A guide in corporate chatbots



Inti	roduction	5
1.	The importance of context CONTEXT TYPES AND EXAMPLES Current Conversation Historical conversations External data. Environmental know-how Interactions of other users SENDING PROACTIVE MESSAGES	6 8 8 8
2.	Managing Natural Language Understanding is hard VARIATION WITH INTENT TRAINING SENTENCES VOCABULARY USED IN SUBJECT INTENTS. DEFINE DISTINCT INTENTS. Using entities instead of multiple intents Merging intents with a similar goal and meaning. Adding real user messages. Intent sample sentences guidelines How can you keep an overview of all these intents and sample sentences?	11 12 12 14 14 15
3.	Reducing Friction & Disambiguation	16
4.	Conversational Design Matters. THE COOPERATIVE PRINCIPLE. GENERAL GUIDELINES TO CONVERSATIONAL DESIGN.	21
5.	Improve, Learn & Evolve. MONITORING. Analyse User Conversations. Improve Natural language Understanding Ratings and feedback Monitor your users. Messages and Sessions	24 24 25 26
6.	Be where your users are — A multimodal experience A MULTIMODAL EXPERIENCE MAKES "IMPOSSIBLE" INTERACTIONS POSSIBLE MULTIMODAL OFFERS INFORMATION IN DIFFERENT FORMATS. VOICE RATE ADOPTION MULTIMODAL DESIGN General guidelines to multimodal design	28 29 30
7.	Think about where to use graphical elements	32
8.	Finding the right Use Case THE RIGHT USE CASE IMPORTANCE OF USER STORIES CHANNEL STRATEGY. ENRICH YOUR CHATBOT WITH THIRD PARTY SERVICES	35 36 36
	Behind every successful bot, is a strong bot team IT TAKES TIME IT TAKES SKILLS IT TAKES COOPERATION So how does this work on a day-to-day basis?	39 39 42
10.	A bot is only useful when it's being used	44

Introduction

In the exciting domain of chatbots, there is a lot of talk about the promise of this new technology, the changes it will bring to communication and society as a whole and whether or not the current hype is sustainable. A lot of words have been written, but very few of these come from people who have extended hands-on experience with chatbots. Chatlayer, as a leading provider of chat and voice bot building tools, does have this expertise.



We want to share 10 lessons with you that we have learned over 3 years of building chatbots and advising clients how to build theirs. Our experience with large and complex chatbots for market leaders across several industries (insurance, banking, telco, ...) puts us in a unique position to share these lessons learned with you and drive conversational technology forward.

- A valuable chatbot remembers you. Design it in a way that it keeps data from your users across sessions and across all the ways your users talk to you.
- 2. **Help your customer before they know they need any help.** Reduce customer churn by identifying when they're in trouble by analyzing your customer data and starting new conversations.
- We teach you how to design and manage a complex Natural Language Understanding (NLU) model that covers the scope of your entire organization.
- 4. Even the best NLU model will be wrong if you ask your customers confusing questions. Use conversational design best practices to steer your conversations in the right direction.
- Building a bot is only step 1. As soon as real user feedback and usage starts trickling in, use this to further improve your bot. We show you how.
- Be where your customers are. Activate the same bot on your website, in your app, and on all popular messaging channels.
- A chatbot is not only a textual conversation. Be smart about where to use graphic elements to share information in a different way.
- 8. A bot can only be good if it's **useful**. Is your bot solving a customer problem? Is a conversation the right way to deal with this problem?
- Assemble a crack team of bot builders. Invest in conversational expertise
 within your organization, to have people that understand both the core of
 your business and can translate that into a chat- or voicebot.
- 10. Most often, bots are used as a virtual customer support agent. However, they can be as valuable to achieve sales or marketing goals. We share best practices for this type of chatbot use case.

In this whitepaper we will dive into these lessons, and learn how you can use them to improve the chatbots of tomorrow.

1. The importance of context

We have all been there. Many chatbots today struggle with rich conversations because they lack context. Context means being aware of what's going on around the conversation, as well as things that have happened in the past, not only in your conversations but in other applications and services your organization provides as well.

Like a good sales person or contact center agent, a good chatbot should motivate engagement and should provide a personalized experience to be become smarter, more trusted and more personable. A chatbot should offer its users the right information at the right time. Or even contacting them proactively by initiating a conversation at the right time!

CONTEXT TYPES AND EXAMPLES

Current Conversation

What song is playing? You're hearing Stevie Wonder, I Wish. Is he ever going to perform in Belgium? Stevie Wonder is playing the twenty second of May in Brussels. What's the best restaurant there? Sea grill serves the best seafood in town!

A chatbot should keep track of information during the conversation. Without it your conversations will quickly breakdown. The chatbot knows "he" referred to Stevie Wonder and that there refers to "Brussels. This is called coreference and is an essential part of communication.

- Look at how this chatbot got the context right and knows that:
- 'he' refers to Stevie Wonder
- 'there' refers to Brussels

Write sample dialogs and well-structured scenarios to think about all possible interactions. Ask your team members and colleagues the guestions your chatbot would ask and transcribe it into how people would say it. It can be difficult to anticipate all the things your chatbot might to track, but you can begin with the basics and build up based on what your users are actually saying.

Only with the right sophisticated AI, chatbots are able to:

- » Motivate customer engagement
- » Personalize customer experience
- » Grow smarter by themselves and increase reliability
- » Provide the right information at the right time, even proactively!

COREFERENCE is essential to a wide range of conversations, including banking. This chatbot remembers the context of:

- » the bank account type,
- » the transfer destination,
- » The right amount of money to transfer, and understands that the last 'ok' is an answer to the last request for confirmation.

I would like to transfer 5000 euros from my current account to John Doe.

So you would like to transfer 5000 euro from your current account to John Doe.
Does that sound right?

yes

It was not possible to transfer 5000 euro because your actual balance is 3000 euro and you can only go 100 euro below zero.

Transfer 3000 euros then.

So you would like to transfer 3000 euro from your current account to John Doe.
Is that ok?

ok



CUSTOMER SATISFACTION:

External data

the design phase.

Historical conversations

PASSIVELY COLLECTING

INFORMATION

Increase your focus on your data ecosystem. Include the ability to pull and leverage data from a variety of sources, both within and outside your company. The faster the chatbot accesses, processes and responds to data, the better the overall experience will be. Also, your customer profiles and historical interactions which your users have used in other services, applications and websites should be considered using to predict the right options and to provide personalized responses.

Environmental know-how

Greeting the user by their name, changing the salutation based on the time of day (good morning, good afternoon, good evening) and knowing the user's location, are all a great start to improving the chatbot user engagement with environmental personalization.

Interactions of other users

A customer service support chatbot that knows where a particular user is in the conversation could ask the user if they are encountering the issue most commonly associated with that specific issue. A sales-focused chatbot could store preferences and past purchases, and turn it into hyper-personalized recommendations based on what the user is shopping for and what other similar users have bought.

Analyse and learn various facts associated with each specific customer to offer personalized interactions with recommendations.

SENDING PROACTIVE MESSAGES

Push notifications are an opportunity to get ahead in the game. Think for the user and even before the user expects any new messages, bring them back to the conversation, engage them, help and add value to their daily work. Messaging applications deliver those messages in real time on the user' smartphone so why not using it.

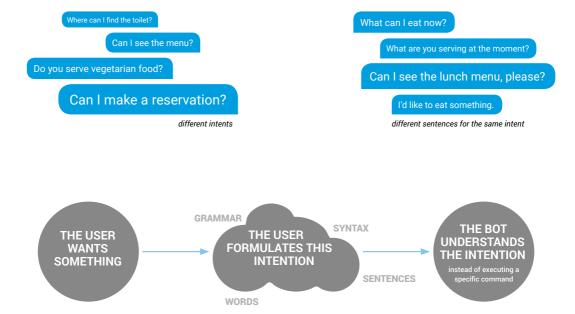
A hotel booking chatbot here shows a message that your hotel room is ready and that a bottle of champagne is waiting for you when you are flying to your honeymoon destination. A package delivery service shows your notifications about the delivery status of your package. A banking chatbot could warn you that you have to transfer money to a particular account before running out of money with unpaid bills as result.

Identify the moments in which there are opportunities to start a new conversation and offer guidance or drive into action. These moments are not random. You need to do it smart in order for the messages to be effective.



2. Managing Can I have fries with that? Natural Language Understanding is hard

Creating a simple chatbot for a small use case is easy. Those conversations are usually limited in scope and the amount of intentions a user can have is typically relatively small. For large corporations but also for more advanced chatbots this is different. Some of these chatbots might cover everything related to the company. For this you will need to support countless user intentions.



INTENT If a user asks "Which dishes do you have?" we recognize this as an intention by the user that it wants to know all possible dishes. In Natural Language Understanding (NLU) terminology this is called an intent. Machine Learning based chatbot platforms like Chatlayer will allow you to train the chatbot and its Natural Language Understanding component by defining intents and creating example sentences (also called 'training sentences') for those intents.

VARIATION WITH INTENT TRAINING SENTENCES

Capturing a wide variety of ways of saying something is extremely important when creating example sentences for your intents. If you create sample sentences for a chatbot intent, it is very important to include word synonyms and any word order or syntactic structure that makes sense.

For example, If you want to create an intent to 'book a train ticket':

DO'S:

- » Book train ticket
- » I would like to book a train ticket
- » I need to take the train
- » Can I order a train ticket
- » I need to be in Paris next Friday
- » I want to travel to Brussels
- » Please assist me in booking a boardingpass

DON'T

- » Book a train ticket
- » Book train
- » Book ticket
- » Book me a ticket
- » Train ticket

VOCABULARY USED IN SUBJECT INTENTS

When managing different intents for one subject it's important to use the same vocabulary in each of those intents.

A financial chatbot could support different questions about credit cards such as requesting to block a certain card, requesting a balance or the limit of the card, requesting a new card, etc. If you use certain words such as 'visa card' or 'golden card' multiple times in sentences for only one intent, there is a big chance that user messages containing those words will always be recognized as that one intent meaning that in some cases they will be misclassified.

When adding new word combinations or synonyms to sample sentences in intents, make sure that you add the same vocabulary to all intents where you could use those word combinations or synonyms.

DEFINE DISTINCT INTENTS

Having intents that are close to each other is dramatic for the performance of model. Make sure your intents are properly aligned and do not overlap. One expression can never be a part of two intents.

Using entities instead of multiple intents

ENTITIES are words or small word groups that are particularly relevant for the dialog. They can be names of people or organizations, cities, products, brands, companies, street names etc. and get extracted from user messages by the natural language understanding model.

Intents should be varied enough. Make sure the vocabulary for each intent is only for that intent and not overlapping with a other intents. If your system needs to distinguish them, use entities rather than intents.

What fast food do you serve?

What side dishes do you have?

What potato dishes do you have?

What do you have for lunch?

different entities

Example: actions regarding different debit cards aren't necessarily "different intents"

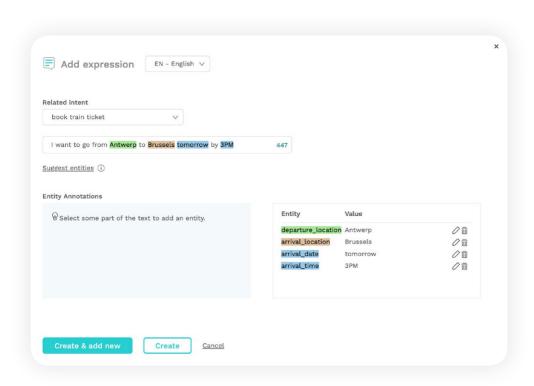
DIFFERENT ENTITIES CAN HAVE THE SAME INTENT ("LOST BANK CARD")

- My credit card / visa / gold card / master card was stolen
- I have lost my credit card / visa / gold card / master card
- Somebody stolen my credit card / visa / gold card / master card yesterday

Entities are words or small word groups that are particularly relevant for the dialog. They can be names of people or organizations, cities, products, brands, companies, street names etc. In this particular case movie or series. They are extracted from user messages by the natural language understanding model.

Intents shouldn't be too similar. Make sure the vocabulary for each intent is exclusive and not overlapping with a other intents. (Ex. Play a is different from Watch a)

If your system needs to distinguish expressions, use entities rather than intents.



For example, if you want to have an entertainment chatbot that handles digital content such as watching series and movies, you can choose to have these subject areas as separate intents or the same intent with entities for specific data inside the sentences. The user messages "Watch a series" and "Watch a movie" for which it uses the same vocabulary of "watch a ". The format is the same, so it should be the same intent with the different words of the serie and the hotel. They should be extracted entity values for the entity 'content type'.



FOR EACH INTENT, YOU NEED TO CREATE A SET OF TRAINING SENTENCES, WHICH SHOULD BE DISTINCT ENOUGH TO DISTINGUISH BETWEEN USER INTENTIONS.

Merging intents with a similar goal and meaning

Don't create separate intents for user messages that are distinct in their meaning but have the same goal as response.

For example, if a user asks a chatbot 'I need more information about how to block a visa card', the user probably wants to block his visa card. So, don't create separate intents for 'blocking a credit card' and 'Info about how to block a credit card' as they will overlap.

Adding real user messages.

After you have deployed your bot (or brought it into a focus-group), you'll be able to take the sentences of real user interactions as additional training data to improve the accuracy. While it is important to add your real-life user sentences, you do not want to decrease your natural language understanding accuracy.

Don't swamp your intents by adding all the new user messages, only add those that are necessary. Take into account that intents should have to be trained with more or less an equal amount of example utterances. Adding sentences with new words can also introduce word overfitting problems with new user messages getting misclassified as a result. Analyze your user sentences and define actions for all related intents to assure a stable NLU model accuracy.

Intent sample sentences guidelines

- Use correct spelling
- Slang/dialect is allowed
- Be specific enough
- Variety of words
- Variety of phrase structure
- Don't add paragraphs
- Don't use too formal language. Keep it light and natural
- Talk like your are used to talk and avoid jargon
- Don't use intros and outros: Don't add the expression "Hello, I want to book a train ticket. Can I do that? Thanks". Instead. just add "I want to book a train ticket".





How can you keep an overview of all these intents and sample sentences?

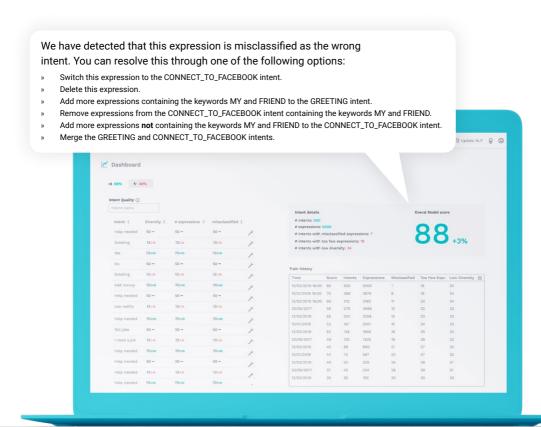
What is the use of state-of-the-art Natural Language Processing if you don't have an overview? When you are building a chatbot, you should do it the right way.

Chatlayer's Natural Language Understanding dashboard keeps a clear eye on the overall quality of your models, intent word diversity scores, number of mismatched example sentences, the amount of wrongly assigned expressions, etc.

It features a specialized NLU analysis toolbox to solve these issues and to keep improving your models.

Manage hundreds of intents and thousands of sample sentences in a user-friendly environment. Chatlayer's tools show you the problems and the actions you need to take in order to solve them directly.

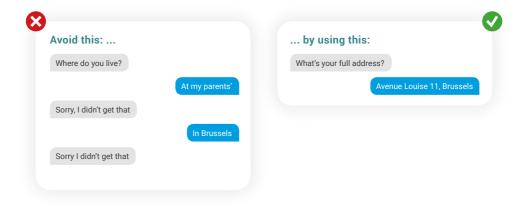
Watch our blog as we are launching an in-depth Big Bots series starting from June 2019 in which we are going to deep dive into all natural language understanding problems.



3. Reducing Friction & Disambiguation

Users get frustrated when they are unable to complete their tasks or when they are not understood correctly. As a result they are unlikely to talk to you in the future. Good error handling is all about preventing errors and anticipating unexpected input.

Don't leave room for interpretation and make the success path more robust to "disguise" errors by using well-crafted prompts. Tell the user exactly what you want. A question might seem straightforward, but people could say anything. You should avoid this at any cost.



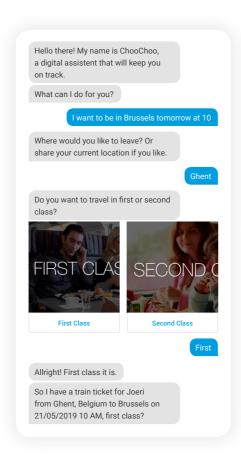
Work to earn your users' trust. Be prepared for simple questions that they might ask to the chatbot just to figure out what it can do. Yes, you read that right. Your chatbot must be even prepared of telling the user a joke. Think of it this way: to establish trust with a neighbor, you might borrow a cup of sugar before you ask to borrow the lawnmower. People also want to see if their virtual assistant knows what they expect it to know.

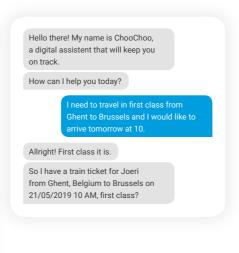
Humans are not always clear and interact in different ways. Imagine a user ordering a train ticket by saying 'I need to be in Brussels at 10 tonight'. The chatbot should ask only follow-up questions for missing information such as departure location and seat class. If the user says 'I need a train ticket' the chatbot should also prompt for the destination location and arrival time. So always make sure to create your dialogs in a way that it can handle all possible ways of user input.

You can't just design for when things work - you need to design for when things don't work as well. Try to improve anticipation of all the things a user might say. Do this by writing multiple sample dialogs for one conversational flow.

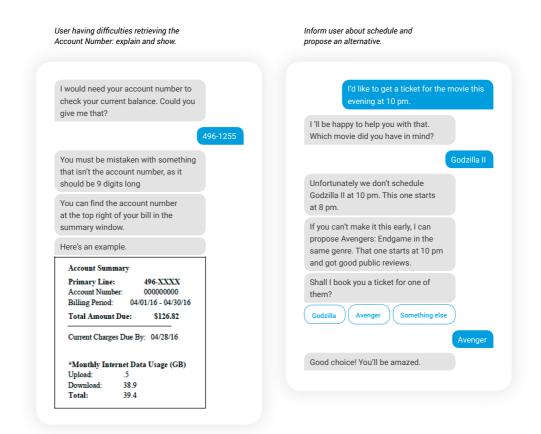
Create dialog flows to handle all possible ways of user input.

Good error handling is context-specific. Even though you're asking for the same information, the conversational context is different on the second or third attempt. In each step, consider why the user might be having problems. Then, in the response, include additional support in the form of options, examples, or visual information.





Another basic strategy to prevent frustration is to make it easier for users to leave the conversation if they haven't completed a task or provided a validated value. The chatbot could transfer the communication to a live human agent who is using a customer engagement platform or contact center solution. You could add the option to talk to a real human agent in the second or third attempt and create an additional 'talk to human' intent.





4. Conversational Design **Matters**

Moving from the idea of publishing content to engaging in conversations can be uncomfortable in the beginning. For conversational design, most enterprises are still taking their first steps. Most employees creating bots nowadays are doing so for the first time, in a very trial-and-error kind of way. Today's bot platforms might make it easy to get started, but don't be fooled - human conversation is incredibly complex – and it is a challenge to build a bot that is able to handle the unpredictable nature of it.

It is important to understand that conversation design is not a simple act of writing down text in a conversational format. It requires a complex set of skills and careful planning. Conversational design is a combination of several techniques including copywriting, UX design, interaction design, visual design, voice and audio design.

Successful communication does not only depend on what we are saying but also on how we are saying something!

The attraction of social media messaging has little to do with producing text or rich media. Instead, it is the always-available social connection, the brevity and unpredictability of the messages that triggers the release of dopamine and drives users to come back for more. Humans need empathy, so conversations need to have dialogues that are helpful, natural, personalized and persuasive. There are lots of psychological principles you can apply to reach your goals. Principles that are used in negotiation techniques, neuro linguistic programming, persuasion tactics and psychological operations.

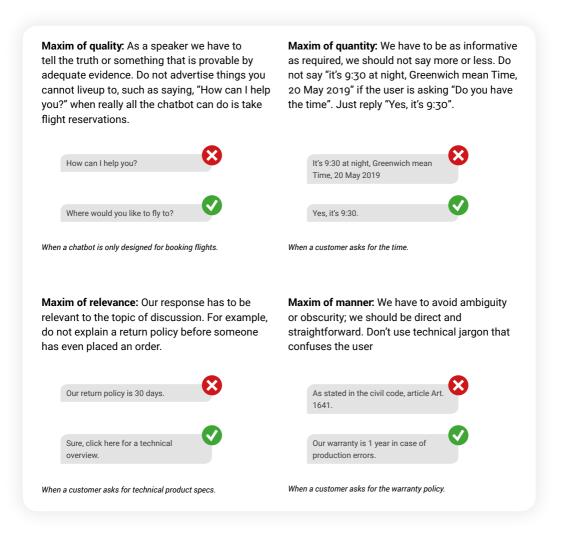
"Speakers intend to be cooperative when they talk. Each speaker knows that each utterance is a potential interference in the personal rights, autonomy and wishes of the other."

- Paul Grice, English language philosopher.

THE COOPERATIVE PRINCIPLE

Efficient communication relies on the assumption that there is an undercurrent of cooperation between conversational participants.

The flow of conversation needs to be natural and one that offers information that can help users get the answers to their questions and make their lives more simple. Grice's cooperative principle is a set of norms that are expected in conversations. It consists of four maxims, which we have to follow in order to be cooperative and for being understood:



GENERAL GUIDELINES TO CONVERSATIONAL DESIGN

- Define your audience
- Define the role and type of your chatbot
- Create a chatbot persona
- Create sample dialog scripts and speak them out loud
- Outline the dialogue flows by creating flow diagrams and handle all possible scenarios such as fallbacks and error handling
- Manage different emotions in your scenarios
- Use greetings and endings
- Use suggestions to help the user and to discover new features
- Ask questions in a specific way to ensure you catch the right intent - and sub-intent
- Use persuasive principles to motivate users to go through a service process
- Confirm the resolution
- Do not allow a dead-end street
- Do not repeat the user his request
- Do not ever blame the user
- Keep track of context
- Interaction should be time efficient - keep it short
- Use emoji and rich content

Watch our blog as we are launching an in depth conversational design miniseries starting June 2019. In 10 chapters, we are going to dive into how to make your bot more human and error-proof.

Chatlayer has an expert conversational design team that helps your organisation designing the conversation. We also provided full day trainings with guidelines, best practices and examples to share our conversational design knowledge and expertise. www.chatlayer.ai

5. Improve, Learn & Evolve

MONITORING

How users are interacting with your virtual agent is critical information that is often not apparent prior to release. There can be eye-opening gaps, places where the chatbot fails, and opportunities for development and improvement. Do you see a topic that your users are requesting frequently but which your bot does not yet support? Why not integrate it into your flow? That is the best way to show your users that the chatbot they are using is always striving to provide a better experience. Maintaining your bot is an essential part of its long-lasting success.

Analyse User Conversations

A conversation log feed is the place where you can see what users are talking about. They show to the user (i) which flows are most used, (ii) where conversations go to after starting from a specific conversation step, (iii) how users end up in a specific conversation step, (iv) where users stop their conversations and (v) where users drop off.

To fill gaps and solve pitfalls you need to analyze and detect the cause of each flaw to define a suitable action.

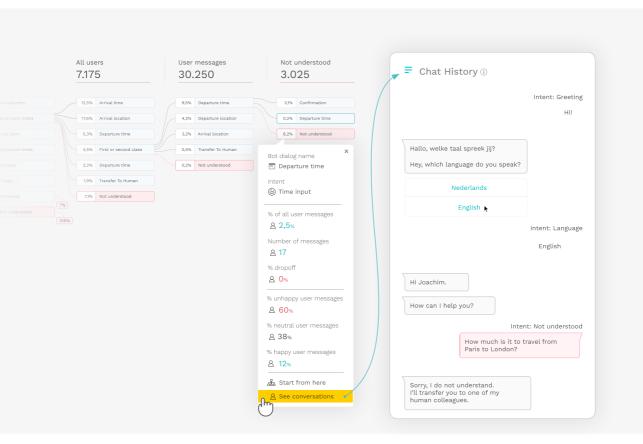
- Bad conversational design and/or copywriting
- Wrong configuration in the chatbot platform
- A not supported use case or user intention
- Sentence was not or badly understood (NLU)
- A technical error

It is from the uttermost importance to constantly improve and to adapt your flow designs and copywriting, your flow configuration and/ or create new use cases based on what your metrics and historical conversations are teaching you.

Improve Natural language Understanding

Chatbots are only as good as the training they are given by their makers, and the quality of the training is only as good as the training data is. It is needed to check the analytics often to ensure your bot understands new words, and then train the bot as necessary.

When adding new word combinations or synonyms to sample sentences in intents, make sure that you add the same vocabulary to other intents where you could, this in order to prevent word overfitting. Constantly monitor your model accuracy and analyze the not or badly understood messages and intent data.



Ratings and feedback

Allowing users to rate your chatbot is a good method of providing users with the opportunity to express satisfaction or dissatisfaction with your chatbot. If users are dissatisfied, your bot has to ask feedback. Integrate useful feedback loops in the conversation by requesting feedback after a completed key action to get valuable, qualitative insights.

How likely is it that you would recommend
Choo Choo to a friend?

| Very likely | Neutral | Not Likely |

If a user answers "Very Likely" or "Likely", Choo Choo automatically recommends that they share the bot with their friends. This leads to a higher share rate and a boost in user growth and bot engagement for the company.

However, if a user is not happy, the Choo Choo solicits open-ended feedback to learn more.

Thank you for your feedback. What could I have done to help you better?

Monitor your users

Monitoring your current users allows you to get a feel for the overall popularity of your chatbot and its success. If this metric is trending downward, it could be an indicator that you need to rethink the use cases of your chatbot and its design. The amount of new users shows the overall success of your chatbot promotion campaign.

Monitoring the recurring active users gives you an indication on how often users are coming back to your chatbot after the initial use. Poor performance with regards to recurring active users could be a sign of a high dissatisfaction rate amongst first-time users.

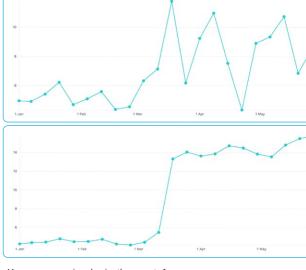


Messages and Sessions

The amount of sessions presents the concept of engaged users. Session duration measures average customer interaction and ensuring customer engagement.

Messages per session is another important metric. Ideally, chatbots need to resolve a request in as few messages as possible. Impatient users will leave a conversation if they have to go through too many conversation steps to reach the value they are looking for. On the other hand, conversations with very few messages are likely to indicate pitfalls that are causing users to lose faith early on. So, monitor closely.

Session Duration, showing the average duration of a user session during the date range you have selected.

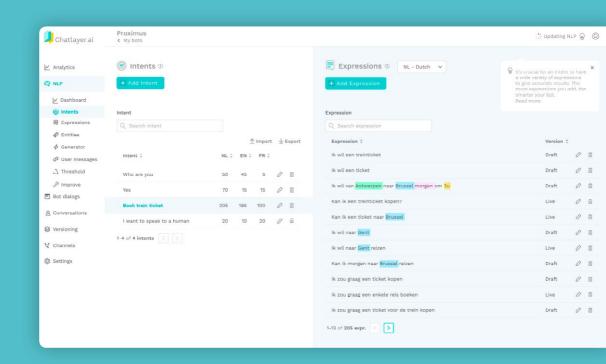


Messages per session, showing the amount of messages an average user sent during the date range you have selected.



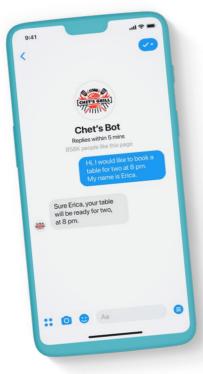
CHATLAYER'S UNIQUE ADVANTAGES

- Deep insights in customer-chatbot interaction with analytics dashboards, a flow analysis tool set,
 NLP analysis and a conflict resolution tool box.
- » Understanding customer intents and analysis of how customers are being understood by the system.
- » Providing guidelines and actions, based on exclusive and valuable data.





6. Be where your users are – A multimodal experience



Today's thriving enterprises recognize the value of content and the role it plays in the customer experience. Consumers now expect highly relevant, timely, personalized content at all touchpoints of the customer journey, on any device or interface, across any and all channels of their choosing. Content formats range from microcontent in text or speech, to rich images, videos and podcasts, to apps, email, mobile push notifications and others.



Erica uses her smartphone in the morning to make a reservation via Messenger in the restaurant later that day.

A MULTIMODAL EXPERIENCE MAKES "IMPOSSIBLE" INTERACTIONS POSSIBLE

To get this content to your users in a useful way, it is important to design an experience that helps interactions become possible. When you design your bot to interact beyond the typical messaging platform, you help enhance the experience for your audience. That is because you are creating convenient ways for users to interact with your brand and business in ways that they may never have been able to before. For example, you can create a bot that interacts with users via their cars and have it picking up the conversation where the user has left it off when they use their phone.

Future chatbots will be multimodal like human beings in the sense that they will interact through touch UI, vision, voice, & text. They should deliver an experience that involves more than one human sense.

So multimodal is the idea of being able to marry two or more senses through input and output experiences.

MULTIMODAL OFFERS INFORMATION IN DIFFERENT FORMATS

Creating experiences that users find valuable is crucial for driving engagement that leads to customer loyalty. With a multimodal experience, you can achieve this. For example, you can design your bot to use voice and visuals to provide answers in different formats. This means when your target audience asks their smart speaker for a vegetarian recipe, the bot won't just return a spoken reply. You can design it so that it can offer video responses and even provide a map to the nearest grocery store which have all of the ingredients in the messaging pplication or any other application. A user could stop or play the video or ask the chatbot to go to the next step in the recipe with voice while he is cooking without the need to clean his hands to stop or start a video. This helps improve the experience your users have and deliver them valuable content they can leverage.

THESE TECHNOLOGICAL ADVANCEMENTS ALL IMPROVE CUSTOMER EXPERIENCE:

- » They reduce the amount of effort required to find and act on information and manage transactions.
- » They save time and blur the barriers between humans and devices.
- » They make the overall digital experience more inviting, appealing, and entertaining.
- » They enable us to automate timeconsuming and costly tasks.
- They help create a more consistent brand presence across multiple channels.
- They build more detailed customer profiles for improved targeting and messaging across sales and support journeys.

Later that day, Erica realises she is not going to make it at 8 pm. While she has a visitor, she can easily reschedule through her smart speaker.

I have made a reservation at 8 pm, but I 'm not able to make it. Can you make it 9?

No problem, we are expecting you

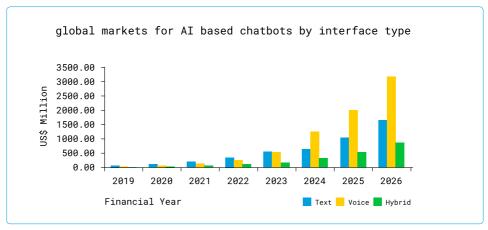


VOICE RATE ADOPTION

A revolution is about to happen. Currently, most chatbots are embedded in messaging services. Today, voice is exploding. In the US, there was a 78% year on year growth in December 2018 to a total of 118.5 million households that own a smart speakers. 52% of those have two or more devices in their home, providing a wide coverage and deep integration into their lives. Gartner Predicts 75% of US Households will Have Smart Speakers by 2020 (add source). It is expected that Europe will follow suit.

A recent Adobe Analytics survey found that 91% of US businesses are making significant investments into voice technology.

A recent market study by Mind Commerce in march 2019 showed that voice will surpass text in 2022.



Source: Mind Commerce, 2019

MULTIMODAL DESIGN

Designing and developing intuitive voice interfaces and chatbots is challenging - that is the least we can say! Building a bot that interacts in both the voice and visual space adds another dimension to that challenge. Voice-first is a design approach in which one starts designing the voice interface before adding text or visual UI elements to ensure users can interact both hands-free and eyes-free. In general, spoken prompts are optimized for and follow the conventions of spoken conversations. Display prompts are optimized for and follow the conventions of written conversations. Although slightly different, they should still convey the same core message.

It is often the easiest way to start by writing prompts for a screenless experience, again imagining what you might say in a human-to-human conversation. Then, try to imagine how the conversation would change if one of the participants was holding a touchscreen. What details can now be omitted from the conversational components? Typically, the display prompt is significantly reduced since the user can just as easily comprehend the information in the visual as they can in the display prompt. Group the information now in such a way that the user doesn't have to look back and forth between the display prompt and visual repeatedly. Last but not least, think about how the experience would be going from one device and visa versa.

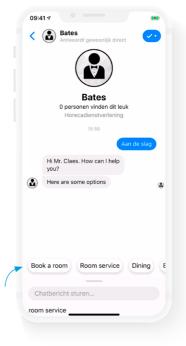


- » Allows users to bypass multiple navigation levels for familiar tasks and known commands
- » Screen efficient output
 - » Permits the display of large amounts of information at a single time to reduce memory burden
 - Visual hints and affordances suggest new options and commands
- » Think voice first
- » Don't forget about accessibility. Even though you are designing a multimodal application, the user should be able to complete the entire task

- » Voice tone is critical. A personable tone helps users forgive those moments when your product is unable to complete a task. More importantly "tone" will be perceived as "attitude" by users.
- » Think "temporarily uni-modal" and expand your user journey maps. what do your users see?
- what should your users hear? what are your users doing concurrently? What can your users touch or reach? Create detailed storyboards and task flow charts to be sure you have addressed each step.
- » Improve, learn and evolve. No matter how carefully you test, there's a 99.99% probability that users will need something you did not include.

7. Think about where to use graphical elements

Good chatbots give users the freedom to control the conversation and ask whatever they want to be pleased. This is accomplished by using Natural Language Understanding. Besides this, users also

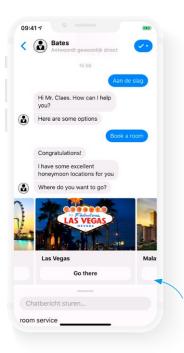


Use Quick Replies for more than three recommendations

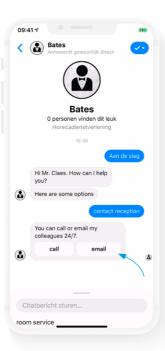
want to have recommended guided conversation flows through the use of graphical elements for boosting interactivity and ease of use. Chatbots should never reply with long-winded blocks of texts but need to diversify.

If users are unsure of what they are asking for, one resolution is to provide recommendations for users to get started and getting the bot to a more useful state. Recommendations can help ease the conversation and make them faster.

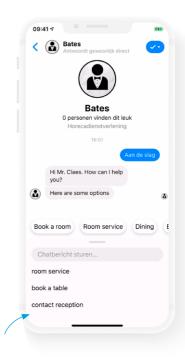
During the design phase it is important to think where to use which graphical elements why still make sure the entire flow can be done using natural language. The right combination of free form messaging vs buttons and quick replies can depend on the use case. So think about your users and how they will interact with your conversational solution.



Use carousels and lists for showing a list of options. They offer the possibility to present more info by using a title, description, image and one or more action options.

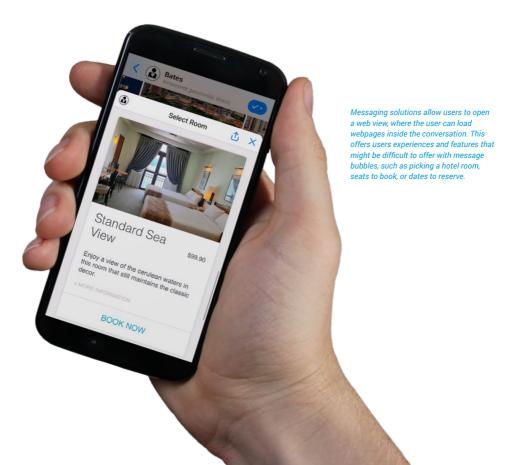


Use buttons to open links to external sources, to download documents, initiate a telephone call or an email, opening a mobile application or even opening an application in the conversation, also called web views.



A persistent menu can help the users to navigate through your chatbot and see what else it can do.

33



8. Finding the right Use Case





Delphine Jacquemart BUSINESS EXPERT

"We have often heard users saying «I want a bot that does this, I want a bot that does that» but when we dig deeper, we realize a different bot use case would actually fix the issue much more efficiently."

THE RIGHT USE CASE

We have often heard users saying "I want a bot that does this, I want a bot that does that", but when we dig deeper, we realize a different bot use case would actually fix the issue much more efficiently. If you want to build a chatbot that manages customers' questions on return policies, but know that these queries are less than 2% of your global volume of queries, you might want to build a chatbot for another purpose. So, start from the business problem and build it from there.

Technological trends alone are no guarantee for a successful bot. It is also necessary to find the right use case. Based on a user-centric approach and different criteria and questions provided, thanks to a chatbot canvas you easily find the best objective of your virtual agent you define some key performance indicators on how to measure ROI.

THINGS THAT SHOULD BE TAKEN IN ACCOUNT

- » Target audience Who is going to use the chatbot solution? Describe your customers or employees.
- » How, where, when and on which device will your users interact with the bot?
- » Which problem are you going to solve?
- » Which internal and external system integrations will you use to enrich the user experience?
- » How will the bot help to solve this problem?
- » How does the bot add value to the organization strategy and vision?
- » What are the key performance indicators and how will you measure ROI?



IMPORTANCE OF USER STORIES

Design user stories that have high value for your target users. Creating a use case matrix helps to evaluate each individual story and will tell you which scenarios are primary, which are secondary and which are nice-to-haves.

CHANNEL STRATEGY

It is important to engage with customers where they are, in their preferred mode of communication. It ensures you stay relevant and accessible in today's on-demand world. It helps you choosing the right text- or/and voice-based channels and it helps to define a strategy on how your users will interact with your bot.

ENRICH YOUR CHATBOT WITH THIRD PARTY SERVICES

Describe the user experience from the beginning. E.g. which added value can you integrate in your solution. If you are thinking about creating a chatbot for a radio station and it is possible to ask the current or previous song, why not integrate music services such as Spotify, so that your users can save these songs to their playlist or even create a new playlist and add this song. If a user can request information about the radio presenters you should think about social media integrations to show the latest Instagram pictures, facebook posts and tweets. Remember, always try to offer value.





9. Behind every successful bot, is a strong bot team



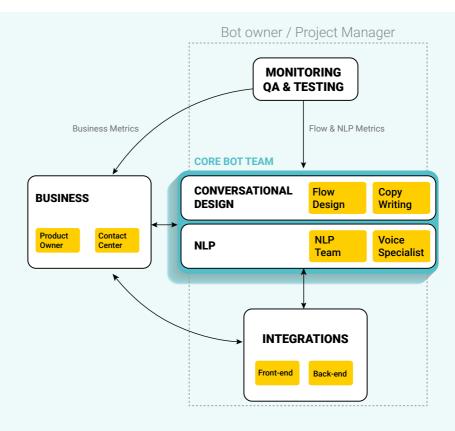
CONVERSATION DESIGNER

And behind every failed bot... there wasn't much of a team

There are a lot of frameworks out there on how to develop a chatbot. Some are better than others, but they all have one thing in common: they're agnostic to the people doing the work, and how they work together. That's strange, since a lot of chatbot projects fail exactly because people lack:

- Time to focus on the bot
- The right skills (or again, time to develop them)
- Proper ways of cooperating and communicating

It breaks our hearts to see promising chatbot projects not reach their full potential or even die because of these reasons, which is why we want to highlight this oh-so-important but often underestimated aspect of building a bot.



IT TAKES TIME

Bots can bring huge benefits to your organization, by increasing customer satisfaction, lowering employee workload... Read all about that here*. But to reap all the benefits, be prepared to invest as well. Depending on the scope, you will need a number of people who dedicate a large part of their time to your chatbot(s). You are creating an entirely new competence within your organization. It's not just another IT project, so don't treat it like one!

Too many bot projects start off without a proper staffing strategy. A few people, usually within IT, are assigned to building a bot, often alongside other projects. Of course, they don't have the time to properly focus on it, resulting in a mediocre bot full of beginner's mistakes, not suited to expose to your customers.

In other cases, a good bot is built, but then considered 'finished'. That's a terrible idea for several reasons. First, we talk about 'Machine

Learning' for a reason. Only once your bot starts talking to actual customers, you will be able to track how it performs, and gradually improve your conversation flow and NLP model. Second, take your bot to the next level! Once your bot is up and running, you can increase the scope and add capabilities with minimal effort, but considerable gains. Don't leave your bot to rot.

So, when planning your bot project, take staffing very seriously and make sure you give the right people enough time for building, enhancing and maintaining – over the entire lifecycle of the bot.

Your bot team will grow and shrink based on the bot's needs. It can consist of your own business and IT people, temporary consultants and new hires – experienced or not. Next, let's dig into who you need exactly.

IT TAKES SKILLS

Every bot team consists of a few basic building blocks. There's the Core Bot Team, who cover Conversational Design and NLP. Integrations and Monitoring are also crucial to the bot, but usually consists of people also working on other projects. In an MVP phase, or for a smaller bot project in general, a handful of generalists could

each take on several roles. The larger the team, the more specialized roles it will have.

As a rule, it is better to have a small team that can focus on the bot and perfect their bot-specific skillset, than a large amount of people involved only part-time!

BOT OWNER / PM

Responsibilities: The Bot Owner is the watchtower, the caring parent of the bot. This person is responsible for both high-level strategy as well as day-to-day organization and coordination of both the bot team and other stakeholders. The Owner has a very good view on every aspect of the bot, without knowing the details.

Skills: The Bot Owner is a real people manager, well-organized and good at bringing structure. A real chatbot enthusiast, tech-savvy but also comfortable with talking about the business side of it.

Recruitment: A Bot Owner could have any background, as long as it's someone with the right skills and some project management experience. It could be beneficial to recruit within the organization. A good knowledge of the business and a solid network within different departments is a great asset. In a small project, the Owner could combine his role with more operational bot responsibilities.

^{*} https://www.chatlayer.ai/solutions/

CONVERSATIONAL DESIGN

Flow design

Responsibilities: The Flow Designer builds the conversation flow, the logic that determines how the bot interacts with users, and thus the core component of the bot. Because this impacts all aspects of the bot, he or she works in close cooperation with a lot of other stakeholders.

Skills: On the one hand, the Flow Designer has to be able to connect with business and get a deep understanding of the end user, and of the unpredictability of human conversation in general. On the other hand, he or she needs to both structured and creative enough to build a robust flow in a chatbot platform.

Recruitment: This is a very new role, no university graduates flow designers (yet), so be creative! Professionals or fresh graduates with backgrounds in social sciences, design or arts could be good candidates. You might also find people internally (in customer service

for example) who are interested in making the switch – having the added benefit of already knowing the business well.

Copywriting/Translation

Responsibilities: While the Flow Designers build the skeleton of the bot, Copywriters put on the meat by writing all pre-scripted dialog.

Skills: Of course, Copywriters need to be good writers – but this is not a generic copywriting job. To write good bot copy, they need to be able to get a good understanding of their target audience, and thorough insights into conversational design and the specifics of writing for bots.

Recruitment: Like Flow Designers, Copywriters could come from diverse backgrounds. They could be language professionals with an interest in bots, but anyone with good language skills – including reoriented internal employees – could become great bot copywriters.

NATURAL LANGUAGE PROCESSING

NLP designer

Responsibilities: Defining the intent structure of the NLP model, in close cooperation with the Flow Designer, creating expression to train the model, and testing it.

Skills: As a baseline, the NLP designer needs to be a logical thinker with a strong interest in language, and the ability to empathize with the end user. Bot projects with a large amount of intents and/or a lot of user data (voice/chat/mail history) could benefit from having an NLP designer with data science or NLP engineering skills.

Recruitment: Again, a role that hasn't been around long yet, which could be performed very well by people from any background. Think social science graduates, language professionals, internal candidates from customer-facing departments... Given the difficulty of finding profiles with machine

learning knowledge, you could consider a temporary NLP engineer to design the initial model and leave the follow-up and maintenance to someone less technical.

NLP trainer

Responsibilities: Maintaining the NLP model by verifying and feeding it user expressions.

Skills: Similar to the NLP Designer but on a more junior level.

Recruitment: Could be a new hire, but this is typically a function that could be performed by employees facing the same users as the bot. Possibly only part-time, but frequently enough to get a solid insight in intent structure and NLP training fundamentals.

INTEGRATIONS

The required skills of developers (front-end, back-end, security, devops, ...) are more generic, however (especially in larger IT organizations)

it's best to engage the same developers as much as possible.

MONITORING

BI expert / data scientist

Quantitative monitoring could be performed by the corporate BI/analytics department, a dedicated person within the bot team, or at least part time by the Flow Designer, NLP Designer, or Bot Owner.

Qualitative monitoring

Qualitative monitoring, i.e. analyzing individual bot conversations, is important, but will probably

be performed by the Bot Owner and/or Flow Designer – only the very largest bot projects will have a dedicated function for this.

Testing

To be performed by the bot team and business users. There's no use for a dedicated role:
Because users are very unpredictable in how they interact with bots, it's best practice to have it tested by as many people as possible.

BUSINESS

Product Owner

Ideally, the bot team has a single point of contact within the business department the bot is "working for". He's the Bot Owner's sparring partner and determines strategic priorities. He delegates more operational tasks such as discussing flow details in detail to other employees in his department.

Contact center

If the bot has a human handover component, there should also be a single point of contact, for example the contact center manager, who is in frequent contact with the bot team. Agents handling handovers from your bot have

invaluable insights into potential improvements of the bot, so they should be communicated to the bot team on a regular basis.

That's a lot of people... so how to make them cooperate?

IT TAKES COOPERATION

A well-functioning bot team works as a close team, well-connected to all relevant stakeholders.

The Core Bot Team consists of the Conversational Design and NLP experts, and of course the Bot Owner. They're doing mostly 'bot-specific' work, ideally on a full-time basis, and have a good understanding of each other's workflows.

So how does this work on a day-to-day basis?

Bot building is well suited for an agile approach. The exact way of working depends on the team and the phase in the bot lifetime, i.e. the mix of build and maintenance or continuous improvement tasks. Regardless of the phase, a well-functioning bot team could be organized in sprints with the following recurring elements:

DAILY:

Stand-up

Who: Bot Owner, Core Bot Team, Integrations if relevant

What: For a brief moment every day, the Core Bot Team gets together to give a brief progress update and discuss any general issues

Why: It's important for everyone, from Bot Owner to specialists, to keep an overview of what is happening in the bot. Any issues can be addressed quickly, and huddles organized to tackle them if necessary

How long: 15min

Huddle

Who: Relevant Core Bot Team or Integrations people (Bot Owner = informed but not invited)

What: Part of the team gets together ad hoc to discuss specific issues. For example, the Flow Designer discusses certain flow changes with the NLP Designer, to assess the impact on the NLP model.

Why: Maintain close cooperation and a quick feedback loop between team members whose work is intertwined.

How long: ±1hr

The position of the Integrations team depends: Developers working on the bot full-time for a longer period (or continuously), and managed by the Bot Owner, are pretty much part of the Core Bot Team. Same goes for how close Monitoring team members are to the bot.

Key business stakeholders are not really part of the bot organization, but part of its 'inner circle' and thus in close and frequent contact with it.

WEEKLY:

Business - bot connect

Who: Business Owner or other stakeholders, Bot Owner, relevant Core Bot Team members

What: Provide business stakeholders with an update on progress/changes and validate choices/improvements/assumptions made (in detail), plan/discuss business testing

Why: To keep a short feedback loop with business to ensure it meets their requirements and is in line with their view on the customer, and get their approval on improvement ideas

How long: 30min-1hr

Monitoring meeting

Who: Monitoring team, Bot Owner Conversational Design and NLP

What: Discuss high-level trends and specific cases of bad conversations, and possible fixes

Why: To keep a constant eye on actual user behavior and tackle issues quickly, to ensure continuous improvement

How long: 30min

MONTHLY:

Retrospective (end of sprint)

Who: Bot Owner, Core Bot Team, Integrations if relevant

What: Discuss both the major bot issues and improvements in the way of working, gather major improvement proposals to present to the Business Owner

Why: To step out of the day-to-day routine and take a moment to reflect back and openly discuss

How long: 1hr

Requirements meetings

Who: Bot Owner, Business Owner / Bot Owner, Core Bot Team, Integrations if relevant

What: The Bot Owner meets the Business Owner to capture new requirements, from small changes to major new elements. He also proposes any major improvement ideas from the team, which can be added to the requirements if business approves. He then discusses them with the whole team, to return to business with a solution proposal – and hopefully have it approved

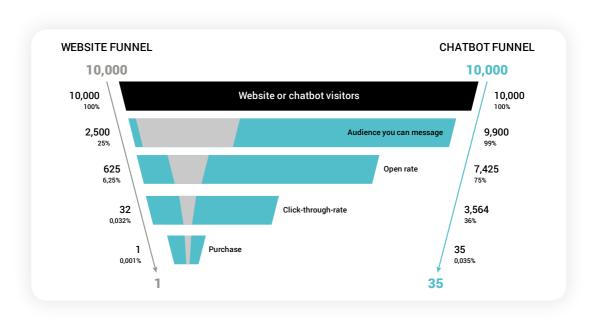
Why: Capture formal requirements so the Bot Owner can plan the next sprint

How long:

- 1hr initial meeting with business
- » 1hr team discussion
- 1hr second meeting with business
- Iterations if necessary

10. A bot is only useful when it's being used

You can create the world's best chatbot experience but if nobody is using it then what's the point? Chatbots are a social breed, they need people to talk to and learn from. Hence, having a reliable method of consistently driving targeted traffic into your messaging channel is a crucial part of every successful chatbot launch.



This process is similar to stimulating the amount of website visits. However, a marketing chatbot experience can differentiate you from the traditional website funnel.



"It is all about the conversation with your customers. However customer interaction – when done online – is most of the time very process-driven and not personal at all. Conversational platforms like Chatlayer are fundamentally changing this by bringing back the conversation, thus making room for a personal touch. I would go even this far to state that thanks to these conversations, we are able to go back to the roots of what it means to be human, i.e. being able to express ourselves. Adding this to your Sales & Marketing organisation is extremely powerful. Your clients will trust you for it and by trusting you, they feel confident to do business."

Email marketing is the go-to strategy for most websites. Collecting emails is the way websites try to interact with people today, however messaging marketing has a number of big advantages over email:

User engagement: In 2016 the monthly active users of the top 4 messaging apps surpassed active users of the top 4 social media platforms. In 2019, even Mark Zuckerberg himself announces that private messaging will soon be the most popular way that people interact.

Data collection: bots are an easy and natural way to gather user data and insights. Each time a user takes an action in our bot we are learning about their preferences.

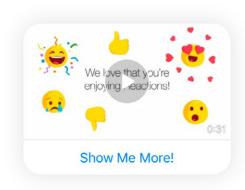
Increasing sign-ups: Chatbots remove the need for your prospect to type anything in order to become a subscriber. With the click of a button, the prospect engages in Messenger and is signed up.

Dynamic personalization: bots leverage the power of dynamic content over static content. Chatbots are dynamic and can personalize on scale the content so customers get exactly what they want without guessing.

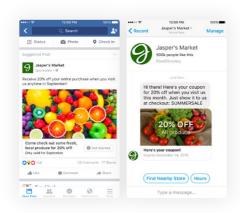
Once customers find their ways to chatbots it can be beneficial and quickly scale engagement. In order to do so, you need to learn how to boost your chatbot traffic. Here are some easy ways you can drive your bot campaign easily and fast:



A Messenger scan code is similar to a QR code. You can easily generate a unique scannable code for your chatbot. When someone scans this code using the Messenger app on his phone, it will automatically open a conversation with your chatbot on Messenger. This is great for traditional businesses to convert their offline customers into chatbot users.



If you have a website that is already attracting a lot of visitors, take advantage of it to funnel people into your chatbot. Why? 90% or more of visitors will leave your website without buying anything neither providing you with their contact details. Not necessarily because they aren't interested in your product or services, but it might just be a bad timing for them. If you can get them to interact with your Messenger chatbot, you can pick up the conversation later even after they have left your website.



Use a chatbot as a call-to-action within ad campaigns, instead of opening a landing page a chatbot starts interacting. Also, on company's Facebook pages itself, the action button could be changed into a "Let's talk" button to redirect users to messaging instead. This offers a seamless and more engaging experience.

A great chatbot that nobody uses is a waste and won't help your business. However, there isn't one method that will work best for every business. It will depend on your budget, time and other resources you have available. Test and learn a few of these methods and see what works best for your business. Ready? Set! Bot.





Chatlayer is a leading provider of chat and voice bot infrastructure. We help companies building intelligent conversational agents for delightful customer interactions. As an Al leader we build our own Natural Language Understanding technology which significantly outperforms the big four, state-of-the-art speech recognition and automated analysis and insight tools to improve how you interact with your customers. Headquartered in Antwerp, Belgium, the Chatlayer services and technology are ideally suited to build and maintain large and complex chat bots with the highest performance standards. In Belgium we are the market leader in chat and voice bot platforms with all major telco's, large banks and insurance companies as our customers. Internationally we are expanding rapidly and filling the gap of high performance platforms for large conversational agents.

Visit us online at www.chatlayer.ai and follow us on social media for news and inspiration.