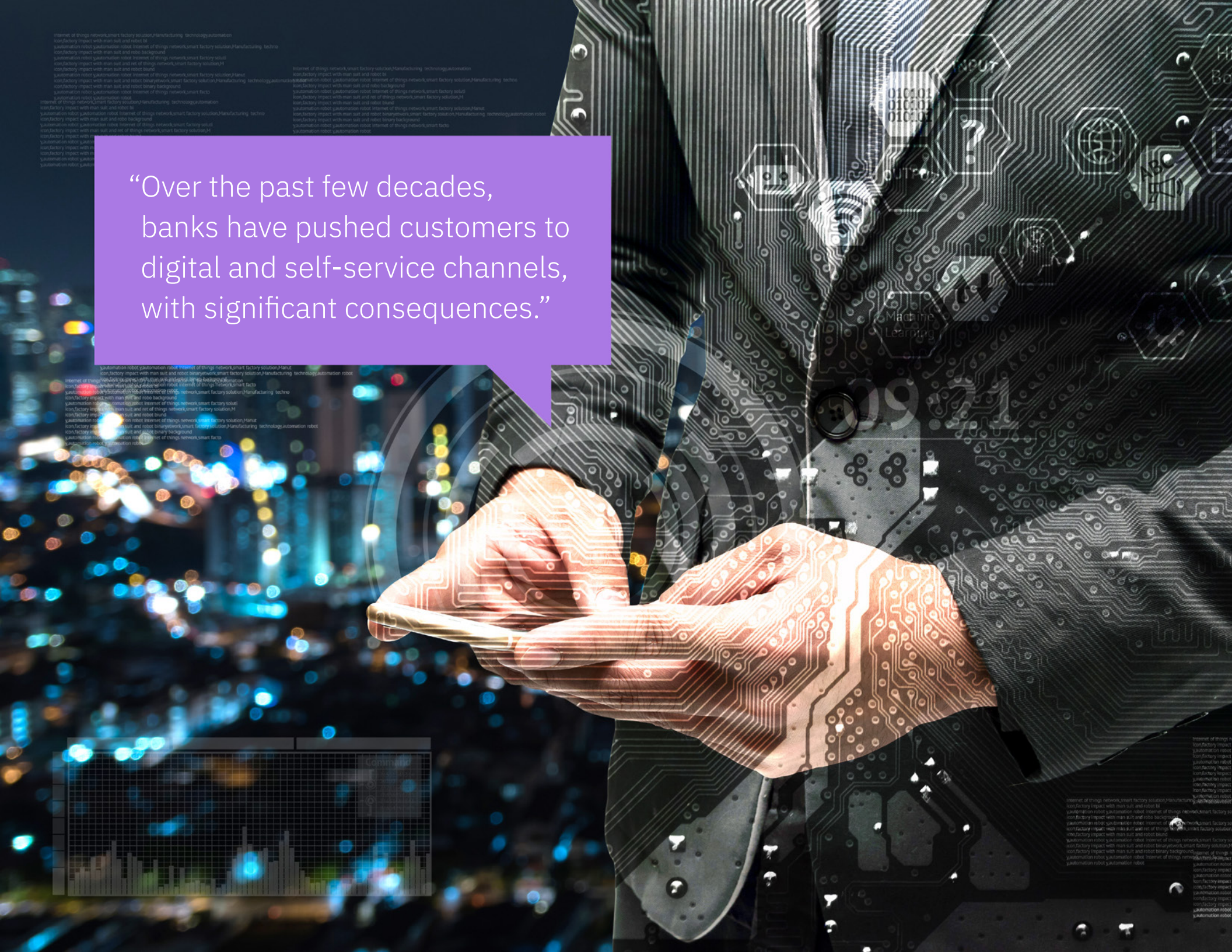
Conversational Banking

The Future of Banking: A Financial Concierge for Everyone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Introduction

Banking engagement is about to come full circle. Over the past few decades, banks have pushed customers to digital and self-service channels, with significant consequences. As customers take their transactions from the branches to the digital channels, banking has become less and less personal. Will this trend continue? To predict the future let’s first review how we got here.

1

First decade of digital banking:
Internet Banking

In the late 1990s, internet banking grew out of the branch system and became popular, riding on the surge of PC installations and affordable internet access at home. Consumers enjoyed the convenience of being able to check account balances and pay bills through their PCs.

2

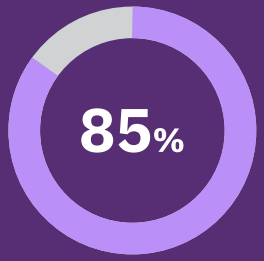
Second decade of digital banking:
Mobile Banking

In 2007, the iPhone was introduced and smartphones took the world by storm. Mobile banking was born shortly thereafter. Even though initial versions of mobile banking were simply a byproduct that was grown out of, and plugged into the old internet banking, customers loved the additional convenience of banking not just anytime, but anywhere. Due to the overwhelming popularity of mobile banking, banks started giving mobile banking apps their own life by decoupling them from internet banking and creating unique functions. In 2015, mobile banking overtook internet banking as the most frequently used channel in many countries around the world.

3

Third decade of digital banking:
Omnichannel Banking

Toward the second half of the 2010s, the industry began to consolidate technologies in order to achieve greater efficiency. Instead of having separate platforms for internet banking sites and different mobile banking apps, the world's leading banks favored a single platform built on a widget-driven user experience for better personalization and a microservice-based architecture for greater agility.



"Chatbots will power 85% of all customer service interactions by the year 2020"

(Gartner)

Future of digital banking:

Conversational Banking

As we look toward the horizon of the 2020s, what are the emerging technological advancements that have the potential to take digital banking to the next level? Many believe it is cognitive computing or artificial intelligence (AI). One significant trend in 2017 has been the chatbots and text chat services announced by many banks. Chats allow customers to ask questions or request services using natural language. It can be either a human agent answering the chat or a chatbot powered by cognitive technology. Chats can occur on the plethora of bank-owned or third-party platforms on smartphones, home devices or cars. With the ever-maturing speech recognition technology, many chats can be UI-less (i.e., voice-only without a graphical or text user interface), while others support rich media types. It is our belief that banks will soon offer chats on a growing list of platforms and truly embed banking in customers' daily life.

When that happens, banking will have come full circle. Customers will get their banking needs fulfilled by telling a banker what they need. It's just that instead of a human banker, the more routine conversations may be carried out by a chatbot, while the more complicated sales and service issues by human agents.

Conversational Banking Journeys

A customer journey carried out by conversations with the bank has the following unique characteristics:

Customer journeys for any dialog

- general inquiries by anonymous consumer
- onboarding and application by prospects
- transactions and account services by known customers

A complete conversational banking solution must be able to handle all types of conversations through the value chain, starting with marketing campaigns to the consumer, product inquiry by an anonymous visitor, onboarding of a prospect and transactions and services provided to a known customer:

Customer journeys through all channels

- 3rd party public platforms
- bank's own website
- bank's internet banking
- mobile banking app

Conversational Banking Journeys

Today's customers' interactions with their banks mostly occur in the banks' own channels: branch, ATM, public website, internet banking, mobile app and contact center. Conversational banking can occur outside of these channels, on social networks, messaging services and voice assistants , for example. There are no better places to engage customers than these platforms as today's customers spend a significant amount of their daily "screen time" on them.

A well designed conversational banking system allows dialogs to occur on these various platforms. There's also a need to allow chats to be transferred from one platform to another while preserving the context. For example, a customer interested in a new credit card may engage in a conversation with the bank's chatbot on a messaging platform. Once the customer decides to fill out an application, the chat must be transferred to the bank's own site to protect sensitive personal data.

Customer journeys by the most effective agent

- **human agent**
- **cognitive chatbot**

Whether a conversation should be handled by a human agent or a chatbot largely depends on the complexity of the conversation and customer profile.

In addition to purely human conversations and fully automated chatbots, humans and chatbots may work together. For certain conversations, a human agent may be assisted by a chatbot in the background. Other situations may require a human agent to monitor or approve responses generated by a chatbot.

For example in Figure 1, a customer asks about mortgages in a chatbot conversation. In this case, a cognitive-powered chatbot collects the necessary data about the customer and property before handing the call over to a human mortgage advisor. The human advisor, while interviewing the customer, may be assisted by the chatbot in the background without the customer's knowledge. Once the interview has been completed and the control returned to the chatbot, the human advisor continues to monitor the chats to ensure the customer is satisfied throughout the rest of the journey.

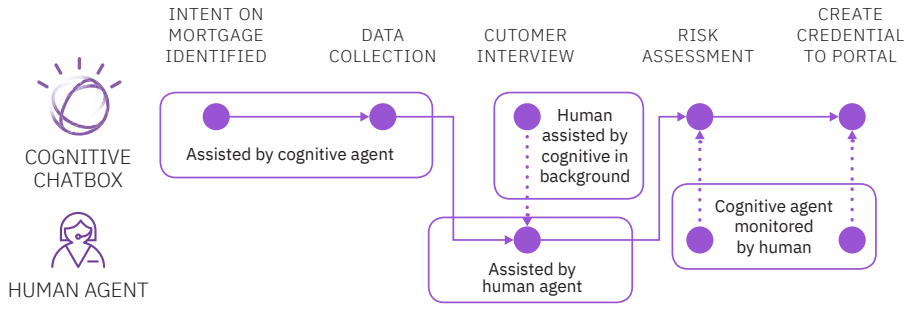


Figure 1: Example of a customer journey assisted by the most effective agents

Challenges and Keys to Successes

1
Intent

2
Experience

3
Context

4
Privacy and Security

Key to Success #1: Intent

If you have ever been in a foreign country desperately trying to find directions, you know there's nothing more frustrating than not being understood by anyone. Similarly, the biggest challenge to conversational banking can be the quick and accurate discovery of the customer's intent. Open-ended dialogs by users often contain slangs, dialects, abbreviations and misspellings. They require elaborate design and meticulous training to achieve satisfactory accuracy. A well-designed cognitive chatbot may employ different tactics such as examples, clarifications and confirmations during the intent discovery process. Once intent has been discovered, a predefined journey can be used with predominantly multiple-choice questions to guide the rest of customer interactions until sufficient information is obtained to determine a final answer (See Figure 2).

AI that discovers a customer's intent leads to more accurate responses.

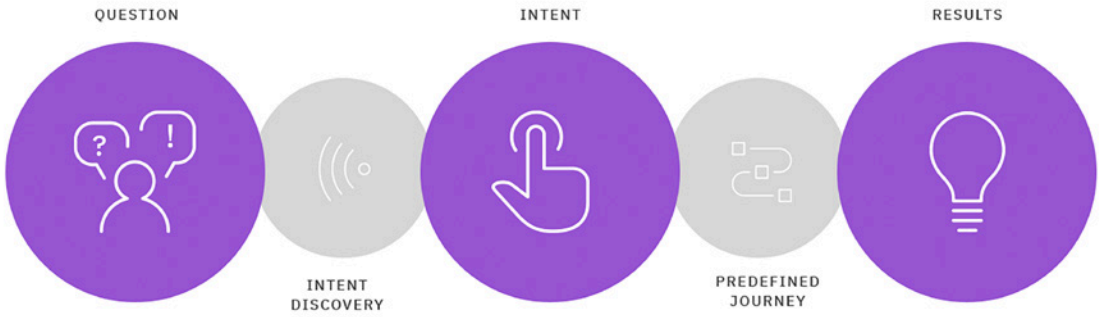


Figure 2: Intent discovery and customer journey are keys to accurate results

Enriching conversations with different audio and visual media enhances communication.

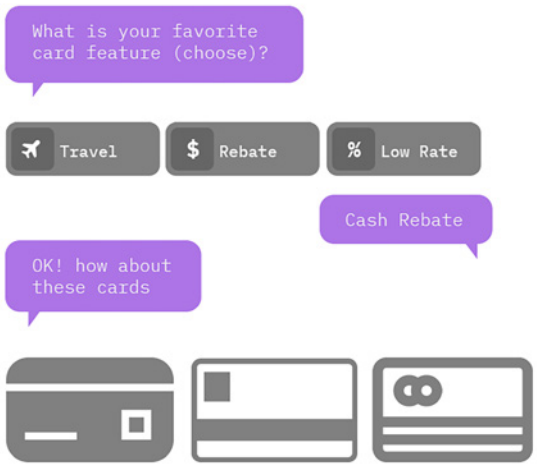


Figure 3: Enriching conversations for better experience

Key to Success #2: Experience

Being understood is merely the first step. Just like human interactions, a great conversation should be effective, effortless and enjoyable. Voice assistants only allow verbal interactions, while smartphone messaging apps can display text, pictures, maps, voice and video. Chats should be rendered using the most effective content types depending on where the chats take place. For example, a chatbot introducing a credit card offering via a voice assistant must be recited concisely. The same chat when occurring through a messaging service can show a carousel of cards each with a thumbnail of the card design with links.

An account opening journey is a good example of the need to allow rich content. There are usually pages and pages of terms and conditions (T&Cs) that customers are supposed to read and agree to. Instead of displaying all the T&Cs as text, the details can be hidden behind a pictorial card accessible via a link. Customers can read the T&Cs if they choose, save them on a local device or send them in an email to themselves (See Figure 3).

In order for a banking conversation to be truly exceptional, imagine having a conversation with a private banker. Good private bankers not only fulfill a customer's explicit requests, they also anticipate and suggest courses of actions based on deep understanding of the present and the past. This requires the conversation services to be based on predictive analytics.

Chat transactions involving customer data require secure approaches.

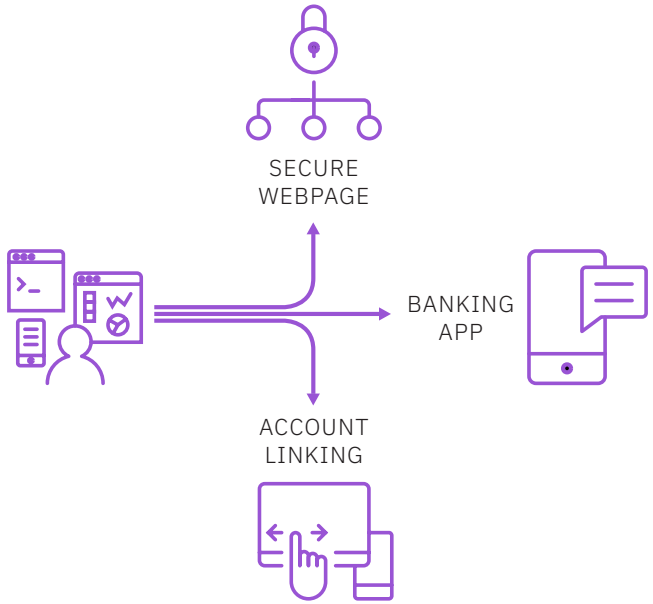


Figure 4: Chat transition

Key to Success #3: Context

As the customer traverses through the journey, he or she may be assisted either by cognitive services or human agents. It is essential to be able to preserve the context of the conversation and present it to the next agent for a smooth transition. It is also important to create a closed loop by analyzing the context once a conversation is completed.

Key to Success #4: Privacy and Security

A third challenge arises when a customer journey involves the transmission of transaction or customer data. Regulations differ from country to country. Many banks avoid transmitting PII over social media sites known to monetize customer data. Non-PII transaction data are usually treated differently and allowed to be initiated or displayed on 3rd party sites with customers' consent.

Banks should perfect the transition from third party sites to the banks' own website and transaction app. Different techniques exist to allow a smooth transition (See Figure 4).

- ***Secure webpage***

A secure webpage is ideal for one-time input of sensitive customer data. For example, a chat via social messaging app about credit card offerings ends with an invitation to apply for the card. An application form can be displayed over the chat. The application form may be designed to have the same look-and-feel of the messaging app but is part of the bank's secure website. Data collected on the webpage bypasses the messaging app and goes directly to the bank.

- ***Invoking internet or mobile banking***

Alternatively, for customers who have existing relationships with the bank, conversations can be transferred to the bank's internet or mobile banking app after the customer has logged in. For example, a customer conversation about a credit card dispute via public messaging app can be transferred to the chatbot within internet banking so the customer can select the transaction against which to file a dispute.

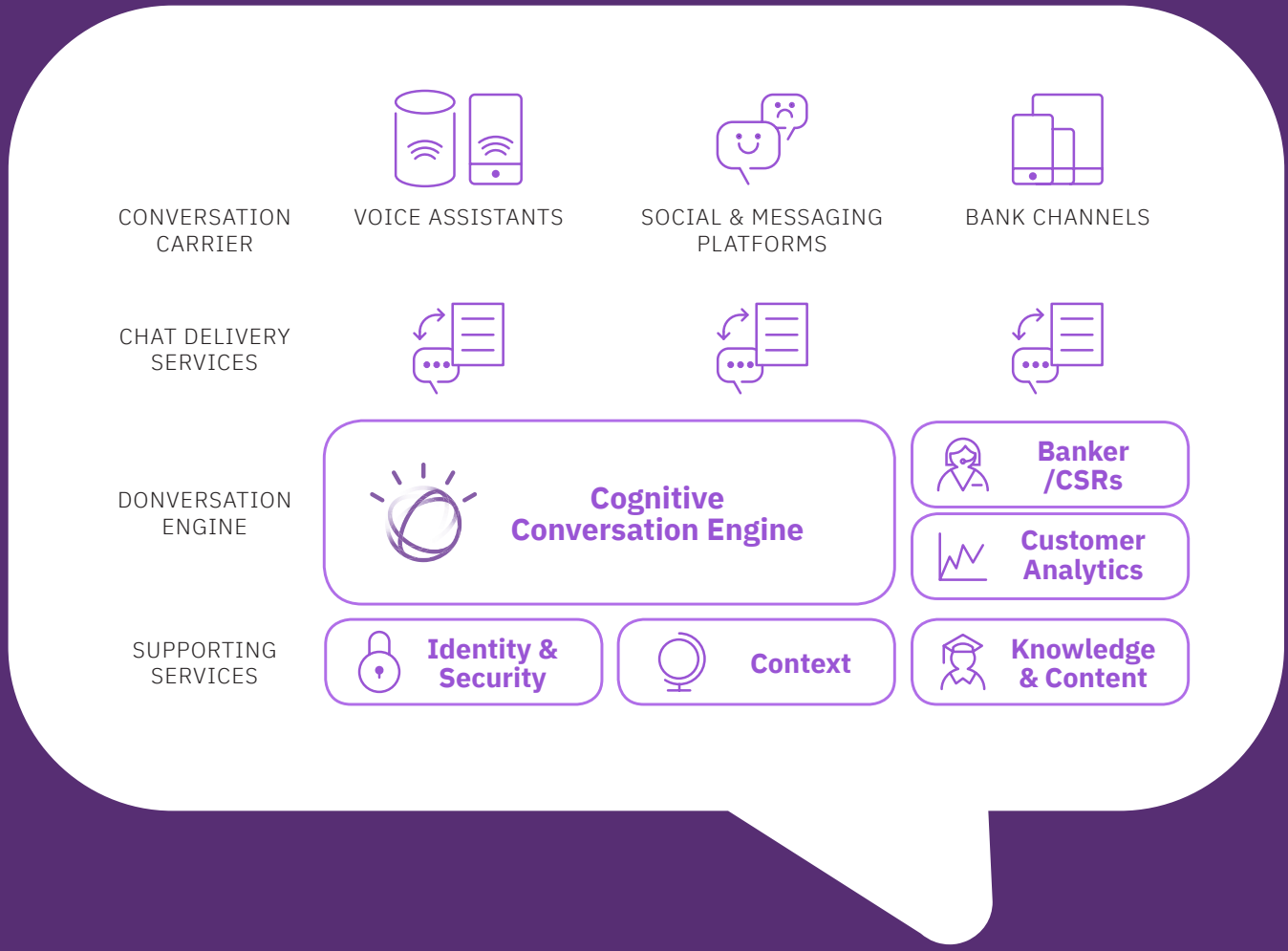
- ***Account linking***

Account linking is ideal for more permanent integration. For example, a customer may like the idea of being able to pay her phone bill through a chatbot on a messaging app. Many messaging services and voice assistants provide the capability to establish linkage to the bank account. A secure access token is created and shared with the messaging service or voice assistant after the customer has been authenticated and consented to the linkage. Note that banks need to avoid any transmission of customer data and login credentials through 3rd party platforms. There should also be a mechanism for customers to easily unlink the bank account from the conversation carrier.

Comparison of three chat transition approaches

Designing A Conversational Banking Platform

A complete conversational banking platform has the following components:



Conversation Carrier

A conversation carrier is where dialogs with customers take place. Different conversation carriers provide different features and support different content types. There are many examples. The conversation carrier where many banks deploy their first conversation service is their own website for both customers and anonymous website visitors. Banks usually then enhance the conversation service and extend it to a mobile banking app and internet banking site so dialogs can occur with authenticated customers. Many banks also like to make the conversation service available on popular third-party carriers such as messaging apps, social networks and voice assistants that are often accessed through a home device or automobile.

Chat Delivery Service

A Chat Delivery Service enables conversations to occur on a specific conversation carrier. It is programed to ensure the delivery of chats between the conversation engine and the carrier, which often requires the dialogs to be in a particular format via proprietary APIs. For example, a bank may have three Chat Delivery Services: SMS, voice assistant and social messaging app. The same response to the customer is rendered differently by these Chat Delivery Services – in plain text for SMS, as voice, and in a pictorial card format for the social messaging app.

Conversation Engine

The Conversation Engine uses cognitive computing (such as IBM Watson Conversation Services) to engage customers in dialogs. Natural language processing capability makes open text question-and-answer possible. Reasoning capability allows intent to be discovered. Deep learning allows the accuracy to continue improving. Once an intent has been confirmed, it powers the conversations in order to reach the optimal answer. It also coordinates with human agents and employs back-end analytics during the conversation.

Context Service

Context Service allows the context of a conversation to be preserved and presented to the next agent, either human or chatbot, so that the conversation can continue as if the user is speaking with a single person.

Identity and Security Service

Identity and Security Service ensures the transition from carrier to carrier occurs smoothly, especially in situations where multiple identities exist in different carriers and separate authentications are required.

Content & Knowledge Service

Content and Knowledge Service provides the content and knowledge base that the conversation engine uses to construct the appropriate answers to users' questions.


“Conversational Banking allows banks to have the best of both worlds”

Getting Started

Banks have struggled to create a balance between old-fashioned, personalized services and cost-to-serve. Conversational Banking allows banks to have the best of both worlds as this always-on, personalized banking will be available at a fraction of the cost of relying on human agents alone. It is both instantaneous and personal. It feels intimate but is cost-effective.

Perhaps even more significantly, these digital transactions are not necessarily static scripts, but can be informed by past interactions with specific clients, client groups and even within the specific chat as the banks build up their analytics and cognitive capabilities. Additionally, a presence on social networks and messaging apps means that banking is truly embedded in customers' lives.

So how should banks start? Banks can follow the simple roadmap below (also see Figure 7).

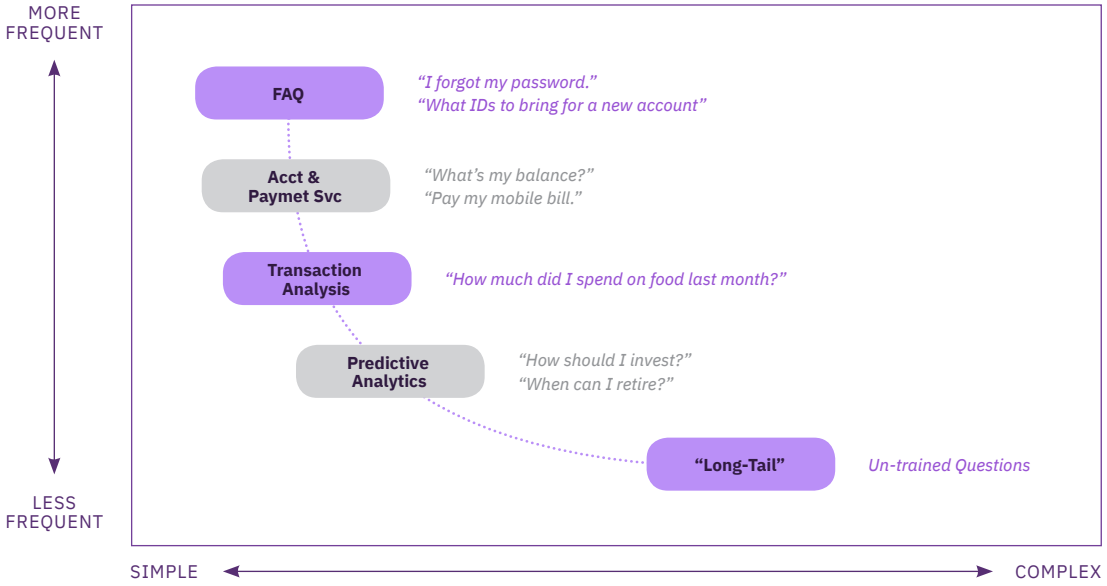


Figure 7: Complexity and frequency of customer questions

- **FAQ (frequently asked questions):** Starting with the questions of highest frequencies before moving down the curve will give banks a more immediate return on investment. Simply by automating the answering of questions such as password resetting can free up precious resources in the contact center.

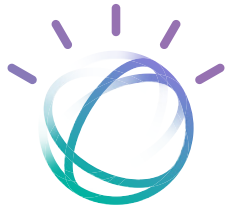
- **Account and Payment Services:** After converting the FAQ into a chatbot service, banks can advance to simple account services and payment requests.

- **Transaction Analysis:** Questions around spending and budgeting often require data analysis on historical records of transactions. They may take longer to develop but customers appreciate the additional insights to help them manage their financial life.

- **Predictive Analytics:** The most advanced use cases require the use of predictive analytics and financial planning algorithms to give customers financial or investment advice. Some banks may prefer to have a human agent taking over the dialog. In many countries, regulations require licensed bankers to handle these questions, too.

- **“Long-Tail”:** Finally, there are the less frequently asked “long-tail” questions that the chatbot has not been trained to answer. Cognitive searching capabilities allow the chatbot to search through various unstructured data to find the most suitable answers .

Industry-leading cognitive capabilities such as IBM Watson Conversation Services can now be acquired quickly and economically, allowing banks to start building Conversational Banking. The race has started. Don’t wait. No bank can afford to be left in the dust.



Watson Conversation Service

Watson Conversation allows banks to build, test and deploy chatbots quickly. Watson Conversation has a visual dialog builder to help developers create natural conversations without any coding experience required. It uses machine learning to respond to customers in a way that simulates a conversation between humans. Watson Conversation is part of the Watson portfolio. Together with other services such as Text-to-Speech, Speech-to-Text, Discovery, Language Translator and Tone Analyzer, these Watson cognitive computing capabilities can help banks quickly build a Conversational Banking platform.

About the Author

Danny Tang is the Leader of Channel Transformation for Banking and Financial Markets at IBM. He advises banks globally on pressing issues including digital and branch transformation.

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[i] Bain & Co., Customer Behavior & Loyalty in Retail Banking 2015, Dec 2015
[ii] The popular messaging platforms include Facebook Messenger, Whatsapp, LINE, WeChat, etc.
[iii] Examples of voice assistants include Google Assistant, Amazon Alexa and Apple Siri.
[iv] IBM Watson Retrieve and Rank and Discovery services are often employed to answer long-tail questions.