DIGITAL DIALOGUE

LEVERAGING DATABASES AND ANALYTICS FOR TRANSFORMATIONAL DATA INSIGHTS

Modern businesses rely on transformative insights into front-end customer behavior as well as back-end business operations. Nothing delivers these insights and associated business results faster and more efficiently than a modern database platform.

In a recent webinar, TDWI senior research director James Kobielus spoke to a panel of experts, including Eric O'Connor, product manager at Fivetran; Aalok Muley, group product manager, databases, at Google Cloud; and Scott Barnes, vice president, insights and data practice at Capgemini, about how modern businesses are using innovative database platforms to gain transformative and disruptive insights. [**Editor's note:** Speaker quotations have been edited for length and clarity.]

Data and Analytics for Personalizing Customer Engagement

Digital business transformation is driving the evolution of enterprise data and analytics architectures.

Kobielus started by stating that transformational data insights are those that "help businesses organize effectively

for continued growth." The most important insights, he said, are those that stem from maintaining a keen focus on knowing your customers. Organizations must engage customers "through every channel, use all the data that you have on customers, and leverage all insights you can distill from that data to engage customers continuously."

Delivering this degree of customer-centric success requires that business have "modern data platforms," Kobielus explained. These platforms leverage machine learning, predictive models, and other advanced analytics to optimize customer experiences, and they converge all

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the data and analytics needed to support what he referred to as comprehensive "temporality" in customer engagements. This involves personalizing the customer experience by grounding it in a comprehensive understanding of how the relationship has developed over time, staying on top of the dynamically changing real-time context, and predictive insights into how the customer's situation and needs are likely to evolve over time.

Transformative Data-Driven Opportunities

Kobielus asked the panelists to discuss the most transformative data-driven business opportunities they're seeing.

Barnes of Capgemini said, "The biggest opportunity ahead of us is leveraging the different database architectures, just the types of different analytics that we can do. It really depends on what you're trying to do, but with all the different types—whether you're looking at blending multiple types together or at streaming in real time to support such features as next-best action and personalization—these architectures really open up a wide range of analytics and capabilities for our marketers. They can truly provide that 360-degree view of a customer so I know every point of interaction where I can see streaming data and look at temperature sensors and win the war on waste or increased throughput to drive profitability."

Innovative Data Architectures

Kobielus asked the panelists how innovative data architectures help enterprises address the challenges of managing and organizing data at scale.

Google Cloud's Muley explained that his company is "seeing this move towards the capability to support a large data set, the capability to support a large number of users. We have data points internally where some of our properties—our applications—are supporting billions of users. How do you personalize the experience for those billions of users? How do you make sure the availability, the scale, the reliability, and the total cost of ownership of these architectures are well thought through?

"One of the approaches we have taken, for example, is to build a totally disaggregated compute and storage infrastructure. That allows us to scale in almost an infinite fashion."

Analytics Insights into Business Success Metrics

How do those database-accelerated transactional analytics deliver valuable insights into sales patterns, product performance, pricing strategies, fraud detection, supply chain operations, and other key business metrics?

O'Connor of Fivetran believes that "the key thing here is that to understand these patterns and be able to detect trends, you have to have all the data in one place. If you look at this list of areas where you might want to apply transactional analytics, most likely all of these data sources are coming from different systems. They're probably owned by different teams, and the team that's processing this and trying to optimize against these sorts of metrics is probably not on any of the teams that manage those source systems. You need some way of getting all of these different sources into a single place, and then empowering a downstream team to process them."

Delivering AI into Digital Transformation

The conversation turned to how new data platforms can accelerate the contribution of AI and advanced analytics to digital transformation.

Vector databases were a key focus of the discussion. O'Connor said, "If you want to populate a vector database, you take data from some source and then call out to a separate API or model to get an embedding vector; then, generally, you send that to the vector database. It's interesting to me that the architecture that has evolved relies on a separate database. It's unclear to me why there needs to be an independent database that's separate from your main operational or analytical database."

Muley noted that when he talks to customers, "they talk about the whole pipeline from the data all the way to the vector embeddings, then generating the vector embeddings, and then storing it in the database. They are also looking at having a very consistent and governance-based way of working with this data. As long as you build good connectivity between the large language model and data that is already residing in these customer databases, I think you have a good end-to-end story that these enterprises can take advantage of."

Modern Data and Analytics for Digital Transformation

Kobielus concluded the discussion by asking how various vertical industries are using databases and transactional analytics to power digital business transformation.

Muley said that one thing he sees across industries "is the whole concept of customer identity and asset management. It concerns how you automate onboarding of customers while looking at the rules and regulations in each country and figuring out how you automate all of that in a digitized fashion. You do that by unifying that data onto a data platform and building the business logic around it.

"There are a lot of customers who use Google Cloud for retail workloads. Personalization is critical to them."

Barnes explained that "every vertical is leveraging data more and more across their enterprise to improve and enhance the customer experience. We've talked about a lot of use cases, about next-best action or next-best offer, about personalization, about a 360-degree view of the customer. I was at a meeting with an airline customer and we were talking about one of the airline's customers who wrote on a chat that they had lost their luggage, and when they checked in, the airline didn't know who the customer was. When that happens, go find that customer and offer a gift certificate or give them a membership in the frequent-flyer club. That's the kind of personal touch and interaction that this type of analytics enables, and it's universal across all verticals."

Final Thoughts

In response to audience questions, the panelists discussed core tenets for driving digital transformation through unification of data and analytics. The key approaches include:

- **Dynamic personalization** that gives the customer "just what I want at the time I want it," according to Barnes. "These agents you're engaging with can use contextual data and analytics to instantly determine how much you are worth to them, and how much they can offer so that they can keep you as a customer and then sell you a new product or up-sell you to a different package. This empowers customer service reps to make informed decisions that will optimize that customer interaction."

- **Continual cost optimization** that powers multichannel engagements from a unified data lake. O'Connor stated that "landing the data in the data lake can be a significant savings in terms of the cost of integrating into a database destination. From there, customers can query it as they wish, enabling larger volumes of data to be processed in a cost-effective manner."

- **Open data and analytics architectures** that support flexible scaling and evolution. According to Muley, "Customer environments are heterogeneous, so enterprises want to be very conscientious about not having vendor lock-in. They want to be sure that open source capabilities are used wherever possible. What has happened in the recent past is companies have been able to build enterprise-grade capabilities into these open source compliant databases. In addition, disaggregated storage and computing resources enable improvement in scaling of both OLTP and analytical workloads."