

DIGITAL CUSTOMER SERVICE AUTOMATION

A Primer in Chatbots, Taskbots, and AI
for the Customer Service Professional



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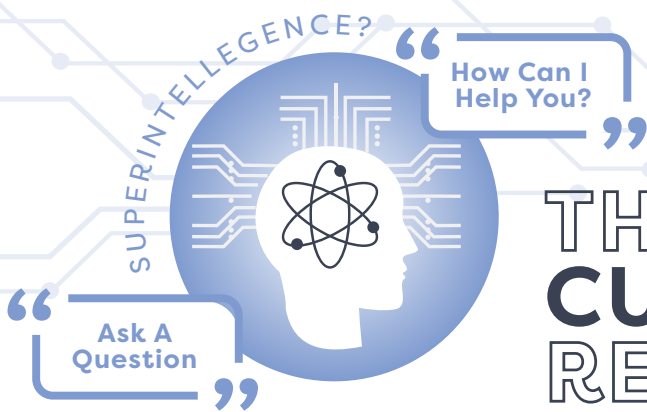
INTRODUCTION

Hyperbole abounds when it comes to what business in a “post-AI world” will look like. The reality is that AI is here and has already transformed certain aspects of business operations. Narrowly speaking, that is the simplest and broadest definition – AI is all around us. It’s Siri, Alexa, even the “Design Suggestions” incorporated into Microsoft Office’s PowerPoint. The ecosystem is immeasurably complex, and the solution landscape is cluttered. At the same time, promises from software companies abound; many of these capabilities are now at the peak of the hype-cycle.

The concept of Artificial General Intelligence (AGI), eventually followed by superintelligence, is still some time away from being feasible. Many experts disagree on when these technologies will likely emerge. A machine intellect that exceeds the cognitive performance of humans in any domain (AKA superintelligence) isn’t likely until well after the emergence of AGI. One study by AI researchers Müller and Bostrom predicts viable emergence between 2040 and 2050 with an additional 30-year wait for superintelligence. Other industry experts believe that AGI could emerge within the next several years.

While there is much that we don’t know about how these future technologies will develop, what we know today is that in certain use cases, they can be very beneficial. One such use case is in the customer service industry. For companies large and small, taking care of their customers has always been a top priority. Long ago, it was easy: stand behind your product; do business with a handshake and a smile; and when something goes wrong, quickly make it right. In today’s on-demand and always-connected economy, customers’ expectations are skyrocketing as are their choices when it comes to how to contact a company with a question, comment, or complaint.

In June of 2018, Berg and Raabe, researchers at McKinsey and Company, addressed the rumor “that Advanced chatbots and virtual agents will make contact centers irrelevant” by explaining the reality that “Humans (and the contact centers they work in) will be more important than ever.” This same article goes on to note that “About 75 percent of customers will routinely use multiple channels to contact companies under an omni-channel model.” Further explaining that these customers “will expect a consistent experience across all of those channels, with the ability to switch seamlessly between them.” (Berg & Raabe, 2018).



THE DIGITAL CUSTOMER SERVICE REVOLUTION

Only 16% of today's consumers prefer the telephone as a customer service channel. The rest go to an ever-growing cadre of digital platforms. For professionals in the customer service industry, the digital service revolution brought high hopes for consolidation, smaller workloads, reduced complexity, and higher overall customer satisfaction ratings. Unfortunately, that has not been the case. Nowadays, the average consumer may use between four and eight different platforms to contact the companies that they do business with. The reality of service today is that consumer expectations are at an all-time high, and the customer contacts are coming in 24x7x365 from Facebook, Twitter, email, SMS/RMS, live chat, and more. Volumes are increasing as is the demand for faster response times with the average consumer expecting a response to a digital contact within 30 minutes, and in the case of live chat, in near-real-time.

Kate Leggett, vice president and principle analyst for Forrester Research, states, "We are at a tipping point for customer service

operations. Business cannot go on as usual – it is economically unsustainable. However, automation and AI must be deployed with care, as they will impact the nature of every job."

The Digital publication of Customer Contact Week commissioned a study to explore the future of the contact center in 2019. Brian Cantor, Principal Analyst – Customer Management Practice, notes that when asked, "Which of the following initiatives will be priorities for your Contact Center/CS Team in 2019," over 65% of respondents indicated using AI for customer engagement (bots) or process automation as a priority item (Cantor, 2018).

In that same study, Ted Hunting of Bright Pattern, Inc. rightly notes that, "One mistake made this year by contact centers was jumping too quickly on the bot bandwagon and doing so without ensuring the bot was not siloed and instead connected to their other channels," says Hunting. "Many companies did not consider CSAT and the best use cases for bots."

For those reasons, it would be prudent to explore the concepts in more detail at this time.

...automation and AI must be deployed with care, as they will impact the nature of every job."

—KATE LEGGETT
VICE PRESIDENT AND PRINCIPLE ANALYST
FOR FORRESTER RESEARCH

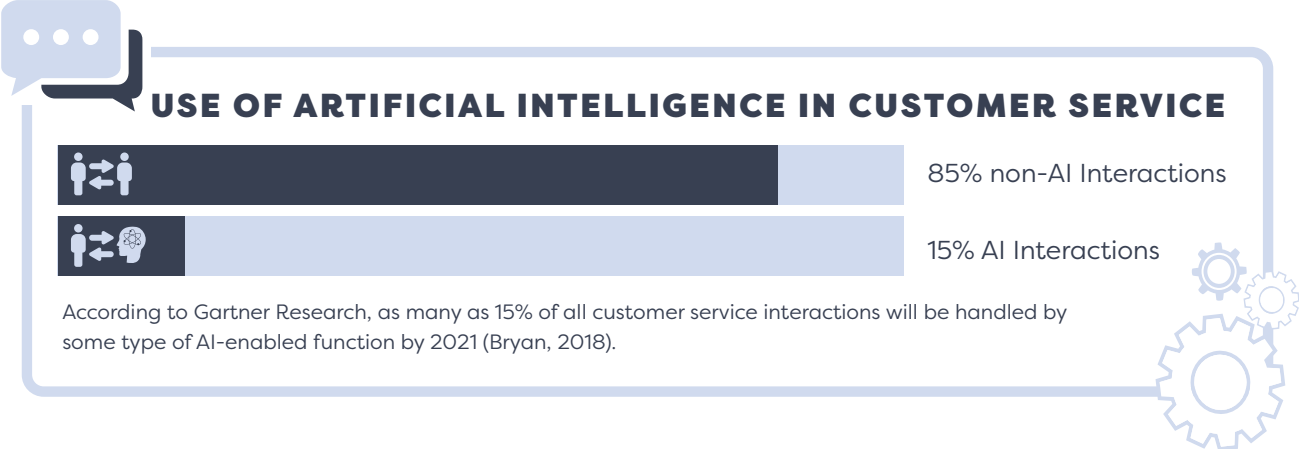
BOT BASICS



So, to bot or not to bot ... that is the question. It is impossible to work in the customer service industry and not at least consider these technologies, yet there is still so much misunderstanding around them and many barriers that keep companies from successfully leveraging them. Before one can form an opinion with regard to bots, one should first have a basic understanding of what they are and what they are not.

So, what is it exactly we are talking about? While the words bot or chatbot aren't great to describe this functionality, they are the terms the market has embraced, so we will stick with them for the most part. From a customer service perspective, there are two distinct paradigms –Intent-Based and Flow-Based conversations – both are enabled by natural language processing (NLP) and natural language understanding (NLU). In many ways, the latter will build the former. While use cases for Flow-Based conversational AI are emerging, most of what is functioning at scale is built on the intent-based paradigm.

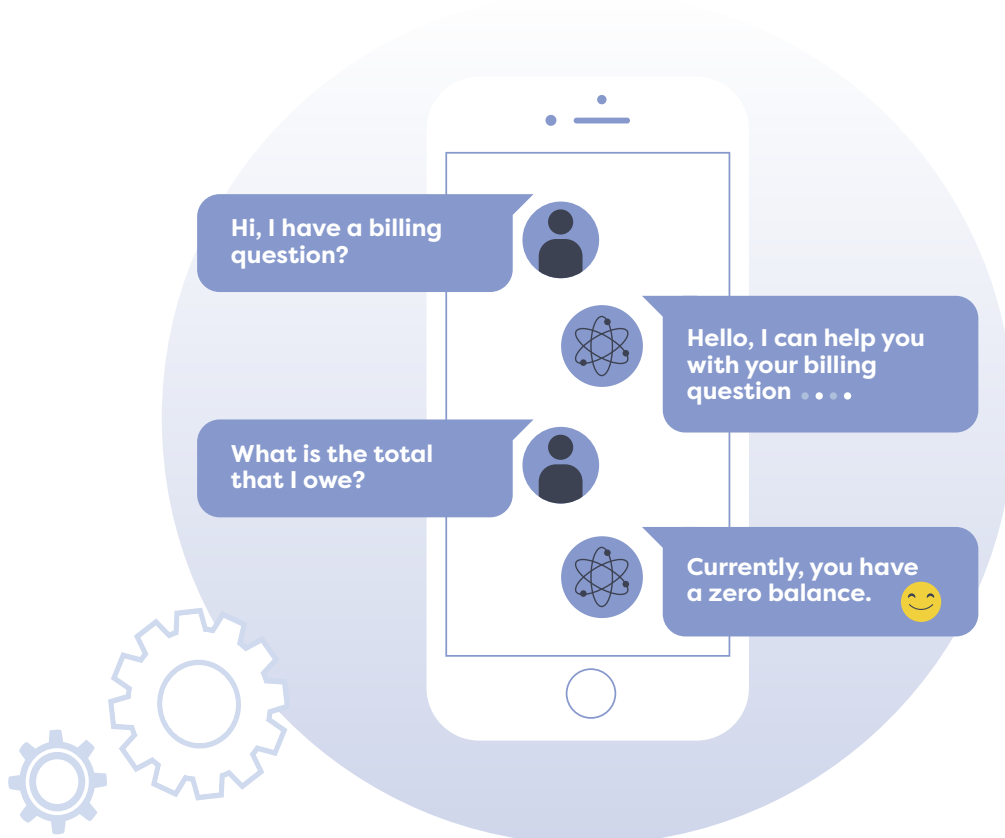
According to Gartner Research, as many as 15% of all customer service interactions will be handled by some type of AI-enabled function by 2021 (Bryan, 2018). Fear, uncertainty, and doubt make many of us uncomfortable with the idea of exploring these technologies as the viable solutions that they are. While a healthy dose of skepticism is in order, statistics do indicate that while phone-based communications will continue to drop, a human agent will still be involved in one capacity or another when it comes to about 44% of these interactions (Maoz, 2017). Given the rapid rise in volumes, the customer service industry is not facing “decimation by tech” any time soon.

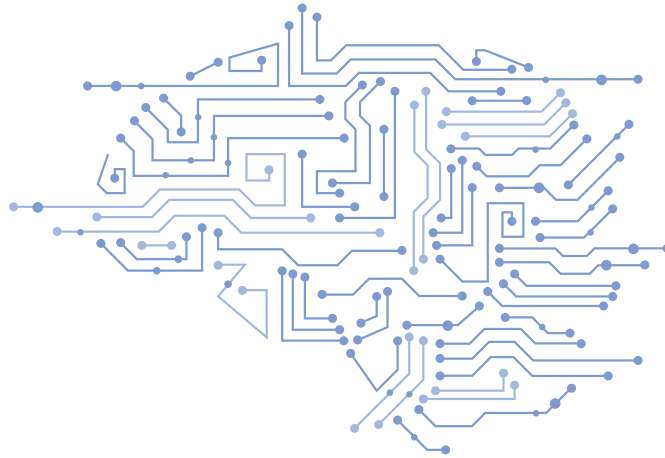


The next several sections will explain some of these technologies only within the context of their application in the customer service industry. This means that, for the sake of brevity, some oversimplification will be necessary.

Intent-based chat really isn't all that new and shows a great deal of promise and potential to solve the new challenges that have developed during the era of the always-connected consumer. In fact, the functionality is very similar to interactive voice response (IVR) tech which we have all grown accustomed to but never grown to like. While opening a Facebook Messenger chat with a company page and being presented with an option to click "Order Status," "Product Question," or "Billing Question" before being routed to a live agent is not intent-based chat; it is that guided digital IVR that has paved the way.

The specific goal of intent-based chat is to have the bot determine the intent, entities, state, and context of a customer's natural language input and take a series of actions. Since digital customer service is about solving real problems for real people, a chatbot alone isn't a complete solution. The scope of service is often much larger than simply understanding a user input and being able to craft a coherent reply. In some cases – like simple FAQs – that will suffice. More complex situations – such as a sign-up process – require additional steps to bring the user's request to completion.





MACHINES THAT LEARN – CHATBOTS AND ROBOTICS PROCESS AUTOMATION

Digital customer service agents (dedicated teams or omni-agents) utilize two main groups of tools: communication tools (messaging) and internal/external corporate systems. To answer a question, an agent needs to chat with the customer and retrieve information from other systems as needed. Before, during, and after a question has been answered, there may be several mundane or repetitive tasks that have to be completed like noting an account or closing a support ticket. In more complex interactions where a problem must be solved, additional processing may be required. Enter the taskbots. Robotic process automation (RPA), in the context of digital customer service, can work in concert with a chatbot to automate specific routine tasks. In the RPA construct, the RPA program spawns an AI-enabled bot to complete a task or series of tasks. This is not new either, in that programmatic task automation has existed for many years. However, RPA extends programmatic task automation in that the taskbot can learn and optimize itself within certain parameters. This represents a fairly narrow definition, specific for the purposes of applicability to the customer service function. Like intent-based chatbots, taskbots are enabled by machine learning (ML), a topic that will be discussed briefly in a section to follow. Before looking at a real-world example, it is essential to note that some implementations of chatbots come ready-made with the building blocks for task automation, and thus, not all experts agree that RPA is a required enabler for intent-based chat.

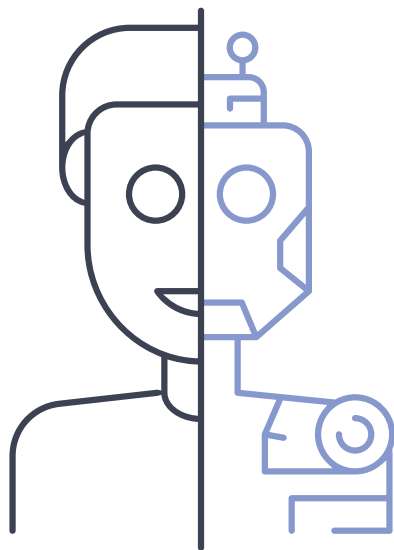
For example, a user sends the following message via the live chat feature on your company's website, "What time is my grocery delivery scheduled for tomorrow?" The intent is to confirm the delivery time and that the entity is a grocery delivery. This could be a fairly straightforward use case for a chatbot. The chatbot could be programmed that an intent/entity combination like this

requires the user to enter their phone number to look up the account, and it could reply to get that information. The chatbot could then easily query the delivery schedule system and simply reply, “Your delivery is scheduled for tomorrow 10/1/19 between 10 a.m. and Noon.” The job of the chatbot is to use NLP to deconstruct the text, find the intent/entities, request information, issue the query to the related system, and construct a reply by filling in the blanks of a preconstructed sentence. No phone call needed and one happy customer earned.

While the use case sounds simple, in all actuality, it is not as there are many complexities to consider. Service automation by way of a chatbot requires some form of RPA and ML working together. In some architectures, the process automation functions are embedded into the chatbot itself; however, a more scalable architecture may require a separate implementation of RPA.

A short explanation of ML would be helpful at this point. Machine learning (ML) is now considered to be a branch of AI based on a particular type of mathematical function called a neural network. This type of computation has been around for some time, dating as far back as the 1950s where the computer was able to solve a problem for itself. It differs from traditional computer programming in that, instead of having a computer programmer “write the rules,” a computer programmer— in this case, a data scientist – writes the algorithm that allows the computer to “find the rules” through multiple iterations of the neural network.

In the previous example, a human agent would have had to complete certain tasks. For example:



- 1** Intake, assess, and categorize the customer inquiry
- 2** Request more information from the customer and wait for a reply
- 3** Query the delivery scheduling system
- 4** Write the reply and send it
- 5** Note the delivery management system that the customer has confirmed delivery
- 6** Note the customer’s account that an inquiry was made and replied to

CHATBOT VS. HUMAN?

If a properly developed chatbot finds itself capable of completing steps 1 and 2, a taskbot could easily process steps 3, 5, and 6 while sending the response parameters back to the chatbot to complete step 4.

Intent-based chatbots powered by currently available NLP/NLU technologies and RPA taskbots powered by currently available ML technologies are capable of handling a customer service request of this nature with ease. With that being said, the question remains: Why are so few companies successfully leveraging this configuration to reduce friction across digital service channels and improve the overall customer experience? If it were as easy as the marketing hype makes it sound, every company would simply be able to click on a link from the “best customer service chatbot” Google search, create an account, and all their customer experience problems would be solved.

It’s not that easy for several reasons. First and foremost is that the natural language inputs, in any language, are highly variable. Consider the example above. While the user input is the most simplistic input the chatbot might receive, it is the most unlikely. What if the input were, “Hey, my delivery is scheduled for tomorrow morning, but my boyfriend broke his arm, and we have a doctor’s appointment, so there is a chance I may have to leave at 10 a.m. Do you think it will have arrived before then?”

In that example, discerning the intent, entities, state, and context is much more difficult. NLP could still easily decompose the inputs to find the verbs and nouns, but from an NLU perspective, the chatbot would need to know that it contains a lot of noise that, when filtered out, leaves a query that is probably best served by the “delivery confirmation” protocol. This requires training and, for a chatbot, training comes when the computer finds a new rule. In this case, with no external training, the chatbot would need to fail on multiple encounters like this before a human could specify the appropriate intent to handle the situation correctly. Alternatively, a company that had previously made strategic investments in the digital customer service process and technology could “prime” that chatbot with a large volume of transcripts from previous interactions between human agents and customers.

Many companies have sought to process recordings of phone-based service conversations through an NLP transcribing service to build such transcripts with very limited success. This is because the anatomy of a digital service interaction is much different than that of a phone-based interaction. In addition, digital customer service done correctly captures the metadata necessary to link conversations with resolutions, which is the missing link between what the chatbot needs to learn about which encounters were correct and which were not.

BOTS DON'T MAKE BAD CUSTOMER SERVICE BETTER



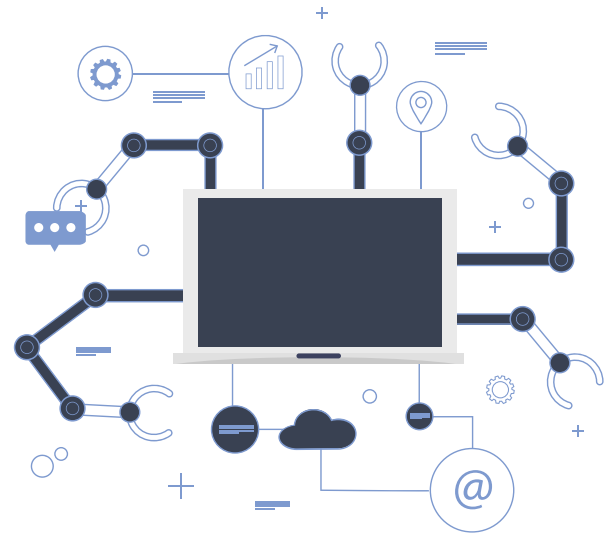
The main hurdle for implementation for many companies is that they lack a culture of customer experience priority. The analogy, which is a stretch but used by many, is of a chatbot to a child. Children learn based upon the environments in which they grow up. Chatbots are much the same. A company that has made customer experience a priority will likely already have a dedicated team for digital customer service whether they are digital-only agents or omni-agents skilled for written correspondence. These same companies will likely have made the investments required to build a knowledge repository for FAQs and processes/protocols for handling questions, comments, and complaints from digital channels. When combined with software and core business processes designed specifically for digital customer care, these become the key enablers to innovations that enable service automation.

Many companies, however, still view customer service as a cost center and have not made strategic investments in these functions. They are not “customer experience first” companies and many times look to service automation to reduce customer service costs and solve the customer experience problems as inexpensively as possible. Unfortunately, many companies like this have been the early adopters, and their implementations have been unsuccessful.



NO CONNECTIC

SERVICE AUTOMATION DRIVERS



At SPS DGTL, we provide digital customer care as a turn-key managed service. We have been doing this since 2015, which puts us on the map as one of the earliest service providers in our space. Using a proprietary process that we developed in 2015 and our one-of-a-kind software platform, we serve our clients' customers on their behalf 24x7x365 in multiple languages across all the digital service channels. We are built for volume and regularly prepared for the viral events that cause temporary peaks in inbound customer contacts. At the same time, we too are noticing a consistent and rapid increase in customer contact volume.

We collect and aggregate customer interactions from various digital channels in real time, assess them, categorize, then process. Each interaction falls into one of four tiers, and each tier warrants different handling. From simple brand mentions and praise to mission-critical/viral potential service recovery, every single item receives a human touch. The work is thought intensive, and we've now processed millions of customer interactions on behalf of our clients.

For the past several years, we have been closely monitoring the progress and maturity of various service automation capabilities. ENGAGE™, our software platform, is NLP-enabled and we use various automation routines for optimal efficiency. In addition, we have our own chatbot development capabilities as well as integrations with several chat providers. In the beginning, we were a "human only" service provider, and many of our largest clients prefer to keep it that way. However, some of our clients are looking to explore the high-volume solutions and associated cost savings with the introduction of chat and taskbots.

In a high-touch, "human only" model, the cost per customer interaction is fairly high, but it mitigates 100% of the risk of a customer issue getting out of hand, and because of the categorizing and tag steps, the analytics that come out the other side are very meaningful.

Even at a higher cost, digital customer service is still better, faster, and more cost-effective than phone-based service. The average cost of a phone-based interaction is between \$6 and \$12 (Esber, Masri, Sarrazin, & Singer, 2015) while our average, at our current list price, is \$2.48. The ROI is still strong, and that approach is best-in-class for beloved brands everywhere. That being said, the "human only" model does have certain limitations in addition to cost.

First, it is not infinitely scalable – even the largest contact centers reach capacity. Second, human agents alone cannot process huge volumes of inbound items at scale, and finding the serviceable customer contacts can be like finding a needle in a haystack. For example, if a customer sends a Facebook message to one of our clients, there is a high probability that it is a serviceable request – typically, a question or complaint. In that example, there is very little noise to filter out. But if the marketing department within one of our clients posts a great piece of content to their Facebook feed and it goes viral, there could be thousands, even hundreds of thousands, of comments on that post. Each one of those comments ends up needing human eyes to decide if it requires further action. Inevitably, buried inside of all the random comments, there will be a number of actual customers with real questions or service requests.

Creating NLP-enabled smart routers and smart filters is a logical next step. But how can a company automate and still be a customer-focused company? These two things are no longer mutually exclusive. Data shows that customer preferences are changing and that the companies who are automating the right way are serving customers more effectively. Deciding to build on a proper foundation to better serve your customers through automation shows an increasing commitment to providing the best customer experience possible.





CHATBOT PROJECTS DON'T START WITH CODE

At SPS DGTL, all our support agreements begin with a process we call #DefiningDigital wherein we map the customer service aspects of the customer journey and identify the friction points in the digital customer experience. The awareness that comes from this leads to the creation of a robust knowledge repository that contains an ever-growing base of processes and protocols. Our process repository includes the steps necessary to acknowledge the comment, answer the question, or start the post-complaint recovery process. As inbound items begin to flow into our proprietary Engage platform, they are organized into conversations and linked to the right process/protocol. After the Defining Digital process is complete, we enter the pilot phase where our team and the client's teams refine the ways they work together until we've reached optimum efficiency. From there, we enter our Continuous Operations and Improvements phase. Traditional customer service call centers see error rates as high as 20%, but our digital customer service operations regularly report quality scores of 99.5% and higher.

The steps above are difficult and labor-intensive but represent the must-have starting point for digital customer service automation. Many of our clients who have done the hard work and made the investments in the people, process, and technology now have the foundation that enables them to implement various service automation capabilities with a much higher chance of success. We see several things as necessary precursors to build a foundation for service automation:



The company must have a customer-centric culture, and digital customer experience should be a mature function that has led to a focused effort around digital customer service.



As with everything, the right place to start is with a deep dive into the people, process, and technology.



Service automation is not the starting point; it is something that is eventually enabled from a high-functioning digital customer service operation.



Start with people serving people for as long as it takes to identify and refine all necessary processes and protocols; then collect and store the historical conversations such that the chatbot training data can be reliably produced.



FOUR-STEP PROCESS

We work with our clients to approach the automation of digital customer service functions along the lines of a four-step process that naturally leads to the development of a foundation that addresses the above items:



During the planning phase, current capabilities are assessed, and roles and responsibilities are established. At the same time, a complete audit of all inbound digital channels is completed, and an initial conversation history is compiled. By the end of the planning phase, our clients have a sustainable and scalable plan to meet the needs of the growing number of customers who prefer digital customer service methods.



After the planning phase, we begin to work hand-in-hand with our client's customer service team to refine the process and protocols to include seamless handoffs and escalations. Typically, by the end of the first 90 days working in this co-sourced model, the knowledge base has reached a fairly mature state. Agents working in the SPS DGTL contact center can intercept and process almost 80% of inbound items and seamlessly escalate the most important or complex items to the client's customer service agents.



As we enter the next phase, our focus shifts to optimization and continuous improvement as we focus more on response times, quality assurance, and process quality. By this time, the processes and protocols in the knowledge base are well-refined, and we have developed a substantial repository of digital customer service interactions that are now tagged with useful metadata and linked to any knowledge articles that were used. It is at this point that we are typically able to de-risk service automation to a degree that becomes feasible to consider.

The foundation has been built, the heavy lifting has been done, and our client has built a digital customer service function that their customers love. That means volumes, naturally begging to rise as more and more customers discover and use this new capability. Some of our clients choose to rely on 100% human-to-human interactions, while others, at this point, decide to explore the efficiency gains and cost savings available through automation.



For companies wishing to explore the partial automation of the digital customer service function, we begin with an initial list of recommendations. Clients of SPS DGTL tend to be in a higher state of readiness due to the rigor applied during our Plan, Perform, and Refine phases. Others should pay careful attention and complete a thorough assessment of the first three items before moving on:

1. Check the Foundation
2. Process Documentation
3. Data and Metadata
4. Define the Initial Scope (Start Small and Stay Safe)
5. Build Versus Buy
6. System Integration
7. Business Process Integration



BEST PRACTICES

Having expounded on items 1, 2, and 3 in the previous section, they need not be further discussed here except to restate the importance of understanding the degree to which the company embraces a culture of customer service. At the same time, it goes without saying that there is little chance of success in an endeavor to have a machine learn a process that isn't fully understood or documented by the humans who created it. Data and the parameters that define it (metadata) remain some of the most critical enablers for service automation efforts that will employ a chatbot or taskbot.

Initial Scope – Start Small and Stay Safe

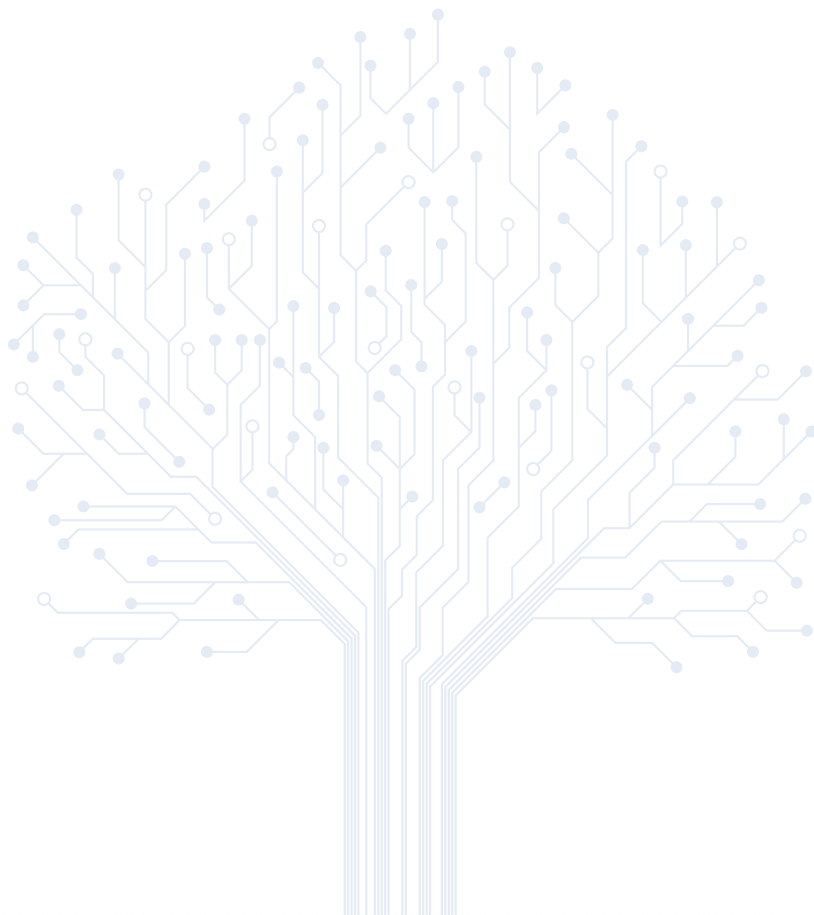
The temptation to boil the ocean is high when it comes to the initial set of automation projects, specifically if they involve chatbots. In many cases, the initial implementation will seem rudimentary and nonimpactful. Some business stakeholders may comment that the initial chatbot scope doesn't add anything new or exciting, and that isn't necessarily a bad thing. Starting with a basic chatbot implemented to one digital channel and thoroughly tested is a more prudent strategy for most companies. Certain digital channels like Facebook Messenger, website Live Chat, and even SMS/text naturally lend themselves to a seamless customer and chatbot interaction. They also allow for a much smoother transition to human agent should the need arise.

Build Versus Buy

Many companies start with a technical solution in mind and work backward from there. In some instances, that is okay; however, we recommend a top-down approach. The adage goes, "If all you have is a hammer, everything looks like a nail." Once your foundation is set and you've selected the initial scope, the technical evaluation can begin. Expert advice is highly recommended at this stage because the sheer volume of marketing dollars that are being poured into the industry tend to set expectations much higher than they should realistically be. There is no shortage of chatbot and RPA taskbot technology solutions providers that offer turn-key solutions with an endless array of system integration options. A specific mention of any one solution would quickly date this article as new players emerge daily. A thoughtful assessment of build versus buy is also essential at this stage. In many cases, starting from scratch with a platform like Dialogflow from Google or Bot Framework from Microsoft yields a better long-term solution with the flexibility needed for more complex use cases.

Integration

System integration and business process integration go hand-in-hand when it comes to service automation. For example, a company has implemented a chatbot and deployed it as a widget on their website. A user visits the site and is pleased to see the “Chat now” feature enabled. The user types “Hello” just to see if someone is there, and the response comes right away “Hi there; how can I help you?” At this point, the user’s service expectations have been set to “instant mode,” and they may expect to have their problem solved or question answered in a fairly short period of time. But what if the chatbot isn’t able to service their needs? The chatbot needs to inform them that they are going to get someone who can help them on the line. But what if, at that time, the live agents in the contact center aren’t available or they are in the queue? The customer may leave a browser tab open and wait for a live agent to join the chat, or they may abandon and try another way. That is an unsatisfactory encounter that could be resolved if the systems and business processes were integrated such that the chatbot told the customer that a live agent was not available and asked them to enter a mobile phone number to receive a text from the next available agent. This is just one, very small example of how proper integrations between the systems and process can lead to increased customer satisfaction and avoid the dreaded inefficient outcomes from failed automation.



CONCLUSION

Business of all sizes now operate within the on-demand economy, which has dramatically modified customer expectations. The modern-day consumer can place an order with Amazon Prime Now or a product delivery service and see it arrive in an hour or less. Naturally, this shifts their preferences for how, when, and how fast they are able to get questions answered and problems resolved. Omni-channel customer support held great promise to improve customer satisfaction and drove customer loyalty to all-time highs; however, the resulting complexity has proven too much for most organizations to bear. According to The American Customer Satisfaction Index, the aggregate measure for overall customer satisfaction has been in steady decline for the past three years, with 2019 showing sharp declines (DiMeglio, 2020).

For those of us who work in and around the customer service industry, this is a point of major frustration. We have more tools now than ever before, more channels, more technology, vast stores of data, but to what end? On the whole, customer service net costs are up, and customer satisfaction isn't following suit as fast as we expected.

Certain operating models that leverage third-party support are reaching a level of maturity that show much promise, and the technology landscape is beginning to take shape. The bottom line is that the omni-channel customer support revolution disrupted every facet of what we once knew about customer service. This disruption had consequences, but conditions are now ripe to enter into the customer service renaissance – frictionless omni-channel service experiences for the consumers and scalable, cost effective processes enabled by the right people, following mature processes, and enabled by many of the modern technology constructs discussed in this paper.

The past was unsustainable and bound to bring change. The transition period has been a rough ride, but the future of customer service is bright indeed. Not every organization will get it right, but the ones who do will win the hearts, and wallets, of consumers everywhere.



About SPS DGTL

SPS DGTL (www.spsdgtl.com) was launched in 2015 to address the changing needs of the customer service industry. Five years later, we now have an industry leading product and service combination that provides everything your company needs to provide responsive digital customer service 24x7x365 across a cadre of digital platforms. Our people, time-tested processes, and technology stack enables our clients to provide their customers with better service, faster, at an affordable price.



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