

DIY Guide to Chatbots and Virtual Assistants

Opportunities and Limitations



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New technology platforms are accelerating proliferation of intelligent assistants and chatbots by giving departmental executives direct command over the predictive, cognitive and Natural Language Processing (NLP) resources used to deliver high-quality conversational experiences. This document provides practical rules for successful deployments, based on insights gained from more than a decade of real-world experience.

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BYOB: Old Term, New Meaning

“BYOB” has new life and a new meaning in the age of Conversational Commerce: “Bring Your Own Bot.” The move to implement Intelligent Assistants by business unit personnel (as opposed to centralized IT or outsourcers) is made possible by such accelerators as:

- **Zero code development platforms** – Out-of-the box solutions from the largest players in the space to a slew of smaller innovators enable “non-techies” to use pull-down menus and Visio-like flowcharts to build conversational agents.
- **Ubiquitous APIs** – Can be thought of as “conversational middleware” – well-documented tools and connections to data sources and processes that are needed to help end-users find information and complete tasks.
- **AI for All** – New platforms and services apply predictive analytics, natural language processing and machine learning to enable business unit execs to improve self-service offerings.
- **Shifting budgets** – Marketing, CX, Digital Transformation and Innovation departments are stepping up to fund proof-of-concepts and other projects to validate the value of intelligent assistants.

The New Botsplosion

Over 1,500 companies offer close to 3,000 flavors of bots to support their customer care efforts, according to a 2018 Opus Research census. Somewhere around 80% of these services had been in service for more than a year and had been used largely to answer frequently asked questions in response to natural language input, usually text.

Experience has been a great teacher, and not just in the context of machine learning. The first generation of chatbots did a very good job at “one-and-done” question answering or referral. Banks, delivery companies, service providers, utilities and others found that for simple questions like “What’s my balance?”, “Where’s my package?”, and “When will my cable service be restored?” a quick answer from an automated intelligent assistant was faster, required less effort and less time than waiting on hold to reach a live agent.

Higher automation (or call deflection) rates were almost universally accompanied by higher measures of customer satisfaction. Brokerages, retailers and hoteliers have taken note. As a result, so-called bots are handling trade instructions, making gift recommendations and managing guest expectations surrounding room availability or receiving extra towels. These developments mark a new level in the technology's maturity.

Explosive growth is tempered by the need to achieve scale without service interruption. Leaders have learned to proceed with caution as they add new bots with new skills and use cases. They often conduct A/B testing to determine if the bots are achieving their goals and develop other procedures for monitoring performance and service restoration should the process of scaling uncover points of failure.

Every Department Wants One

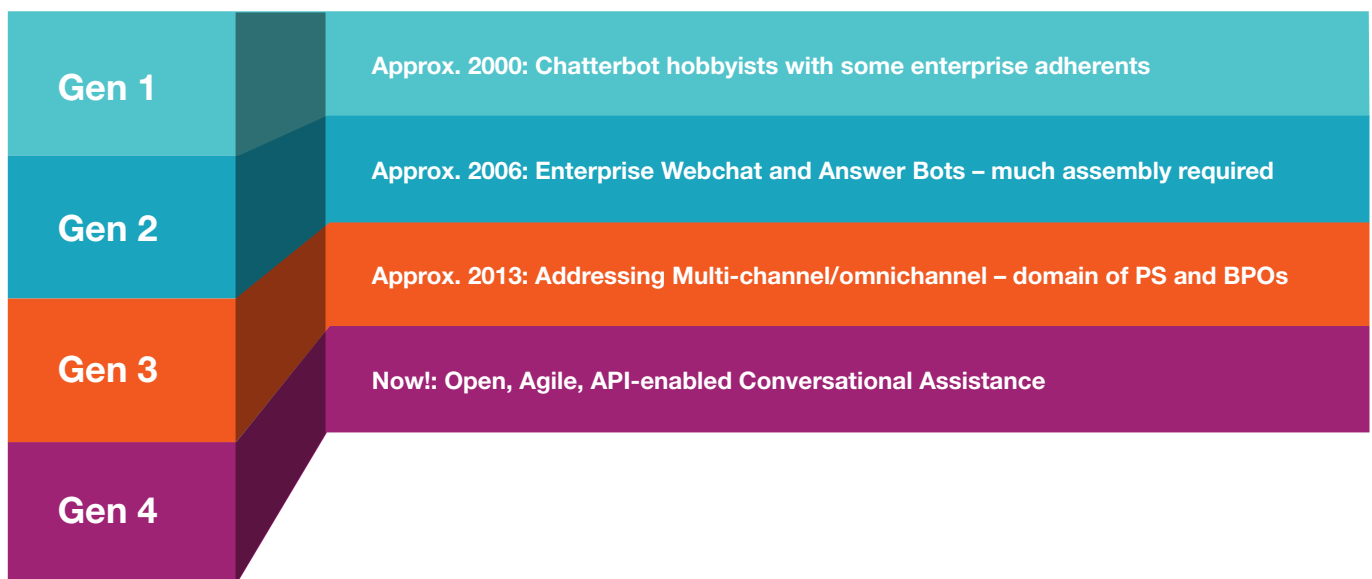
Success breeds success. Intelligent Assistance took root initially as chatbots accessed through the “Contact Us” page on an ecommerce website. The growth in usage coincided with and, in this case, caused a measurable decrease in transfers to live chat agents.

What used to be the domain of the Digital Transformation team or the IT staff in charge of omni-channel customer care, is now of concern to business unit execs across Marketing, Sales and Customer Experience. Each group has a few pet metrics or “key performance indicators” (KPIs) to which they pay close attention. Marketing has the classic funnel management metrics surrounding identification and qualification of prospects, costs per message, retention rates and the like. Sales monitors its own set of factors with impact on revenue, like close rates and size of the average sale. When it comes to Customer Experience, the success of a bot deployment is measured in increases in classic measures, like Net Promoter Scores (NPS) and CSAT measures resulting from post contact surveys.

Supporting departmental KPIs is one of the key drivers for developing a bot and it speaks directly to the need to identify, specify and define a use case for that bot or virtual agent. These include well-established metrics of measurable impact and the relative importance of specific KPIs may differ greatly across departments and organizational hierarchies. Development platforms that take an end-to-end approach often include configurable dashboards that enable executives to define and track their pet metric.

Simultaneously, the term “omni-channel” has changed forever. Conversational user interfaces enable individuals to communicate through bots and other virtual assistants using text or voice over IVRs in the contact center, websites and mobile apps. And now there is an assumption of continuity, meaning that platforms must keep track of context across media and devices over spans of time.

The Four Waves of Conversational Commerce



First Wave: Chatterbots

“Do-It-Yourself” (DIY) chatbots are not a new phenomenon. The first platforms for developing what were then called “chatterbots” originated at the turn of the century to foster purpose-driven conversational services. Successful deployments were predicated on laboriously assembled sets of rules and decision trees to answer a narrow set of questions. Ambitious hobbyists also programmed bots to engage in what felt like natural conversations for extended periods of time, largely as time syncs that appealed to teenagers.

Impact: Successful solution providers from Gen 1 have evolved their services to address the burgeoning needs of enterprises and brands, while remaining true to their roots of hobbyists and DIY bot builders.

Second Wave: Enterprise Answer Bots

By the mid-oughts (2006-ish) Answer Bots and their relatives appeared in enterprise settings as alternatives to live chat and static FAQs. These entities were the product of very labor intensive efforts to capture and categories common questions, ingest, aggregate and assemble correct answers and build the logic to match an individual’s intent with the correct answer or action. The price tag for launching a bot could be high because it relied on highly specialized professional service providers, including computational linguists, data scientists and programmers to get things started and to support a feedback loop to support constant learning and improvement of the answers.

Impact: Veterans from the era have told Opus Research that solutions were over-hyped" and, as a result, up to 80% of the cost of development, care and feeding of an efficient bot was professional services.

Third Wave: The Opti-channel Virtual Assistants, Advisors and Agents

In the Third Wave, large enterprises and brands put their intelligent assistants and bots to work in support of omni-channel and opti-channel strategies. Traditional boundaries between contact centers, websites and mobile applications came down in the interest of answering demands from customers or prospects “any time, any place and on any device.” Need to support bots and intelligent assistance over mobile messaging platforms arose, along with distant cousins the voice-first skills or actions offered through intelligent endpoints, like speakers.

Impact: This generation defines the fork in the road. The dominant firms in e-commerce and search have enlisted tens of thousands of independent developers engaged in building hundreds of thousands of new services for the growing population of smart speakers and related intelligent end-points. Meanwhile brands and large enterprises are challenging their IT vendors and outsourcers to deliver development and service delivery platforms that provide their employees with the tools to develop “enterprise-class” Intelligent Assistants.



In too many cases, these offerings were initiated at the urging of Marketing, Development or Engineering teams and did not involve the expertise of individuals with background in dialog design and management. They fail to foster repeat usage with poor engagement rates and can, in some cases, generate a backlash because they do not create conversational experiences.

Fourth Wave: The Perfect Storm of Tools, Data, The Cloud and Open APIs

Welcome to the beginning of IA's Fourth Wave: Analytic and machine learning resources reside "in The Cloud" along with Big Data, in the form of chat transcripts and recorded conversations. Solutions providers offer bot-building toolsets and tutorials that make it easier than ever before for a knowledgeable executive from virtually any department at a large company to launch an Intelligent Assistance initiative.

Impact: This is the proverbial "Perfect Storm" for Intelligent Assistance and Conversational Commerce. The time it takes to move from conception to deployment is measured in days, rather than months. There are low barriers to getting started, thanks to well-defined templates, timetables and roadmaps based on past experiences and informed by the sum of knowledge and conversations gleaned from nearly two decades of experience across multiple verticals. Plus, there are APIs for popular "cognitive resources" to simplify the complexities of categorization and intent recognition.

Five Rules of the Road for the DIY Route

Temptation is out there. BYOB seems so simple, and launching an Answer Bot may be the perfect prescription for a forsaken FAQ or moribund mobile app. Even a simple, one-and-done bot has been proven to benefit from the accumulated wisdom compiled in existing CRM systems or chat transcripts. In addition, many companies have pursued strategies that limit risk by treating modest bots as "proof-of-concepts", designed to tackle well-understood categories of inbound queries or mobile contacts.

As attractive as the Fourth Wave and with that a DIY route may be, it is a path best taken in the context of the following decision rules designed to enhance the prospects for success and avoid the inevitable waste of investment and resources that occur when a company has multiple, duplicate efforts to bring so-called "Conversational AI" into their customer care conversations.

Rule 1: Choose a high-impact use case

Proof-of-concepts are a double-edged sword. One edge can be honed to tackle the technical issues that arise when implementing a new technology and to do so inside the corporate firewall and outside the critical path between a brand and its customers or prospects. The other edge must cut through traditional enterprise silos and define the workflows of the future that involve a multiplicity of knowledge bases, resources and functional areas to support conversations that bring timely and relevant information to employees and customers.

In the customer care domain, firms are well aware of the categories of contacts that have the biggest impact on key performance indices (KPIs) and on bottom-line issues. Most can name the five categories of contacts that can account for more than 80% of their inbound traffic, such as “package delivery status” for a retailer or delivery company, or the universal “billing question” that is horizontal across industries. A company is well-counseled to choose a use case whose value will resonate across departments while relying on information from a multiplicity of sources. Yet they should also take care to ensure that use case is centers on the expressed needs of each user and solves a real problem or reduces the effort it takes for them to achieve their goals.

Rule 2: Build a compelling business case

Bot implementations have been largely justified on the classic measures of “call capture” or “diversion” from live contact center or chat reps. Companies use a time-tested rule of thumb that automated handling of a customer care call costs roughly \$1 when compared to over \$10 for agent handling (dependent on the complexity of the issue and the length of a phone call or chat session). These days, cost savings comprise the foundation of a business case, but more is needed.

CONVERSATION IS AN ART, AND THE DIY APPROACH OFTEN DISCOUNTS THE VALUE OF A WELL THOUGHT-OUT CONVERSATIONAL USER INTERFACE

Brands are paying increasing attention to the life-time value of their targeted customers, and factoring that into their business plans. That means that the creation of a positive customer experience is as important as pure call avoidance. Business plans should attach value to the bots ability to recommend new products and services or to transfer a call to the right person or resource to close a sale or resolve an open issue. A dogged focus on providing a pleasant customer experience that becomes a competitive differentiator, supports users across all channels, and becomes smarter and more personalized over time thanks to machine learning. This shifts the focus from expedient, real-time measures to the measurement of the lifetime value that results from customer retention. These abilities also have direct impact on the bottom line.

Rule 3: Avoid stranded investment

When an employee or a department pursues the DIY approach to building a bot or intelligent assistant, it puts the company at risk of creating multiple resources that are addressing the same issue simultaneously. Using the commercial banks as an example, there are many channels for an individual to request a new credit card. New code on a new platform is required for each of these self-service channels, be it an IVR, chatbot, Alexa Skill, Messenger bot or something new. Before launching a new initiative, think about what can be leveraged from existing solutions that have well served live contact center and webchat agents.

Rule 4: Promote high quality conversations

Conversation is an art, and the DIY approach often discounts the value of a well thought out conversational user interface, as well as the rules for dialog design. Automated handling of conversations starts with natural language processing and cognition to recognize the overall purpose of a contact (categorization) as well as the intent of the customer. But conversations also involve rules surrounding turn taking and error detection or correction, which govern how a company can avoid those uncomfortable moments when a bot or Intelligent Assistant is at a loss to suggest the right answer or next action.

Multi-channel and opti-channel approaches create another minefield for bot designers. Text-based conversations via chat and messaging platforms are different from their spoken counterparts. When using text, customers express their emotion and true feelings by punctuation, CAPITAL LETTERS and emojis. Spoken dialogs are rich with meaning and emotion but they are captured in cadence and prosody, as well as word choice. A single vendor may have a solution for bridging this gap, but it starts with recognizing tangible differences among all modes of communications and a focus on creating an experience that reflects a company's brand, leverages the context of an ongoing conversation (both synchronous and asynchronous), and relies on effective data integration to support personalization and prediction.

Rule 5: Make sure you can measure success

New tools and platforms help companies define their customers and prospects' digital experiences. They must also provide dashboards and metrics that enable companies to hone in on the variables that create the most positive business outcomes and customer experiences. In addition to providing tools for building bots and conversational agents, a solution provider's platform must have hooks into the systems that business managers turn to for monitoring and tweaking their pet metric: be it the classics of "call volumes," "call capture" and "average handling time" or new, more relevant measures of "task completion," "customer satisfaction" or even "customer effort."

DIY in Context: Building Toward Common Conversation

Early deployers of bots in corporate settings were too often sold a bill of goods. Out-of-the-box capabilities were over-hyped and not always capable of accurately understanding natural language input or providing correct answers and responses.

Many bots were single-purpose, and, in corporate settings, those objectives needed to be very modest (e.g. open an account; report a service outage; find out the status of a shipped item). Text-based bots could create structure, sometimes in the form of buttons, carousels or even emojis that limited a user's options, promoted clarity and shortened the time required enter content. Voice-base bots prompt callers to enter their instructions using their own words. The design objective is to keep the conversation simple, even when underlying activities (checking a balance, finding a package, etc.) is complicated.

What's needed is a more holistic approach that takes into account all historic initiatives to engage customers or prospects (primarily by listening to them) as they explain their intents in their own words. This may span previous



investment in speech-enabled IVRs, scripts served to live agents in “screen pops” from CRM systems or other flavors of customer interaction management.

Welcome to Conversational Customer Engagement: Playing the Inside Game

Brands across multiple industries have stepped up to the challenges of the BYOB era. It is a natural evolution for the Intelligent Assistance community. In the best case scenarios internal staff takes the tools provided by their solution providers to discover and identify high-impact use cases, use internal subject matter experts to train virtual agents, participate in the feedback loop that insures accuracy in responses at large scale and continuously note monitor and intervene when it is time to add new categories and related intents.

BRANDS ACROSS MULTIPLE INDUSTRIES HAVE STEPPED UP TO THE CHALLENGES OF THE BYOB ERA; IT IS A NATURAL EVOLUTION FOR THE INTELLIGENT ASSISTANCE COMMUNITY

Successful brands have reduced their dependence on third-party “outsourcers” and integrators by developing the skills required to use the tools provided by platform providers. Just as important, they use every opportunity to ingest aggregate and ingest data elements so that they comprise a single system of record inform effective conversations. These data are too-often disaggregated and controlled by disparate systems. Customer records and history are “in the CRM”, purchase history comes from “Billing,” product literature and status can be in inventory management or other flavors of ERP.

DIY and BYOB is a necessity because only internal staff has the intimate, visceral understanding of the data that inform these vital processes. At last, solution providers from the "Enterprise Intelligent Assistance" domain bring the predictive, analytic, and cognitive elements of machine learning and Natural Language Processing (NLP) along with their own corpora of categories, intents, utterances and chat transcripts to simplify the processes involved with building a good bot and shorten the time it takes to get results with positive impact on business objectives.



About Opus Research

Opus Research is a diversified advisory and analysis firm providing critical insight on software and services that support multimodal customer care. Opus Research is focused on “Conversational Commerce,” the merging of intelligent assistant technologies, conversational intelligence, intelligent authentication, enterprise collaboration and digital commerce. www.opusresearch.net

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