DESIGNING AI-POWERED CHATBOTS FOR THE ENTERPRISE

INNOVATION-DRIVEN DIGITAL TRANSFORMATION

AUTHOR

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Today, Google, Alexa, and Siri have become household names. Many of us now ask a smart speaker what the weather is for the day, to play a favorite song, or to replace the manual effort of “Googling” something. In fact, almost 20% of US households own a smart speaker. On a nationwide level, that translates to 47.3 million smart speaker owners.

Similar to most advances in consumer technology, voice and chatbots have also made their way into the enterprise and everyday work life. Gartner estimates that by 2019, 40% of enterprises will be actively using chatbots to facilitate business processes using natural-language interactions. Some of the ways we are starting to see chatbots in the technology we use at work is to automate and streamline mundane or repetitive tasks. Taking the capabilities a step further, some companies are using chatbots to power their customer service, reducing the dependency on humans for customer care. Finally, chatbots can even act as digital virtual assistants, sending individualized reminders, updates, and automate team communications. It comes at no surprise that companies will be taking advantage of this technology, as chatbots are expected to cut business costs by $8 billion by 2022 (Juniper Research).

“Looking to the future, the next big step will be for the very concept of the ‘device’ to fade away. Over time, the computer itself — whatever its form factor — will be an intelligent assistant helping you through your day. We will move from mobile-first to an AI-first world” - Google CEO Sundar Pichai.

At Maven Wave, we specialize in Experience Design - we focus on creating the right experiences for our clients’ customers or employees. Experience Design (ExD) focuses on the creation of an overall experience that engages people and drives behaviors that facilitate desired outcomes or business cases. Experience Design encompasses much more than just User Experience (UX), app design, or basic visual design. In fact, a good Experience Design may not even include any visual design at all. For example, Google, Amazon, and Microsoft have created experiences around their Google Home, Alexa, and Cortana digital assistant technologies. They don’t have traditional UX-designed visual screens - they are all mainly voice-based. Yet those experiences are rapidly becoming critical components in how we interact with technologies and those companies.

The same can be said for other voice bots and to some extent, chatbots. The key to designing and succeeding with these solutions is to create the right conversational experiences around them. But if there’s little to no visual interaction with voice and chatbots, how can you create an engaging experience?

Creating the right experience for these bot solutions is about making them pleasant and useful to engage with. Instead of a visual connection, voice and chatbots create impressions in how they actually interact with you. Thus, the Experience Design efforts for these bots should be spent creating the right interactions. For the bots to apply those interactions, they must be programmed - or even actually taught, how to interact with us.

Designing the Optimal Bot Experience

Best utilizing these new interactions leaves many wondering where to begin. How do you design, program, and implement these types of solutions? Voice/chatbot design isn’t just about the workflow and back-end natural language recognition capabilities (although those are very important to any solution). It certainly doesn’t involve many of the tenets of traditional design utilized for the development of systems, websites, or mobile apps.

The design of voice/chatbots is all about creating the right experience for the intended users. That requires applying Experience Design (ExD) approaches instead of traditional User Experience (UX) methods.
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For this type of Experience Design, we suggest a three step approach:

1. **Plan and Execute a Conversation Design Process**
   The design of a bot still requires a thoughtful and deliberate approach and methodology to make sure you develop a compelling and engaging experience for your users. The concepts and disciplines that underpin good Experience Design now include conversational intents and contextual design as well. At Maven Wave, we’ve developed a Conversation Design process to address these design issues for these types of bots. We created it by modifying our established Experience Design approach with the steps, artifacts, and processes specifically required for good bot design.

   ![Conversation Design Process Diagram](image)

   We also developed a bot “Quick Start” Program to help you get that first bot from conception to design to development and out into the world for testing.

2. **Plan the Bot Like Hiring a New Employee**
   Treat the design of the new bot similar to the process of hiring a new person. Look for and define parallels across the new employee hiring process and the bot design, testing, and deployment process. As shown in the customer service representative (CSR) example below, the hiring, training, shadowing, and learning process for human CSRs can be mapped to the design, development, machine learning, training, and deploying of a virtual CSR bot.

   ![Human and Digital Process Diagram](image)

   But how does one train a virtual bot? That is the final step we recommend clients evaluate within bot projects.
3. Bots Need Training Too!

Training of bots to take on real-world situations is a great use case for Machine Learning (ML) technology. While ML technology is already being applied to the speech recognition and natural language processing aspects of innovative bot solutions, it can also be used to model, train, and drive the interactions behind the bots as well.

Think about a human’s first day on the job. The new employee comes with some base knowledge that they have learned at school or in other situations. As they encounter new situations, they apply gathered knowledge to make decisions. Hopefully, as time goes on, the experiences gained in different situations better equips the person to take on any interaction. The same can be said for a bot. You can’t expect v1.0 of a new bot to be equipped to handle every situation you throw at it. Just like you wouldn’t expect someone on their first day on the job to handle everything thrown at him or her. Thinking of bots as “newly hired” entities that need to “learn the ropes” is a good approach and ML technology can be the tool to provide that learning environment.

Technology & Architecture

Designing the experience and implementing the solution go hand-in-hand. Once the experience is designed it will inform the architecture decisions. Implementation is more feasible than many realize as Google and others have created the infrastructure and tools used to develop bots built on cloud platforms. There are a number of considerations when planning development of a new bot.

1. Which platform should be used to manage the conversation?

The platform is important because it controls the quality of the conversation, the ecosystem of devices, and the ability to extend the functionality. Google (Dialogflow), Amazon (Lex), and Microsoft (Bot Framework) have enterprise grade cloud platforms that manage the conversation structure and flow. Many other applications such as Facebook, Slack, etc. have built in tools for building platform-specific bots. We’ve found that using Google Dialogflow, powered by Google’s strong Speech and Natural Language Processing (NLP) capabilities, makes it a flexible and feature-rich platform choice for designing and developing both chat and voice bots.
How We Can Help

Maven Wave has a unique Conversational Design approach to designing and building voice and chatbots. Harnessing our strong Experience Design history, we combine User Research, Behavioral Analysis, and Visual Design together with Conversational Design specifics to create dynamic, engaging bot experiences for your customers or employees. We explore both the business goals of the bot conversation and your users’ needs.

We also have extensive experience with Google Cloud APIs, Machine Learning, and other integration technologies that support the back-end and security integrations required for the development and operation of bots.

Maven Wave combines these skills together to support clients as they evaluate, design, and implement bots for the customers or within their enterprises. Whether it is a small pilot bot or a large scale deployment, customer-facing or enterprise-wide, we can help you brainstorm, design, develop, integrate and deploy your bot.

To learn more about Maven Wave, feel free to interact with “Maeve” our Maven Wave voice bot. Just say “Talk to Maven Wave” to any Google Home device or Google Assistant app.

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