USU

White Paper

Chatbot Meets ChatGPT

How a smart combination can improve customer service

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Introduction

“ChatGPT will change the world”, “ChatGPT is driving the AI revolution” – these are just two of many statements you may have come across regarding ChatGPT.

Only six months ago, the AI-based language model was only known to experts. For a few weeks now, the supposedly intelligent text generator has been causing a furore and engaging a broad and often enthusiastic audience – from analysts to universities, journalists, marketers and even schoolchildren having essays or homework written for them. The results are often considered to be of astonishing quality – at first glance. If you take a closer look, however, it becomes clear where ChatGPT is still lacking, especially in the area of customer service.

This is where USU comes in with the Chatbot Universe. It combines any number of specialized chatbots with ChatGPT. From an analyst’s point of view, this gives USU a unique edge over the competition and makes it the first company to create a ChatGPT application that meaningfully supports the service and can be effortlessly integrated into existing systems.

But how can the USU solution improve customer service? What impact does it have and can this revolution unburden or even replace customer service employees? Or does it perhaps make sense to continue to promote human-machine interaction?

It is precisely these topics that we want to tackle in more detail below.

The Hype Around ChatGPT

Since the end of last year, the hype around artificial intelligence has blown up everywhere. This is because in November 2022, AI startup OpenAI introduced the legendary chatbot ChatGPT. Since then ChatGPT has been on everyone's lips - and with good reason. The new chatbot model is particularly good at talking to people. The big leap from previous chatbots here is that you can have a normal and "real" conversation, with ChatGPT churning out appropriate responses in seconds. OpenAI then released an update in March 2023: GPT-4. This speech processing model is even more advanced than the previous version GPT-3. GPT-4 is multimodal and can even process images. Using an image of the inside of a fridge, the AI not only recognizes the contents, but also gives suggestions on what can be cooked with them. The model is more reliable and creative than its predecessor, but still prone to wrong answers as it is based on data from 2021. Nevertheless, GPT-4 shows the enormous progress in the field of generative AI in recent years.

The concept and the basic technology behind it have been known for years, but only modern cloud computing solutions provide the necessary computing power for such extensive and complex language models as the one behind ChatGPT.

The capabilities of ChatGPT are more than impressive and the response on the internet to its release in November 2022 was equally strong. According to a Statista survey, more than 1 million users registered to test the program within 5 days – in comparison, it took Instagram 2.5 months, Facebook 10 months and Netflix 3.5 years to reach these numbers.

In January 2023, over 3 months after the release of ChatGPT, the euphoria and curiosity continued unabated. By this time, the program had more than 100 million active users, who sent around 10 million search queries a day – a figure that even Google Search only reached after around 2.5 years.

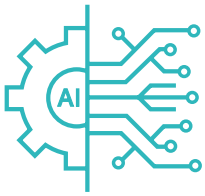
In February 2023, in a conversation with the Tagesspiegel, Bill Gates commented on the topic of the new AI software and its susceptibility to errors in everyday life. Gates indicated that it would take several more years to solve the current bugs, although there was no going back. However, he stressed that the billions flowing into the development of software and digital companies are larger than the research budgets of governments.

It remains exciting to see what developments ChatGPT will bring us in the future. However, with Microsoft's announcement that it will invest around $10 billion in OpenAI in the coming years to promote the development of powerful AI technologies, it is clear that the hype around ChatGPT is far from over.

Fascinating Dialogs: What Is the Technology Behind ChatGPT?

The chatbot is based on machine learning and neural networks. This means that its extensive training data enables it to respond to questions and communicate in a human-like manner. Artificial intelligence can write poems, summarize texts or even write programs. This is how ChatGPT works: first, questions or instructions are sent to the model, which processes and analyzes them. It uses its training data and neural network architecture to extract the relevant information and generate a response. The response is then sent back to the user, creating a dialog that is sometimes indistinguishable from that of a real person.

ChatGPT is based on the GPT language model, which has been trained with huge amounts of data. In GPT version 3.5, the model has 175 billion parameters and 800 gigabytes of storage capacity. With the latest version ChatGPT 4, the model has evolved to a "Multimodal Large Language Model" (MLLM), which already has 100 trillion parameters available and can use text, image or audio as input source.



How Is it Different from Previous Chatbots?

Current chatbots know how to answer some questions, but cannot respond specifically. In a normal chatbot communication, this results in situations where the bot asks: "What do you mean by that?" or in which it proposes different answer options from which the customers have to choose the right one. The ChatGPT model, on the other hand, understands and processes messages immediately. If a customer now asks: "I want to buy a jacket that costs €200. Is shipping free?" internally ChatGPT reads the entries in the d atabase, thus knows that the company offers free shipping from €49 and also knows that €200 is more than €49. These two pieces of information are linked and output directly as a response. This could then look like this, for example: "Yes, shipping would be free on your order."

A current chatbot, on the other hand, would simply output a standard response from the database: "Shipping is free on orders over €49."

ChatGPT in Customer Service – Does it Work?

This new technology also represents a huge change in customer service. With ChatGPT, companies can generate automated responses to a wide range of customer inquiries, while reducing response time and lowering labor costs. AI technology has the potential to make customer service faster, more efficient, and more cost-effective. This can save time, especially for routine and repetitive tasks. Customers notice the difference through an improved customer experience, e.g. with email responses that are optimized in terms of language and formulated more specifically to their requirements. By regularly evaluating previous interactions, variations can be incorporated into ChatGPT's automatically generated language, leading to better conversion and customer engagement.

What are its strengths?

If you ask ChatGPT the question:
"Can ChatGPT improve customer service?" the artificial intelligence confidently responds with "Yes, ChatGPT can improve customer service."

But how?
Let's look at the strengths of the AI application that can be of value to customer service:

Dialog capability, intent recognition and information augmentation

ChatGPT can precisely understand the actual purpose or intent behind user questions through its unique method of speech recognition. Thanks to the intensively trained voice guidance and the large standard knowledge data volumes, the AI application can elegantly enter into a dialog with the questioner and communicate in a similar way to a real service employee. Unlike traditional question-answer chatbots, ChatGPT can provide contextual answers to questions based on previously given questions/answers. With the ability to understand and produce natural language, ChatGPT makes it easier for users to communicate without having to use specific commands or vocabularies.

What does this mean for customer service?
In customer service terms, this capability is extremely helpful. Requests can therefore be understood even if they are formulated in colloquial language or in a vague manner - just as in a real conversation. In addition, the amount of "standard knowledge" in some industries can also be helpful in customer service. This allows ChatGPT to provide additional information beyond the user's direct question or problem.

What are its weaknesses?

If you ask ChatGPT itself about its weaknesses in customer service terms, the bot answers quite self-critically and lists the following aspects:

"Although ChatGPT-3 is an advanced AI model, it also has some weaknesses when it comes to customer service:

- Error detection: ChatGPT-3 is a machine learning model and therefore may make errors, especially with complex requests or in unclear contexts.
- Empathy: ChatGPT-3 cannot respond to emotions like a human customer service representative and therefore may sometimes appear inappropriate or unhelpful.
- Data protection: ChatGPT-3 processes personal data and data protection measures must be taken to ensure that this data is managed securely.
- Training: ChatGPT-3 must be trained appropriately to achieve optimal customer service performance, which requires time and resources.
- Costs: ChatGPT-3 can be more expensive to implement and use than other chatbot technologies.

It is important to note that ChatGPT-3 is a tool and its performance depends on the method of implementation and use. It's important to evaluate ChatGPT-3's strengths and weaknesses in the context of specific customer service requirements to determine whether it's the best solution."

In addition to the weaknesses that ChatGPT mentions, there are other points that we find critical for use in customer service:

Data basis, quality and consistency of response

ChatGPT uses online sources (websites, dictionaries, encyclopedias, scientific articles, etc.) but without disclosing the sources used. Moreover, it creates texts based on text probabilities, not on factual insight. This may result in inaccurate or inappropriate responses being generated.

What does this mean for customer service?

When using ChatGPT in customer service, companies should regularly review and update training data. In order for customers to build trust, it is important to provide ChatGPT with clear guidelines, as this is the only way to guarantee uniform and consistent responses. Due to the fact that ChatGPT randomly generates responses from different sources, the quality of the responses is not guaranteed. In certain industries in particular, this can be critical. In this case, a quality control system can help.

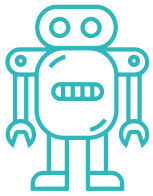
No execution of actions

ChatGPT is not able to control dialogs compared to other chatbots. It is therefore not possible to provide customers with questions or answers that users would not have come up with themselves. ChatGPT only outputs information, but cannot act or perform actions on behalf of users.

What does this mean for customer service?

When using ChatGPT in customer service, this lack of functionality could lead to increased frustration for customers. In most cases, smooth interaction is expected. A direct execution of actions function would be important for customer service because it makes customer service more effective and efficient. For example, if users have an issue that requires an order or booking, the customer service representative could perform the action directly on behalf of the user without requiring any additional action from the users. This would make the process faster and more convenient, and reduce the likelihood of abandonment during the process. In addition, customers often approach customer service with a problem and are guided to a solution through questions. Here, however, ChatGPT cannot take on a guiding function, as it merely responds to questions asked.

The Ideal Solution for Customer Service



Due to the risks involved in using ChatGPT, it is currently not advisable to use the bot as a standalone solution in customer service, as it generates texts instead of responses. The well-known “hallucination” problem of ChatGPT is especially undesirable in customer service.

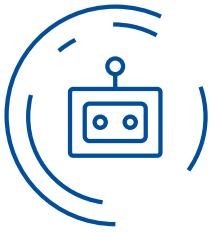
However, to take advantage of the technology, it is important to understand what ChatGPT can and cannot do. So far, its originality lies in the unique language processing and text generation. However, this alone is not enough to guarantee smooth customer service operations. Because it is here in particular that the answer or solution must always be reliable, consistent and quality-assured.

The USU chatbot, on the other hand, draws on a knowledge database, narrows down topics and delivers quality-assured answers. In addition, the bot can also execute functions, guide customers to the solution through queries, and reliably answer complex queries in a multibot architecture. But what is it lacking? A mature dialog capability and targeted intent detection.

Both systems complement each other in many areas. This is precisely where USU stepped in and created an ideal solution for customer service in a very short time. Chatbots and ChatGPT are combined in the self-developed USU Bot Universe. According to market analysts, the USU technology concept, which is currently unique, combines many different specialist chatbots and can also perform complex customer services through the integration of ChatGPT. This fusion allows the advantages of both systems to be exploited and each to be used in a way that generates added value.

Through the unique Chatbot Universe architecture, it is possible with minimal effort and in a very short time to integrate third-party technologies such as ChatGPT via API interfaces.

What is important and crucial here is that control always lies with the USU chatbots. Only then is it possible to generate validated and quality-assured information.



Strengths of the Chatbot Universe:

- Builds on the USU knowledge database, which is built up independently from specifically selected documents and generates quality-assured knowledge
- Chatbots learn independently from every question and answer
- Has the ability to integrate any number of chatbots and can therefore spread the response basis at will
- Multilingual function through integration of AI technologies from its own research results
- Can independently initiate further process steps and actions

How does integration work?

This new technology also represents a huge change in customer service. With ChatGPT, companies can generate automated responses to a wide range of customer inquiries, while reducing response time and lowering labor costs. AI technology has the potential to make customer service faster, more efficient and less expensive. It can save time, especially on routine and repetitive tasks.

Customers notice the difference through an improved customer experience, for example, with email responses that are optimized for language and more specific to their concerns.

By regularly evaluating previous interactions, variations can be integrated into the automatically generated language of ChatGPT, which leads to better conversion and conversion and customer loyalty.

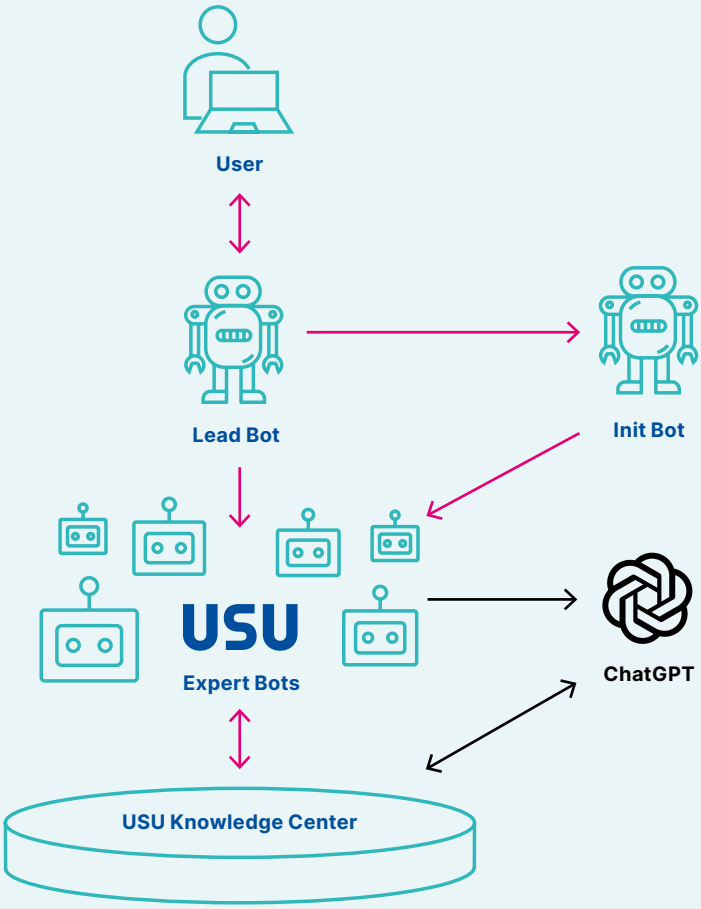
Unique multibot architecture

The USU Bot Universe combines capabilities of many chatbots for powerful customer service

The USU Multibot concept divides chatbots into three roles: the initbot, the lead bot and the expert bots. The initbot is the first to analyze the incoming question, makes queries if necessary, and determines the most appropriate expert team to answer in the first place. The expert bots provide information on specific topics and the lead bot acts as a moderator and assigns the user to the appropriate expert bot.

While USU chatbots are used for critical topics, diagnostics or the active implementation of services, ChatGPT plays to its strengths in generating texts for narrowly defined topics and consistently prepared content.

As soon as ChatGPT joins the communication, a brief notice is given that now ChatGPT is answering instead of the USU chatbot – this is important because in this case USU does not guarantee the quality of the answers.



What possible applications of the combined solution already exist?

Potential use in customer service:

1. Quality-assured answer consistency and knowledge enhancement

The big advantage in the USU Chatbot Universe is that the chatbots rely on the knowledge database when generating responses and thus only pass on quality-assured and consistent information to customers.

By integrating ChatGPT into the Bot Universe, we circumvent one of the major shortcomings of the system – the indiscriminate merging of information from different sources or hallucination.

As part of the bot architecture, it is also possible to define for ChatGPT to what extent the Internet should be included in generated responses.

There are the following scenarios:

01 | USU chatbots are limited exclusively to the information in the knowledge base.

02 | ChatGPT is assigned specific content from the knowledge base. The “meaning” that ChatGPT learned on the Internet is used for interpretation.

03 | Chatbots and ChatGPT are assigned specific content from the knowledge base from which responses are generated. This defined context, however, can also be extended by web content. This is an interesting opportunity for industries where general knowledge is relevant (telecommunications, IT).

04 | ChatGPT can be used as a “small talk” bot. In this case, it does not access content from the knowledge base, but uses knowledge from the Internet.

2. Forwarding of requests to interfaces

Since it is only an AI-based language model, ChatGPT cannot connect directly to a service representative, but can only help find or provide customer service contact information.

However, integration into the USU Bot Universe creates the possibility of ChatGPT forwarding requests to the USU chatbot, which in turn independently executes tasks or creates requests directly as a ticket and/or transfers them to customer service.

Conclusion

ChatGPT is a breakthrough innovation that is revolutionizing industries and constantly evolving. With ChatGPT 4, many improvements have been made that lead to a significant improvement in the quality of the texts generated. Although ChatGPT should not be used as a standalone solution in customer service, since quality-assured responses are essential and customers often need to be guided to a solution, by integrating ChatGPT into the USU Chatbot Universe, USU has created the ideal total solution for customer service that combines the advantages of both systems. At USU, we believe that great language models such as ChatGPT can revolutionize customer service when human and machine intelligence are smartly combined. A successful strategy is to combine general language models with existing knowledge and to create a knowledge model adapted to the organization from a general language model. Human involvement is critical, as an intelligent combination of language models and human interaction is key to success in such processes, regardless of how AI evolves.

About USU

As a medium-sized company, USU has been attracting attention with innovative service applications since 1977. International customers such as IKEA, Nespresso, Daimler and Deutsche Bahn prove that Germany is still an innovation location. Word has also spread in Berlin that the Southern German company is a leader in service applications. Research by the German Ministry of the Interior and Community on “Service Masters” shows that SMEs continue to be the engine of growth in Germany.

USU is focusing on continuous growth and is steadily expanding its range of services. USU is financed by its own sales and not billions from private equity companies. Today, the company has over 1,200 national and international customers and 805 (as of 05/23) employees at home and abroad.

More about Chatbots

White Paper: Chatbot Universe

A combination with which you can even manage complex tasks.

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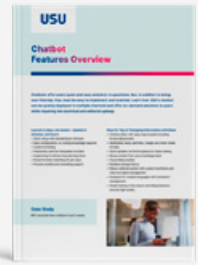

Service Description Chatbot

This service description shows the most important functions of the chatbot.

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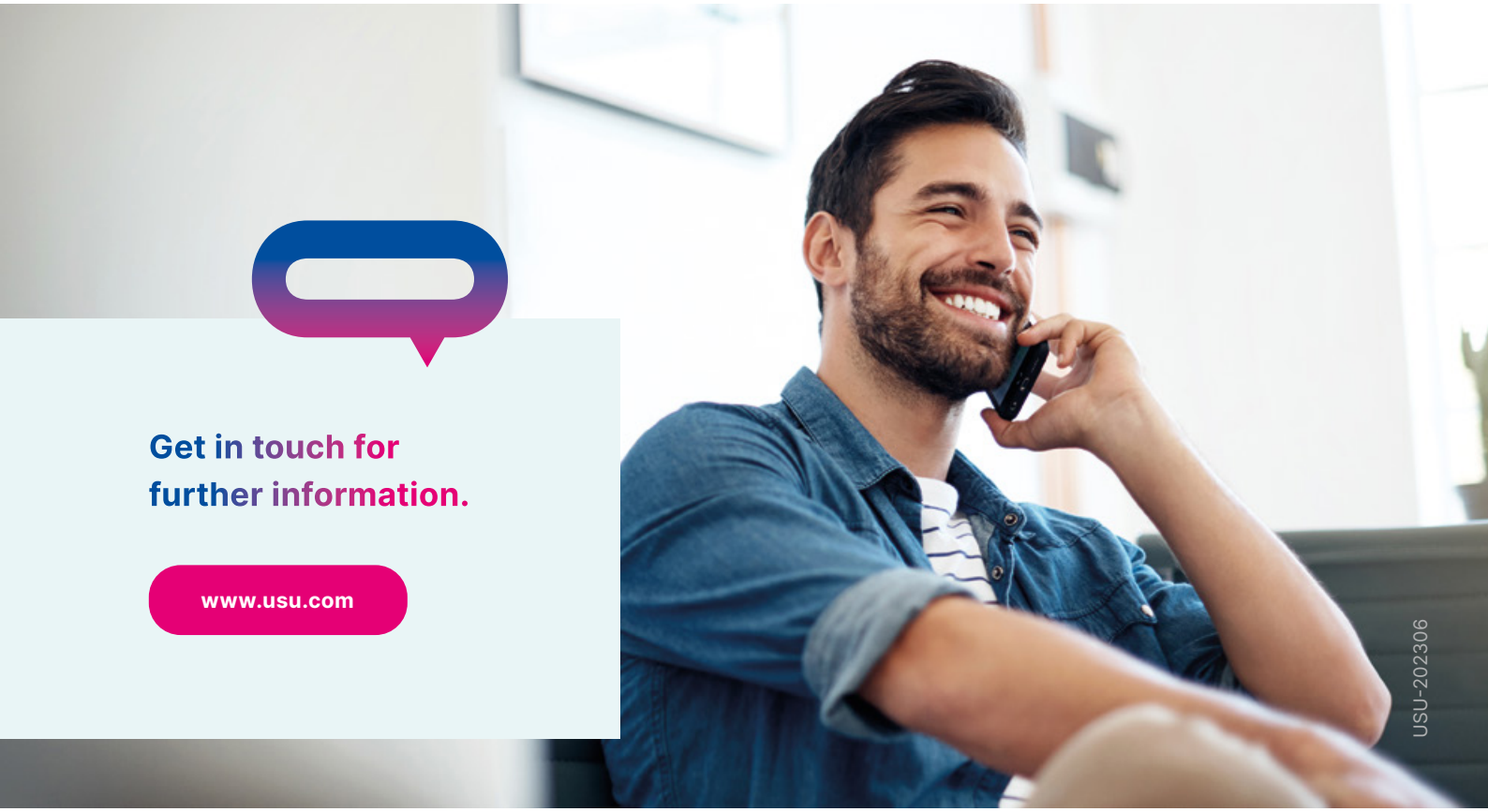

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