Chat based Robo-Advisors – A Game changer in the banking space

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Contents

The rise of the Robo-Advisor

Innovations in customer service have always aimed towards providing lower costs, faster turn-around, and first-contact resolution. Initial chatbots were purpose-built, with the ability to tackle limited, standard enquiries. Many simpler systems scan for keywords within the input, then pull a reply with the most matching keywords, or the most similar wording pattern, from a database. This enabled them to deliver fast turn-around while keeping costs low. But their resolution rate remained low, as they were not capable of resolving highly contextual or complex issues.

Recent developments in technology have given chatbots more power in interpreting natural language and machine learning. Major companies like Facebook, Google, Amazon, Apple, and Microsoft are leading contributors in the development of futuristic chatbots, and are working on enabling advanced interactions between consumers and machines with commercially-viable business models. These chatbots are able to understand conversational language, retain context over a conversation, and handle complex requests, making them a viable option for implementation in critical applications such as managing wealth.

Advanced Chatbots
AI and Natural Language enabled
Automation at task level
Ability to maintain system and task contexts

Entry-level Chatbots
Limited conversational capabilities
Script-based automation
Minimal functionality
Ability to maintain only system conte

Chat-based Robo-advisors
Integrate wealth management capabilities
Automation at a service level
Ability to maintain system, task and people contexts

Source: IBS Intelligence

The high cost of financial advice, volatility in markets, and challenges in finding a good financial advisor, have paved the way for automated financial advice, where algorithms provide financial advice rather than humans. The first robo-advisor – Betterment – was born in the wake of the 2008 recession. The first generation of robo-advisors were designed to work directly with the customer, and allowed trading of a limited set of ETFs, enabling it to offer low-cost. Many banks followed suite, and in the subsequent years launched their own robo-advisors to stay competitive in a changing market.

These robo-advisors typically used forms to capture pre-defined parameters about the customer's financial requirements and health, and its algorithm would construct an optimal model portfolio. While these robo-advisors used to get the job done, they offered minimal level of interactivity in terms of portfolio customizations, and had to rely on FAQs and the support team for any queries. The popularity and increased adoption of chatbots has made it a very lucrative channel for customer engagement, and banks are also catching on the trend. This has led to amalgamation of the two technologies, to create a chat based robo-advisor. Compared to the previous generation of robo-advisors, the latest versions are more than just automated advice algorithms. These robo-advisors perform all tasks ranging from account opening, onboarding of clients, designing of portfolio, to even answering queries, handling banking tasks such as transfers, bill payments,

Key Drivers

As a market valued at $300 Bn in 2016 and predicted to reach $2.2 Tn by 2020, robo-advisors are all set to grow. There are multiple drivers behind the stellar 64.5% CAGR.

Rise in HNWI's investible assets:

Globally the wealth of high net-worth investors (HNWI) has increased from USD 53Tn in 2013 to USD 68Tn in 2017 at a CAGR of 6%, and is further estimated to

Projected Robo-Advisors AuM (in USD Bn)

reach USD 70Tn in 2021. USA, China, and Russia alone account for 50% of the increase in investible assets. This expands the demand-supply gap that already plagues the wealth management space.
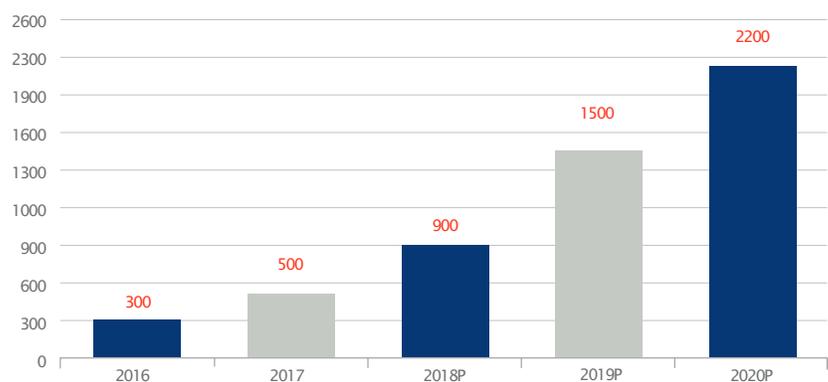
Speed / Concurrency:

Robo-advisors can save a significant amount of time for both customers as well as wealth managers. Since robo-advisors can handle potentially thousands of client interactions and transactions simultaneously, they are significantly more efficient than a human advisor.

In addition, robo-advisors are also being utilized to make wealth managers (WMs) more efficient, in a hybrid advisory model. WMs can leverage robo-advisors to automate several routine tasks, so that they can focus on the most critical part of their job – building client relationships. Robo-advisors can assist WMs in a number of tasks related to their client's portfolio, such as providing relevant information and analysis in real-time through chat, saving WMs time they would spend in extracting and analyzing the data.

Lower cost of advice:

The first generation of robo-advisors traded only ETFs, allowing them to offer advice as low as

0.25% - 0.50% of Assets under Management (AuM), compared to 0.75% - 1.5% of AuM charged by their human counterparts. Now, though most modern chatbots support multiple asset classes, they are still able to beat the cost of advice compared to their human counterparts.

Advancement of AI:
Rapid advancements in AI have made the robo-advisors very robust, both in terms of managing money and interacting with customers. The robo-advisors' algorithms are constantly improving, in order to lower risks and achieve better returns. On the other hand, Natural Language Processing, or NLP, helps bots understand context from a conversation, even when standard keywords are not used. This has been the strongest growth driver, leading to commoditization of chatbots across industries.

App-based banking on the rise:
The increased penetration of smartphones and app based banking has also been a key enabler in uptake of chatbots and robo-advisors. An increasing number of users now use their smartphones to

Chatbot usage by application 2016
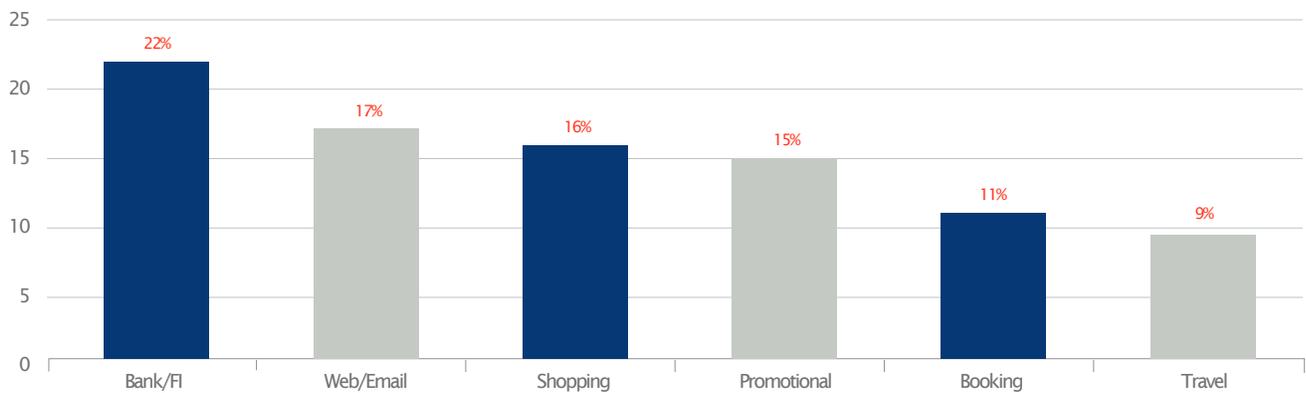
Source: MEF's Mobile Messaging Survey 2016

perform banking transactions, making mobile an important channel to deploy chatbots, either as a part of the bank's app or in a third-party app.

Convenience:
Progressive banks have turned to chatbots to simplify the overall banking experience of their customers. Banking transactions can be performed from external messaging apps such as WhatsApp or Facebook Messenger, significantly reducing the trouble for consumers by eliminating the need to log in to the bank's app or portal for micro-transactions such as a buy or sell order.

Chatbots generate richer insights from analytics:
All the information from customer interactions via chatbots is captured and can be leveraged to generate meaningful insights on areas including common queries or challenges customers face, the resolution of their issue, and customer satisfaction via the interaction. This could be leveraged to

improve customer experience, and to pre-empt / detect latent customer needs.

Multi-lingual:

When it comes to countries with multiple cultures living together, it is advantageous to have a chatbot which has multi-lingual capabilities to scale. This is where chatbots with NLP can process different languages which helps the business to have a diversified customer reach across different demographics. Such capabilities would be invaluable to global banks operating in multiple countries, as well as banks aiming to increase penetration in a multi-lingual country such as India. A single multi-lingual chatbot platform can eliminate both the cost of training customer service agents in different languages, as well as the need to implement different customer service solutions across different geographies.

24/7 Customer Service:

Customers may need assistance for a variety of reasons, both during and outside of working hours. Employing customer service agents round the clock is a very expensive affair, and despite call volume planning, there is always a certain wait time, as well as the probability of unexpected peak volumes. Chatbots can help significantly reduce volumes by tackling the simpler tasks by working round the clock, leaving a small fraction of cases to be handled by the human agents

Use cases

Automated Financial advice:

Automated advice is one of the most controversial topics in the financial services space. A robo-advisor attempts to understand a customer's financial health by analyzing data shared by them, as well as their financial history. Based on this analysis and goals set by the client, the robo-advisor will be able to give appropriate investment recommendations in a certain product class, even as specific as a certain product or equity.

Chatbot usage by type of query 2016

Source: MEF's Mobile Messaging Survey 2016

Robo-advisors could prove very useful for wealth managers and customer relationship managers as well, by providing them with quick access to client information, portfolio performance, and other metrics in form of charts or dashboards by simply sending text requests. This saves them the time and hassle of creating charts and reports, which they can dedicate to interacting with their clients.

Efficient Customer Service:
The most common application of chatbots in Banking sector remains customer service. Most banks depend on chatbots to tackle basic customer queries such as balance inquiries, request cheque books or PIN reminders, or helping customers find certain features / options that may be embedded deeper into their menus. Some banks have also employed chatbots to enable their employees function more efficiently, enabling them to find and view information using chat queries rather than going through system menus or databases.

## Engaging Prospective Customers:
Prospective customers usually don't differentiate between banks, and may not spend enough time looking for information on their websites. The presence of a chatbot that can ask visitors what they are looking for and provide information, and offer to suggest investment recommendations, could lead to higher visitor engagement and lead to their conversion into new customers.

"Social Banking":
Increasing penetration of social media has opened up a vast network of customers that banks can capitalize on. People who are vary of installing additional apps, or who deem banking apps unnecessary can still be engaged by using robo-advisor over other platforms such as messenger apps (Facebook Messenger, WhatsApp, WeChat) or social media (Twitter, Facebook)

"Voice Banking":
The emergence of voice assistant speakers has enabled banks to reach customers in their homes. Using voice as a primary mode of interaction, these chatbots allow customers to perform banking operations without using any mobile devices. Banks can also leverage voice biometrics to perform authentication, something most voice assistants support. Voice banking is poised to play a large role in making users adopt chatbots, as it enables a more seamless and intuitive way of interacting with banks. A number of banks and Financial Institutions - including Fidelity Investments, TD Ameritrade, Capital One, Ally Bank, Liberty Mutual, and USAA, - have launched voice capabilities.

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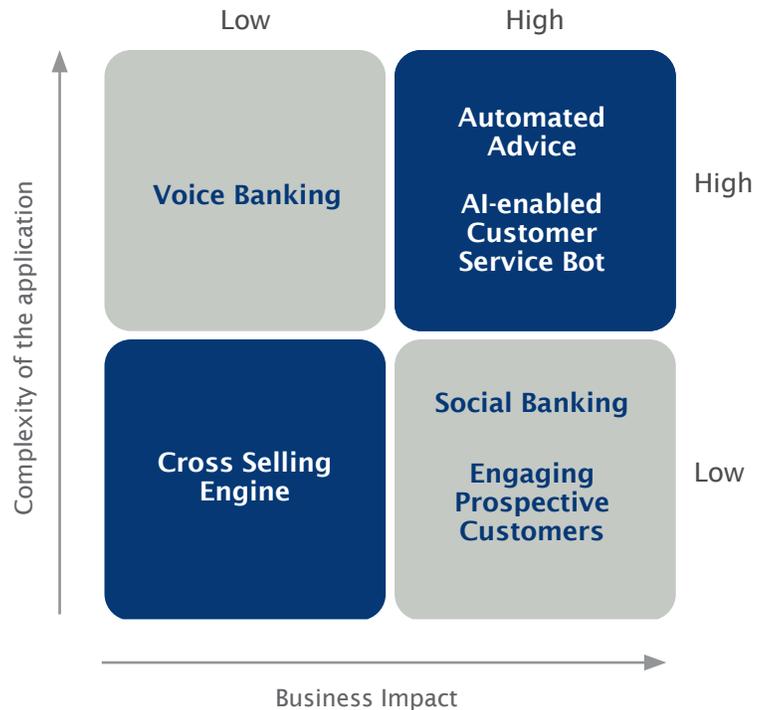
Key implementations of chatbots in the Financial Services Industry

Bank	Chatbot	Location	Channel	Features
Bank of America	Erica	USA	Mobile App	Erica sends customers notifications, identifies areas where they can save money, provides updates on their FICO score, and facilitates bill pay within the BofA app.
Capital One	Eno	USA	Twitter & Text messages	Customers can ask Eno questions about their account balance, recent transactions, payment history, and credit limit via text message. It can even help customers pay their credit card bills.
Citi	Citi Bot	Singapore	Facebook Messenger	Currently the bot allows basic activities such balance and transaction checking, viewing of credit card bill summaries, and answering FAQs. Citi plans to introduce more new features such as card activation, ability to lock and unlock credit cards and transaction alerts for cards among others.
Commonwealth Bank	Ceba	Australia	Mobile App	Ceba will assist customers with more than 200 banking tasks such as activating their cards, checking account balances, making payments, or getting cardless cash. Within a year, CBA expects it will understand 500,000 ways customers might ask for 500 different banking activities.
Emirates NBD	EVA	Middle East	Facebook Messenger	EVA in Emirates NBD will be rewarding to the users as they can interact with the bi-lingual chatbot in English or Arabic. They're working with leading retail, automobile and fashion brands who will soon be launching unique Facebook messenger chatbots to connect with their huge millennial audience.
HDFC	EVA	India	Facebook Messenger	Currently HDFC Bank chatbot provides, on-chat mobile recharge, cab booking & payment and bill payments. Along with these it enables customer interactions and handles queries with an accuracy of 85%. Eva successfully addressed over 2.7 million customer queries in the first six months since its inception.

Bank	Chatbot	Region	Platform	Description
ImaginBank		Europe	Facebook Messenger	The bot offers users an extensive discounts programme on shopping and culture across Spain, including exclusive offers for restaurants, leisure activities, travel, cultural events, etc.
JP Morgan Chase	COIN	USA	Internal-use only	JPMorgan Chase is utilizing COIN to analyze complex contracts quicker and more proficiently than human lawyers. The chatbot also uses the technology to parse messages for employees, allow access to software systems, and handle basic IT requests like resetting passwords.
Mashreq	Mashreq Bot	UAE	Facebook Messenger	The bot can display Mashreq products and perform card-less cash transactions, low ticket local transfers and inquire about balance and recent transactions on an account.
SEB	Amelia, Aida	Sweden	Amelia - Internal Aida - Customer Service	Designed to assist internal IT support, Amelia completed over 4,000 conversations with 700 employees in her maiden three weeks. Hired as a "trainee" for the bank's front-end customer service, Aida handles about 13% of all IT support questions.
State Bank of India	SIA	India	Mobile App	The chat assistance is designed to help the customers with everyday banking tasks similar to a bank representative. It is set to handle 10,000 customer enquiries per second.
Wells Fargo		USA	Facebook	The chatbot allows users to check account balance, most recent transactions, spend on different categories, the location of the nearest ATM, and more over Facebook Messenger.

Table 1. List of Banks and chatbots implemented by them

Bank Perspective: Pinnacle Priority Banking, Philippine National Bank

The primary reason Philippine National Bank is looking to employ chatbots is to enhance its client engagement process. Mr. Richard Anthony, the Investments & Products Head at Pinnacle Priority Banking, believes chatbots will have a radical impact on banking, similar to what the internet had 30-40 years ago.

The key asset and wealth managers in private banking have an unique relationships with their clients. The wealth managers are expected to know their clients very closely, and be able to provide correct information in real-time. Thus, the best use of their time would be to interact with clients and managing money, rather than other administrative activities.

Market Maturity:

Philippines has a very traditional setup in terms of banking. Banks are yet to adopt latest technologies like chatbots and robo-advisors.

PNB is in the process of evaluating solution providers, and is planning to commercially launch its chatbot offering by Q3 2018. The bank is looking for chatbots that are enhanced with BI Capabilities and can work on third party platforms such as social media and messenger platforms.

Implementation Strategy:

Their plan is to begin by employing the chatbot to engage WM customers. Later, they intend to expand its capabilities and start providing product or investment recommendations. PNB expects the vendor to assist during implementation and initial stages, after which the internal IT team will resume responsibility. PNB has historical customer interaction data ready for deployment, and thus expects the chatbot to become operational and effective faster than a typical implementation.

Having the first-mover advantage, PNB estimates chatbots to drive up revenue up to 100% higher annually post implementation.

Channel Strategy:

PNB's estimates indicate that nearly one-third of the adult population in Philippines is unbanked, and only 60% of the population has access to a bank or a remittance account. Philippines is an archipelago consisting of 7,100 islands, many of which do not have bank branches or even ATMs.

However, 90% of the population is on Facebook, and most islands have access to internet. This makes Facebook a very strong channel to reach the unbanked population.

Thus, PNB intends to launch the chatbot on Facebook, where it will reach a majority of their target segment. The bank hopes that once people learn and become more comfortable with chatbots, it will become a strong channel for the bank.

Key Advantages:

1. Chatbots with robust BI capabilities can play a very crucial role in such a scenario, providing the

wealth manager right information in the most appropriate format - visually or verbally - by leveraging NLP and machine learning. This will help WMs save time they would spend working on datasheets and creating reports and graphs.

2. Many of the chatbots have multi-lingual capabilities, making them easy to scale. This would result in significant cost and time savings for banks that operate across multiple regions.

3. Chatbots can save a significant amount of time for both customers as well as customer service representatives, as the top three activities customers perform on their bank's application are to check balance inquiry, view mini-statement, and transfer money to a third party. Typically, RMs can handle a portfolio of 300 HNW clients, at most and can interact with only 2-5 clients per day. Use of chatbots will help increase the number of clients each WM can serve.

Challenges:

1. Trust: The bank needs to break down the psychological barrier – many customers still need to talk to a human, to get reassurance that their money is in safe hands. Initially the chatbot can be employed to give recommendations, which the human advisor can validate and execute.

2. Leveraging Data: Chatbots need a lot of historical data to "learn". Most of the chatbots are based on machine learning technology, and become more robust as they get gain experience. Banks that can provide historical customer interaction data will get a head start on the learning curve, as the chatbot can leverage old data to provide better responses.

Way Forward:
PNB expects chatbots and AI to trail-blaze the way forward for the country's Financial Services – the last industry to accept virtual space – to leap beyond brick and mortar. The success of this initiative could also pave the way for branchless, or Direct Banking in the Philippines.

Key considerations while making the robo-advisor selection

The industry is flooded with a large number of robo-advisor offerings, and identifying the right offering based on one's need is crucial to success. While many offerings might seem comparable at a glance, many of them might be based on dated models with limited intelligence. Currently, very few vendors have advanced capabilities that allow the robo-advisor to generate a customized and optimum investment recommendation for an investor based on their profile, without any help from a human investment manager.

The following factors are crucial to the success of a robo-advisor offering:

1. A robust investor risk assessment framework: The system must be able to accurately determine an individual's financial goals in order to provide the right guidance. This involves collecting a vast amount of information about individuals, including their financial health, risk appetite and expected wealth allocation for various life stages. Many of the systems collect very limited data, and

Key Success Factors for Successful Robo-Advisor Platforms

- Transparency
- Robust Risk Assessment
- Leverage AI and ML
- Automatic Rebalancing
- Multi-Factor Investment Allocation
- Multiple, editable Simulations
- Proven Optimization Models
- Easy Portfolio customization

Source: IBS Intelligence

often have a qualitative questionnaire or merely a slider the investor has to set to indicate risk levels, apart from minimal demographic data.

2. Ability to leverage AI and machine learning: AI and related technologies are pivotal to deriving the maximum potential out of chatbots. While typical systems try to bracket their clients into one of the few pre-defined segments, modern robo-advisors leverage machine learning to understand each individual and create a customized "persona", based on their social profile, risk taking abilities, investment behavior as well as their specific views on the market, devising a unique portfolio for each customer.

3. Multi-factor investment allocation: While simpler systems used to focus on asset allocation largely by asset classes, the most leading systems take into consideration a number of other factors while allocating investments, including industry classification, market capitalization, or market value, to name a few.

4. Easy portfolio customization: Older systems offered limited to nil flexibility in terms of

letting users modify their portfolios. However, leading systems allow the investors to personalize their portfolios so that they can include any specific views on the market by changing the allocation to any such factors.

5. Proven portfolio optimization models: Based on user's customizations, systems create personalized portfolios and recommend updated investment allocation plans based on proven optimization models.

6. Multiple, editable simulations: Highly successful robo-advisors create thousands of portfolios with every possible portfolio combination and find an optimum portfolio allocation considering all user defined constraints, to give the investors the highest possible returns with the least amount of risk. Few systems may even provide estimated valuations in the best and worst scenarios, giving the investor an opportunity to tweak the input parameters and constraints before they finalize a portfolio that best meets their investment goals.

7. Automatic rebalancing: Leading systems automatically rebalance the portfolio, ensuring the portfolio remains in line with the original investment plan.

8. Transparency: Typical robo-advisors do not provide users real-time visibility into which funds their capital is invested in, or any option to modify their portfolio. Leading robo-advisors provide allow investors to monitor where the funds are being allocated, and provide a high degree of control over the same.

Key Challenges and Issues

1. Pre-mature deployment of robo-advisors: Banks who pre-maturely deploy robo-advisors without adequate testing may end up providing bad returns and customer experience, as well as expose themselves as well as their customers to undue risks, which could have severe consequences for the customers.

2. Effective implementation: While NLP is experiencing rapid advances and the algorithms are constantly improving, the effectiveness of robo-advisors might be limited by its technical design, as well as the quality of algorithms that power them.

3. Incomplete client profiling: The inaccurate financial profiling of a customer due to poorly designed data capture mechanisms, or incomplete information provided by the customer can severely impact the robo-advisor's ability to provide optimum recommendations.

4. Inability to handle multiple contexts: Robo-advisors may not be effective at holding a single conversation with multiple queries or contexts at a time.

5. Lack of familiarity: All customers may not be familiar or comfortable using a robo-advisor, due to their limited understanding, lack of trust, or perceived robo-advisor's inability to provide better advice than a human expert.

Conclusion

Chatbots are expected to transform banking, the way internet transformed information industry. Rather than an additional channel to engage customers, chatbots are expected to become an all-encompassing interface to banks – completely revolutionizing the way customers interact with banks. Eventually chatbots are likely to even replace internet and app banking as the preferred banking channel.

The combination of robo-advisors with chatbots is expected to help customers do more than just banking. They will take banks to customers not just to their mobile devices, but into their homes and lives. Enabled by AI, as well as open APIs, robo-advisors will play the role of a concierge, helping customers pay bills, book movie tickets, flight tickets, and shop online – unlocking a massive stream of transaction revenues for banks, and at the same time, educate customers about the impact of their spending decisions on their financial health. Banks yet to leverage chatbots and robo-advisors are likely to lose out on significant revenues, as well as lag on customer experience parameters, and thus risk losing their customers to rivals who provide these services.