

Kasisto



CASE STUDY

KAI Banking & DBS digibank

June 2017

KAI Banking powers the
omni-channel bots and assistants
in DBS digibank.

**Drives
down
costs**

Handles
82%
of customer
inquiries

About Kasisto



*Kasisto is on a mission to enable financial institutions to attract, engage, support and transact with their customers via intelligent conversations, **anytime, anywhere.***

- KAI Banking, **conversational AI platform**, powers omni-channel smart bots and virtual assistants on messaging platforms, mobile apps, web, and IoT devices.
- **Fluent in banking** with thousands of banking intents and millions of banking sentences built-into the platform, KAI bots and assistants help customers manage money, track expenses, analyze spending, make payments, and more.
- With **contextual and personalized conversations**, KAI fulfills requests, solves problems, and predict needs in ways that are as natural as texting a friend.
- KAI-powered bots and assistants **help customers “do” more** with data-driven insights and actionable recommendations.
- **Enterprise-ready**, agile platform scales quickly for new products and services, geographies, languages, and more.
- **Well-funded** and backed by Propel Venture Partners, Two Sigma Ventures, Commerce Ventures, DBS Bank, Mastercard, Wells Fargo, and others.
- **Spun out of SRI International**, leading AI R&D lab and creator of Siri.

About DBS



- DBS is a leading financial services group in Asia, with over **\$320B in assets** and 280 branches across 18 markets.
- DBS believes that banks tomorrow will look fundamentally different from banks today. That's why they have spent the **last three years deeply immerse in the digital agenda**, whether it is changing the culture and mindsets of their people, re-architecting their technology infrastructure, or leveraging big data, biometrics and AI to make banking simple and seamless for their customers.
- **Headquartered and listed in Singapore**, DBS has a growing presence in three key Asian growth markets: Greater China, Southeast Asia and South Asia.
- Recognized for its leadership in the region, having been named **"The World's Best Digital Bank"** by Euromoney, "Asia's Best Bank" by The Banker, a member of the Financial Times group, and "Best Bank in Asia-Pacific" by Global Finance. The bank has also been named "Safest Bank in Asia" by Global Finance for seven consecutive years from 2009 to 2015.



At DBS, we seek to seamlessly integrate banking into customers' everyday lives, making banking simpler and more convenient for them."

-Piyush Gupta, CEO of DBS Bank

Executive Summary



DBS digibank **requires just a fifth of the resources** of a traditional bank set-up due to cost-saving features such as an artificial intelligence-driven bot and virtual assistant.

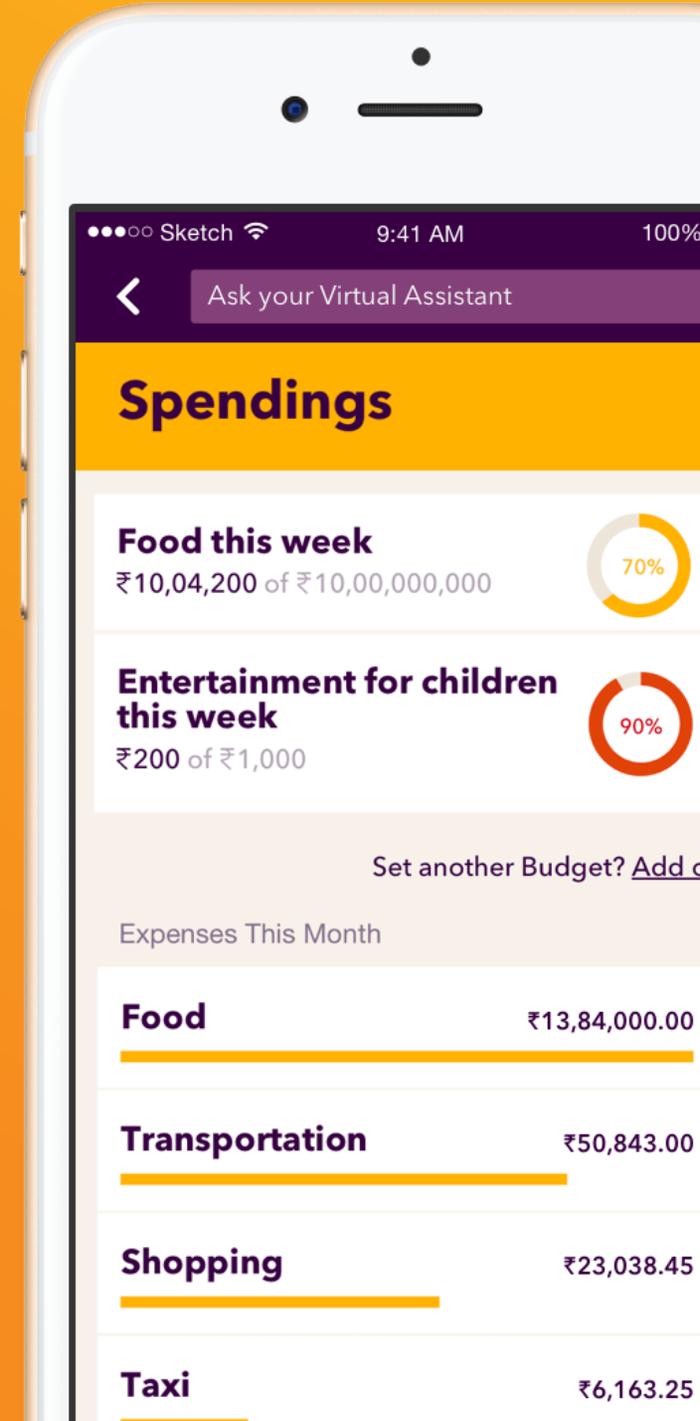
New conversational AI banking experiences **enhance DBS's reputation** as an innovative financial leader—validation not just in Asia but globally when DBS was named the World's Best Digital Bank by EuroMoney magazine in 2016.

KAI-powered assistants drive costs down because they handle 82% of all customer requests in the digibank application without human intervention. Only 18% of customer requests go to live chat sessions.

- **Actionable data** is the driving force for creating a new banking experience and driving increased customer satisfaction.
- The **interactions are engaging** and a typical conversation includes six exchanges with the customer sending at least three messages and the KAI-powered assistant responding in human-like conversation.
- KAI helps DBS **increase sales** with ubiquitous customer experience across channels and constantly updating Q&A.
- An agile platform ensures **smooth integration** with DBS middleware and infrastructure using KAI Banking APIs for conversation (channel), enterprise (data), reporting, and live agent hand-off. KAI enabled DBS to deliver a rapid succession of launches while ensuring proper protections of secure banking data.
- All customer conversations with the KAI-powered assistant are digitally captured, cleansed, and anonymized for data mining and audits to **support compliance** requirements of the bank.

KAI Banking & DBS digibank

The Kasisto and DBS partnership started with the launch of digibank and KAI Banking powering the virtual assistant in India's first mobile-only bank. Very quickly, **DBS leveraged KAI Banking's omni-channel capabilities** to expand the KAI-powered assistant from mobile to the web and Facebook Messenger and to expand from India to Indonesia and Singapore.



digibank India

KAI Banking powers the virtual assistant in DBS digibank which **breaks new ground**, being a completely paperless, signatureless and branchless experience.

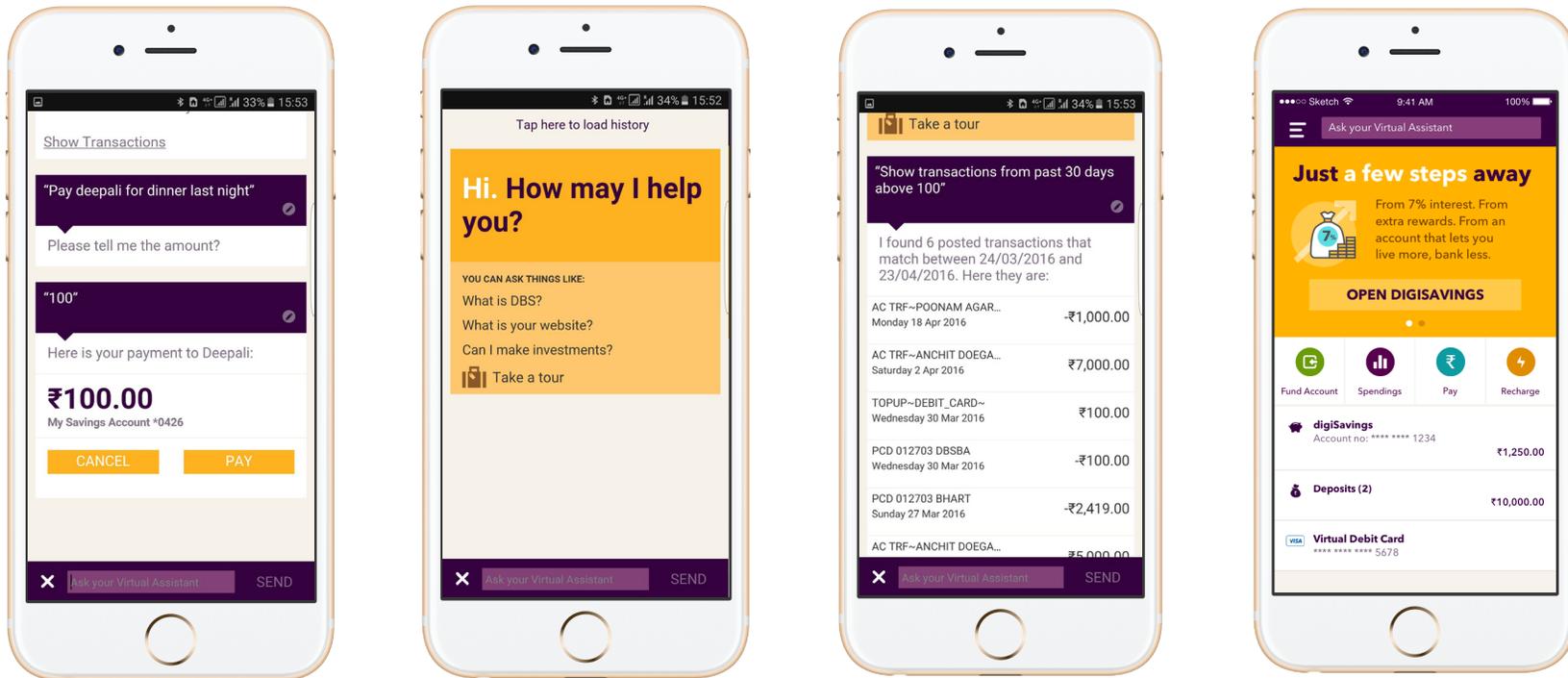
With **over 1,000,000 customers**, digibank offers a savings account with a 7% interest and an unmetered debit card. The account can be activated from select Cafe Coffee Day outlets across India or by FINO agent who can come to customer place. What sets it apart from other attempts at integrating digital platforms is the use of artificial intelligence-powered assistants.



As a bank committed to shaping the future of banking, we are excited to roll out a revolutionary, mobile-only bank. With digital, we are able to create a completely different customer experience. What's more, digibank's efficiencies and lower costs enable us to pass on significant benefits to customers in the form of greater customer value."

-Piyush Gupta, CEO of DBS Bank

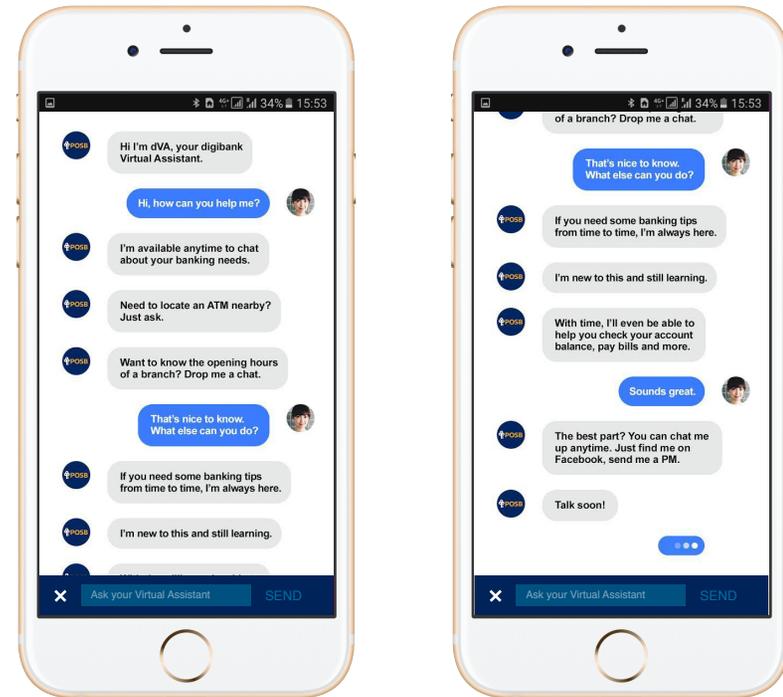
The Power of Conversational Banking



digibank Singapore

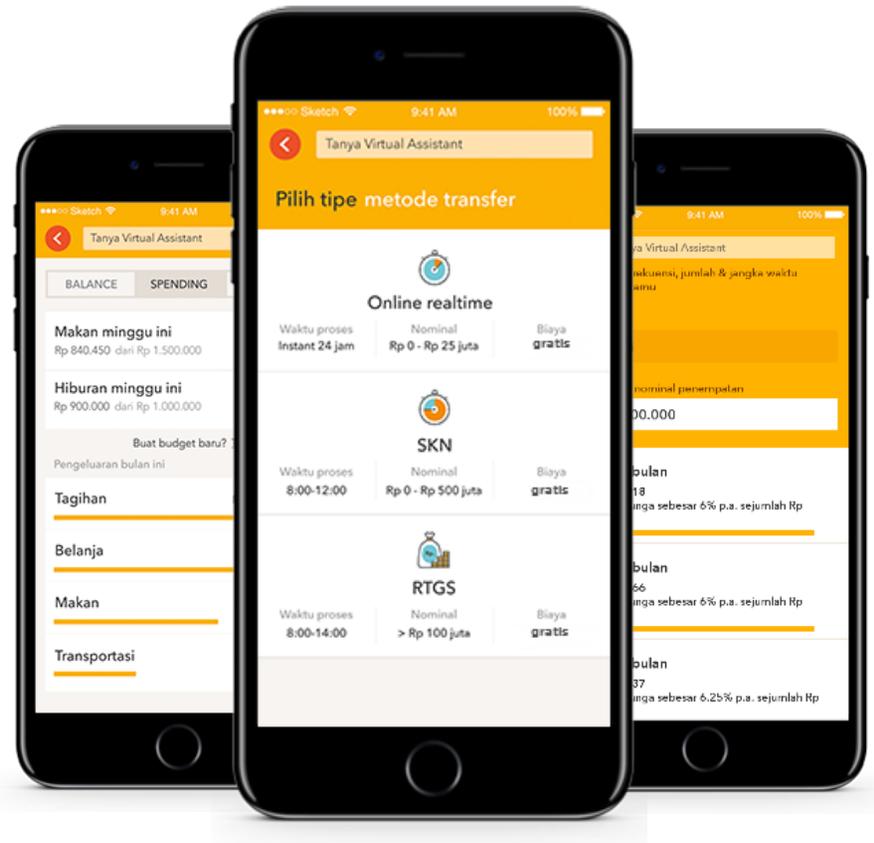
KAI Banking also powers POSB digibank Virtual Assistant launched in Singapore—the **country's first financial chatbot on a social media platform**. A part of the DBS Group, POSB is the largest and oldest local bank in Singapore with over 4 million customers. The bank also has the largest number of online banking and mobile banking customers in the nation.

Now, these customers can bank on Facebook Messenger—all part of DBS's mission to make day-to-day banking simpler, smarter and faster for its customers. The KAI-powered POSB digibank Virtual Assistant was launched in phases and in the first phase the assistant is focused on answering banking inquiries. It's been trained to immediately respond about the bank's products and services. For customers, this means **no more calls, no more waiting**—just text a question in a natural, conversational way and get an immediate answer in the same human-like conversational manner.



digibank Indonesia

In addition, KAI Banking powers the digibank chatbot by DBS in Indonesia. DBS is targeting the young, tech-savvy consumers among Indonesia's 260 million population—an important market with its size and scale, and the economic reforms taking place in the country. The KAI-powered assistant **converses in Bahasa Indonesia**.

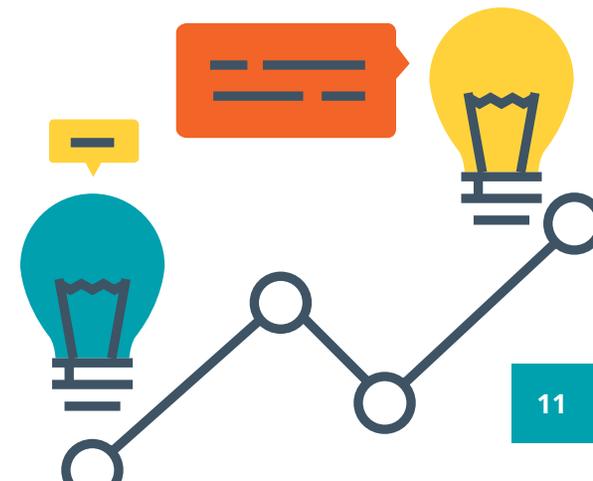


Why DBS Chose KAI Banking

“With the advent of technology, banking as we know it is being completely transformed. digibank places an entire bank in our customers’ hands, freeing up their valuable time, and allowing them to ‘Live More, Bank Less.’ For DBS, digibank is also a potential game changer, enabling us to go beyond the confines of a brick and mortar network to extend our reach in huge geographies like India. As a leading bank in Asia, DBS believes in shaping the future of banking. With Kasisto’s conversational AI platform, we are embracing technologies that can make banking more interactive and intuitive for customers.” - Piyush Gupta, DBS CEO

- Kasisto’s platform enables a **conversational, human-like** consumer banking experience across channels—a requirement for a mobile-first bank with no retail presence or call center operations.
- Out of the box, the platform is **fluent in banking** which sped time to market. This meant DBS could concentrate on training the platform about its customers, products, and services and not the fundamentals of banking.

- The **accuracy and performance** of the platform ensures that the KAI-powered assistant converses intelligently and delights DBS digibank customers—a positive reflection on their brand and engagement metrics.
- It was **straightforward to integrate** into DBS infrastructure and systems as well as create a stand-alone, mobile-only bank for the first time.
- The **platform is extensible** enabling DBS to quickly expand to new geographies and launch new channels—accelerating customer acquisition and market share goals.



KAI Banking

The KAI-powered assistant creates entirely new banking experiences via intelligent conversations.

The assistant helps digibank customers to:



Improve their financial literacy and user education via a series of FAQs



Increase their financial well-being with a contextual dashboard



Rapidly gain access to account information to manage balances



Locate transactions by date, merchant or category



Pay person and transfer funds



Streamline customer onboarding and self-service to deflect live agent calls

KAI Banking



The KAI-powered assistant is an expert in banking to ensure conversations are accurate and contextual.

- **With deep domain expertise out-of-the-box**, KAI Banking includes core banking intents and general financial services knowledge, including accounts, transactions and payments. These intents come already trained on banking specific sentences. The KAI-powered assistant can understand and answer financial and banking queries because the platform was created specifically for financial services.
- KAI Banking is customizable and was **trained on hundreds of thousands of utterances** to answer 1,178 unique questions specific to DBS digibank products, services and customers. It was also localized for three DBS markets including India, Indonesia, and Singapore.
- It's a **contextual banking experience** because the platform processes banking data in real-time. For example, when a customer requests to pay a person, it's able to figure out who the payment is being made to and how much just by tracking the customer's past behaviour.
- The KAI-powered assistant is **highly accurate**—exceeding expectations and continually improving with machine learning.

KAI Banking



Natural language understanding combined with reasoning ensures an intuitive experience—one as natural as texting a friend

As a conversational AI platform, KAI Banking **goes beyond simple NLU frameworks** to power intelligent conversations. The platform leverages decades of artificial intelligence research and IP to create a full-stack, scalable, enterprise-ready platform, including Speech Recognizer, Natural Language Understanding, AI Reasoner and multi-channel Natural Language Generation.

What really distinguishes the KAI-powered assistants are their **ability to hold “human-like” conversations**. They are trained to not only understand what the customer is saying but track what the customer is trying to do – even with multi-turn conversations. KAI tracks the flow of

the conversation to stay focused on the customer’s goals—interpreting the context. Every conversation is current, consistent, and contextual no matter where the customer starts and picks up the conversation.

KAI Banking’s AI Reasoner is used to enable human-like conversations based on DBS banking rules. The unique approach goes beyond basic NLU and combines KAI Banking’s deep domain expertise with the **ability to reason**.

KAI Banking

Like having a single AI brain

As an omni-channel experience, KAI-powered assistants meet digibank customers where they are—whether that's Facebook Messenger, their mobile app, or website. For DBS, it's like having a single AI-driven “brain” that engages with their customers via intelligent conversations across channels to enable lifestyle banking where financial decisions are woven into everyday life.

Consumer experience is always improving

KAI Banking uses a combination of **supervised and unsupervised** learning strategies to tune and train statistical models. It also relies on annotation to identify new, unseen intents and questions. On the supervised side, KAI Banking has an annotation tool that performs continuous intent and slot annotation/evaluation of live systems by subject matter experts. Unsupervised learning was used extensively to identify new intents via topic modeling tools.

The DBS team used the KAI Banking **customer portal** to update intents, annotations, taxonomy and FAQ content to continually improve the user experience and add new features.

KAI Banking

Virtual assistants seamlessly hand off to live chat agents

Due to the KAI Banking's high containment rates, **less than 18% of digibank customers require live chat sessions**, but even the smartest systems cannot support all the imaginable customer interactions. To handle situations in which the KAI-powered assistant is either not trained to answer specific questions, or not able to understand the customer, KAI Banking has an API to support a handover of a specific session to a human operator. In this case, KAI Banking was integrated into DBS' existing live chat platform.

Pre-determined rules trigger the hand-off and meta data about the customer and issue are part of the hand-off to **ensure a positive customer experience**. When handover takes place, the customer is notified that they are being transferred to a live chat agent and the agent gets the recent history of the interaction with KAI-powered assistant and the context. Once the live chat session is completed, KAI is able to take over the interaction again.



Fast Deployments, Always Improving

KAI Banking's agile, modern conversational platform and tools **accelerated the time to develop, pilot, and deploy** DBS digibank's cutting edge, AI-driven features. DBS and Kasisto worked together to identify and design use cases for digibank's KAI-powered assistant. Together, they went through the pilot and deployment phases to integrate KAI into DBS's data, train the system, and optimize the consumer experience. Post-production, DBS was empowered to maintain and improve the KAI-powered assistant as well as extend the capabilities and channels with **powerful self-service tools**.

FIRST DEPLOYMENT TIMELINE

DBS digibank on Mobile in India took **eight months from POC to production**.

- Feb 2015** Proof of concept
- Aug 2015** Friends and Family pilot
- Oct 2015** Soft Public Launch
(Apr 2016 - Public go live)

ADDITIONAL PLATFORM & COUNTRY ROLLOUTS

- Aug 2016** DBS digibank on the Web in India
- Dec 2016** DBS digibank Indonesia (Bahasa)
- Dec 2016** DBS digibank on Facebook Messenger in Singapore

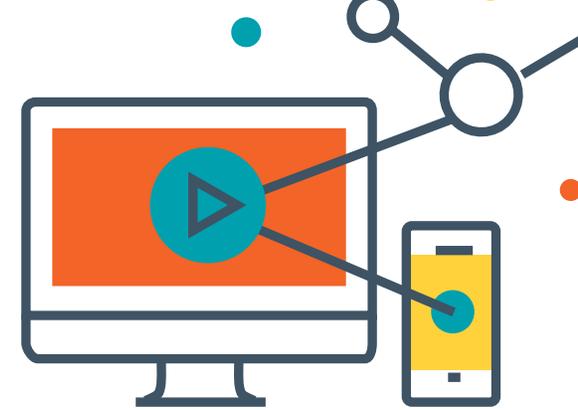
Just the Beginning

Create better value and digital experiences to increase consumer demand

DBS has a digital agenda to continue to roll out digibank, pressing ahead with new AI-driven customer journeys to reimagine banking. With one million digibank customers in India in ten months since launch, DBS projects five million banking customers in India over the next three to five years. With a more efficient cost structure, DBS will continue to offer better client value by providing AI-powered contextual offers and advice to customers.

Leverage intelligent conversations to increase engagement and loyalty

The KAI-powered virtual assistant has been well-received, and the more customers engage with it, the better it becomes. It already answers nearly 10,000 questions and every new query is a learning addition. The breadth and depth of questions answered by the KAI-powered assistant is growing constantly as well as their ability to fulfill requests, solve problems, and predict customer needs.



Just the Beginning

Create omni-channel experiences to meet customers on multiple platforms

DBS is on a mission to seamlessly integrate banking to their customers' everyday lives, making banking simpler and more convenient for them. To that end, KAI Banking is in production on mobile, web, and Facebook Messenger.

DBS has plans to extend KAI-powered assistants to other messaging apps like WhatsApp and WeChat in the future given many consumers are already spending significant time in their chat apps.

Continue to introduce new products and services and launch in new markets

DBS launched the KAI-powered experience in India, Indonesia and Singapore with plans to launch in other key DBS markets.

In India, DBS has plans to introduce unsecured lending and wealth management products on digibank.

Commitment to Conversational AI

In April 2016, DBS made a **strategic investment in Kasisto** as part of their mission to shape the future of banking. In many Asian countries, embedded chatbots on messaging platforms already power news, search, and e-commerce. DBS recognizes the importance of providing customers with intelligent conversations powered by virtual assistants or smart bots wherever they are—whether it is through the bank’s mobile app or a messaging platform.

All banks will have to travel this road **because customers are increasingly expecting financial services and products to be seamlessly integrated** into their digital world. Being digital is much more than just putting a shade of digital lipstick onto a brick-and-mortar bank.

For DBS, it means making **digital thinking part of their DNA**. Services and products are built from the ground up and digital-ready. The model must be scalable and infused with customer analytics. And, delivery is wherever, whenever, and however the customer needs it. If it is anything less than this, banks will not be able to compete on cost, or on customer engagement and uptake.

DBS recognizes an AI platform that is an inch deep and a mile wide can’t be trained to process and answer questions on diverse topics from health, cooking and gardening to banking. Banking use cases, intents, utterances and the rest are very unique and require expertise. **It’s that expertise that sets KAI Banking apart.**

It is KAI Banking’s financial expertise combined with ability to understand context and customer goals that enables entirely new banking experiences. **DBS is leveraging KAI Banking to help fulfill their vision of lifestyle banking.**