foundational platform, Vertex, allows an organization to discover and explore the various types of generative AI models, pick the right one for them, tune it for their data, and then integrate it into their applications. We also provide a variety of tools to improve the quality of results. For example, we give organizations "grounding"[1], to limit hallucination in the model, and we give customers responsibility controls to filter responses that a model can give, for example, to protect against violent answers or harmful images.

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On security and privacy, Vertex offers the ability to keep data completely private, and organizations can choose the location where their data is used. Neither Google nor any third party has access to their data. This includes the data that the model accesses, any inputs or feedback that your users may give, and any outputs from the model. The second way we bring generative AI to customers is by providing specific packaged agents for assisting developers. For example, a programming assistant to help you write better software; an analytics assistant to help you understand your data better; and a cybersecurity agent to support cybersecurity investigation and protection. We've also integrated these agents into our collaboration tools to help users write, build beautiful slides, or collaborate more closely.

Finally, customers can build quickly, securely, and cost-effectively using modern infrastructure that is optimized for AI.

1   The techniques used to reduce the risk of AI hallucination are referred to as "grounding" and/or "aligning" the model.

GROWING SUSTAINABLY

Can you tell us a little bit more about how you're helping your clients to transition to sustainability?

— Thomas: We address sustainability in a few ways.

First is our commitment to control our own carbon footprint, which we have been doing for decades now. Google's data centers are some of the most efficient in the world, operating about 1.5 times more efficiently than a traditional data center. In addition, in several of our locations, we are over 90% carbon-free.

Second, we help customers understand the carbon footprint of their own cloud with Active Assist Unattended Project Recommender, which sits in Google's cloud console. This allows our customers to measure their own carbon footprint when they use our cloud services.

Third, we've identified critical areas where cloud can help customers build more sustainable businesses. For example, water usage or the impact of electric vehicles on natural resources. We've taken each major area, and we work with a partner to help measure their impact on the environment. For example, to measure the impact on sourcing of products in consumer-packaged goods, organizations such as Unilever are using the Earth Engine from Google to take satellite images of deforestation to help them understand whether and how their sourcing of raw materials is contributing to it.

Finally, we also wanted to help with climate tech financing, and have collaborated with HSBC to provide financing options to companies who are part of our Google Cloud Ready - Sustainability program.

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— Aiman: Today, the call for climate action resonates deeply with business leaders. It's not just the right thing to do – it's also good business. As part of our Business to Planet philosophy, we have developed a portfolio of services designed to navigate the transition, building in innovation and sustainable performance, at scale. We work closely with global clients on several topics, including:

Sustainability strategy and governance: Achieving greater sustainability requires vision and a coordinated approach. We help clients develop a pragmatic roadmap that embeds measurable commitments, engages employees, customers, and suppliers, and delivers tangible value for stakeholders and the planet.

Developing sustainable products: There is increased pressure on manufacturers, from consumers, shareholders, and regulators, to create products that generate lower CO_2 emissions, use less water and energy, and generate minimal waste. We use our engineering expertise to redesign and configure products – whether vehicles, airplanes, or packaged food and drink – focusing on sustainable materials, cost constraints, and reusability.

Re-engineering for sustainable operations, manufacturing, and supply chain: Scope 3 emissions represent a large percentage of a manufacturer's emissions, from design and procurement to distribution. As many of these sources are outside a company's direct control, they are hard to track and report. We help clients meet this complex challenge through re-engineering supply chains, lifecycle assessments, energy efficiency, and smart data collection.

Migrating to sustainable technology: Organizations must design and plan for the integration of sustainable IT to reduce the environmental impact of IT operations. We help our clients evaluate the purchase, use, management and disposal of IT devices and equipment; champion sustainability through employee engagement; and move towards greater take-up of environmentally sustainable technologies. We are also exploring opportunities leveraging technology for green, especially with the advent of climate technologies.

Maximizing ESG management and reporting: We help organizations collate the data they need, analyze and evaluate, monitor progress, and report confidently on their ESG performance to customers, shareholders, and regulatory bodies.
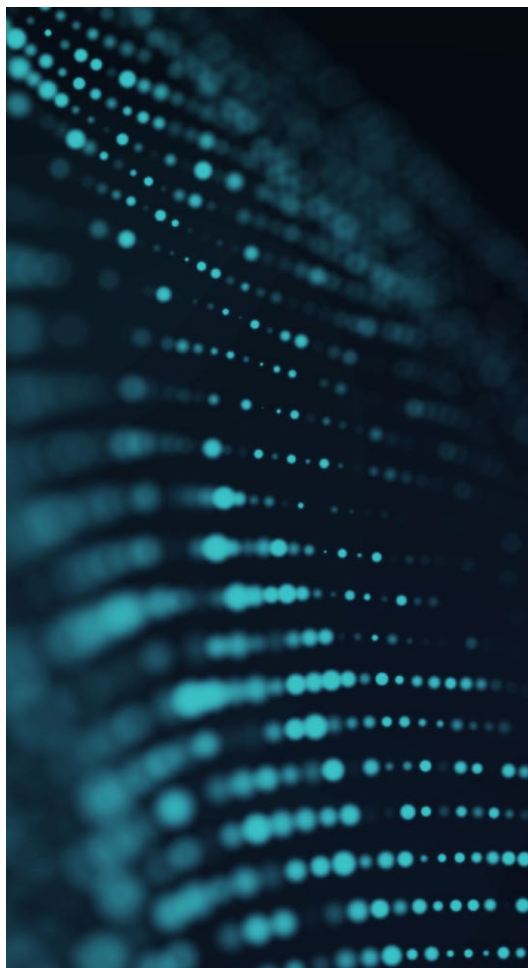
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Aiman Ezzat

What is the role of technology in driving sustainability and what is the intersect between generative AI and sustainability?

— Thomas: First, AI can help improve the efficiency of power consumption in our data centers. We have implemented an AI system that measures power consumption very accurately and optimizes thermodynamic flow for air cooling and water cooling in our data centers. They are now fully controlled and adjusted by an AI model, and they have improved efficiency hugely.

Second, we're helping organizations use AI models to address sustainability. A practical example is wind power, which is sustainable but unpredictable. We've used our AI models to more accurately forecast wind energy generation for utilities.

The third initiative is continually optimizing the size and efficiency of our models. The smaller and more efficient they are, the less impact they have on the environment. The perfect example of that is the work we've done with Samsung. We took a model that processes images and downscaled it so efficiently that it can run on a phone. This is part of our effort to advance AI while maintaining our sustainability commitments.

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— **Aiman:** Technology plays a pivotal role in sustainability. Take the case of climate tech. Climate technologies will be critical to achieving ambitions. Examples of climate tech include renewable energy, carbon storage, biofuels, low-carbon hydrogen, and synthetic biology. These innovative technologies will drive significant emissions reduction and will be integral to new business and operating models.

Equally, emerging technologies such as generative AI and digital twins can play a significant role in enabling and driving new sustainability use cases. Data can aid enormously in building a circular economy and understanding positive and negative environmental impacts.

What do you see as the next innovation around generative AI?

— **Thomas:** Today, models are really assisting people one skill at a time. We're developing models to think and process information the way that humans do – that is multimodally; processing video, text, and audio simultaneously. So, one boundary is enhancing the way models think to more closely represent the way that humans think.

The second is interacting with them in more natural ways. Today, models interact with prompts. We're working to make the process more natural. It's not just text; increasingly, you interact with models with other modalities. For example, you can ask it to extract information from a video feed.

Third, we're working with reasoning and advanced mathematical concepts. The current generation of models look on the internet to find the most acceptable answer, rather than understanding the mathematical bases that lead to it. We are building models to develop a humanistic reasoning process, making it easier for users to interact with them.

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