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How Businesses can Innovate AI Assistants' Experiences for Users

Master Thesis by,
Sadhana Suresh
17754137
sadhana.suresh2@ue-germany.de

Supervisors
Johannes Kiessler
Thomas Noller

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Abstract

Businesses have been developing artificially intelligent machines from over 1966. The design for bots has only been evolving since then and in the recent times, various industries are implementing bots for different use cases. However, the bot-user interaction needs to be improved to meet with ever growing user expectations otherwise, the digital assistants do not serve the business purpose and leaves a negative impact of the brand in the user's mind. Every organization must carefully evaluate the existing business model and targeted user groups before putting the technology first of building bots. In the current times, it is essential for organizations to discover the right business methods to identify scenarios where bots best suit user needs, analyse the bot-user interactions and develop mechanisms to improve these dialogues in a way that meets user needs, sounds more humane, empathetic, and serves the use case purpose for which the bot was eventually designed for.

Conversation designing is a new term that have been in the current market to enable ways for building humanoid digital bots. The design method is a collaboration of artificial intelligence technology, user psychology, and copywriting techniques that enable building human-centric bot experiences for chatbots and voice assistants. Building an innovative assistant with at the core of improved user experience and business needs demands design thinking approach and no one-size fits all solutions. Evaluation of business needs, technology, user expectations, team essentials with capabilities in designing humane dialogues, technology platform, key performance indicators, and adoption of innovative approaches is the key for building human-centric bot experiences.

This thesis aims to define the innovative business strategies and conversation design patterns that organizations can embrace to build humanoid bots and achieve enhanced user experience along with business success.

1 Summary

1.1 Overview

Today, Artificial intelligence (AI) is becoming omnipresent; a key area of application is AI-based digital assistants, which are now becoming available in large numbers and a wide variety of usage scenarios (Maedche et al., 2019); AI application by organizations in developing interactive bots and constantly evolving user demands on virtual assistants are transforming the way bots and humans interact in the everyday world. The business market is flooded with chatbots and voice assistants for simplest tasks of playing music to handling complex business use cases in varied industries. However, the question to be investigated is how user-friendly the bot experiences are and successfully handling user scenarios leading the brand to successful return on investment (ROI). A gap in research about user experience of machine learning applications exists currently and many companies are invested in figuring viable solutions at the core of human desirability, technology feasibility, and business success (Duijst, 2017; "Design Thinking Defined", n.d.).

To elaborate on the above-said factors, organizations are constantly implementing AI driven bots for various industry use cases and minimal consideration is designated on the experience the bot product offers to the catered audience group. The business is shortcoming on eminently identifying touchpoints where AI assistants are needed, executing aspects that drive better bot-user interaction, effectively building the AI technology integrations and design strategies. These elements must work together to build business strategy, at product level the bot-user conversational strategy to achieve enhanced, humanoid user experiences with bots. Organizations must constantly innovate and adapt to growing innovations in the bot world to stay ahead in the competition. The industry needs an effective mechanism and insights to current and future trends in bot-user conversational dialogues and business strategies based on human-centred approach. This way, business may start early in the process for investing in valuable business decisions to implement AI assistant, offer improved user experience along with innovative design elements enforced in the digital assistant product.

1.2 Objective

The general objective, this thesis research work aims to comprehend the foremost innovative ways that businesses can invest in to build a delightful bot-user interaction experience.

With the key objective in focus, the aim is to deep dive in understanding significance of AI assistants to serve business use cases, bot-user interaction model, and user psychology towards interacting with artificially intelligent systems. Furthermore, through extensive research, expert interviews, and by applying design thinking, innovative techniques, technology platforms, best practices for businesses to improve the user experience with AI assistants are propounded.

1.3 Methodology

To articulate the key research question, the research is decrypted through the following five main sub-questions:

1. What use cases in the industry (products and services) would possibly need AI assistants implemented?
2. Is the bot-user interaction engaging and solving the business use case for which it is designed to? If no, where is the AI assistant failing to meet user expectations?
3. How are the user experiences with AI assistants evolved over time? Have there been any psychological hindrances from users that have been encountered or that you think would be impacting the bot-user interaction?
4. What are the current and future conversation designing capabilities and other innovative ideas that business is embracing to create wow bot-user interaction experiences?
5. What other aspects, such as design processes, management practices, and metrices need to be considered by organizations to build better user experiences with AI assistants?

Secondary research is conducted to briefly investigate each of these sub-questions. Firstly, the evolution of AI assistants such as chatbots and voice assistants in the user world is explored to understand the on-set of intelligent machine communication with users. Secondly business approach and motive to invest in AI assistants' solutions is explored. Further business impacts from chatbots and voice assistants in terms of revenue, user

perceived brand value are discovered. Thirdly, user psychology, bot-user interaction in the past and current times, the uncanny valley of bot persona is investigated. Furthermore, the current trends in building conversation design (CD) model for bot-user interaction is studied. Most information is gathered from secondary research through a formal literature review and case study.

To be more specific, three companies have been studied and analysed to gather insights on CD techniques and best practices for designing better user experiences of AI assistants. This comprehension is obtained through specific company case studies, through questionnaires, and interviewing the conversation designers from the organizations.

In this research process, three expert interviews are conducted to learn from the experts on designing bot-user conversations for enhanced user experience. This interview also substantiates the findings from secondary research and case studies. Further to this validation, the information from the experts is further interpreted to gain insights to the innovation set in the AI assistant design solutions for fine-tuned user experiences.

Finally, business and conversation design strategy techniques in combination with design thinking is applied on these research findings. As a result, foremost innovative ideas that business can embrace to build more humanoid bots with delightful user experiences have been tried to be defined.

1.4 Understanding the Need for Innovating AI Assistants Experience for Users

In today's era, technology is booming at a breakneck speed and AI is emerging as a game changer; from the virtual assistant SIRI to the self-driving cars and to autonomous weapons AI has fascinated the concept of science fiction and is driving the world towards automation and AI is defined as the simulation of human intelligence process (acquisition of information, reasoning) by machines (Paliwal et al., 2019, pp. 455-482). Applying AI technology in chatbots and voice assistants in varied industries is the current business norm and users expect these AI driven bots to cater for their everyday tasks to simplify human lives. However, not all these engagements with bots and users are meeting users 'needs or business use cases. Once a request, inquiry, or conversation strays from already programmed paths, digital bots can quickly become unhelpful and its failures to retain information that has already been provided in the interaction leads to user frustration ("The chatbot revolution", n.d.). The human-likeliness of the intelligent bots varies on vivid user psychology factors,

AI built-in algorithms, and other design factors of bot's conversational intelligence, contextual response, and interaction mechanisms; the traditional mode of bot conversations is no longer the benchmark for business to build these capabilities; efficiency and effectiveness may not be sufficient for an optimal user experience (Haugeland et al., 2022).

To meet these needs, companies are increasing their use of digital channels to communicate with customers – in 2022, 70% of all customer interactions will involve technology like messaging applications, social platforms, or chatbots; currently most bots are programmed to follow predetermined conversational flows—thus limiting their usefulness for solving complex problems ("The chatbot revolution", n.d.). While the pervasiveness of AI-based digital assistants increases, most business ignore their underlying architecture and algorithms (Frey & Osborne, 2017) resulting user aversion regarding their uses (Dietvorst et al., 2015, 2016; Maedche et al., 2019). There lies a wicked problem of business not implementing latest AI technologies, not invested in enough user research, and under-designed bot interaction flows that does not meet user needs leading to reduced ROI and unsatisfied users having negative experience with the bot and the brand. Therefore, business must find a blend of AI technology coupled with interactive conversational flows that are designed to meet growing user expectations from the AI assistants and develop breakthrough business results. To achieve this, innovation in this field is inevitable.

2 Evolution of AI Assistants

2.1 Defining an AI Assistant

AI assistants are computational systems that function as interfaces for services, information, and skills (Shevat, 2017). The concept of AI was coined back in the year 1956, at Darmouth Conference organised by John McCarthy who developed the List Processing (LISP) programming language; an important part in machine learning (Paliwal et al., 2019, pp. 455-482). The intervention of AI machines in our everyday lives brings disruption to how we see ourselves and the world around us (Coeckelbergh, 2013). As the technological solutions are getting to the point that it is possible to integrate AI into services and products in a meaningful way (Lungarella et al.,2007), one such development of AI application is an AI assistant that use Natural Language Processing (NLP) and Natural Language Understanding (NLU) to interact with users as chatbots, voice assistants, and robots. The user be whether a customer or an employee, through voice or text commands and through a conversation, AI assistant interprets the user's needs and finds the right solution or answer (Jylkäs et al., 2018).

The assistants leverage in both service tasks and persuasive tasks depending on how a business puts AI into application. Both chatbots and voice driven bots constitutes under the term AI assistants and throughout the paper, the term refers to intelligent systems which could be either chat only, voice only, or both depending on the context. Several synonyms are used for the word AI assistant, i.e; intelligent machines, intelligent bots, AI bots, intelligent assistants (Lee et al., 2017), virtual personal assistants (Arafa & Mamdani, 2000), personal service assistants (Arafa & Mamdani, 2000), conversational agents (Jacques et al., 2019), and digital assistants (Mahnič, 2019). Some of the well-known intelligent bots are Apple's Siri, Amazon Alexa, Google Assistant, Microsoft Cortona, Samsung Bixby; so, on and so forth. Global technology companies such as Microsoft, IBM, Google, and Amazon have been working intensively for decades on advancing AI-based digital assistants and have recently made them suitable for the mass market. Empowered by recent advances in AI, these assistants are becoming part of our daily lives (Maedche et al., 2019).

AI-based digital assistants represent a sociotechnical system that relies on the interplays of three key elements (Maedche et al., 2019; Goodhue and Thompson 1995; Heinrich et

al.2011): the individual user, who seeks to achieve certain goals; the tasks the user needs to accomplish so as to achieve their goals, and the technology, as the computer system (i.e., software, hardware, and data) an individual may interact with to carry out tasks. The AI-based digital assistant is an applications class (i.e., a combination of software components and data structures) and can be characterized by its input, output, and processing; Digital assistants generally have a specific extent of interactivity and intelligence to help users perform tasks; most contemporary AI-based digital assistants rely on some form of conversational user interface (UI), such as speech-based or text-based conversational agents, both for receiving input from and delivering output to users using NLP (Maedche et al., 2016, p. 367–370; Maedche et al., 2019).

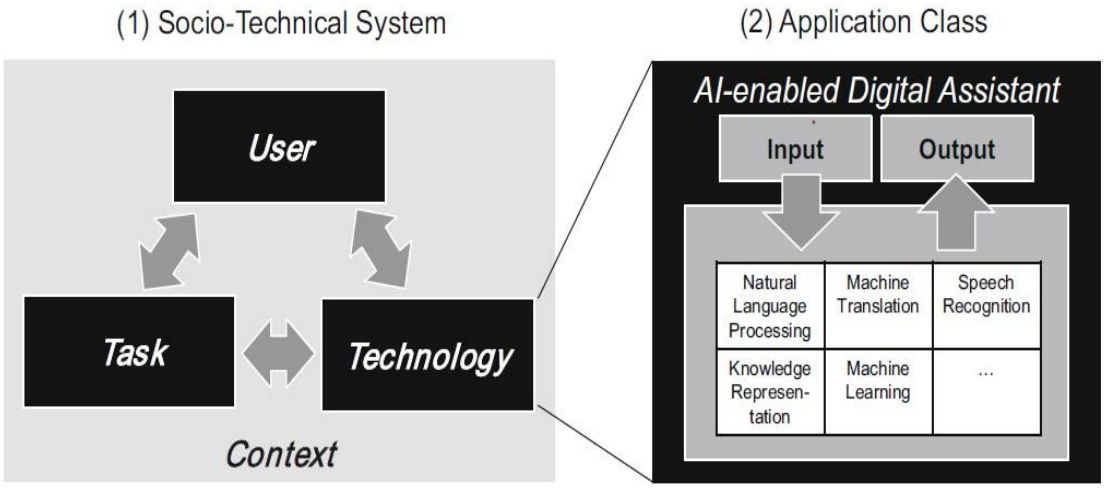

Figure 1: Sociotechnical system of AI based digital assistants

2.2 History of AI Assistants

Research into AI-based digital assistants has a long history, dating back to Joseph Weizenbaum's well-known ELIZA in 1966 (Maedche et al., 2019). ELIZA failed in Turing test but laid the foundation for chat bots which includes pre-programmed responses and keywords; Turning test is a methodology to determine if a computer can think like human (Paliwal et al., 2019, pp. 455-482). Primitive systems like ELIZA used keyword matching, minimal context identification, and lacked the ability to keep a conversation going.

A Chatbot PARRY was able to simulate a person with paranoid schizophrenia. Only about 48% were able to identify the difference between PARRY and human (Paliwal et al., 2019, pp. 455-482). In 1995, ALICE a language processing bot who can work online came into

existence, but ALICE was unable to pass the Turing test (Radziwill & Benton, 2017). In 2001 smarter child was introduced which was developed by ActiveBuddy, Inc. (Paliwal et al., 2019, pp. 455-482) to enable users to access real-time news via instant-messaging (IM) on AOL Instant Messenger (AIM) and Microsoft Network (MSN) Messenger (Woods, 2002): blogpost. The next decade 2010 – 2015 marked the presence of SIRI (2010), GOOGLE NOW (2012), ALEXA (2015) and CORTONA (2015). These bots were able to respond to voice commands and can perform internet searches along with some other tasks (Paliwal et al., 2019, pp. 455-482).

To introspect about evolution of voice assistants, a figure with timeline of voice assistants' generation since its beginning in the early 1960s is created that illustrates since its start with Shoebox device from IBM to Alexa's launch, ushering in what is called the Smart Speaker revolution — and the birth of Voicebot.ai (Mutchler, 2014): blogpost.

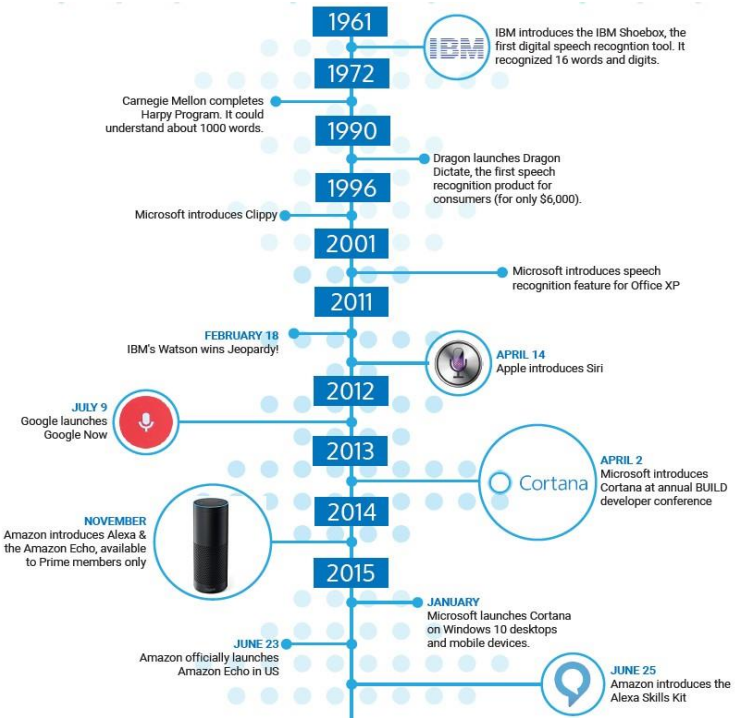

Figure 2: Evolution of Voice AI Assistants (Year 1961 – Year 2015)

2.3 AI Assistants Engagement with Users in Today's World

In the current era, AI assistants in modes of chatbots, voice assistants, speech-based Intelligent Personal Assistants (sIPA) are seeing advances and becoming the norm for users to interact with these intelligent assistants. Advances in AI and language processing raised the popularity of conversational UI such as chatbots and voice assistants (Wintersberger et al., 2020). Various industries from education, healthcare, financial services, customer care, retail, telecom, entertainment, and media have developed conversational agents for both service and sales-oriented use cases. One important use case is customer service (Følstad et al., 2018); according to 2017 survey in Germany, chatbots are mainly used for customer service purposes (68.2%), followed by shopping (30.6%), entertainment (25.6%), and personal assistance (20%) (Wintersberger et al., 2020). A Gartner customer service and support (CSS) survey of 50 respondents conducted online in 2022 revealed 54% of respondents are using some form of chatbot, virtual customer assistants (VCA) or other CAI platform for customer-facing applications ("Gartner Predicts Chatbots Will Become a Primary Customer Service Channel Within Five Years", 2022).

In the current environment where the pandemic has accelerated digital business and remote everything, the virtual agent demand has increased and continuously adding new skills to the cognitive agents. Gartner predicts that by 2025, 50% of knowledge workers will use a virtual assistant daily, up from 2% in 2019 (Bradley, 2020). Over the last few years, the number of conversational platforms available have increased; developers can build conversational UI, chatbots and virtual assistants for integration into messaging platforms, social media, Simple Messaging Service (SMS), website chat ("Conversational Platforms Reviews and Ratings", n.d.). In addition, enterprises know that customer-centric businesses reap 60% more profit than those who do not prioritize delivering a better customer experience (Singh, 2021); hence virtual assistants' implementers are focusing on mechanisms to inculcate for delivering improved conversational experiences for users. These capabilities and approach have significantly increased the use cases for which digital assistants are being developed (website, WhatsApp, Facebook Messenger, Instagram and so on).

2.4 Conclusion

The research in the field of digital assistants points back since 1966 from the period of ELIZA (Maedche et al., 2019) and continues further in today's times to the next generations. Advances in the AI technology and AI assistants over the years have led enterprises to implement these virtual assistants for various business purposes. More industries are turning towards virtual assistants for engaging with users at different touchpoints and various channels.

3 Business Approach Towards AI Solutions

3.1 Business Use Cases for Choosing AI Solutions

With growing AI technology, the global AI adoption rate grew steadily and now is 35%, a four-point increase from the year 2021 and in some industries and countries, the use of AI is practically ubiquitous ("IBM Global AI Adoption Index 2022", 2022). AI is rapidly providing new benefits and efficiencies to organizations around the world through new automation capabilities, greater ease of use and accessibility, and a wider variety of well-established use cases; AI is both being applied through off-the-shelf solutions like virtual assistants and embedded in existing business operations like IT processes and bolstering evidence about the importance of accessibility, 44% of organizations are working to embed AI into current applications and processes; almost 22% of organizations today are using AI for businesses in the form of CAI and around 40% of companies are using AI to improve customer service agent productivity, create a more personalized experience for customers and employees, and resolve frequently asked questions (FAQs) ("IBM Global AI Adoption Index 2022", 2022).

As the possibilities with AI is growing, businesses are either adopting to the AI technology because it is trending and encountered valuable results from companies that have implemented AI, or the business have identified use cases where the AI adoption could benefit the company with ROI and user engagements. Research by McKinsey indicates that 70% of businesses are likely to implement at least one type of AI-driven tech in the coming years (Singh, 2021). According to Cathy Pearl, CD Lead at Google, one of the biggest challenges for business is finding the right use case; for example, why would customer or user choose to use conversational experience rather than the way they normally do it? In Cathy's opinion, it is important to spend time analysing the problem, talking to customers, and doing user research before building something ("Cathy Pearl on why it's a great time to become a conversation designer", 2021).

Going far beyond Alexa or Siri responding to a simple query, today's state-of-the-art conversational AI (CAI) systems navigate complex dialogue, understand nuanced intent, navigate multi-topic, multi-turn conversations, articulate cogent, on-point responses and the rise of CAI is creating a new paradigm for customer experience and productivity in the business (Tewari, 2022). Based on these factors, some of the use cases that businesses can harness today with AI assistants are customer service, sales, cybersecurity, ecommerce,

retail, healthcare, human resource management, and so forth (Tewari, 2022, Posternak, 2022). In customer service, messaging apps and bots on e-commerce sites with virtual agents help facilitate customer support online, these online chatbots answer FAQs and provide personalized advice, replacing human agents (Posternak, 2022). Use case targeted towards enterprise support team is virtual agents assisting support teams in a way that boost live agents' ability to support customers by processing the conversation in parallel and continuously suggesting relevant information to the agent that can help answer the customer's inquiry faster (Totland, 2022).

In the retail and e-commerce, retailers are emphasizing more on upbeat customer communications and in these cases, time-triggered, automated outbound calls to confirm deliveries, prompt checkouts, and provide proactive notifications would lead to happy customers (Singh, 2021). In identity and verification, voicebots reduce the time spent on data collection, verification, and speed up processes by integrating with Customer Relationship Management (CRM) or Enterprise Resource Planning (ERP) systems and the intelligent bots can update or modify account details (Singh, 2021). Looking ahead, Gartner, Inc. predicts that one in ten agent interactions will be automated by 2026 (Totland, 2022).

In sales domain, processes often require collecting data from prospective customers, both to qualify the customer as well as to curate the appropriate offering and digital assistants can automatically and interactively collect this data from prospective customers and be operational 24/7; these AI bots can also tie together information from multiple touchpoints and channels (chat, text, phone, web) to mitigate redundancy and error, while reducing customer friction (Tewari, 2022); in healthcare, services can be more accessible and affordable for patients with AI assistants offering improvements of operational efficiency and administrative processes such as claim processing. In improving accessibility, text-to-speech dictation and language translation are two ways AI can help which helps companies reduce entry barriers and become more accessible (Posternak, 2022).

From the statistics and growing AI technology in virtual assistants such as chatbots, voice assistants, CAI, robotics, and so on, businesses have already started investing in this technology to improve various divisions within the business and improve how the users experience the brand. From extensive industry research and trends, possible use cases for business to enable AI assistants or to completely shift the business model with AI assistants are also identified.

3.2 AI Assistants Impact on Overall Business Outcome

Following are the stats from organizations that are already leveraging AI capabilities to improve customer and employee care in wide-ranging business use cases:

- 36% organizations use AI to improve customer service agent productivity,
- 35% for creating more personalized experiences,
- 31% for survey and feedback analysis,
- 28% to decrease call wait times,
- 26% for more targeted and personalized advertising,
- 25% to identify new revenue streams or cross-sell or upsell opportunities,
- 24% to address labor or staffing shortages (example: contact centers), and
- 16% for sentiment analysis ("IBM Global AI Adoption Index 2022", 2022).

It is projected to demonstrate a Compound Annual Growth Rate (CAGR) of roughly 18.9% from 2021 until 2030, become multi-billion vertical and be valued at $32.62 billion (Posternak, 2022). AI bots are a growing tool connecting to intelligent automation platforms to drive conversational-driven experiences that will transform how people interact with companies; 63% of customers would prefer messaging with an online chatbot, while 33% of companies that use virtual agents report an increase in customer satisfaction (CSAT), plus save 33% per voice engagement (Macciola, 2021).

According to a recent Gartner, Inc. projection, "conversational artificial intelligence (CAI) deployments within contact centres will reduce agent labour costs by $80 billion" by 2026 (Swaminathan, 2022). From the Juniper Research, by 2023, chatbots will save retailers $439 million annually, up from $7 million in 2019. Retail sales through this channel show annual growth of 98% and will reach $112 billion in 2023 against $7.3 billion in 2019 (Posternak, 2022. The survey conducted to examine where businesses noticed greatest benefits by using chatbots, following percentage of ROI added value was witnessed by companies in the DACH region 2020: around 64 percent of those surveyed from the DACH region stated that they experienced greatest added value in increasing efficiency when companies used a chatbot, 62% increase in CSAT, 26% witnessed cost cutting, 13% increase in sales and leads, 13% saw potential for cross-and up-selling, and an increase in employee satisfaction was selected by around 8 percent of those surveyed ("Where do you see the greatest added value when companies use a chatbot?", 2022).

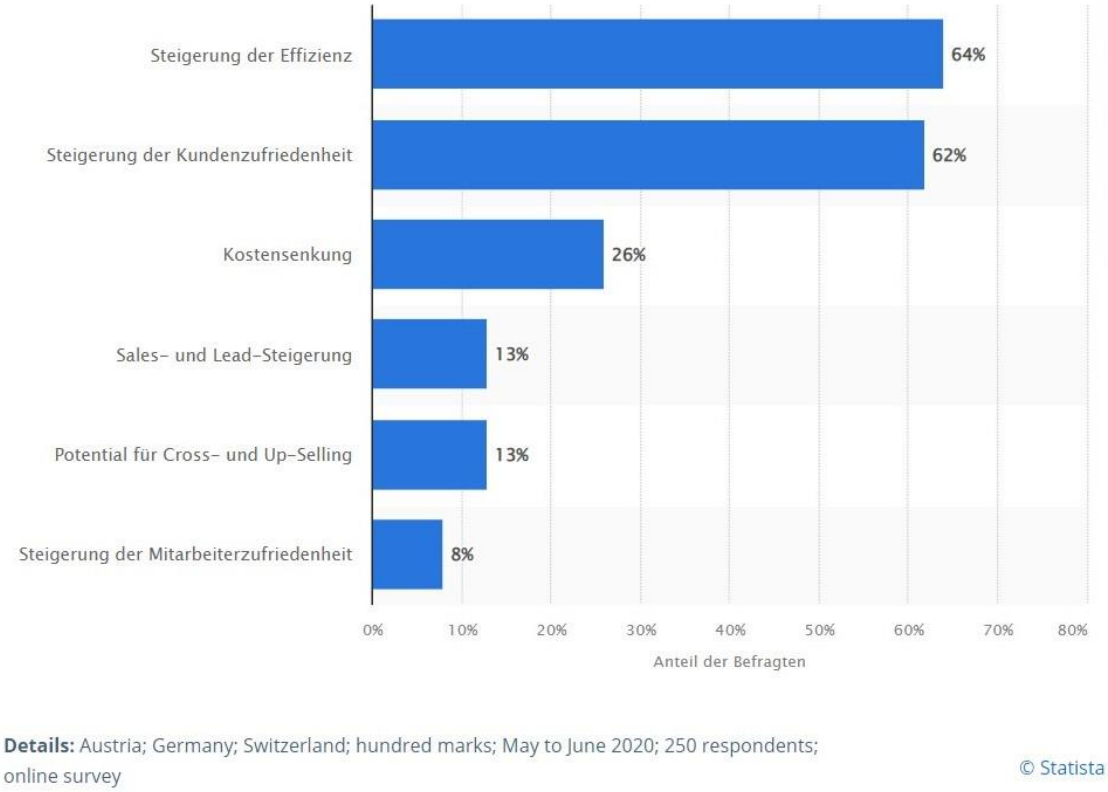

Figure 3: Value-add of Chatbots in Companies – DACH Region

In the aftermath of the pandemic, companies have undergone rapid digital acceleration to reinvent their business models and meet the transformed customer expectations and among successful AI-powered technologies such as big data and analytics, conversational voice AI is showing considerable promise. Three megatrends—the need for automation, innovation and better CX—find convergence in conversational voice AI and are driving its popularity (Gupta, 2021).

By leveraging AI and advances in NLP, voice assistants can remember customers' past inquiries, and deliver much more relevant, personalized, and useful information than traditional keyword searches. Thus, optimizing your business for voice search results will allow to raise brand awareness and strengthen customer loyalty (Goryachev, 2018). Enterprises witness revenue increase, productivity development, cost savings, better customer experience, brand value, business model innovation, upsell opportunities, so and so forth. Overall, the digital assistants are revolutionizing the business model by either enabling or shifting completely by adopting AI capabilities in enormous ways to their existing business or to a start-up model.

3.3 Conclusion

As there is no one-size-fits-all solution, its best advised to investigate what areas of the business will benefit the most from the implementation, and what new opportunities will the implementation offer? (Fowler, 2020). It is no doubt that not adopting AI assistants' capabilities in touchpoints where applicable in the user journey or within the business model would lead to falling behind the race in the future business market. It is also true that implementing the AI capability for a wrong use case would do equal harm to the business. Hence, with many established companies and start-ups are on their business transformation journey towards implementing AI driven digital assistants, it is advised that business take a close look at building sustainable solutions in the long-run and that drives ROI.

4 User Experience with AI Assistants

4.1 User Psychology Towards AI Assistants

The AI assistants are an emerging technology designed to support text and speech input-output and perform a wide variety of tasks ranging from information retrieval to playing music and controlling other devices (Canbek & Mutlu, 2016). How users perceive the growing rate AI assistant's usage in everyday life, and what is user's mindset about interacting with these digital bots needs to be researched. Several statistics in recent times have been analyzed to gauge the user adoption of AI assistants, primarily in Europe – Germany and Austria regions. The statistics is focused to comprehend user psychology – goals, motivations, preferences to use AI assistants based on demographics (age and geography) and mapped to user persona (says, thinks, feels, does). In this research paper, the term user, customer, people, employees, and so forth are alternatively used contextually to refer the intended user group.

From the survey in Austria 2022, around 27.6% of 16 to 24-year-olds in Austria would use virtual language assistants. This made them the age group with the greatest use. In contrast, only 7.5% of 65 to 74-year-olds used language assistants such as Alexa or Amazon Echo, Google Home, or Siri (Turulski, 2022).

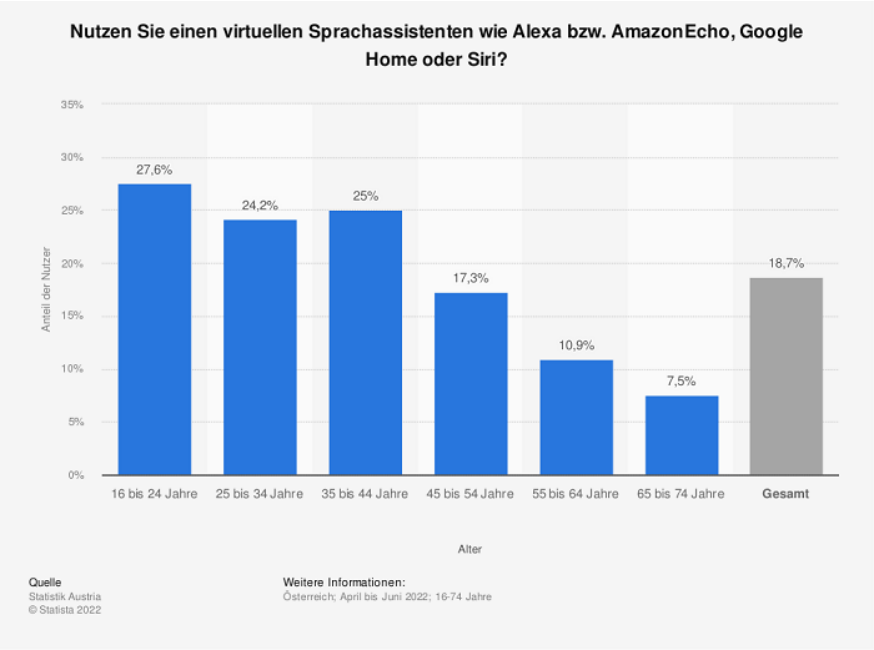

Figure 4: Virtual Language Assistant Usage – Statistics Austria, 2022

As a Bitkom survey from Germany, 2022 shows, voice assistants are used in everyday life primarily to control devices in the home. 89% of those surveyed use this type of AI to operate household appliances, and 84% use it to control music and radio ("Survey on the types of use of voice assistants in everyday life in 2022", 2022).

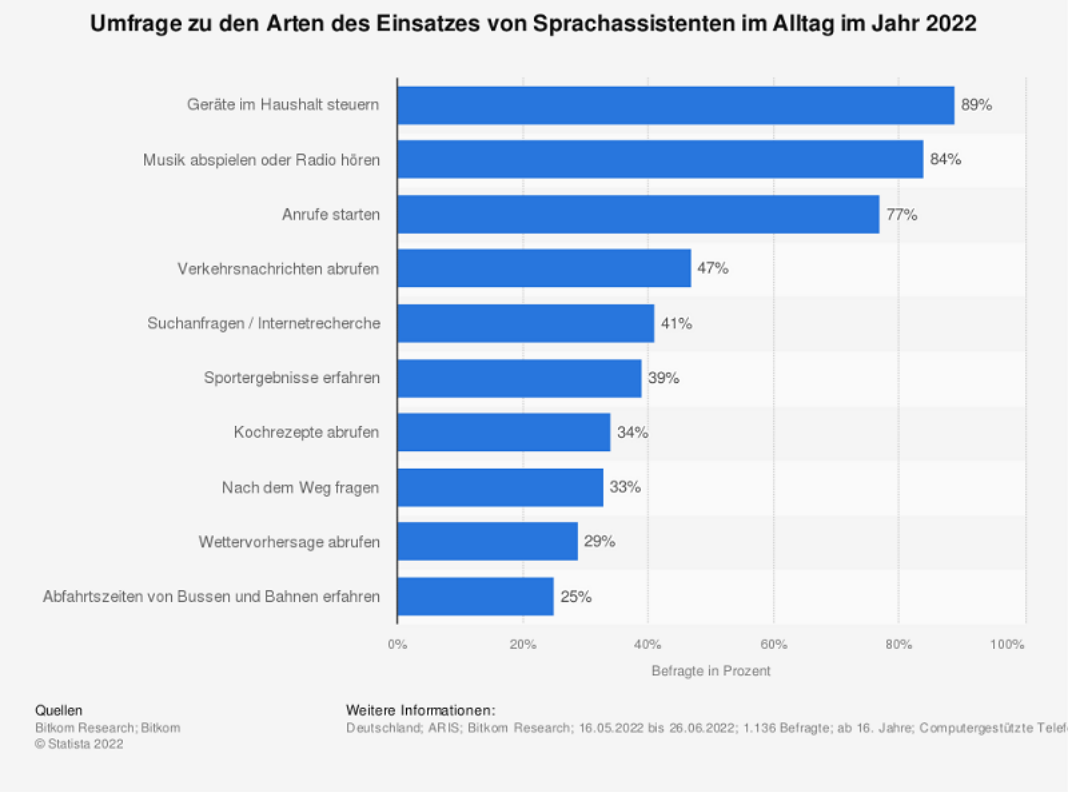

Figure 5: Survey on the types of use of voice assistants in everyday life in 2022

Additionally, there has been a voice assistant rejection survey conducted in Germany, 2022 according to which 53% are afraid of being overheard by third parties, 22% do not want devices controlled through language assistants, 16% find these devices highly priced, 10% find other ways of operations instead of using language assistants are convenient and so on ("Survey on the reasons for rejection of language assistants in Germany in 2022", 2022).

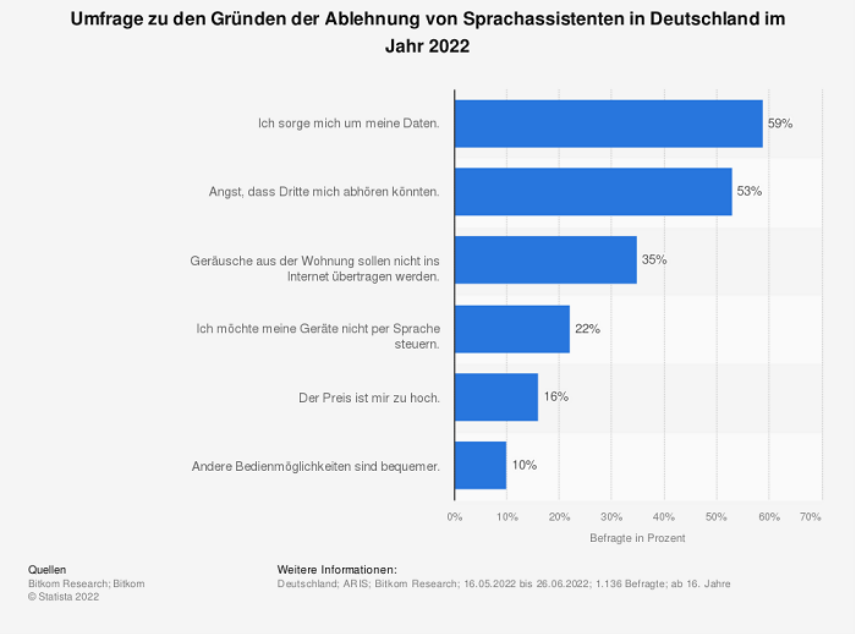

Figure 6: Survey on Rejection of Language Assistants – Statistics Germany, 2022

Following are statistics pertaining to chatbots. According to the results of a survey on the acceptance of the use of chatbots to communicate with companies in Germany, 44% of respondents said they were positive about the use of chatbots, 47% were neutral, and 9% of respondents did not prefer chatbot to communicate with companies ("How do you feel about using chatbots to communicate with companies in general?", 2018).

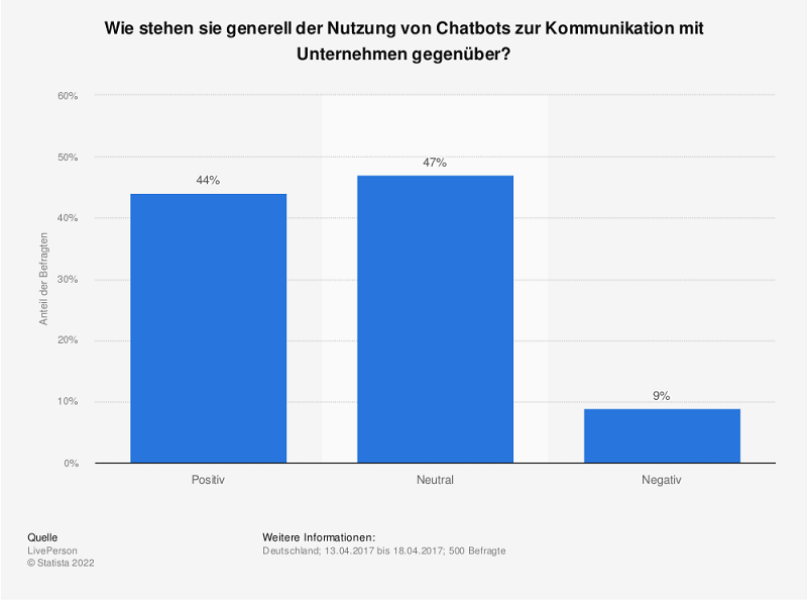

Figure 7: Survey on Using Chatbots to Communicate with Companies – Statistics Germany, 2018

From the results of a survey on reasons against using chatbots in Germany 2016, 54% of respondents stated that they do not want to use chatbots because they doubt that inquiries can be processed more reliably than before; 63% of respondents did not wish to use a computer to communicate, 49% of the participants doubt the information from chatbot is reliable, and 47% feel chatbot technology is not mature yet ("Why don't you want to use chatbots? ", 2017). This statistic gives insights to a certain extent to user psychology in Germany region for why they do not want to use chatbots.

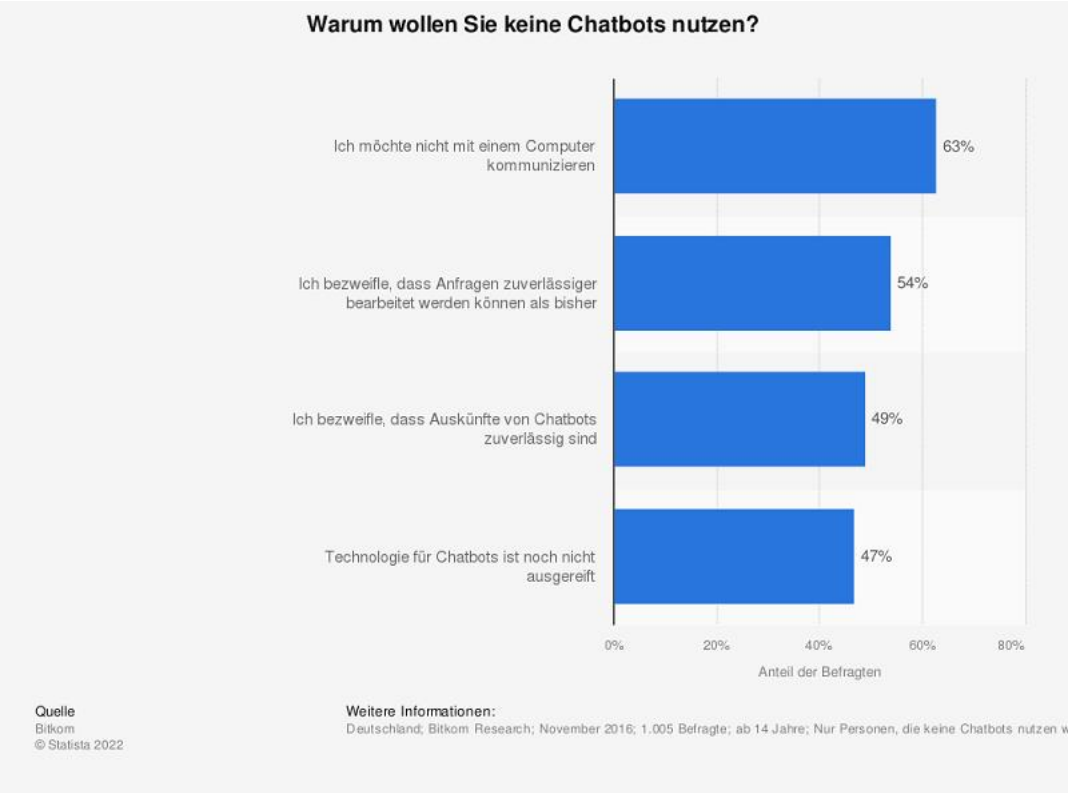

Figure 8: Survey on Why Respondents Do Not Want to Use Chatbots – Statistics Germany, 2017

According to the results of a survey on the willingness to communicate with chatbots by age group in Germany in 2018, at the time of the survey, 31% of the 18- 24 years old surveyed stated that they could rather imagine communicating with a chatbot, 30% of 25-34 years old, 32% of 35-44 years age, 18% of 45-55 years age, and 13% of 55 years and above age showed interest to communicate with chatbots; it is observed that, percentage of respondents completely unwilling to use chatbots were more in the age groups 45 years and above (Rabe, 2022).

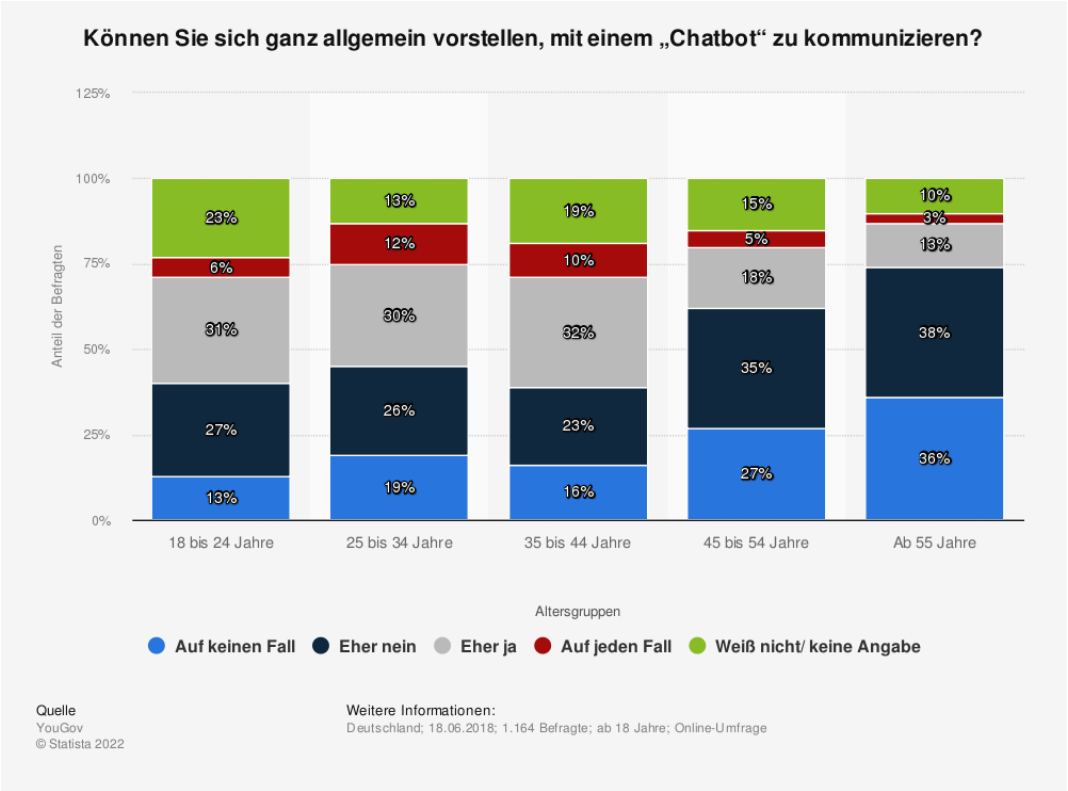

Figure 9: Survey on Willingness to Communicate with a Chatbot (Age Demographics)– Statistics Germany, 2018

Based on the survey statistics on demographics and usage of chatbots and voice assistants (VAs) from the respondents in the Germany and Austria region, it is observed that: users in the age group 18-34 years are more willing to try chatbots and VA in their everyday life as household appliances, controlling music and radio; they also expressed fear of security breach if these AI bots and third parties are overhearing the conversations in case of VA. Respondents in the age group 18-54 years say they are willing to try AI assistant at some point although this percentage gradually decrease with increase in age demographics.

Another research-based result on analysing user sentiments towards AI personal assistants revealed more negative feelings about the IPAs than positive (63 and 54 mentions respectively). Within the positive cluster, IPA convenience was mentioned the most frequently including accessibility, support for multi-tasking, hands-free interactions, and ease-of-use (12 mentions). Negative feelings towards IPAs were mainly associated with performance issues (39 out of the total 63 negative mentions). Within the larger cluster of performance issues, poor quality of voice interface and conversation support was mentioned

most frequently (15 mentions) (Lopatovska et al., 2019). Both the statistics and the research-based results summarizes user psychology based on what users say, think, feel, and does about the AI assistants, depicts details on user goals, motivations, and preferences to when and for what purposes are they willing to use digital assistants. The research lays foundation to user persona as further investigation is based on user psychology and demographics, age, gender, name, geography, goals, motivations, preferences, user emotions (says, thinks, feels, does); these elements constitute to user persona which gives the design team a clarity on intended audience group. Understanding the user's past experiences with these bots and task types for which they have interacted with digital assistants will also give an opportunity for reviewing user interaction styles and future potentials where bot design can be improved.

Further the research is based on understanding how users perceive the bot is dependent on the bot personality. A good bot personality will register the bot in the user's mind and create a favourable impression of the brand (Dileep, 2022). Defining a bot personality such as whether the bot is helpful, direct, sassy, energetic, and so on is possible as part of bot persona that gives an opportunity to represent the bot-user relationship (friendly, helpful, coach, service, so on), bot name, gender, avatar, chatting or voice message style, geography, accent (voice), job, backstory and so on (Dileep, 2022). From the user's point of view, a persona is above all an imagined construction, the feeling of a continuing relationship whose appearance can be counted on as a regular and dependable event and integrated into the routines of daily life (Bucher, 2014). This imagined relationship helps users maintain the impression of a coherence in their interactions with the assistant (Natale, 2020). Hence, by understanding the user mindset towards the bot personality, it is essential to define the bot characterises that gives user an opportunity to visualize what the bot is and helps remove any psychological hindrances to interact with the bot. Brands prefer giving the bot a personality to avoid users with pareidolia effect and leading to misconception of the bot. A bot that has well defined personality helps drive design decisions by addressing the right end-user needs, designing for consistency, trust, user likeability, increases user engagement, and the possibility of retaining potential customers; an ideal bot persona will resonate well with the brand and optimize the user experience (Dileep, 2022).

Here are some findings on the user psychology and bot personality from the expert interview.

Interview 1

About bot personality, it is confirmed that bot always has a persona and important to deliver good user experience because consistency is possible only with clearly defined bot persona. The bot persona clearly depicts how the user would perceive the AI assistant. Furthermore, it is essential to design for trust and persona is the key for trust which is extremely important when bot-user conversations get longer. In addition to bot persona that suits brand identity, designing for personality content, which is chitchatting, and little jokes allows bot to build a relationship with people and in scenarios where the AI assistant fails, users become more forgiving and hence personality content is not an afterthought but helps build user experience.

4.2 The Uncanny Valley

More than 40 years ago, Masahiro Mori, then a robotics professor at the Tokyo Institute of Technology, wrote an essay on how he envisioned people's reactions to robots that looked and acted almost human; Mori hypothesized that a person's response to a humanlike robot would abruptly shift from empathy to revulsion as it approached, but failed to attain, a lifelike appearance (Mori, 2012). In the Mori's principle of affinity vs human likeliness, evaluation against the growing AI bots, how they impact the user's likeliness towards them and when the bot may fall in the uncanny valley is shown.

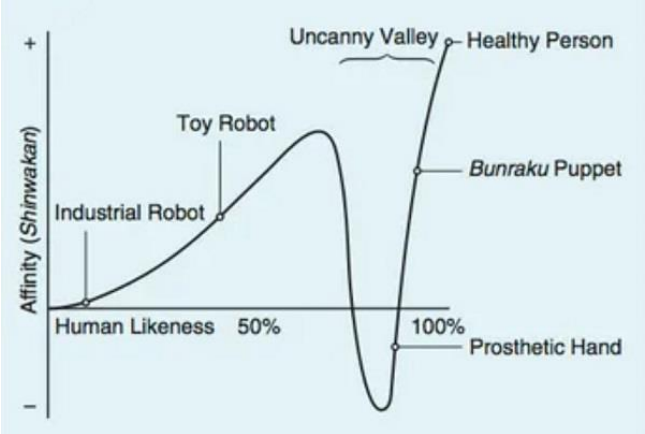

Figure 10: Uncanny Valley

The graph depicts the uncanny valley, the proposed relation between the human likeness of an entity and the perceiver's affinity for it (Mori, 2012). Industrial robots are increasingly

recognized as the driving force behind reductions in factory personnel; their design policy is clearly based on functionality and lack of resemblance to human beings; people hardly feel any affinity for them; by contrast, a toy robot's designer may focus more on the robot's appearance than its functions; the robot have a roughly human-looking external factors; children seem to feel deeply attached to these toy robots and hence, the toy robot is shown halfway up the first hill in the graph representing increased affinity (Mori, 2012). In case of AI bots with prosthetic hands for instance that is used to mimic humans in appearance leads to uncanny valley; when human realizes the prosthetic hand, which at first site looked real, is in fact artificial, experiences an eerie sensation; for example, human could be startled during a handshake by its limp boneless grip together with its texture and coldness; when this happens, human lose sense of affinity and becomes uncanny; in mathematical terms, this can be represented by a negative value and therefore in this case, the prosthetic hand level of affinity is negative, thus placing the hand near the bottom of the valley (Mori, 2012). The uncanny valley phenomenon can be described as an eerie or unsettling feeling that some people experience in response to not-quite-human figures like humanoid robots (Caballar, 2019). In case of bunraku puppet, its total appearance is close to that of a human being, a high level of affinity for the puppet (Mori, 2012).

In the graph, healthy persons are represented at the crest of the second peak representing greater affinity, but the descent maps the human in the uncanny valley where human death can be regarded as a movement from the second peak (moving) to the bottom of the uncanny valley (still) (Mori, 2012). The negative effect associated with uncanny stimuli is produced by the activation of conflicting cognitive representations and may seem to pose a threat to humans' distinctiveness and identity; negative reactions towards very humanlike robots can be related to the challenge that these kinds of robots lead to the categorical human—namely, non-human distinction (Ciechanowski et al., 2018). Mori recommends that designers must consider the first peak as their goal, which results in a moderate degree of human likeness and a considerable sense of affinity; in a way that is possible to create a safe level of affinity by deliberately pursuing a nonhuman design that is necessary to design devices to which people can relate comfortably (Mori, 2012).

Uncanny Valley – Interview 1

Users are okay when the bot is mechanical or when the bot is very humanlike. When the bot interaction is not consistent and different every time, the bot personality confuses the user and creates bad experience. Designing the bot to have a very good persona and designing for trust, and clear interaction flows using CD techniques would avoid uncanny valley.

4.3 Bot-User Interaction

The bot-user interaction called as CAI refers to the technique that enables AI assistants to engage in a conversation dialogue with people; the user asks a simple question, and the computer replies intelligently to mimic a human-like response, thus bridging the communication gap in between. It interprets the user's question, chooses the appropriate response, and replies organically (Singh & Beniwal, 2021). These conversational assistants use NLP and AI techniques to engage in contextual discussion. To begin, the digital bot must comprehend the context of the end user. NLU draws insights from the users' words, independent of how they are told, including grammar, punctuation, and other faults. The system can acquire information and recall the context of past discussions; the bot must then select the correct response from a set of response variations using NLP. As time passes, the response becomes more diverse, and the accuracy improves regularly (Bansal et al., 2021). The rule-based, generative-based, and retrieval-based bots are the three different methods to define the bot capability to interact with user (Singh & Beniwal, 2021). The rule-based is a set of predetermined rules, input patterns, and response patterns (Singh & Beniwal, 2021). The generative-based employ powerful NLP algorithms to understand the gist of the inquiry, intent gathering, and react without the need for human participation. Because they do not have programmed rules and are based on data patterns that generate more human-like replies, users find generative-based bots to be more friendly (Yan, 2018; Agarwal et al., 2021; Agarwal and Wadhwa, 2020).

The retrieval-based bots are the concept of CAI with elements such as intent, entity, use cases for which the bot is designed for, and the content that the bot is trained to converse with user. These are simpler to develop and operate than generative-based models and employ Neural Networks (NNs) (Suta et al., 2020; Agarwal et al., 2021; Agarwal and Wadhwa, 2020). When users type their query and ask the bot to complete a task for them, the bot would require some additional information to provide the required solution; this information could be user-specific data like personal details, etc. and might also need to be

stored in the bot or sent to the backend APIs to fetch user-specific data (Anand, 2022). For example, when the user texts "I want to book a flight to New York next week", the user has provided the destination city within their message. The bot can extract and store this information. These variables which help us to store these values are called "entities". Along with extracting keywords from the user's messages, entities can be asked directly to the user such as their name, email address, phone number, and so on (Anand, 2022). Intents refer to the mapping of user request on what the user is expecting the bot to help them with. It is vital for the bot to interpret the meaning and the intent of users' utterances otherwise the best-selected response may still sound irrelevant to the conversation (Dyke et al., 2012). Intent Discovery uses your existing information sources - previous chatbot transcripts, support tickets, and knowledge base to train your bot ("Build bots instantly with Intent Discovery", n.d.). The bot summons the intent with the programmed use cases it is designed and matches with the right use case. On finding the intent =use case, bot appropriately responds to the user with the dialogue flow that is designed under this intent. If further information is required, bot prompts user for inputs by using dialogues. Prompts refer to bot dialogues that encourages user to respond to bot with requested information. When the right backend technology to build the data retrieval for the bot and intent mapping is not taken care, in such cases the AI assistant fails to address the business use cases for which it is designed for and does not meet user expectation.

Here are some findings on the bot-user interaction from the expert interview related to user expectations from the bots and designing AI assistants for better user experience.

Interview 1

With the advent of AI, expectation of users is shifted from getting right information as in service-oriented customer service to bots doing amazing jobs for users on everyday basis. This is a big change that people expectations are high and although when bots accomplish the use case task, users are just not happy since they have a different expectation of what a bot can do and not limited to troubleshooting simple tasks. Going forward, bots to be omnichannel, contextual, deeply integrated is where most businesses today are focused as users expects these capabilities and the only way to do is to build one AI assistant and tap into chat channels, voice channels, and the metaverse rather than creating separate isolated projects. The current build of few bots that still do not support omnichannel experience leads to user frustration when the user cannot find the record of previous interaction with the bot on app or across platforms.

4.4 Conclusion

From the statistical data based on geography and age demographics, research results from the IPA, literature review, and two expert interviews, it is argued and confirmed that user experience with AI assistants is dependent on various factors pertaining to user's mindset towards bots, willingness to interact with bots which varies based on age, geography demographics and various other psychological aspects of the user persona that is discussed in this section. The experience with digital assistants is further greatly impacted by the bot personality without falling in uncanny valley, the technologies of NLP and NNs used in designing the bot algorithms, conversational dialogues designed for trust, consistency, and likeability in the bot-user interaction. Furthermore, the user's past experiences with the bots, current (personalization, omnichannel, and so on) and future expectations on what the bot can fulfil for user's also greatly influence the innovations that digital assistant designers will set forth in the bot-user world and how the user's respond to this experience.

5 Case Study Analysis

To understand what use cases the enterprises are today trying to solve with AI assistants case study analysis approach was considered. In addition, each case study is analysed to extrapolate how AI assistants add value to user engagement and which technologies the companies adopt to build these capabilities. Numerous renowned firms that have invested in AI assistants for businesses were considered. Eventually, JioMart India, lexoffice Germany, and Vodafone GmbH were finalized for further observations and analysis for the research.

5.1 JioMart

5.1.1 Description

An Indian ecommerce company, JioMart, is a O2O (Online-to-Offline) grocery marketplace and multicategory online shopping platform from the Reliance Retail Limited ("JioMart", 2022). During the Corona pandemic situation, a drastic change was noticed on how customers buy grocery and retailers had to respond to the unparalleled customer demands that stressed the ecosystem (Sharma & Patil, 2021). During this time JioMart was launched in India and in collaboration with Meta, created new ways for people and businesses to operate more effectively in the growing digital economy. JioMart with the power of WhatsApp, enables people to connect with businesses, shop, and ultimately purchase products in a seamless mobile experience (Fischer & Mohan, 2019). In this case study, key elements specific to business goals, user psychology, CD elements inculcated in designing the bot, performance and metrices, and business impacts pertaining to JioMart virtual assistant are investigated.

5.1.2 AI Assistant Key Elements

JioMart in collaboration with Haptik built WhatsApp Commerce chatbot enabling users to browse and order products and transact seamlessly through WhatsApp - commerce centre ("India's First WhatsApp Commerce Success Story", n.d.). Elements such as business use cases and user buying behaviour are examined in this section.

Business Goals and Use Cases

The business strived to engage with their customers on newer communication channels beyond the web to cater to the growing customer demands and fasten response time to customers, handle large volumes of customer support queries without scaling the number of agents leveraged the adoption of digital platform WhatsApp to drive grocery shopping using AI assistant chatbot; the bot primarily helps in resolving key use cases related to post-purchase support such as Check Order Status, Delay in Delivery, Replacement Request, and Refund Related Query ("How JioMart Handles 50% of Customer Support on WhatsApp", n.d.).

Connect Customer Buying Behaviour and Social Platform

There has been a radical shift in consumer behaviour in the last two years and customers are more willing to buy from brands on social platforms, while also expecting the same personal experience that they get in stores. To meet – and exceed – these growing expectations, JioMart strategized to pre-empt user behaviour on WhatsApp and build conversation flows that are closely knit with the shifting customer behaviour; based on Nielsen's Global Connected Commerce Survey, 83% of consumers in India prefer cash on delivery (COD) as the payment mode for online purchases and JioMart strategized its payment options accordingly and offered COD and pay online options ("India's First WhatsApp Commerce Success Story", n.d.).

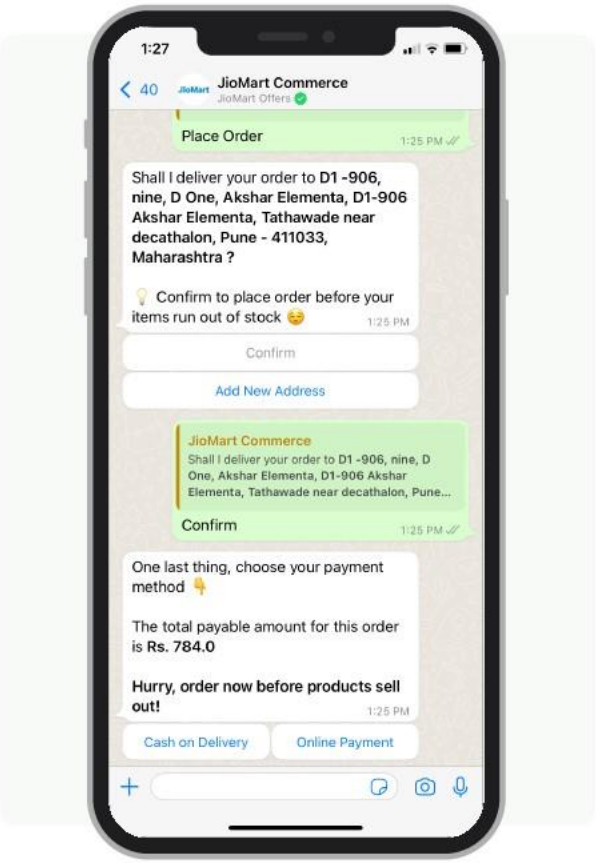

Figure 11: JioMart Commerce on WhatsApp - Payment Modes

Engaging Interactions with WhatsApp AI Assistant

Understanding the user behaviour and building conversations in a way that users find it useful to shop through WhatsApp instead of website or app required additional capabilities governed from the user centric aspect. JioMart launched a chat-based search on WhatsApp where users can directly search for items by chatting with WhatsApp AI assistant; it also takes it a step further and personalizes the recommendations based on the user's pin code ("India's First WhatsApp Commerce Success Story", n.d.).

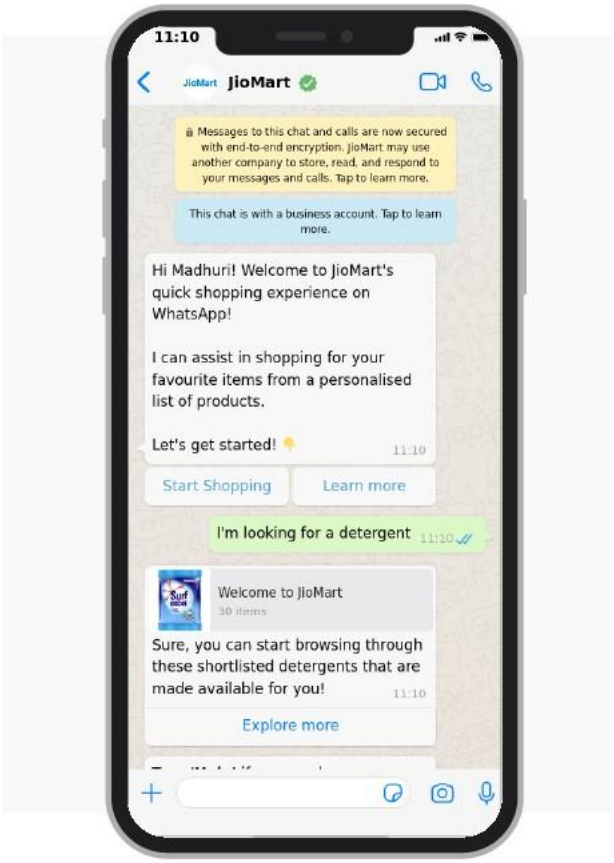

Figure 12: JioMart Search Option through WhatsApp Assistant

User Psychology Analysis Towards WhatsApp Assistant

To offer the stress-free shopping experience for users on a new channel WhatsApp, smaller cart size strategy was applied to cater a price sensitive market like India and hence the app initially launched only with grocery shopping and that nudged more users to experience shopping on WhatsApp through AI assistant and drive higher conversions ("India's First WhatsApp Commerce Success Story", n.d.). Further, 400Mn+ consumers spend over 4hrs/day on WhatsApp, hence shopping on WhatsApp through a chatbot would mean low friction for user adoption to engage with AI assistants over channel that already users are familiar with ("WhatsApp Commerce for Brands: All You Need to Know", n.d.). Since users are already familiar using WhatsApp for messaging, buying through WhatsApp and any notifications received would have almost 80% of average read rate withing the first 5minutes ("How is WhatsApp Shaping Commerce?", n.d.).

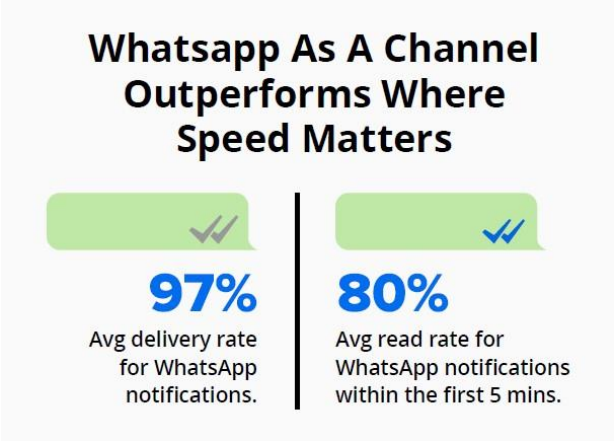

Figure 13: WhatsApp Channel Performance

5.1.3 Conversation Designing Techniques

The JioMart virtual assistant supports with user queries pertaining to checking order status, delay in delivery, replacement request, refund query, and so on ("How JioMart Handles 50% of Customer Support on WhatsApp", n.d.). The conversation of buying and assisting user queries must flow at ease and that means the dialogue flow between these two bot-human actors needs to be designed for engagement and better user experience to support users to effortlessly complete the intended tasks. Key CD elements and techniques that Haptik inculcated while designing the chatbot-user interaction are investigated here.

CD Elements

The JioMart virtual assistant is built on Haptik CAI platform that is powered with proactive messaging, multilingual support, multi-channel integrations (WhatsApp, Website, Instagram, Facebook Messenger, SMS, Google Business Messages), AI capabilities to help bots quickly discover intents, NLP driven, and supported with intelligent analytics and metrices to improve business growth and user experience ("The Haptik Platform", n.d.).

The virtual assistant mentions at its first interaction with the list of tasks that the bot can help users with and sets clear user expectations; by doing this more users tend to use the assistant for tasks the bot can fulfil leading to increased happy conversation flows, minimal user-drop offs during the chat interaction, and less task failures from the bot-side.

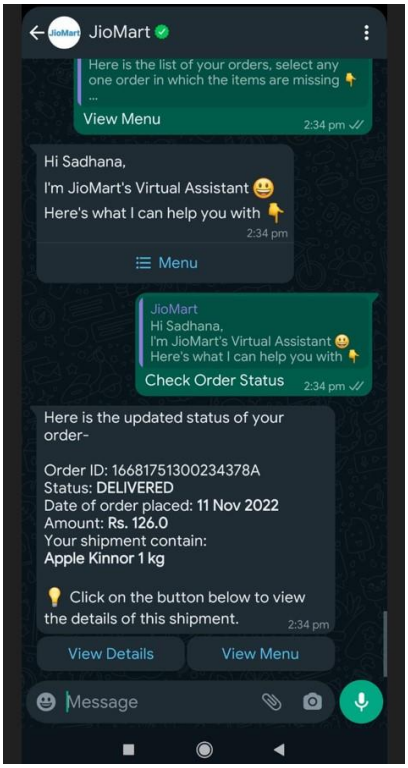

Figure 14: JioMart Shopping User Interface (UI) on WhatsApp

The bot persona is designed to use emojis and friendly tone of chatting style that indicates a welcoming gesture for users to interact with the bot. To cater to wider audience group on JioMart, the bot personality is maintained neutral, helpful, supportive, friendly, not quirky, and trimmed down to have a simple, straight-forward chatting style and hence a specific avatar for the bot is not used here. The virtual assistant uses explicit confirmations wherever required providing the user an opportunity to correct the bot if any misrecognition of user intent.

Figure 15: JioMart WhatsApp Assistant Chatting Style

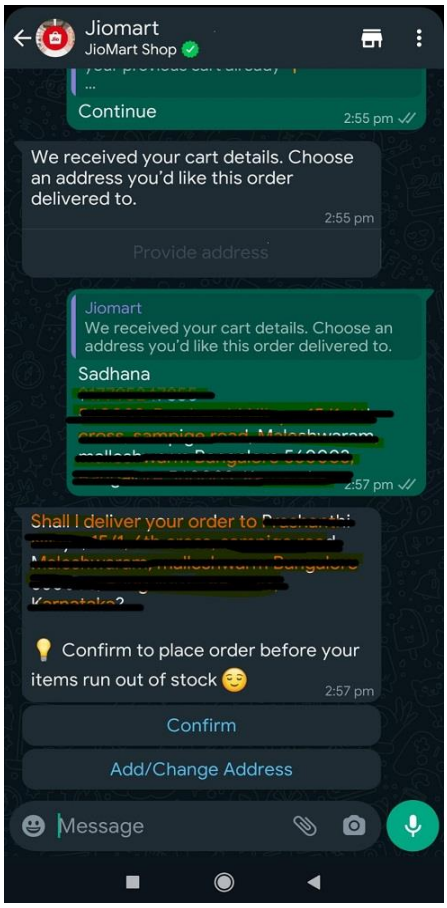

Figure 16: JioMart WhatsApp Assistant – Explicit Confirmation Dialogue

The WhatsApp UI offers menu-type view that is customizable up to 10 options that makes it easier for users to choose from the list of alternatives and with quick-reply buttons in the chat conversation flow, users can swiftly move through the conversation journey in the JioMart WhatsApp commerce.

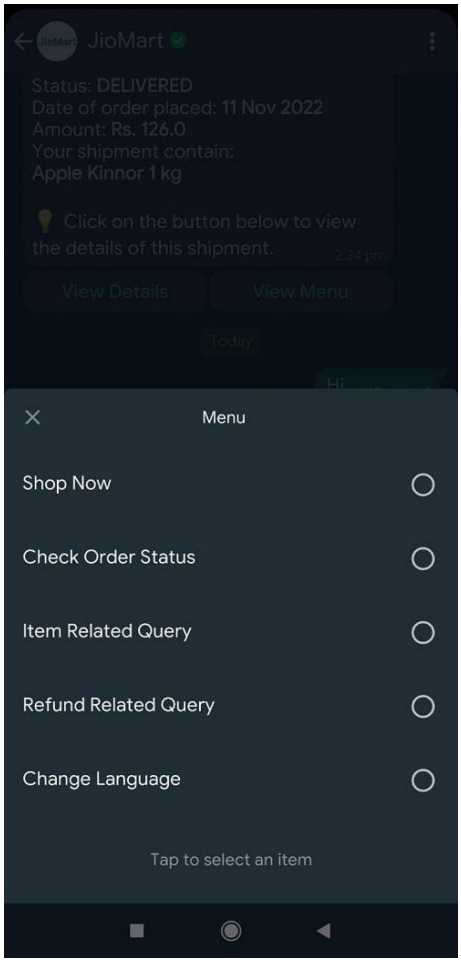

Figure 17: JioMart WhatsApp Assistant – Menu Options

Users are bound to use short texts, make spell errors while chatting, or write messages in varying ways and the digital assistant must be prepared to prompt user for corrective inputs and to identify the right intent to assist the user further. Haptik has designed the virtual assistant to recognize the vague user intents or spelling errors and to respond to users with prompts that are suitable to the chat context ("How JioMart Handles 50% of Customer Support on WhatsApp", n.d.). To keep the conversation, flow natural, varying prompts are

used to gather inputs during the chat conversation flow and reminds users about bot fulfilment capabilities.

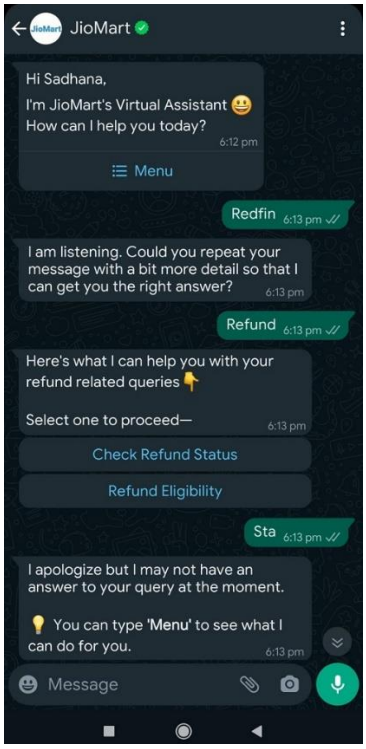

Figure 18: JioMart WhatsApp Assistant – Varying Prompts and Vague Intent Recognition

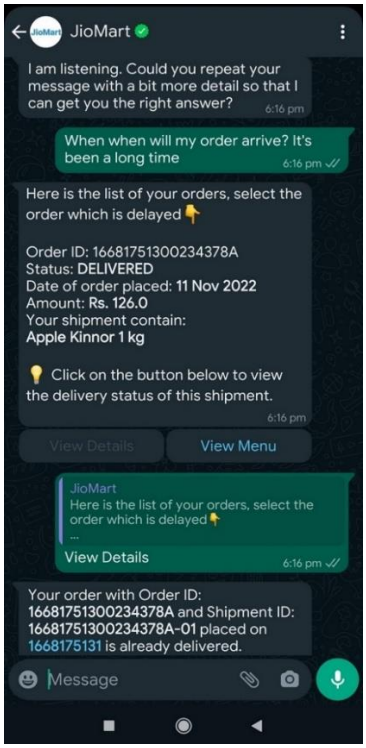

Figure 19: JioMart WhatsApp Assistant – User Input Queries

5.1.4 KPI and Metrices

Leveraging Haptik to design JioMart, the platform offers intelligent analytics to understand how JioMart assistant is functioning for the use cases its designed for and the overall performance of the bot to solve user queries. Top funnels are a series of stages designed to see the effectiveness of the bot to help users reach their goals; funnels also give insights to where typically users are dropping off in the bot-user interaction, funnel hits and completion rate defines the number of times the funnel request was queried by users and number of times the user request for successfully completed by the bot respectively; similarly, Query Completion helps to track whether the bot is helping the end-user to resolve, and a user's query is considered resolved on the bot when the user goes through the designed bot's journey and reaches the end of the journey; the CSAT is the key performance indicator (KPI) to determine how satisfied are the users with the digital assistant service; Unique users are the count of users interacting with JioMart bot for the first time (Anand, 2022). By analysing these technical functional metrices and business metrices, the JioMart assistant designers are extracting information if the bot is meeting user needs and business expectations. The figure illustrates demo only KPI metrices Haptik offers for digital assistants built on this platform.

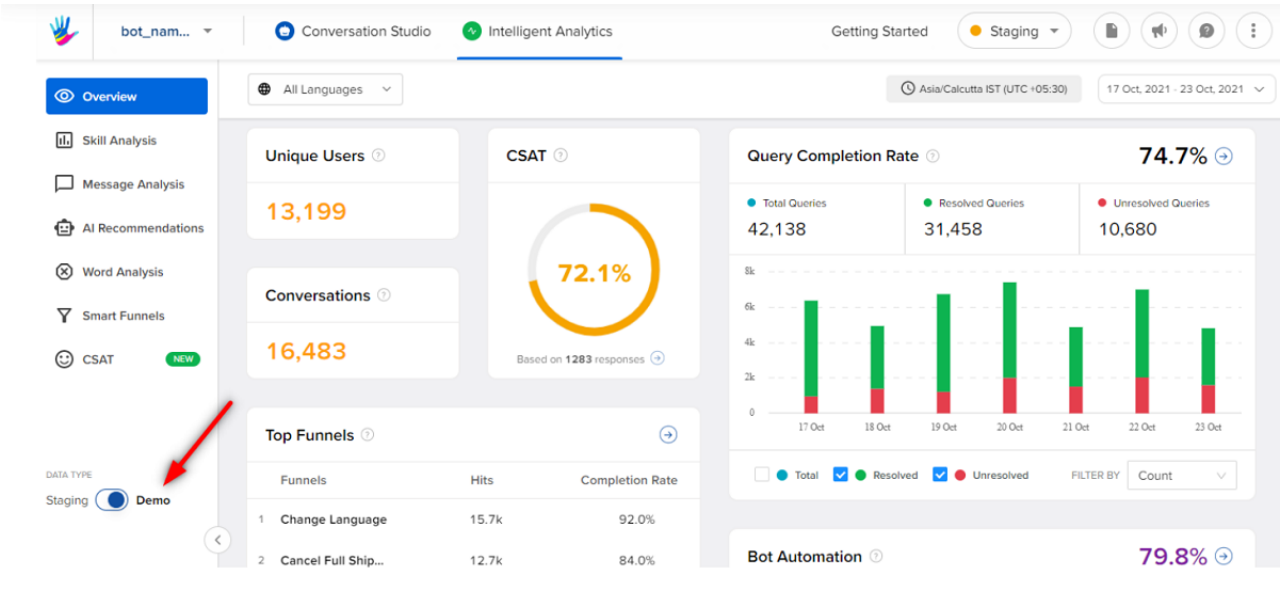

Figure 20: Haptik KPI and Intelligent Analytics

5.1.5 Best Practices – JioMart AI Assistant

Haptik recommends WhatsApp as a platform for ecommerce and as the new normal since the interface offers interactive UI elements to establish an engaging buying experience for users and highlights implementing on WhatsApp a chatbot assistant to drive ecommerce is quick and reduced time to market for businesses to outreach users; Haptik recommends to start small and simple with not more than two products or categories or use cases and to select best performing use cases and build that on WhatsApp ecommerce ("WhatsApp Commerce for Brands: All You Need to Know", n.d., "How is WhatsApp Shaping Commerce?", n.d.). In addition, use cases such as order tracking, refunds and cancellations would be ideal to consider handling through WhatsApp digital assistant from the user perspective since users do not need to navigate through a website or app to find these features, but can access them instantly over chat ("How is WhatsApp Shaping Commerce?", n.d.). Conducting user acceptance testing at every stage before going live and constantly iterating the design by understanding the metrices to identify areas where bot interaction must be improved.

5.1.6 Business Impacts with AI Assistant

By scaling customer support and by delivering highly efficient user experience through WhatsApp chatbot assistant, JioMart achieved 732.89% increase in revenue since the business implemented virtual chatbot for JioMart shopping. The figures show stats of increase in number of users using the app, revenue generation, and overall JioMart business ROI ("How JioMart Handles 50% of Customer Support on WhatsApp", n.d., "India's First WhatsApp Commerce Success Story", n.d.).

Figure 21: JioMart Business Impact and ROI

JioMart customer support experience saw 88% queries completion rate improvement, 45% of total queries handled through chatbot assistance, and a total of 62% reduction in response time to users queries through WhatsApp chat assistance ("How JioMart Handles 50% of Customer Support on WhatsApp", n.d.). With WhatsApp commerce, JioMart leverages advantages of payments integrations like WhatsApp pay, online transactions, also possible to recover abandoned carts by notifying users effortlessly and in a user-friendly manner ("WhatsApp Commerce for Brands: All You Need to Know", n.d.). These advantages set JioMart business at par from other competitors who have not explored WhatsApp virtual assistance ecommerce.

5.2 Lexoffice

5.2.1 Description

The lexoffice, since 1989, as part of Lexware, is Germany's leading provider of online office software for freelancers and entrepreneurs to process automatic payroll accounting, online accounting, digital receipt capture, and invoicing ("lexoffice – do automatic bookkeeping online", n.d.; "lexoffice team – about us", n.d.). In 2019, the business looked for new ways

to offer discount campaigns during the Black Friday and Cyber Week; lexoffice had this innovative idea that customers themselves to have an influence on how long they could benefit from the promotional discount of 100 percent; the more new customers bought lexoffice during the promotion period, the longer the discount applied to participants referring lexoffice; with this sales campaign idea, lexoffice wanted to attract as many new customers as possible along with rewarding existing customers who recommended the product to others ("The World's Smartest Discount—A Chatbot-Based Sales Campaign for lexoffice", 2022). In this case study, key elements specific to business goals, user psychology, CD elements inculcated in designing the bot, performance and metrices, and business impacts pertaining to Lui chatbot are investigated.

5.2.2 AI Assistant Key Elements

The lexoffice in collaboration with thinkmoto, a digital user experience and brand innovation agency built Lui chatbot which is an interactive accounting expert ("The World's Smartest Discount—A Chatbot-Based Sales Campaign for lexoffice", 2022). Elements such as business use cases and user behaviour are examined in this section.

Business Goals and Use Cases

To achieve lexoffice' s discount campaign, thinkmoto proposed possible three ideas and building a sale oriented chatbot was one of the ideas which lexoffice found comprehensible and extraordinary mode; initially, the existence of Lui was planned for the length of that campaign to sell lexoffice for new customers and to generate referrals. With the improved customer engagement and sales development, Lui chatbot currently assists 60% of sales campaign use cases such as pre-sales and 40% of service-oriented use cases; related to service use cases, Lui assist existing customers with service-oriented use cases related to tutorials, change contract, annual accounts details, creating new ledger accounts, connect to bank, and system status ("The World's Smartest Discount—A Chatbot-Based Sales Campaign for lexoffice", 2022).

Connecting User Behaviour and Sales

More than two-thirds of users expect to be able to contact businesses via social media and get a response within 24 hours, with response times directly linked to sales conversion rates: A five-minute response is 21 times more likely to qualify a sale than a 30-minute response (Shaner, 2018). It is reflected that Thinkmoto and lexoffice have ideated on this business

idea to extend bot support to drive sales. Additionally, users are subtly notified that Lui is typing with three doted lines during the chat interaction which is a user design element that is considered in building Lui by understanding user behaviour.

User Psychology Analysis Towards Chatbot as Sales Campaign Assistant

Before extending Lui bot assistance to lexoffice business solutions, the chatbot was set as a driver initially for the Black Friday and Cyber Week sales campaign. To better understand users' interest to interact with the bot as fist point of contact, lexoffice website was completely replaced with Lui as the first point of contact (POC) for two-three weeks of trial period. These two strategies served as guidance to perform user psychology analysis – user willingness to interact with bot, Lui-user conversation flows, and to better understand user chatting style. About 90% - 95% of users preferred clicking buttons over typing the answer themselves during chat interaction with Lui. With further tracking user aspect metrices, Thinkmoto noticed that few people were kind of disgruntled, but this was a negligible number. Since user acceptance rate was more, Lui assistance was further expanded for all time periods beyond the Black Friday campaigns and for service-oriented use cases.

5.2.3 Conversation Designing Techniques

The Lui chatbot is designed to engage with users on the lexoffice website guiding them through sales referrals and service-related tasks pertaining to ledger accounts and contract for existing customers. The conversation of persuading users to refer new users and related to answering service questions from users must flow at ease. This means the dialogue flow between these two bot-human actors needs to be designed for engagement and better user experience to support for both sales and service tasks as a smart accounting expert from lexoffice ("The World's Smartest Discount—A Chatbot-Based Sales Campaign for lexoffice", 2022). Key CD elements and techniques that thinkmoto inculcated while designing the chatbot-user interaction are investigated here.

CD Elements

Lui is designed as a direct way of communicator on behalf of lexoffice and not as a low-key element existing on the lexoffice website as only an add-on ("The World's Smartest Discount—A Chatbot-Based Sales Campaign for lexoffice", 2022). Hence, Lui personality is defined as very sympathetic bot doing direct communication. Even today, Lui's personality to be friendly and sympathetic is extended to handle service-based

use cases as well. An avatar for Lui is used that suits the lexoffice brand elements and bot personality.

Lui welcomes the user directly on the lexoffice landing page, in Facebook Messenger, and web chat channels. In current design, Lui lives on lexoffice all web pages as a web chat widget, auto launches on the web application across platforms and supports Deutsch language since its target audience group is German speaking users. The bot is built on the Cognigy AI platform whose interface is more in a graphic sense and intuitive that supports easy flow of building dialogues, easy to adopt, integrate, and node based low to no-code programming that is suitable for non-developers to build an AI assistant.
During designing Lui conversation dialogues, it is taken into consideration to clearly mention what Lui can assist users with and sets clear user expectations. By doing this, more users tend to use the assistant for tasks the bot can fulfil leading to increased happy conversation flows and minimal task failures from the bot-side.

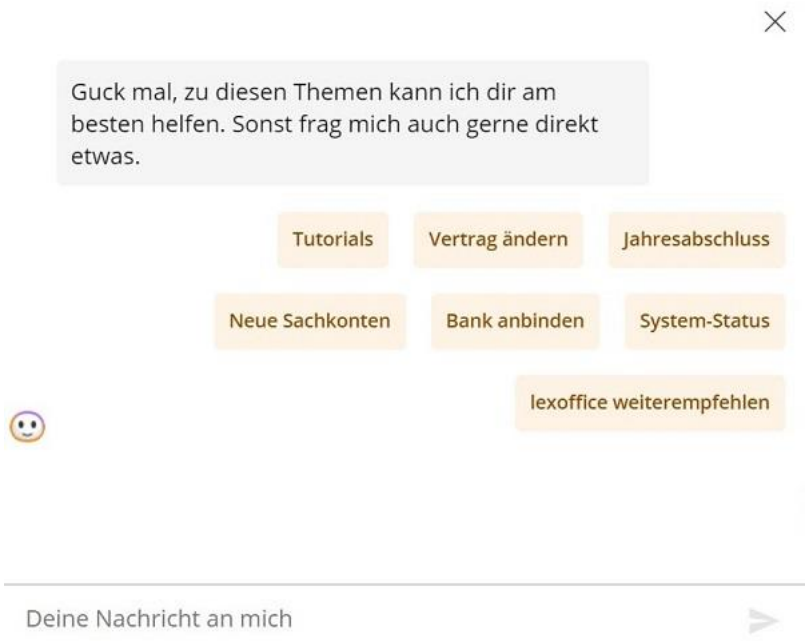

Figure 22: Lui Chat Interaction

The chatbot design elements are cleverly used by enabling chat button options to help users quick reply and swiftly move through the conversation journey. This design element helps Lui to identify the user intent quickly and correctly. The chat flow also provisions users to type in messages so users may also choose to type-in and converse with Lui.

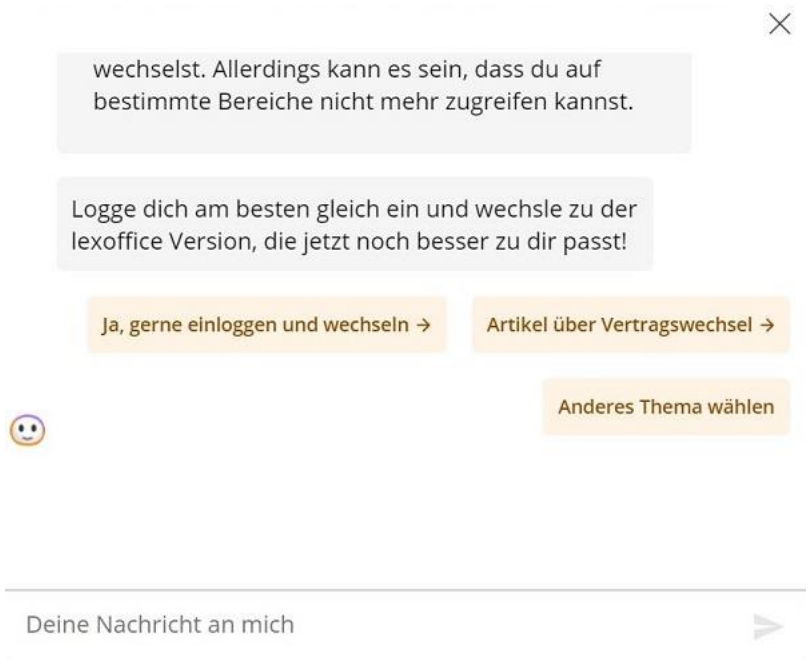

Figure 23: Lui Chat Input Option for Users

Users are bound to use short texts, make spell errors while chatting, or write messages in varying ways and the digital assistant must be prepared to prompt user for corrective inputs and to identify the right intent to assist the user further. However, its noticed that Lui failed to respond to user's request with spell errors. Further observed that, when user repeats same request, Lui responds with varying prompts to mean the same, hence sounding more humane in its engagement with users. Lui is also designed with hand-over options such as contacting the agent support team for further help with human agent to assist with user request.

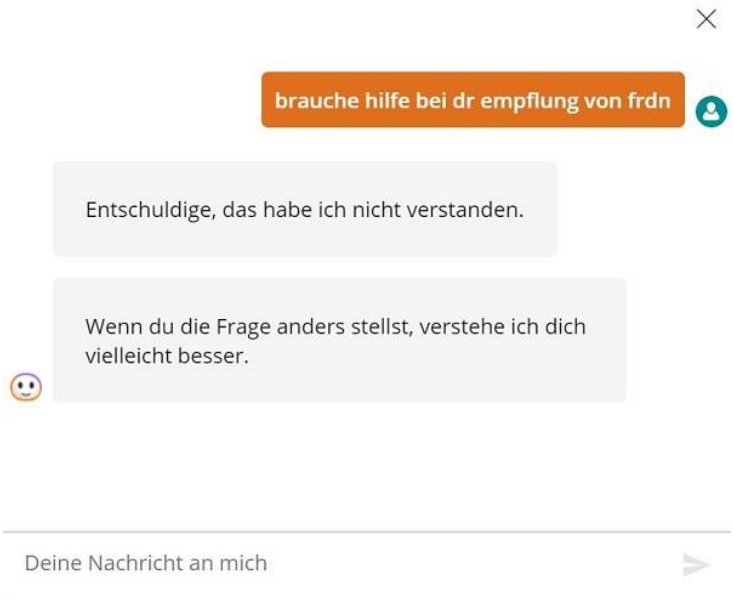

Figure 24: User Input with Vague Intents

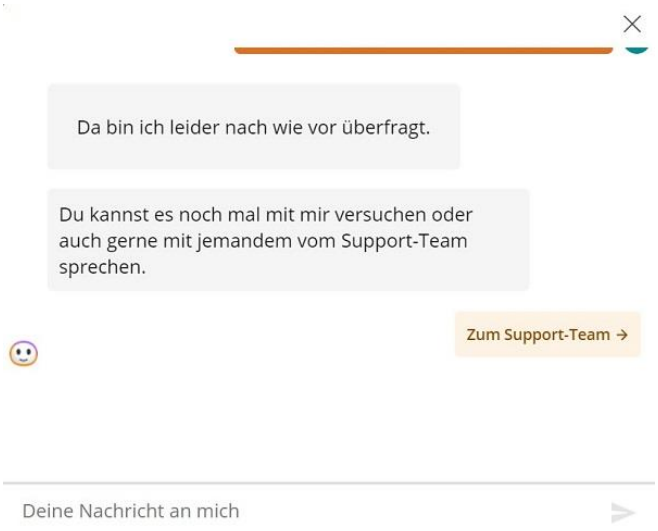

Figure 25: Lui Hand-Over Options

Scope for Improvement

It was observed that Lui conversation dialogues needs improvement in the following scenarios. When users enter long messages with two or more questions at once, Lui is designed in a way that it picks up familiar questions from what user has asked and tries to assist. And at some point, when user input on chat character count exceeds 80-100 or more, Lui did not respond at all. In both cases, Lui conversation flow could have been better designed to inform user to ask one question at a time and write it in simpler words.

Secondly, Lui chat prompts were bot centric in some cases and prompts did not end with a question. For example, when Lui does not understand user input, Lui sends message 'still learning' and asks user to enter the question in a different way so Lui could understand. This design approach is not ideal as the bot must be user centric in its prompts and intents. Furthermore, adding a question mark (?) at the end of the prompt encourages user to respond and clears ambiguity by signalling user that it is their turn to respond. However, Lui sends prompts which does not end with question mark (?) at the end of the chat prompt.

Additionally, German is the language Lui is intended to serve users and when user enters chat message in a different language, Lui responds with vague chat messages that it does not understand the user or to ask the question in a better way. It would be ideal if the conversation dialogue was taken into consideration to cover this use case and respond with appropriate message that prompts user to enter message in German language.

Lastly related to the feedback mechanism. Lui displays a banner asking for user feedback very early in the chat flow before the completion of assisting the user. As an ideal feedback process, designing the bot to ask user feedback on concluding the chat assistance is preferred. Lastly, the UI chatbot interface elements could overall be improved for user experience related to ease of reading and scrolling through the messages in the chat screen.

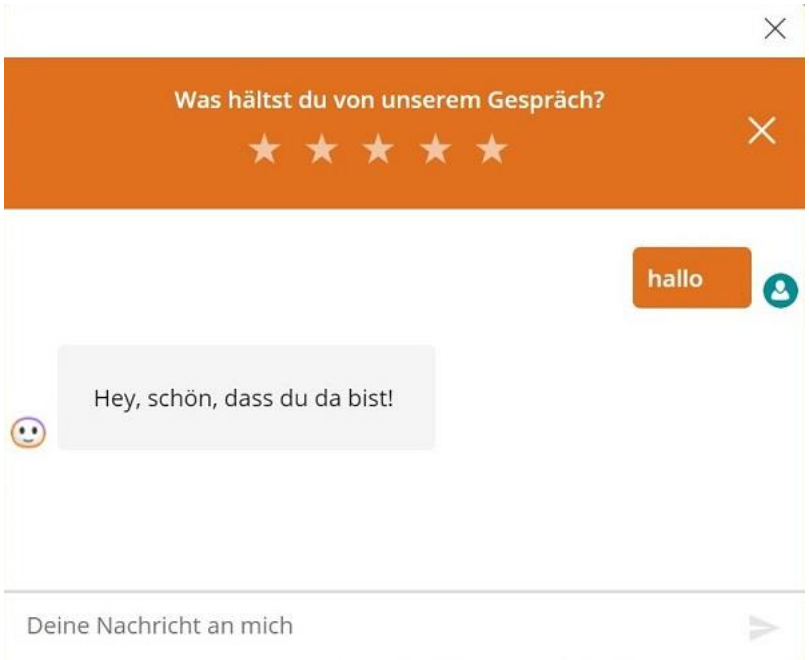

Figure 26: Lui Feedback Mechanism

5.2.4 KPI and Metrices

The Lui chatbot handles both service and primarily sales tasks which means conversion rate is one of the key metrices to determine Lui performance. To gauge the user interaction quality, length of the chat conversation, metrices such as traffic, qualified traffic, message count, and qualified message count are analysed. While driving referral campaigns during Black Friday and other marketing campaigns, it is important to determine the retention rate of existing customers who are key to drive new user referrals. Hence retention rate metric is measured and to measure if Lui can identify user intents, understood rate is measured. Furthermore, Lui is integrated with Google Analytics where the user scenarios are already mapped and using Google Look Studio to further develop custom dashboards from user interactions. Additionally, NPS is determined from the user rating gathered for every interaction through the rating banner that is shown on the chat interface after 15-20seconds of start of user-Lui chat flow. By analysing these metrices, thinkmoto measures business performance and gauges user pulse. The figure illustrates the Lui KPI dashboard.

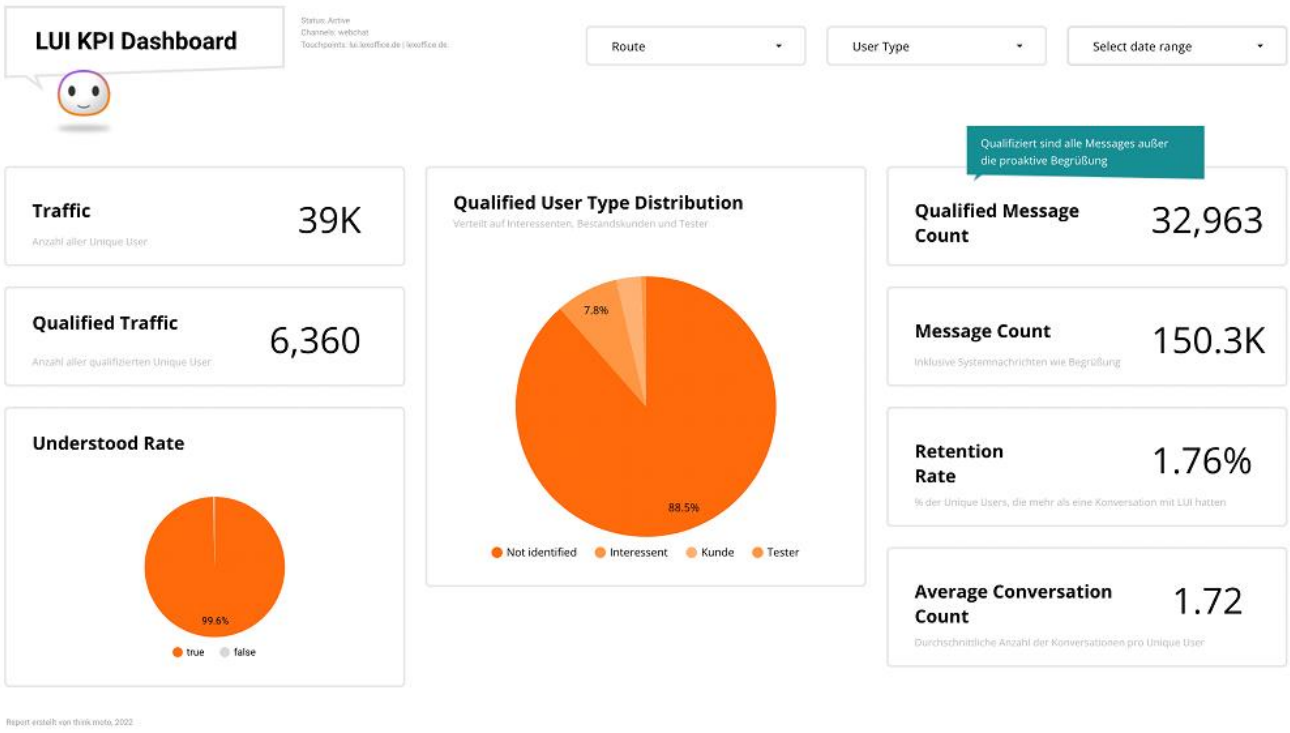

Figure 27: Lui Chatbot KPI Dashboard

5.2.5 Best Practices – Lui AI Assistant

For Thinkmoto, brand management and addressing brand design elements while building the bot experience was vital because Lui was first point of contact for lexoffice users, this interaction would determine how users were likely to perceive lexoffice as a brand. Hence, designing Lui as close to a real entity, visual brand, and user-centric was ideal and considers as finest approach. In specific to conversational UX, designing bot to ask close-ended questions, roleplaying techniques in designing conversation happy-paths, direct users with next steps, designing bot for fallback cases, are ideally considered best because these guidelines help build engaging interactions with users and leads the bot to get the user intent right quickly. Furthermore, Thinkmoto recommends OCEAN (Big Five) personality traits archetypes to build personality and Branded Interactions for brand design process and building digital assistants.

5.2.6 Business Impacts with AI Assistant

Lexoffice is a start-up business with mostly freelancers as the target user base; embracing innovative approaches in the business model means setting the company ahead of the competition and Lui was one such business strategy that gave lexoffice edge over competitors and driving user interaction in an innovative way. The chatbot serves as an indispensable tool for successful communication between people and brands; Lui lived up

to the primary campaign goal of acquiring new customers and almost 40% of all users who accessed the landing page started a conversation with him, about 12% became new lexoffice customer; with a conversion rate of 4.5%, Lui was 41% ahead of the previous year's Black Friday campaign ("The World's Smartest Discount—A Chatbot-Based Sales Campaign for lexoffice", 2022).

5.3 Vodafone GmbH

5.3.1 Description

Vodafone is one of the leading telecoms and technology service providers and its German cable footprint extends to almost 24 million households providing a gigabit service to over 11 million of those and as the second-largest telecommunications company in Germany; Vodafone was aware about user's service pain point of calling into a company's service line and going endlessly around and around with its IVR system; taking the customer service into the digital age and improving the way Vodafone users get in touch with the service team for quick responses was the throbbing question to Jörg Knoop, Vodafone's Technology Digital Incubator; brainstorming on how to revolutionize the customer service and Knoop's ideology that messaging is a form of customer service that consumers have long preferred over IVR led to the creation of AI chatbot TOBi for Vodafone customer service and been onboard since April 2018 ("Vodafone GmbH", 2019). In this case study, key elements specific to business goals, user psychology, CD elements inculcated in designing the bot, performance and metrices, and business impacts pertaining to TOBi chatbot are investigated.

5.3.2 AI Assistant Key Elements

Vodafone GmbH in collaboration with IBM built TOBi virtual agent which offers customers with a personalized, around-the-clock concierge service ("Vodafone GmbH", 2019). Elements such as business use cases and user behaviour are examined in this section.

Business Goals and Use Cases

Knoop states "Call centres use IVR, which makes it hard to solve the problem and are often seen as a barrier between the customer and agent — and we all know those nightmares of waiting 15 minutes with still no resolution"; with the business goal to digitally transform customer service across channels, Vodafone set forth discussion with the Watson team to

build an AI-powered digital service ("Vodafone GmbH", 2019) on IBM Watson platform. To automate customer service generic use cases that could be handled by digital agent and to give human agents the opportunity to move into specialist and case management roles as the focus point, the use cases for the AI assistant were designed; initially TOBi was designed with intent to deal with service-oriented tasks pertaining to customer concerns and either solves the problems directly or seamlessly routes the messages to the right human agent team and powered with AI technology from IBM and today, the live virtual agent understands more than 100 intents, covering both tech and care across all Vodafone markets and customer groups; TOBi handles simple FAQs through webchat, manages end-to-end sales of SIM plans and new handset related use cases ("Vodafone GmbH", 2019). The virtual assistant is available 24/7 through web chat and the My Vodafone app to answer any question of current users or potential users may have ("Meet TOBi, the Watson-powered virtual superagent", n.d.).

User Psychology Analysis Towards Messaging

Knoop believes messaging is a form of customer service that consumers have long preferred, adding, "We use messaging every day, whether with our family, friends, support groups, whomever, but we aren't there yet to a big extent with large brands or companies." ("Vodafone GmbH", 2019) and further adds that "Messaging is often the customer's go-to channel because they can carry around a complete record of the conversation on their smartphone that enables them to retrieve order numbers, installation codes and so on."; Knoop adds that, "In Germany, 95% of all smartphones have WhatsApp installed and it comprises around 80% of messages, followed by Apple Business Chat at 15% and SMS text at 5%," ("AI-based unified digital messaging amplifies the customer experience", n.d.). With this user behaviour analysis towards messaging, Vodafone extended messaging approach and unified across platforms for TOBi chatbot customer service.

5.3.3 Conversation Design Techniques

TOBi was designed to be the frontline contact for Vodafone customer service which means the bot significantly represents the brand and how customers would perceive the customer service of Vodafone. Since the bot was mainly developed for service tasks, the conversation of being helpful and providing information useful for customers by understanding customer needs and striking conversation in a way it flows as interacting with a human service agent becomes essential. Key CD elements and techniques that IBM Watson and Vodafone front-

line agents ("Vodafone GmbH", 2019) inculcated in designing TOBi chatbot-user interaction are investigated here.

CD Elements

Virtual assistant TOBi's personality is crafted as a likable bubbly identity, featuring a smiling face, and bright red helmet that most find charming ("Vodafone GmbH", 2019) and welcoming gesture to customers to find it easy to get started to interact with a bot for customer service queries. An avatar is used for TOBi as a cartoon image aligning with brand elements to show it is not a real user but a bot interacting with the user. The bot initially designed for messaging channel and further extended to web, Vodafone app, and Facebook Messenger channels, integrates with WhatsApp, Apple Business Chat, and SMS serving as a mobile-first omnichannel customer contact centre ("AI-based unified digital messaging amplifies the customer experience", n.d.). Now, customer service request contextual information is available on these channels enabling the service agents to quick resolve customer issues. The virtual agent is powered by IBM Watson CD platform that offers best NLU to better understand customer context. The platform offers easy integration capabilities with CRM, back-end systems, and intuitive low-code visual builder experience to enable teams to easily build and manage AI-powered virtual agents ("Watson Assistant: Build better virtual agents, powered by AI", n.d.).

During designing TOBi, careful consideration is given to set clear user expectations on what tasks TOBi can assist customers now.

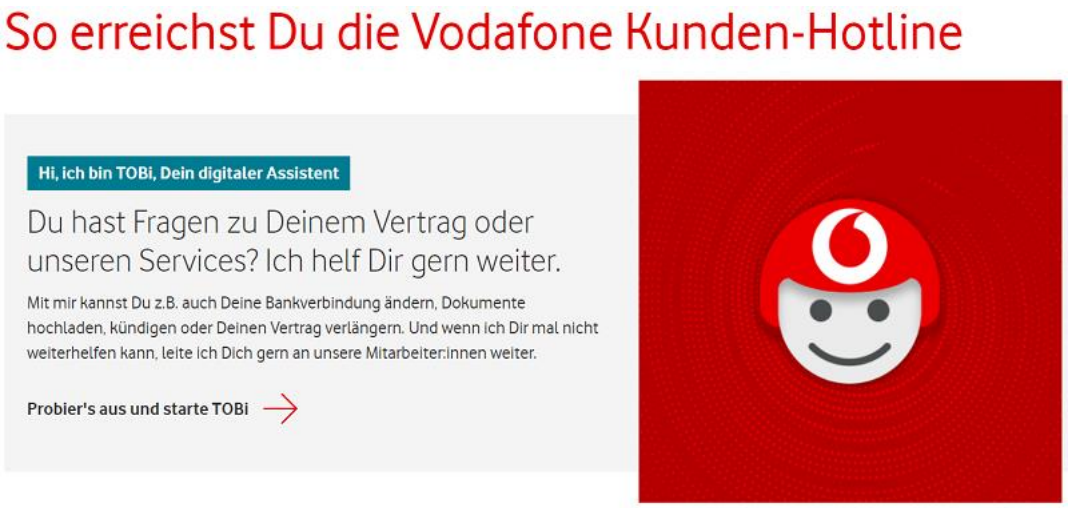

Figure 28: TOBi Digital Assistant Services Brief

The chatbot dialogue flow is well designed to offer turn taking in the chat discussion between the bot and user. The digital assistant also empathizes users; for instance, when sim card is lost. It is also observed that TOBi uses explicit confirmation CD approach wherever necessary to clearly understand user's decision.

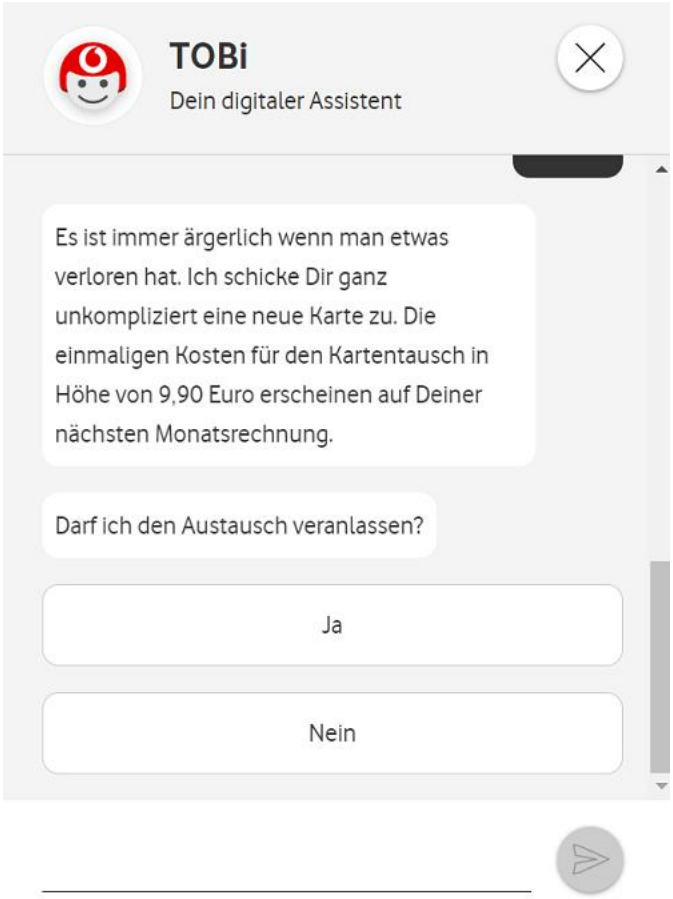

Figure 29: TOBi Digital Assistant Chat Interaction

The chatbot design elements are cleverly used by enabling chat button options to help users quick reply and TOBi to identify the user intent quickly and correctly. The chat flow provisions users to type in messages so users may also choose to type-in and converse with TOBi. When the chatbot is typing, 3 dots are used as UI gestures to keep the user informed that the chatbot is available and typing. Furthermore, the conversation designers of TOBi have taken into consideration to always use question prompts to evidentially inform user that it is their turn to respond next and the bot awaits your response to move forward in the interaction.

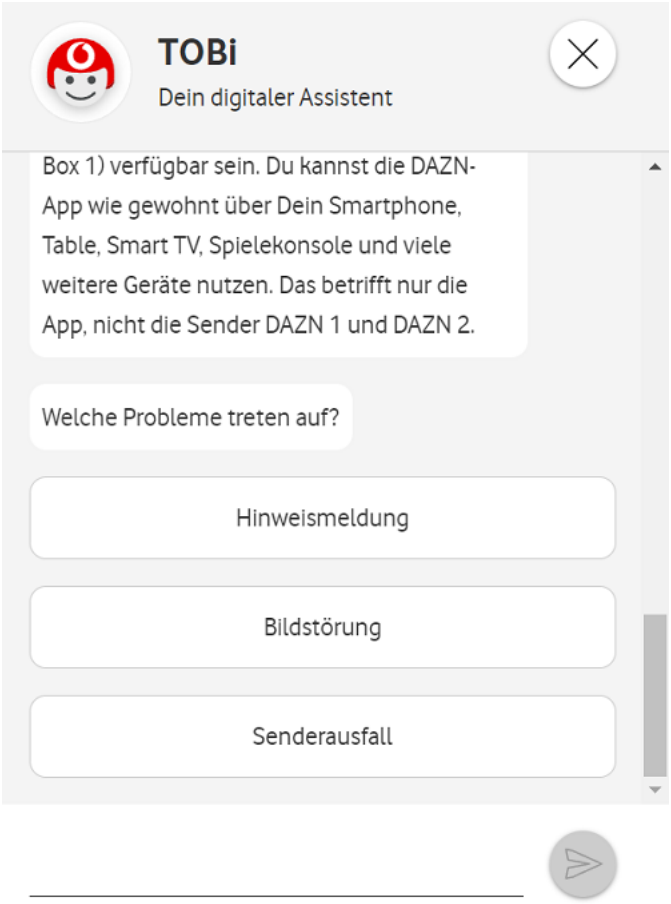

Figure 30: TOBi Chat Input Button Option for Users and Question Prompts Technique

Users are bound to use short texts, make spell errors while chatting, or write messages in varying ways and the digital assistant must be prepared to prompt user for corrective inputs and to identify the right intent to assist the user further. It is observed that the AI assistant uses chat button options and prompts user to select from the options to identify the correct user intent. TOBi is designed with hand-over options such as contacting the agent support team in cases where the bot is not designed for this use case or when the bot fails to further help the user and hands over to the human agent to assist with the user request.

Scope for Improvement

It was observed that TOBi conversation dialogues needs improvement in following scenarios. The bot had hand-over options but the design needs improvement as in some cases TOBi ask user to input the telephone number for call back and then reverts with a message

that human agent is not available, and in-return informs user itself to call back. This dialogue flow leads to user frustration.

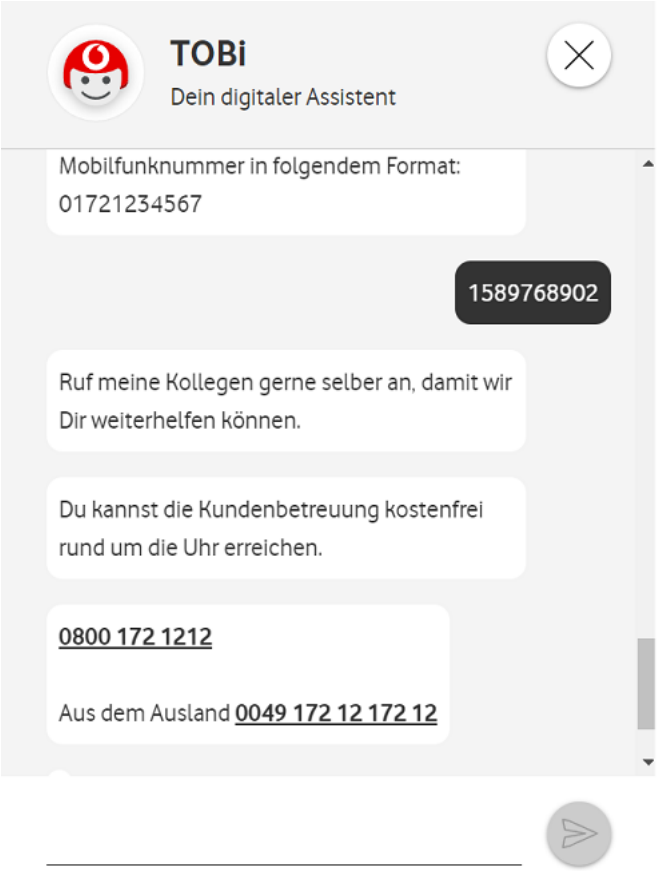

Figure 31: Fallback Dialogue Flow – Frustrates User

Furthermore, the team designed TOBi for returning users, to have any small talks with users to build customer relationship, and personalization. The bot uses standard welcome message even if user had a chat earlier with TOBi which makes user feel like a first-time user. This establishes that the bot vocabulary of standard messages needs to be improved for returning users and design for personalization to improve user experience.

Another observation was related to the feedback mechanism. It is noticed that the digital assistant did not ask for user feedback at any point of conversation in the web interface. Possibly, it is assumed that the bot is designed to collect feedback only from registered Vodafone users. This approach could lead to limited user feedback and less possibilities to improve the chat bot

5.3.4 KPI and Metrices

The TOBi digital assistant handles primarily customer service interactions and manages with sim card purchase for new customers to certain extent. Mainly targeted for customer service, the KPIs are focused on CSAT, NPS, and customer retention rate metrices. Jörg Knoop states that, "We have a special metric to measure if a customer needs to call back within seven days after speaking with TOBi. Out of the 28 percent of conversations that TOBi resolves, two-thirds of those customers do not reach back out. If they do, they are likely calling back for another topic," ("Vodafone GmbH", 2019).

As part of 2022 Vodafone KPIs for customer commitments, it is discovered that TOBi performance of end-to-end completion rate of handling customer request without human agent intervention as 34.6% in 2021 and 42.9% in 2022 ("Financial and non-financial performance - Key Performance Indicators", 2022). However, the research does not have sufficient evidence on the KPI dashboard related to Vodafone TOBi GmbH available to comment further on key metrices used by the teams to evaluate TOBi performance.

5.3.5 Best Practices – TOBi Digital Service Assistant

When TOBi was launched in 2018, TOBi resolved 16 percent of all conversations right out of the gate and the front-line agents were involved in bringing TOBi to life from the beginning, the breakthrough was when 15 of those agents stepped in as bot trainers and constantly taught TOBi about the customer needs that helped in its evolvement and handle more customer issues very quickly ("Vodafone GmbH", 2019). TOBi serves as digital assistant not only for Vodafone GmbH but across Vodafone locations and the CD dialogues catered to meet the unique users of Vodafone based on user needs and user experiences that match the targeted audience in the location group. For instance, Vodafone GmbH uses Genesys Bot Gateways and open APIs to create a smart workaround, which allows to extract an audio file, run it through a voice recognition engine, and ingest the text so TOBi can handle such conversations ("AI-based unified digital messaging amplifies the customer experience", n.d.). This personalization and development of TOBi geographically led to its success in varied Vodafone geographies and develop its feature use cases accordingly.

5.3.6 Business Impacts with AI Assistant

TOBi digital assistant has successfully transformed Vodafone GmbH customer service by reducing wait times and providing consistent, high-quality service and handling 100 percent of all messaging conversations, the chatbot has a substantial 28 percent automation rate – which is projected to hit 40 percent soon – significantly contributing to the reduction of end-to-end process costs; with the positive user acceptance of TOBi ("Vodafone GmbH", 2019). With integration with Genesys for AI based unified digital messaging, TOBi fields100% of all messaging conversations and first-contact success rates increased from 16% on launch to 44% ("AI-based unified digital messaging amplifies the customer experience", n.d.).

5.4 Conclusion

The three business brands offer the AI assistance user experience in three unique ways although all three brands digital assistant is a chatbot and mostly aimed at sales and service-oriented use cases. The businesses proposed diversity in their offerings, technology platforms, and channels that were used to build this capability. The company's AI assistant mostly adhered to some of the common key CD elements. The overall performance is uniquely measured by these businesses based on sales and service-oriented offering and some metrices remain common throughout all three digital assistants.

A comparison infographic of AI assistant capabilities of these three case studies are summarized taking into consideration the important and common design elements encountered in these case studies research and a scoring technique is used to conclude results. Haptik JioMart, the WhatsApp commerce selling daily essentials through JioMart chatbot is an overall enhanced user experience offering with most of the CD elements implemented along with adequate metrices to measure the performance. Although the bot personality is trimmed down to cater to wider audience section, the AI assistant covers 11 on 12 of the CD elements. The lexoffice Lui for campaign sales offers digital sales capability to the users with constant motivation to enhance overall user experience with well-defined metrices and hand-over options. Although a well-defined bot personality exits, the CD elements taken into consideration for bot-user dialogue building rates 8 on 12 which needs to be improved to reduce user frustrations. In contrast, Vodafone TOBi mainly focused on improving the customer service experience offers a better customer support experience with well-defined

bot personality, metrices across service improvements, and platform capability that helps TOBi extend with voice assistant support as well. With CD elements, TOBi scores 9 on 12 where the digital assistant needs to be mainly improved for returning users and building empathy in its CD.

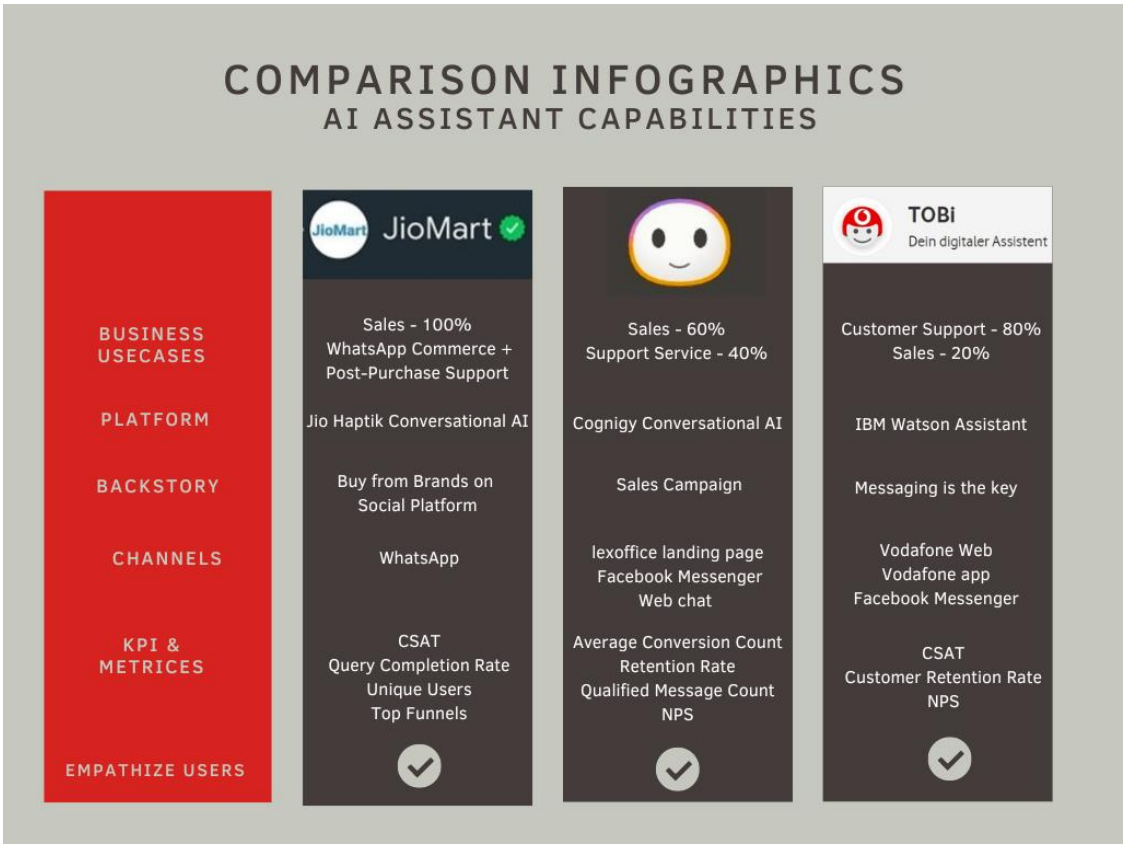

Figure 32: Comparison Infographics of AI Assistant Capabilities - JioMart, Lui, and TOBi

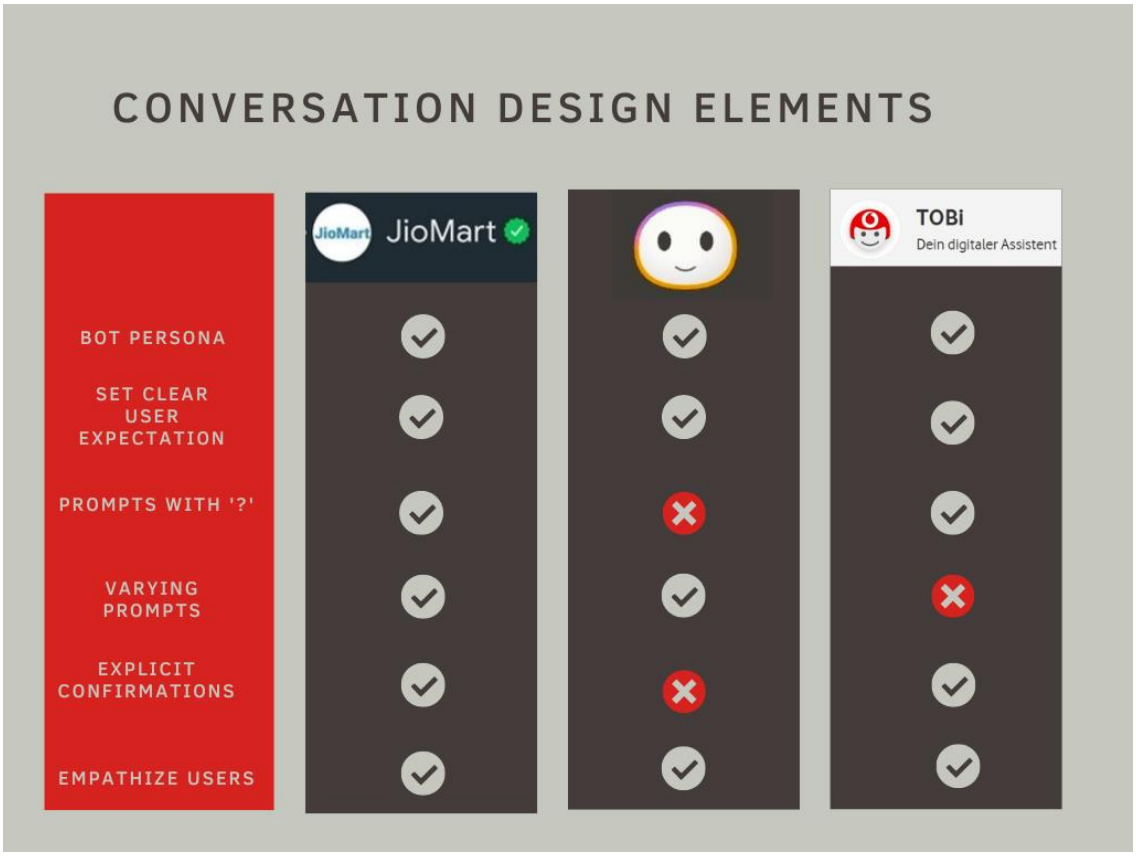

Figure 33: Comparison Infographics of AI Assistant Capabilities - JioMart, Lui, and TOBi

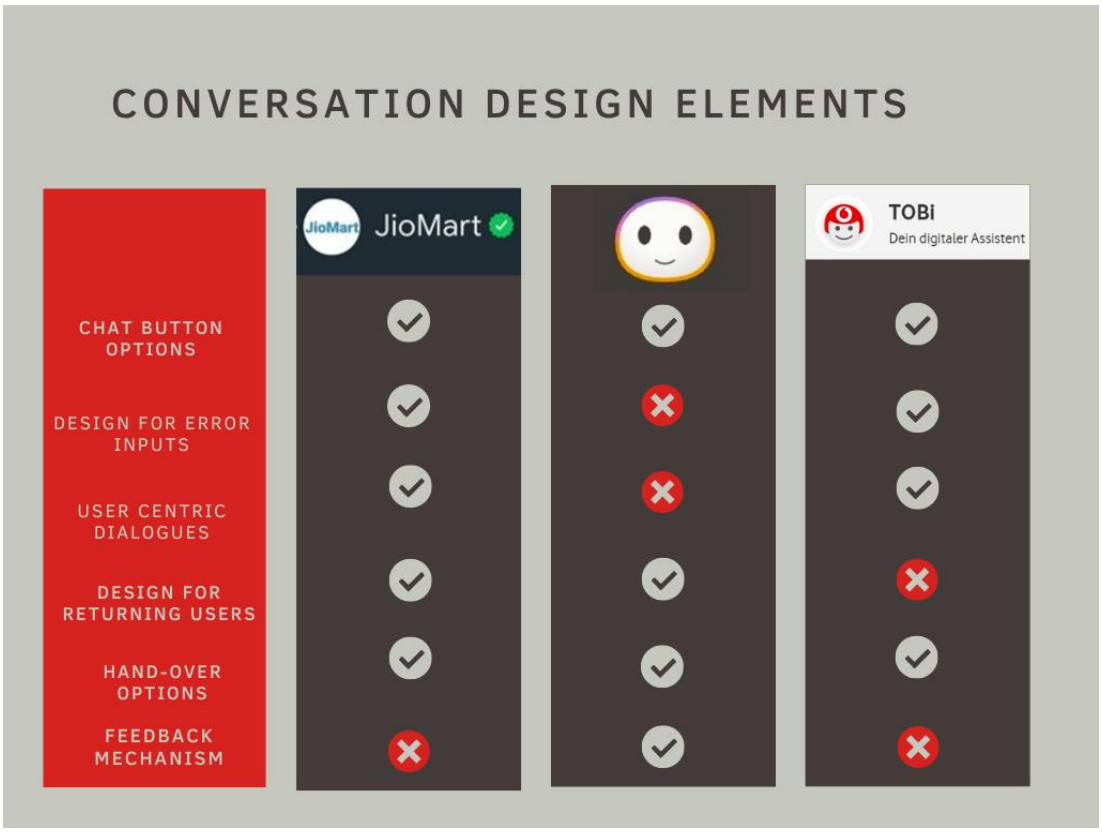

Figure 34: Comparison Infographics of AI Assistant Capabilities - JioMart, Lui, and TOBi

6 Expert Interviews

Expert interviews were conducted to validate the previous findings obtained from the literature research and case studies on designing user-centric conversation flows for AI assistants. To gain insights into the user behaviour, to scrutinize current and future CD practices embraced in building better AI assistants' experiences for users, and to corroborate relevant business use cases for implementing digital assistants, expert interviews were organized.

6.1 Expert Interview One

The subject matter expert: Hans Van Dam is the founder of Conversation Design Institute (CDI), leading training and certification institute for people working in CAI; Hans works with Fortune 500 companies to make their AI Assistants more human-centric, effective, and inclusive; he also leads CDI Foundation, a non-profit that develops design standards and provides scholarships within the industry and is a frequent guest lecturer at universities worldwide (Hans van Dam, n.d.).

According to Hans (Appendix I), many industries are focused on external use cases such as talking to customers, healthcare, and so on; but there are more possible conversations when the customer journeys are observed where conversational interfaces can make the product experience easier. Hans expresses that, chatbots have got a bad impression in user's mind because the experience with the bots have been poor in the past; the good bots are not enough noticed by the users either because the bot-user interaction was very seamless or that user did not recognize the good job. The industry is getting matured that more automation with AI assistants is being achieved. On the other hand, people today have learned the art of how to interact with AI assistants.

In his viewpoint, business face challenge called "integral perspective' while implementing AI assistant. Understanding the scope of the use cases to be developed to bring value for users, having designers with right skill-set and mindset, ensuring the project have the right strategy for the AI assistant development, right budget, designing for trust, behaviour are the challenging aspects that the team must develop clarity before implementing AI assistant otherwise, the business may not develop the Minimum Viable Product (MVP) and better user experience. According to him (Appendix I), based on use cases the KPI varies such

as technical metrices, performance metrices, business metrices. For instance, in the CAI chatbot team would prefer to review coverage, cognition. For business, containment and NPS metrics would be interesting to measure. However, quantitative, qualitative metrices, and NPS being the baseline to start with to measure KPI.

His impression is that Chat Generative Pre-Training (ChatGPT) is the current and future of conversation AI; Personalized and contextual bot-user interaction would still need conversation designer to handle and designing those components becomes easier with richer AI capabilities. Furthermore, every brand will be in Metaverse and experience one person with different AI systems at the same time or multiple people might speak to the same AI system at the same time.

According to Hans, a checklist of conversational mantra that are must have's while designing bot-user dialogues is essential to build better bot experiences for users. Some of the elements are acknowledgement, active language, human-centric, and confirmations. Furthermore, choosing a right platform that fits your business needs is essential for building better bots. He suggests for organizations with great engineering capability, choosing an engineering focus platform and for organizations with more writers, choose a friendlier UI that is very focused on content rather than engineering. In sum, exploring the platform based on people skillset in the organization, the use cases being handled, and future product extension plans helps choosing a better bot building platform.

Hans summarizes (Appendix I) that within the conversation designers and the development team including management, make role playing an exercise to try the bot-user interaction that enables to discover questions that users may have in the future. Involving stakeholders in the discussions and showing the possibilities of CAI technologies, are the management practices that helps build better AI solutions.

6.2 Expert Interview Two

The subject matter expert: Paul Krizsan is a Director of CAI at think moto, responsible for branded chatbots and leads the Conversational Team at think moto. Paul is a design hybrid with a focus on conversational experiences with rich industry experience in branding, digital product design, and in making conversational interfaces more human-centric. For clients

such as Volkswagen and Audi, he has created CAI design patterns for virtual, augmented, and mixed reality applications.

According to Paul Krizsan (Appendix I), businesses do not think about the implications of having a standard add-on chat widget on regular website, and the ramifications that the digital assistant has on the rest of the website. Many bots these days are the result of businesses following a trend of FAQs bots. For most brands and websites would probably perform better with standard FAQ page with a better search mechanism.

According to him, conversational interfaces have a nice niche where these assistants interact more closely and mimic actual human interaction. For instance, upon visiting a car sale, the car salesman would pose abstract and more personal questions such as where do you like to drive? How many people are in your car? To understand about the lifestyle, vibe, and choices rather than suggesting the actual hard facts without understanding customer needs. In his opinion, conversation interfaces help bridge the gap between technicality, technical specification, and amateur. Deciding a use case where bot applies and does not suit needs to be well scrutinized rather than duplicating the information already available on the website.

In his viewpoint (Appendix I), the biggest problem in terms of user experience with bots is expectation management. Within the first interaction, the bot starts with opening dialogue of "how can I help you" and user sends requests that the bot cannot handle. During fallback scenarios, bot dialogues are not well defined, and users are asked to repeat the question that leads to user repeating the request and this turn taking goes in loop leading to user frustration where bot does not offer what the next steps are. In his viewpoint visual UX of humanoid uncanny valley sort of digital assistant avatars also leads to creepy bot personality and effects the user conversation experience with bots.

His impression is that, designing engaging dialogue flows depends on the team process, the platform and intense training phrases is the key to better dialogue flows. Similarly, all these CD platforms are incredibly similar except for one thing, integration, and it is the key because the AI assistant platform needs external sources.

Paul summarizes (Appendix I) that the biggest use case for bots and that he has heard from clients right now is only maintainability. He further adds that building a bot as sophisticated as possible but building and maintaining the use case over a long period of

time is questionable. Further to this viewpoint, the expert adds that virtual reality (VR) and CD have many overlaps in industrial training and in VR. Additionally, from the business perspective, ecommerce, conversational customer support are the top use cases invested in AI assistants and implementing storytelling bots is also the current focus.

6.3 Expert Interview Three

The subject matter expert: Maaike Groenewege, is a Conversation Designer and Coach at Convocat; Maaike is also the Program Co-ordinator at The European Chatbot & CAI Summit. She comes with rich industry experience in technical communication, system flows building, and pioneer in building sustainable chatbot and voice assistant conversation designs mainly for customer service domain.

According to Maaike (Appendix I), It is very important for businesses to look at what are the problems that they are trying to solve and depending on the kind of business, the use case can be anything. For customer support, AI assistant works and is famous where the most actual results are witnessed because this implementation have been there for a while already. In terms of user experience, Maaike thinks that designing the chatbot in customer service domain is about getting the people to talk to the chatbots and give a try before wanting to talk to human agent which would take a few minutes to connect on call or chat. Aiming the bot design for human language, human speech, and human kind of interaction is the key to user experience.

Further about current trends in AI assistants, Maaike's impression is that the third generation Generative Pre-trained Transformer (GPT-3) is the current focus; a large language model that is focused on dialogue that creates texts automatically and, in the future, generating these texts more automatically without human intervention would be evident. According to her, the key design pattern is designing bot that gives the right answer in the shortest amount of time. Maaike further suggests companies to not directly feed in FAQs or existing content to chat bot as responses to users but to apply progressive disclosure to design the bot content that is tailored to the context.

In Maaike's opinion, choosing from the plethora of CD platforms, it is ideal to consider integration and backend compatibilities. Other factors such as visual design or flow builders, code-based interfaces are preferences that can be chosen depending on the business needs. She further adds that it is important to measure metrices such as how many

people leave the bot before they found an answer, how many handovers could have been prevented because the bot has the answer, how many users wanted to reach out to human agent, NPS, and customer feedback are the golden metrices.

Maaike summarizes (Appendix I) that a more integral approach where the entire team or one or two specialists in the team work on the entire bot language model and not kind of siloed in different topics and writing bot content that is only necessary for users are two best CD team management practices.

7 Design Proposal for Innovations in AI Assistant Experience for Users

Design thinking is a human-centred approach for innovation that integrates the needs of people, the possibilities of technology, and the requirements for business success; this approach, brings together what is desirable from a human point of view with technologically feasible and economically viable solutions ("Design Thinking Defined", n.d.). With the wicked problem under investigation on how AI assistant experience for users can be redesigned to engage in a humanoid conversation with bots and that it also offers business ROI, design thinking principles were applied to research and brainstorm on digital assistants, its current state-of-the art influences on people, discover psychology of users and expectations from the bots, and so forth (Dam & Siang, 2020); furthermore, insights were gathered from the diverse case studies, expert interviews, and the inputs were converged to draw research analysis results. From there on, ideation began to draw possible solutions related to innovating AI assistants experience in the centre of business and user experience and proposed business and conversational design approaches in this chapter.

7.1 Proposed Business Strategies

The business operations are transforming remarkably in the AI assistant technology that innovation for any enterprises is inevitable to stay relevant in the market and contribute value to the users. Some of the use cases and business sectors that are performing exceptional with intelligent assistants and reaping ROI are discussed in the earlier chapter. Strategizing the business plan early in the AI assistant product development process is essential to examine use cases and for building innovative humanoid bots for better business outcome and following business strategies are proposed:

Business Strategies

1. For innovation in AI assistants, one of the business approaches proposed is to inspect the user journey and identify the touchpoints where digital assistants with conversational platforms could reduce friction. Business strategy focused on offering contextual real-time responses, human-like, self-service capabilities, omnichannel, and personalized experiences in the user's journey stand-out in the marketplace.
2. To alleviate businesses in choosing the right use cases for implementing AI assistants, the Bill Price Value-Irritation Model is proposed (Dam, 2022).

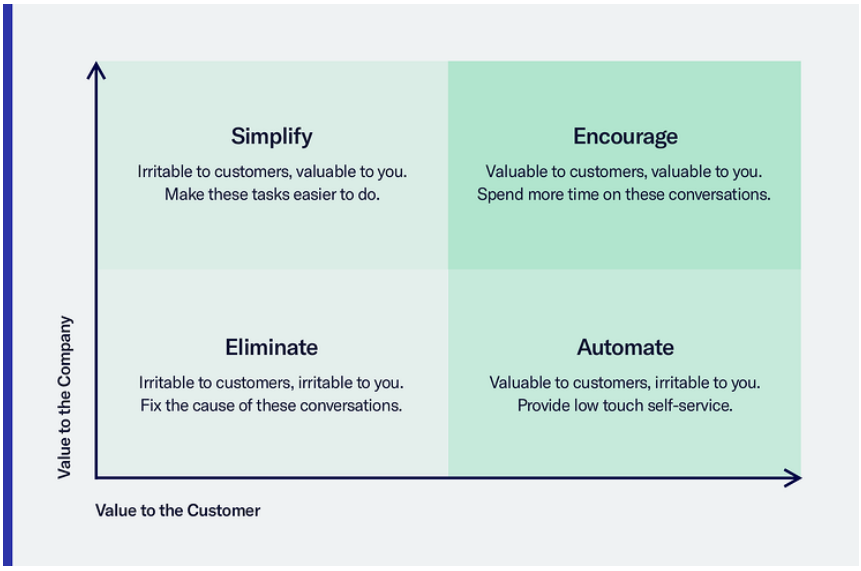

Figure 35: Bill Price Value Irritation Model

According to the Value-Irritation Model, (Dam, 2022)

VALUE-IRRITATON MODEL FOR
BUINESS STRATEGY WITH AI ASSISTANTS

QUADRANTS	USER MINDSET	BUSINESS INFLUENCE	BUSINESS APPROACH
Automate	• Highly motivated users • Example: Basic customer service questions, user information update.	• Less important (valuable) to the business • Does not yield in business revenue	• Increase self-service • Automation of tasks with AI assistant
Simplify	• Less motivated users • Example: Product reviews from users, booking sales meetings, product purchase.	• Very important to the business • Yields business revenue • Increases customer acquisitions	• ·Motivate users to perform tasks • Use AI assistants to persuade users • Simplify process - remove barriers in the user journey
Encourage	• Users are motivated • Example: Present high-value customer deals, build customer relationship	• Important to build human-to-human engagements. • Yields ROI	Application talent resources to engage in these business conversations
Eliminate	• Users are not motivated • Example: Outdated paper-based manual process, unimportant data storage (Boitnott, 2016)	• Not important to business • No ROI	Terminate these tasks

Figure 36: Value-Irritation Model for Business Strategy with AI Assistants

The tasks under Automate and Simplify are valuable for business to deep dive for gathering use cases that could be potentially valuable for AI assistant implementation. It is proposed

that, before business design conversations for chatbot or voice assistant, start by understanding where your scenario takes place within the Bill Price quadrant to build uses cases for AI assistants that will drive value for both business and users (Dam, 2022).

3. Invest in building conversational assistants dialogue flows based on 80/20 rule or Pareto Principle; 80% of users follow the most common 20% of possible paths in a dialog. Therefore, invest resources accordingly for the biggest impact. It may take 80% of the work to really polish the last 20% of the project. In these cases, the unpolished effort may be "good enough" ("Design for the long tail", 2021). Design for best possible use cases that drive more value and better ROI for the business. In co-relation with 80/20 rule, The Long Tail approach aids business to strategically recognise opportunities for investing in identifying high-impact, popular use cases vs the low-impact, niche use cases.

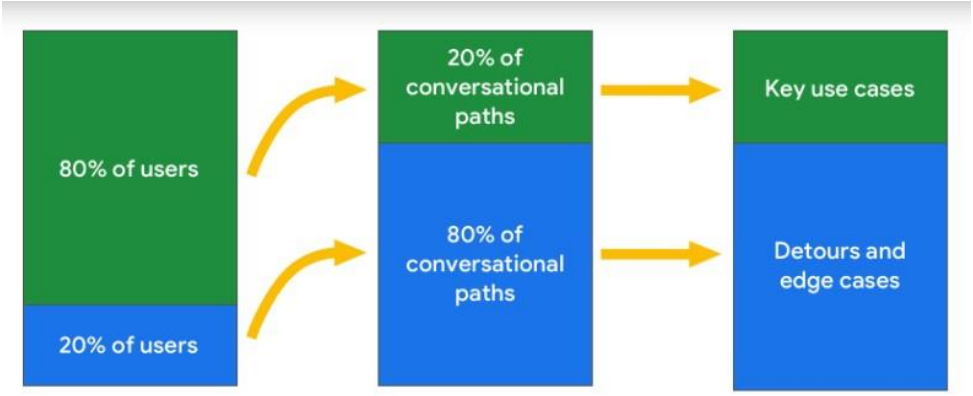

Figure 37: The 80/20 rule – Pareto Principal

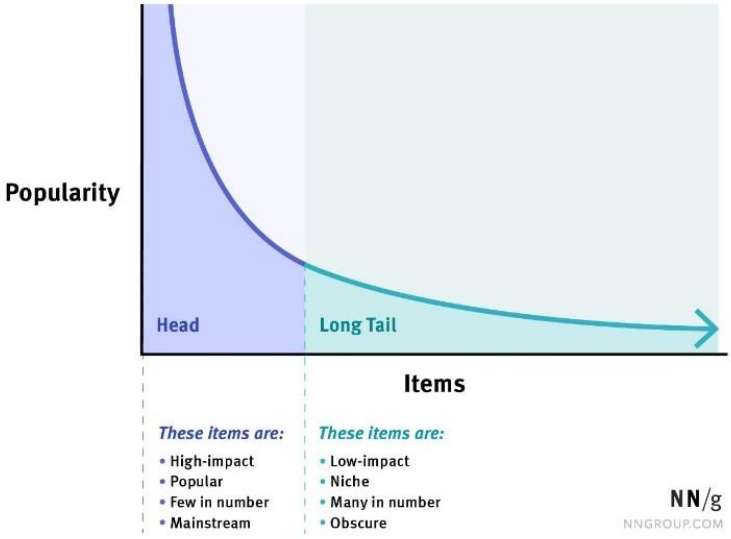

Figure 38: The Head vs Long Tail Use Cases

Many use cases are dealt in the 'head' section, the 'body' is less common, and 'long tail' are the edge use cases that could be dealt by the business in the long-run post full coverage of high-impact use cases for AI assistant implementation (Sunwall, 2021; "Design for the long tail", 2021). For businesses to stay relevant, inculcating investments in these innovation business strategies coupled with attitude to bridge the gap between technicality and simplicity to convey technology to simplify user's life are must haves.

7.2 Conversation Designing Experience

From the thesis research, it is discovered that conversation designing technique is the innovative approach to develop engaging bot-user interaction flows to render enhanced user experiences with digital assistants. This section proposes the Fogg Behaviour Model (FBM) and CD Pattern Score Card for businesses to embrace building engaging humane AI assistants for users.

7.2.1 Fogg Behaviour Model

In continuation to the Value-Irritation Model and analysing the user psychology towards AI assistants through extensive research, the FBM is proposed to alleviate business to design conversation dialogues based on user motivations. Whether chatbots or VAs, to engage in meaningful bot-user interaction and enhance user experiences, business needs to design for user behaviour, building trust, offer consistent experience with bots, and remove any uncanny valley situation. According to Dr. BJ Fogg, three elements must converge at the same moment for a Behaviour (B) to occur: Motivation (M), Ability (A)**,** and a Prompt (P); when a behaviour does not occur, at least one of those three elements is missing; the FBM outlines Core Motivators (Motivation), Simplicity Factors (Ability), and the types of Prompts (Fogg, n.d.).

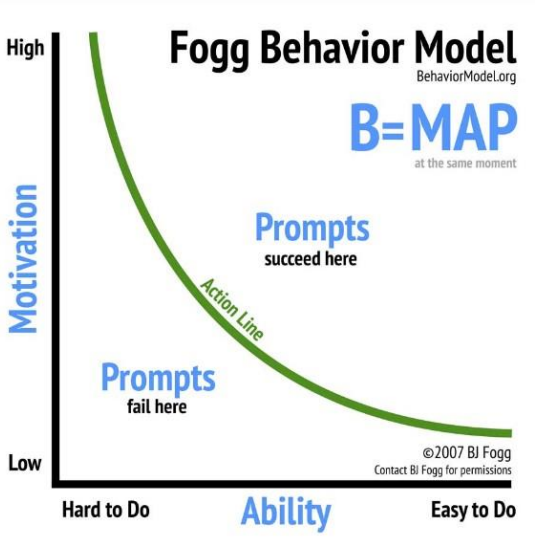

Figure 39: Fogg Behavior Model

When the user motivation is high, ability to perform the task is high; but over time when the user motivation is low, ability to perform the task is less and as a business, design to increase user motivation by offering simplicity – easy method to complete the task; in this case the prompts succeed as simplicity changes user behaviour; when the user motivation is already low and the steps to perform the task is hard, user fails to complete the task and here the prompts fail because the timing of the prompt is not favoured by the current user scenario (Fogg, n.d.). When this logic is applied in co-relation to the value-irritation model, following business process approach in designing conversation dialogues is proposed (Dam, 2022):

BEHAVIORAL CONVERSATION DESIGNING FOR ENHANCED BOT-USER DIALOGUES

QUADRANTS	ACTION - DESIGNING CONVERSATION DIALOGUES
Automate	• Build simple design to complete the task • Create conversations dialogues that are straightforward, transactional • Start designing conversations for best performing use cases
Simplify	• Persuade users to increase motivation • Apply persuasive copywriting skills to build conversation dialogues that triggers to influence customer behavior's through bot interactions and improve user's ability to complete the task. • Apply Cialdini's persuasive principles - reciprocity, social proof, build authority, highlight scarcity, act consistently to design bot dialogues to influence users and motivate to engage with bot interaction (Dam, 2022; "Persuasion Triggers: What They Are and How to Apply Them", 2022)

Figure 40: Behavioral Conversation Designing for Enhanced Bot-User Dialogues

7.2.2 Proposed Conversation Design Pattern Score Card

The case studies of chatbot-user interaction analysis have demonstrated the CD elements that design teams value considering building dialogue flows. It is also corroborated from the expert interviews, the foremost elements that mark the development of good bot-user interaction. Amalgamation of the case study results, and from the expert interviews validation have led to the proposal of the Conversation Design Pattern Score Card. This score card showcases three-level CD types and paramount CD elements at each of this level, 5 points meaning the 'must-have's', 4 points signifying 'important', and 3 points indicating 'good to have' CD elements. The proposed score card holds good to be inculcated for any AI assistant design process. The figure illustrates the conversation design pattern score card.

Figure 41: Conversation Design Pattern Score Card

Few of the CD elements introduced in the design pattern score card is discussed in the previous chapters. Following section explains the three-level conversation deign type and elements that are newly introduced in this design pattern.

1. **Functional Conversation Design**: Represents the basic level of bot-user interaction that is designed for business functional purpose. The bot design must feature user-centricity, empathetic to targeted user group, use simple, and design for inclusivity. The dialogues must also include prompts with '?', varying prompts, implicit, and explicit confirmations. Implicit confirmations refer to a prompt that the bot subtly

repeats to give the user an assurance that they were correctly understood ("Implicit Confirmation", n.d.). Explicit confirmations refer to the prompts that the AI assistant explicitly asks the user to confirm if the user's intent was correctly understood by the bot. It is important to design bot dialogues with hand-over options to human-agents when bot cannot handle user questions, and include dialogues with appropriate greetings and information that shows returning users are being recognized by the bot.

2. **Designing for Happy Conversation Flow Paths**: Constitutes the dialogue flows of AI assistants that are designed to handle conversation flows that 80% of the users mostly choose. It is well-known that users may respond differently to the same request and prompts that the bot may pose, and happy paths refer to workflows that most likely users tend to respond with and design the bot-user interaction to handle these conversations. The bot design must feature prompt verbosity and turn taking design elements. Prompt verbosity refers to additional information that the bot adds in a prompt in-order to get appropriate inputs from the user. Usually, the bot tries with 2 or 3 prompt verbosity dialogues with an intent to prompt user to respond. It is important the AI assistant is designed to present list options that is easy for the user to understand, and when the bot fails to understand user intent, design to respond with appropriate user-centric dialogue with alternatives (fall-back) to help resolve the user query. The human brain takes 250 milliseconds to process a word (Dam, 2022) and hence bot dialogues must be trimmed for less wordiness and avoid cognitive load on the user. Relatively, designing the conversation flow to include various acknowledgments to intend user that the virtual assistant is listening and understanding user's dialogues is a good to have element for an engaging bot-user interaction.

3. **Detailed Conversation Design and Designing for Consistency**: Encompasses the improved bot-user interaction flows designed for better user experience with 100% coverage of use cases along with consistent bot experiences. The conversation flow must feature well defined bot personality for the users to develop trustable experience with the brand and bot. The interactions must be carefully designed for consistent bot vocabulary to enable users to develop likeability to the bot and seamless conversation flows. It is a requisite that the digital assistant can handle any error-cases pertaining to bot incapability to understand user intent, bot misrecognizing user intent, no inputs

from user, or even for use cases that the bot is not designed for but respond with possible repair prompts (Dam, 2021); designing the bot to handle those 20% use cases that are important for the business and serves as long-tail cases must be covered in this design type to achieve 100% coverage of use cases. Here, the bot design to allow users to swiftly navigate through the dialog flows by letting users to speak or type (barge-in) while the bot is giving inputs and bot vocabulary being trimmed to use short words when the context is well understood by the user are two of the good to have CD elements (Dam, 2022).

With the Conversation Design Pattern Score Card, business will be capable to make well-informed conversation designing decisions at each level. For instance, when designing for functional level, business may decide designers to invest in building the must-haves and important design elements which would score complete 28. Similarly aiming a functional bot to be designed for happy paths will score up to 38/53 when all must-haves are taken into consideration. This way, business can effortlessly gauge where in the design card level the digital assistant product stands in offering humane user experience of AI assistants. The score card also serves as a credential to consider for developing the bot product strategy revolved around key CD elements and derive a score accordingly. In a holistic view, the business may also choose varied design elements from the three design types and build a bot-user interaction that is viable for its targeted audience group and acquire a measurable score as a metric.

7.2.3 Innovative Future of Conversation Designing

With extensive data gathered from the expert interviews and by observing the trends in the CD industry, the current and future of designing AI assistants are heavily invested in conversational interfaces and building enhanced bot-user conversation dialogues. CAI leverages the latest technologies, but it requires situational awareness and an overall understanding of what is going on from a people, process, and content standpoint to truly improve the user experience (Macciola, 2021). Currently, 90% of dialogue contents are trained by conversation designers and 10% by using the AI automation and it is anticipated that, this percentage will have a transformation where conversations designers build only 10% of dialogues and 90% will be with automation. Conversational chat bots and the best bots will be more integrated into backend systems so that it becomes more like a self-service point.

A real-time innovation is the ChatGPT, large language model focused on dialogues and auto-creates text. In time ahead, conversation designing will be more of prompt designing function and everything with AI bot on Metaverse, peer-to-peer interaction, VR, story-telling bots, robo-advisors closely knit with robotics and real-time training capabilities. Furthermore, bot-user interaction will be revolutionized with hyper automation and hyper personalization.

7.2.4 Proposed Conversation Designing Essentials

The Conversation Designing process is an experience which is an amalgamation of choosing the right business strategies, platform to build the AI assistant capability, appropriate CD elements for humanoid, improved bot-user dialogues integrated with current trends and innovations in AI and conversational design to produce the best user experience.

The figure highlights the important product design strategies that the business and the team members must inculcate in their virtual assistant product design. The teams involved in building the digital assistant capability must consider every factor in each of these quadrants and then carefully select the components essential and suitable for the business, targeted users, and the team. The CD elements additionally put forward to consider for teams to set the scene with context pertaining to physical, social, time, and emotional state for every use case to better build bot experiences in this user context. Often performing the test of role playing the bot-user dialogue flows by using the transcripts and performing Wizard of Oz (WoZ). The lines between these areas are dotted indicating that each of these 4 areas are inter-related to create one wow bot-user experience with AI assistants along with achieving the business ROI. The team must carefully choose from the KPI and metrices discussed in the previous chapters. Based on catering to both business functioning performance and conversation designing level of user interactions, bot functioning capabilities with AI technology and integration, the metrices must be chosen – to name a few, CSAT, NPS, qualitative metrices, quantitative metrices, customer retention rate, unique users, top funnels, average conversation count, and so forth.

Figure 42: Conversation Design Essentials

In addition to the conversation designing essentials for the team, it is also essential about building the team with right skillsets and experience. According to Cathy Pearl, CD Lead at Google, there is no such a thing called an ideal team, but across the team certain skills she thinks must be covered are: prompt writing, constructing grammars, and doing analysis on how users are interacting with your system and where the failure points are ("Cathy Pearl on why it's a great time to become a conversation designer", 2021). Furthermore, reflecting on the best practices summoned from every case study and expert interviews are principled as essential factors for the business management to consider fostering within the design teams to build enhanced AI assistants for users and business fulfilment.

8 Outlook and Final Thoughts

The world of AI assistants and innovations in the bot industry is broad, ever-growing, and challenging. To adapt to this technology growth, businesses are constantly investing in exploring the AI driven bots and adopting these intelligent machines in use cases targeted towards users. However, the user demands are evolving and fuelled by technology, platform advancements, users expect the business communications to be available anytime, anywhere. Organizations are exploring various possibilities and methods to improve user experience with AI assistants. The companies like IBM, Nuance, Google, Amazon, and other big giants are closer in their discovery on building better humanoid bots for users, explored various strategies, and developed new roles in the companies to cater for developing these better AI products. These organizations have learned that human-centred approach is the key to business success with digital assistants and persistently innovating mechanisms to handle the wicked problem discussed in this research paper.

This research thesis aimed to explore the evolution of AI assistants and how this industry is matured over the period. Vigorous primary and secondary research was conducted to gather insights about user's mindset towards using digital assistants for various jobs-to-be-done in everyday life. Three case studies from the companies in India and Germany were explored and these companies have invested in building AI assistants catering to various business use cases in ecommerce, sales, and customer service. Various factors that influence bot-user dialogue flows, AI platform and integrations, bot and user personality was investigated. Furthermore, interviews from the industry experts to understand better on the innovations, business trends, user psychology, and CAI offered insights to different techniques and methods that can be combined to develop a holistic approach for building humanoid bots.

The thesis research can be concluded that applying principles proposed in the business strategies innovation section, companies will be able to mindfully implement AI bots for the use cases that brings value to the business ROI, targeted users, and how users perceive the brand in the long run. Furthermore, research inputs have led to the conclusion that conversational designing is the best mechanism to adopt by industries to build engaging bot-user dialogue flows for happy conversation paths, long-tail scenarios, error-handling, and fallback cases. Various design elements that influence the dialogues were introspected and the proposed conversation design pattern score card enables businesses to invest wisely in making the best CAI design decisions driven by user behaviour approach. Lastly, all factors

that influence the design for bots are integrated and the conversation designing essential's holistic view is proposed with all essential elements put together in one place for the business to swiftly move through the process of choosing the right elements for their business bot with innovative design and creating better enhanced user experiences.

The AI technology driven bot industry is enormous and ever growing. As secondary research in the thesis, although conversation designing elements almost remain same for chatbots and VAs, focus on design elements that works in individually for these two types could be explored in-depth as a future work. Furthermore, there are various bot-building platforms in the market and although most platforms offer similar capabilities, in-depth research on platform offerings, and how they influence on developing existing AI assistants can be researched in the future. Conclusively, this field is innovating ever since its adoption by users and hence understanding the business phenomena and users' needs and innovatively building on top of the proposed strategies at the right time is the solution.

Lastly, the research work was conducted to explore possibilities and innovative strategies business could adopt for building humanoid, enhanced AI assistant user experience. Due to the industry expert unavailability for the Vodafone GmbH case study, an interview with the expert was not possible. Due to data security, in some cases, test-environment metrices data were used instead or real-time data. The research does not address in-depth AI technology frameworks and backend engines that are necessary for developing bot architecture framework.

Due to the concise period of the thesis, the research has been to the point, crisp, and compact.

List of Figures and Illustrations

Acronyms

1. AOL Instant Messenger (AIM)
2. Artificial Intelligence/intelligent (AI)
3. Artificial Intelligence Markup Language (AIML)
4. Cash on Delivery (COD)
5. Chat Generative Pre-Training (ChatGPT)
6. Content Management System (CMS)
7. Conversational AI (CAI)
8. Conversation Design Institute (CDI)
9. Conversation Design (CD)
10. Customer Satisfaction Score (CSAT)
11. Customer Service and Support (CSS)
12. Fogg Behaviour Model (FBM)
13. Frequently Asked Questions (FAQs)
14. Generative Pre-trained Transformer (GPT-3)
15. Instant-messaging (IM)
16. Intelligent Personal Assistants (IPAs)
17. Interactive Voice Response (IVR)
18. Key Performance Indicator (KPI)
19. List Processing (LISP)
20. Microsoft Network (MSN)
21. Minimum Viable Product (MVP)
22. Natural Language Processing (NLP)
23. Natural Language Understanding (NLU)
24. Neural Networks (NNs)
25. O2O (Online-to-Offline)
26. Return on Investment (ROI)
27. Simple Messaging Service (SMS),
28. Speech-based Intelligent Personal Assistants (sIPA)
29. User Experience (UX)
30. User Interface (UI)
31. Voice Assistant (VA)

32. Virtual Reality (VR)
33. Wizard of Oz (WoZ)

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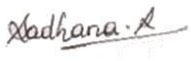
Certificate of Authenticity

Project title: How Businesses Can Innovate AI Assistants' Experiences for Users

I declare that I have written this thesis independently; to the best of my knowledge and belief, the thoughts directly or indirectly taken from external sources are marked as such.
The thesis has not been submitted to any other examination body and has also not been published.



Sadhana Suresh

Potsdam, 11th Jan 2023

I. APPENDIX

1.0 Expert Interview One

Expert interview was conducted on 7th December 2022 at 10:00 am through Microsoft teams with Hans van Dam. He is the founder of Conversation Design Institute (CDI) who also works with Fortune 500 companies to make their AI Assistants more human-centric, effective, and inclusive; he leads the CDI Foundation, a non-profit that develops design standards and provides scholarships within the industry and is a frequent guest lecturer at universities worldwide.

Education: Master's - European Studies, University of Amsterdam

Expert Interview Questions

- Email: hans@conversationdesigninstitute.com
- What use cases in the industry (products and services) do you think would possibly need AI assistants implemented?
- How are the user experiences with AI assistants evolved over time? Have there been any psychological hindrances from users that have been encountered or that you think would be impacting the bot-user interaction? How to address the same?
- What challenges do companies face today when building AI assistant that is both use case driven and offers better user experience keeping timelines of the product roadmap as a constraint?
- In your viewpoint, what are the current and future conversation designing trends and innovations?
- Would you list of key design patterns to consider for conversation designing? – (Jenga, Prompts, Tapering, other methods) along with percentage of importance to be more specific?
- Any guidelines that you suggest while choosing a platform to develop AI assistant? Which is better platform in the current times and what you think the future would have to offer in terms of AI platforms?
- What other aspects, such as design processes, management practices, and metrices need to be considered by organizations to build better user experiences with AI assistants?

- What are the other innovative ideas that business is embracing to create wow bot-user interaction experiences?

Master Thesis: How Businesses Can Innovate AI Assistants' Experiences for Users

Information Sheet

About this study

This study is part of a Master Thesis for the Masters in Innovation Design Management course at the University of Europe for Applied Sciences, Potsdam.

I am conducting research and I am interested in understanding the business needs for AI assistant's implementation and what innovative approach from the business would influence in designing better user experience of AI assistants

This research will document and analyse the outcomes of the interview conducted with you.

What does it mean to take part?

If you take part, you are consenting to take part in the following activity.

Expert interview: The Interview activity may take between 30-35 minutes. I will audio record the responses to transcribe what has been discussed and take images of any outcomes produced during the interview activity session to capture your responses. The data will be used as the basis for academic analysis).

If you choose not to take part, you will be free to withdraw your participation at any point. You will not be obliged to give any reason for deciding not to take part.

What will happen to the results of the research project?

Analysis from the activities conducted - including quotations from you – will contribute to an academic presentation. Your words may also be used in scholarly reports, educational presentations to UE staff papers. These may appear online but with proper citation.

Thank you for your contribution and participation in this Expert Interview.

Contact for further information:

Investigator: Sadhana Suresh

Email: sadhana.suresh2@ue-germany.de

Consent Form

Master Thesis Title: How Businesses Can Innovate AI Assistants' Experiences for Users

You are being invited to take part in an academic inquiry. Before you decide to take part, it is important for you to understand why the study is being done and what it will involve. Please take the time to read the attached information sheet. Ask if anything is unclear or if you would like more information.

- I understand that I have given my consent to be part of an expert interview to share my knowledge and thoughts.
- I fully give my consent to take part in the activities conducted only for research purposes.
- I understand that I have given approval for my opinions to be included in the thesis outputs. Anything I say may be used in academic and non-academic presentations and papers relating to the thesis, although these quotations will be cited.
- I have read the information sheet about the inquiry, which I have been asked to take part in, and have been given a copy of this information to keep.
- Why this academic inquiry is being done has been explained to me, and I have had the opportunity to discuss the details and ask questions.
- Having given this consent I understand that I have the right to withdraw from the inquiry at any time without disadvantage to myself and without having to give any reason.
- I hereby fully and freely consent to participation in the interview, which has been fully explained to me.

Expert's name: HANS VAN DAM

Date: 7th Dec 2022

Investigator's name: SADHANA SURESH

Date: 7th Dec 2022

Transcript Expert Interview with Hans Van Dam

Q1. What use cases in the industries possibly have the need for AI assistance? Sometimes, it's more like businesses go by the trend because many of them are doing AI assistance. What is your input on use cases that you think need AI assistance?

Answer: There are a whole bunch like AI assistance, you have got AI assistance that interact with employees, with customers, and patients. I think a lot of the industry is focused on just external use cases, talking to customers and, patients, healthcare. But internal is, just as rich as an environment to interact with. I think a lot of people are focused on currently existing conversations. So that might be employee support, human resource, and, and those sorts of things. But there are also a lot of possible conversations where you just look at customer journeys or employee journeys, whether it's just friction, where conversational interface can make it much easier. And I think the one of the ways a lot of websites are already doing this because they put like a chat bot on the homepage, right? You don't have to click through 20 screens. And the effort makes it easy for navigation in a way that is replacing or that is adding a conversational interface to something that's currently not happening. So, I think that is good, but I think there's a lot of value in when people are already doing stuff to just have a conversational interface adds to kind of increased motivation and make it easier. On little touch points and journeys where it just gives you the extra little bump to make it easier for people, I think that is where a lot of use cases still that a lot of people are not really focusing on. A lot of people are still looking at, you know, customer service, employee support. But yeah, it's all over the place. And I remember as I was talking that I was going to send you some stuff, which I never did, I think. I'm creating an email and as I now talk about things, I'll take a screenshot of a slide and add that to that email. So, you'll have that right after the meeting though.

Q2. That's great. Thank you so much. In terms of user experience, how is it evolved over the time? Do you see any hindrances that people are not so open to interact with chat bots or voice assistant? or, nowadays with the technologies and with using Alexa and all these at home, are the users open to using bots in terms of service or for sales discussions?

Answer: Yeah, chat bots have a bad reputation because they used to be very bad. A lot of them still are very bad, but the problem is also that the good ones aren't being noticed as

much because they just get the job done, right? So, if I talk to chatbot and have bad experience, then I will remember that, and I'll get upset. But actually, if it's a chat bot that helps me go from A to B, I don't really remember it because it was a seamless journey, maybe I'll think like, hey, that was easy, but I won't really allow myself to think to realize what it was that made it easy, uh, seem like a bridge can be like a beautiful piece of engineering, but it just gets you from A to B, you don't really think about all the work that went into bridge.

You do not consider that. Otherwise, you would have to drive all the way around if there was not a bridge. So, I think the negative side and the bat reputation is like a little too harsh right now. At the same time, you say people are getting more familiar with talking to bots, doesn't necessarily, on one hand bots have gotten better, but at the same time people have also learned how to talk to bots, right? Where maybe initially they did not really. If you talk to Google system or Alexa when you first got it, you may have had full sentences. When you talk to it now, you understand how to talk to it in a way that helps you get things done, right? So, uh, you don't say, oh, it would be marvellous if perhaps sometime later today the lights could be on. We'd say, turn the lights on here so we know how to talk to it now. So, they have a bad rep, but I think that's a little exaggerated. They are getting better because the industry is maturing, but at the same time, people are also getting better at talking to these things. So that's creating value for both customers that will have better experiences, but also for businesses, it allows them to automate more stuff.

Q3. Makes sense. Any challenges that you know businesses face when they must implement AI assistant? From the use case, to define for which tasks they would use bots? or, in terms of planning user experience, touchpoints? Or, it is from the platform, or any other side that what businesses might find challenging when building AI assistants?

Answer: The way we look at this problem is what we call integral perspective. And what we say is, there are kind of four things that you need to be working on as an organization. Everything that kind of one organization wants to do is add to scope. Have more use cases and increase the customer experience, right? So, scope plus experience equals value. All those things, every result or anything that you create is a combination of very many things. And they are a combination of individuals doing the work and the organization is a structure. These individuals, they have a certain mindset, and they have a certain skill set. So those are things that you need to work on. Who are the people that are doing the work

and how do they perceive the work and do they have the right skill set to do the work. Does the company have the right strategy? Do they have the right stakeholders involved? Do they have the right budgets? Uh, and a lot of that comes through education as well. So, because it's new, there aren't very many managers that know how to create a strategy for this that haven't really developed that enough. They don't know how much budget they need. They don't know what a team looks like, they don't know what the team needs to be doing or what the best use cases are. Um, so you need to be working on that as well. And then there is systems which has to do with the technology and you, the structures that you create, right? As you kind of create an FAQ bot, a very simple maybe first product that you would create that requires a completely different mindset, skill set strategy and technology than when you create like a fully integrated contextual omnichannel AI experience. So, as you kind of progress on these projects of AI assistance, you need to make sure that you are in sync with each other at the right pace, develop your skill sets and develop your technology and develop your strategy as you go along. Because what we see a lot of companies do is they create like a little chat bot, maybe an FAQ bot, it answered the questions, people get it and they see the potential and then they say, oh, it would be super cool to have this thing do everything right. Let us build a chat bot that can help with everything and talk to anyone and recognize everyone.

And what they'll do is they'll just build the technology for that, but then they don't get the value because they don't have the right strategy around it and they don't have it because they simply don't have the expertise in the experience yet to develop that strategy. They do not have the right, they might have the skill sets to create an FAQ chat bot, but all of a sudden if you're talking integrated journeys, it becomes more personalized. You need to start designing for trust, you need to start designing for behaviour. You do not have the skillset; you don't have the hours put in yet. So, it takes time to get there, and you can't skip steps. So, what we see a lot of companies do is they will create MVP, everybody's happy, and then they scale up to on the technology side, but then they don't have the strategy and skill set to deliver on that investment. And that is when a lot of these projects' kind of crumble because then they don't get a return on their investment.

Q4. Okay, that leads to my question thar some companies might be using KPI and metrices only from the business per se and might have some funnels to recognize where the users are dropping out or how many interactions the bots are handling. Will that kind of KPI

metrices measure the user experiences? Is that good enough or the business must even level up even in terms of what they are measuring to understand the user experience that you're talking about, like touchpoints and journeys?

Answer: Yeah, it is kind of like what we see a lot of companies do this, define the wrong metrics and the wrong KPIs, and then also making the wrong decisions to deliver on those KPIs. For a lot of companies, containment is a big one, right? Getting people to complete the chat and then, they want to get that number as high as possible. So, complete a journey in the chat bot or voice IVR or voice applications really matter. Uh, so if that is your key KPI and you are not hitting that, what a lot of teams will do is make the conversation shorter. Like you just move the goal post so that you contained them. You see a lot of these things are kind of difficult and there is a lot of mix up between business metrics, business KPIs and metrics and performance metrics.

So, conversational AI team, if you are in the chatbot team, you might look at coverage, cognition. How well do we understand what people say? How many topics are we covering? how many people do we keep in the dialogue? Those are the sort of things you as a chatbot team might be looking at. But for the business you need to be looking at well initially you look at containment, but then you look at, start looking at NPS at satisfaction scores. Because it is very different if I have a customer service chat bot versus an employee HR bot or an IT help desk bot, or it's a smart speaker that helps me turn on the lights.

Um, so it really depends for, for use case, what the metrics are that you want to focus on. And then the metrics are very different because you have got the division between the business metrics and the technical metrics, the performance metrics, and people get those mixed up. And a lot of these metrics and KPIs are easy to manipulate. So, that comes from that culture quadrant where the managers do not have the education yet, they do not really understand what they are doing. Often, they define the wrong metrics and then those metrics are being manipulated. We have a brand that has probably spent a million bucks too much because they focused on the wrong metric that was then manipulated by the team because they needed to hit containment and they just make the conversation shorter, whether look at the increase the quality of the assistant.

The main thinking is, it is important to define properly what you're shooting for and to understand that different teams have different metrics to focus on to contribute to that common goal. But as in the life cycle of a project, this is also I think generically that you could say is like initially you start focusing more on quantitative metrics, just get the thing

to work, uptime, get people through it, and then as you have that baseline, you start looking at qualitative metrics, satisfaction and NPS sort of things.

Q5. Okay. Beginning with quantitative metrices, and if the business is doing good, then, is that equivalent that users are happy with offered bot experience?

Answer: Yeah, I don't, I would not put my name on a conclusion like that. Another thing is when you ask a lot of companies, what they do is like, did this thing help you? And then their answers you get are always skewed because when people get an answer they don't like, they say it was terrible. You know, can I get an extra credit on my credit card? And the answer is no, then they are just upset, and it has nothing to do with the quality of the experience. So, I think everything needs to be taken with a grain of salt. That's, I think that is the conclusion that I would add my name to. But yeah, I guess the, if you know the, the kind of the hypothesis that you threw out there, that's, that can work. If you say, we only look at, you know, a million customers and care about the average, then, you know, a hypothesis that could work. But if I say, you know, I care about every customer, I want everybody to have a good experience, then an assumption that a good formative metric results in good experience is a little, it is pushing it a little too much, I think.

Q6. What do you think are the future conversation designing trends and innovations where the industry is leading to?

Answer: A lot of people are talking about that cause, you know, Chat Generative Pre-Training (ChatGPT) has come out from open AI. Uh, so you just see large language models getting much and much better. Everybody's like it is going to change conversation design or is that going to put everybody out of business? Uh, no, I would say, I think what's going to happen though is where now if you look at these experiences, like 90% of it is just conversation design of figuring out what we want to say and how we want to do it and how we want to train the model and how we want to configure the whole system. And 10% is maybe some support of ai, whereas maybe five years from now, you know, these creators of these AI experiences will get more, um, support from ai. So, now's maybe like 90% craftsmanship of 10% ai. Well, maybe five years from now it'll be 90% AI and 10% conversation designers doing the work. But that's 10% that remains might even be more important over time. Right. So, so I think now it's really like creating everything and over time it will be more about controlling thing things and auditing things and fine-tuning things that are being created by an AI.

If you're talking about very open issue, about the news and AI can handle that very easily, right? Cause it's just public domain stuff. But the more personalized and the more contextual it gets also for the organization, the harder it becomes for an AI to figure out what to do, right? Uh, the more nuance there is, the more context there is, the harder it is. Now also, if you look at all those various touch points, let's say I have like one specific journey for a customer and then we think, oh, here we could have a little chat bot to solve this specific issue. By the time you have like an, you know, an AI fine-tuned to handle that one specific problem, it probably could do that.

But at the same time, you might as well just write it and design it yourself and control it fully and, and get it over with, right? I think what you'll see is that at the beginning of journeys there will be more AI conversations. Cause it's just like, hey, how you doing? How can I help you? And or maybe somebody asks a silly question and it's like, small talk and all of that will be handled or maybe, uh, you know, ask about other stuff. But as soon as people then really go into a mission critical journey, uh, about financial stuff, about contracts, about ordering stuff, you might as well design that yourself because you understand that use case so well and you'll have full control of the experience. I think you'll see those key components just be designed, but then the experience becomes richer because it's easier to add stuff to it with an AI.

Q7. Do you see any trends in terms of conversation designing with automations related to AR and VR?

Answer: Yeah, I mean everything metaverse will be conversations as well. So, if you have a metaverse, every brand is going to be in the metaverse, and everybody wants to interact with Metaverse or with those brands. Um, so all of that is conversational ai, it's just the same technology, but it's a different interface. It's just a different avatar and it comes with like some new challenges. Cause in metaverse you'll, you'll have one too many and many to one. So multiple people might speak to the same AI system at the same time while we're there. So, it'll be five people, but one of those people will be an AI assistant. So how do you deal with that? Or it could be, uh, one person with different AI systems at the same time. So, then I might talk to this person that, but all those things are conversations that need to be designed, uh, and handled by conversation designer. So that's where the big market is for conversation design.

Q8. Regarding the design patterns for conversation designing what percentage of importance would you provide to Jenga, tapering, turn-taking, and any other conversation design techniques you think are important?

Answer: I would say pull up a checklist, always have acknowledgement, confirmation prompt. We call it the conversational mantra. Um, so the conversational mantra that allows to so acknowledgement is, I hear you. Confirmation is, I understand you and the prompt is this is what's happening next. That's a little structure that every sentence needs to have. Sure, you want pizza, what kind would you like? That's kind of the, you know, I hear you understand you and that and what pizza wish you like. That is key to all of them. Um, then always like active language over passive language is an important one. Uh, because it just makes it so much better. Keep language simple. I would say acknowledgement, confirmation, prompt, that is like the design pattern that you always need. And an active language for passive language is just so important because it makes it 10 times better. And then simple over comply. Yeah, I think those are the key things. Keep it short, keep it active, keep it simple, and then follow that basic pattern are uh, are the key things. And that's kind of how I would have at the top of my list.

Then the confirmations and particularly the implicit confirmations are very important. We use an implicit confirmation when our confidence level is, is high. So, when the assistant is about 80% or more sure that it understood the question, it will say, oh great, what kind of pizza do you want? So, I will just add the word in there, but continue the conversation by asking what's the con what's what kind do you want? But if I'm not very sure, then I say like, oh, I, uh, I think you said you want pizza, is that correct? And I, I will let you explicitly confirm that you want pizza. So those two things, implicit and explicit confirmation are crucial. And all of these, this design pattern is even more important than voice because, you know, when people chat, they can at least read what's being said.

With voice, acknowledgement confirmation prompts. When, when you hear smart speaker, it says like, oh that's great. What kind of pizza? Uh, uh, sure I have pizza. What kind would you like? What happens there is, first I let you know that I hear you. So that prepares you to start listening. And then I repeat back to you. So, I tell you like, hey, I understood you, so what I'm going to say next is relevant to you. And it I create space for you to prepare yourself for the more important part of the information, which is what kind of pizza would you like? So, invoice this pattern is crucial because if you ask a question, I just give the answer immediately, your brain is not ready yet to perceive the information.

Q9. What capabilities the platform needs to offer for building better conversation designs? I think most of the platforms almost offer same capabilities. Any guidelines on choosing the best ones or what to look for while choosing AI assistant building platform?

Answer: Yeah, as you say, a lot of it is very similar. I think what you need to be looking for is that when you start out, that you start out also with a simpler, uh, solution, right? You need to get something that works for the level of development that you're at, right? So, don't buy the fanciest and most expensive complex thing that's hard to operate when you're just doing a simple project first. I think that's, that's one that's very critical. And what you'll see is some of these technologies are more content focused and some of them are more engineering focused and some of them try to be both, right or, or be a hybrid between the two. Some organizations will have lots of engineers and a great engineering capability, for them it makes sense to go with an engineering focus platform. Some other organizations, all they have is writers. And for them it makes sense to look at more like a friendlier user interface that is very focused on content rather than engineering, right? So if you, you've got companies that have a lot of, have a lot of customers, but they only ask like a few, they only have a few mission critical journeys and they're big tech companies, so all they need is, is like one technical solution to handle this that well then, you know, you end up with Rasa as a very in industry grade kind of framework, whereas, you know, if I have 20 customer service agents that are going to create a customer service chat bot and put in a lot of content, then I might want to go to something that's a bit more content friendly. I think, uh, what kind of people do you have in your organization? What are the use cases that you're doing today? And what are you working towards in the future? Helps you ask the right questions for what you need. And there's not a one size fits all.

Q10. What is the design process or the management practices, or metrices that businesses must consider so they're on the right path in building these AI solutions?

Answer: The first important thing is that the organization recognized that conversation design is a job that a lot of people see. It's like, oh, it's typing, it's like WhatsApp. How hard can it be? But it's something you need to think about and do properly. So, it needs to be rec recognized as a job by the managers, but also by the people that are now doing this. Um, because it just takes effort. I think that's like the key thing in an organization to at least create space and budget for it. And then what we always say when designing the, the key process is Alize the context of the conversation. So don't just write something down, but it'd be like, oh, this person got shut out of his bank account. What does that mean for

someone? It's like a big deal. For a big journey, what we do is we have people role play it. Uh, so one person plays the conversation from the perspective of the customer and the other person does it from the organization's perspective, and they just have the conversation to figure out what makes the most sense, right?

And, uh, and what will happen every time the assistant says something, it will trigger a question. So, if I say, oh, these shoes are great, but then the other person's like, how much are they? That's a very annoying question I must ask. Uh, so then next time you can say, oh, these shoes are great, and they're only a hundred bucks. So, by doing that role playing exercise, it allows us to discover questions that people have and that we can answer them before they even arise. And that creates a lot of empathy and a lot of trust and comfort for people. And that creates good conversations and then you want to validate that with people to test it out with 10 different people to see if it holds up and then you improve it and then you start building it.

But a lot of companies, what they do is they just start writing and they just start building, but they skip these steps in the beginning. So, what you need to do is, is educate people, like the stakeholders on how this process works and why it's important, and that it will save money in the long run and then skill people up and really recognize it as a job and, and where at the same time a tech team will be building all kinds of fancy stuff. So that's kind of like the enterprise dynamic that's challenging.

Make the stakeholders part of the design process, make them role play, let them test it, let them interact with it, show them what you're doing. Make them part of the workflow from time to time so that they know. Also, do little internal meetups in your organization. Show what you're working on and show the challenges that you had working on that. Uh, have a newsletter internally towards your stakeholders, right? Put them on a course at, at cdi of course, that's also an option, but, making them part of the process, showing the process, showing the possibilities of conversational AI technologies, get them excited about that and those sorts of things. So, you want to develop a program for that and do that structurally.

Q11. What are the other innovative ideas that the businesses can embrace to build better interactions? It could be in their management or design process that could add great bot-user interaction.

Answer: I think the main thing is, be mindful of who you're talking to all the time, and then be human centric rather than bot centric. Every time you write, I write you, you see,

you can, instead of saying, how can I help you to say, well, would you like help with? And it's already friendlier and, uh, I think being inclusive is, is kind of the key thing now for organizations that they need to start focusing on. And then there's inclusivity in how you talk to people, but also, you know, so speaking in a way that you're not triggering anyone, but also in a way, uh, train your models in a way that you, you respect people's linguistic preferences. Cause you know, specific people might have a very different way of using language. This is culturally, individually, but there's also language ability, right? So, some people, uh, just don't speak English or German or whatever as well as you do. Uh, so be mindful of them, but we kind of covered that with simple language. But, uh, a lot of this has to do with being inclusive and human centric. Yeah, that's like, and that doesn't even go for conversational ai that also goes for your website or every newsletter that you send out or every billboard that you create.

Q12. Thank you very much for all your inputs. Is there anything I could help you with? I would be happy to do the same. Have a great day.
Answer: Thank you for great questions, and all the best for your thesis.

2.0 Expert Interview Two

Expert interview was conducted on 18th November 2022 at 03:00 pm through Microsoft teams with Paul Krizsan. He is the Director of Conversational AI at think moto, Berlin.

Expert Interview Questions

- Email: paul.krizsan@thinkmoto.de
- What use cases in the industry (products and services) do you think would possibly need AI assistants implemented?
- How are the user experiences with AI assistants evolved over time? Have there been any psychological hindrances from users that have been encountered or that you think would be impacting the bot-user interaction? How to address the same?
- What challenges do companies face today when building AI assistant that is both use case driven and offers better user experience keeping timelines of the product roadmap as a constraint?
- In your viewpoint, what are the current and future conversation designing trends and innovations?

- Would you list of key design patterns to consider for conversation designing? – (Jenga, Prompts, Tapering, other methods) along with percentage of importance to be more specific?
- Any guidelines that you suggest while choosing a platform to develop AI assistant? Which is better platform in the current times and what you think the future would have to offer in terms of AI platforms?
- What other aspects, such as design processes, management practices, and metrices need to be considered by organizations to build better user experiences with AI assistants?
- What are the other innovative ideas that business is embracing to create wow bot-user interaction experiences?

Master Thesis: How Businesses Can Innovate AI Assistants' Experiences for Users

Information Sheet

About this study

This study is part of a Master Thesis for the Masters in Innovation Design Management course at the University of Europe for Applied Sciences, Potsdam.

I am conducting research and I am interested in understanding the business needs for AI assistant's implementation and what innovative approach from the business would influence in designing better user experience of AI assistants

This research will document and analyse the outcomes of the interview conducted with you.

What does it mean to take part?

If you take part, you are consenting to take part in the following activity.

Expert interview: The Interview activity may take between 30-35 minutes. I will audio record the responses to transcribe what has been discussed and take images of any outcomes produced during the interview activity session to capture your responses. The data will be used as the basis for academic analysis).

If you choose not to take part, you will be free to withdraw your participation at any point. You will not be obliged to give any reason for deciding not to take part.

What will happen to the results of the research project?

Analysis from the activities conducted - including quotations from you – will contribute to an academic presentation. Your words may also be used in scholarly reports, educational presentations to UE staff papers. These may appear online but with proper citation.

Thank you for your contribution and participation in this Expert Interview.

Contact for further information:

Investigator: Sadhana Suresh

Email: sadhana.suresh2@ue-germany.de

Consent Form

Master Thesis Title: How Businesses Can Innovate AI Assistants' Experiences for Users

You are being invited to take part in an academic inquiry. Before you decide to take part, it is important for you to understand why the study is being done and what it will involve. Please take the time to read the attached information sheet. Ask if anything is unclear or if you would like more information.

- I understand that I have given my consent to be part of an expert interview to share my knowledge and thoughts.
- I fully give my consent to take part in the activities conducted only for research purposes.
- I understand that I have given approval for my opinions to be included in the thesis outputs. Anything I say may be used in academic and non-academic presentations and papers relating to the thesis, although these quotations will be cited.
- I have read the information sheet about the inquiry, which I have been asked to take part in, and have been given a copy of this information to keep.
- Why this academic inquiry is being done has been explained to me, and I have had the opportunity to discuss the details and ask questions.

- Having given this consent I understand that I have the right to withdraw from the inquiry at any time without disadvantage to myself and without having to give any reason.
- I hereby fully and freely consent to participation in the interview, which has been fully explained to me.

Expert's name: PAUL KRIZSAN

Date: 18th Nov 2022

Investigator's name: SADHANA SURESH

Date: 18th Nov 2022

Transcript Expert interview with Paul Krizsan

Q 1: Overall in the AI assistant implementation in today's business, which use cases in the industries, do you think really need AI assistance or are the businesses just following the trend? What's your take?

Answer: Well, I mean it depends. We have a lot of clients come to us and talk to us about metaverse because obviously VR and conversational interfaces are very closely linked as well. Also, just in general about, it would be nice to have a bot basically, the very simple use case is just, I mean what a lot of bots do these days and a lot of people are following as a trend is, uh, FAQ bots basically. So, for customer service for example, if you have a question, you could just ask it, ask about the question. The problem with that is, they don't really think about when users want to talk to a bot, or the implications of having just a standard add on chat widget on their regular website and the ramifications that has on the rest of the website.

So, you have this competing left right dynamic where you have the chat box and the bottom right end corner and you still have the regular website content, for example. Um, where it, from a UX perspective, it absolutely doesn't make sense to have something like that. For the most part, most websites and most brands would probably be better off if they had just a standard FAQ page, but with a better search mechanism, for example, you don't necessarily need a bot for the most part. There are a few use cases where bot site really make sense and that for us these days is e-commerce and also conversational commerce

and recommendations basically. For example, we built this one demo for Volkswagen where they have for the website, they already have a car configurator. So basically, you can go through this step-by-step process of selecting what kind of components you want to have in your car, what kind of motor, like what kind of texture for the interior, that sort of stuff.

And in the end, you could in theory buy or order the car. The problem is, it doesn't really explain you a lot as what the actual differences are or what you should choose based on your lifestyle just gives you these options. So, conversational interfaces really have a nice niche there where they can kind of interact a bit more closely and mimic actual human interaction. If you were to go to a car sale, car salesman would ask, oh yeah, where do you want to drive? Right? where do you like to drive? How many people are in your car? Usually you ask yeah, he ask these very abstract or not a very abstract, but more abstract and more personal questions. I guess that's more about lifestyle, mood and vibe than like actual hard facts.

I don't go to a car salesman and go, okay, I need a 200-cc engine or something for my motorcycle or yeah, something like that. So, for that conversation, interfaces really help kind of bridge the gap between technicality and well technical details, technical specifications and amateurs basically. We've had the same thing for the makers of the German Fitz box, so a router producer here in Berlin as well. Um, they're very famous for their very high tech, uh, sort of obviously cutting-edge router technology, very sophisticated and stable and crazy expensive as well. Mm. And they basically have a user group that's kind of divided into two segments. They have these really technical users, I guess you could call them nerds or hardcore users. They really love to fiddle with their information, and they want to have all the information in one glance, uh, for them bot really wouldn't be the best use case.

But on the other side you have these amateurs, and they really just want to have, they'd really just plug and play users. They want to take their router, they put it into the wall, and they want to just have it run basically. And for them to recommend, which router is best, you don't really need a website where they can just select from all the technical specifications and details. They don't care about that. They just want something that works for them. And to have a bot kind of advice them on what product is best for them is a really nice use case. So, I think a lot of them, a lot of the bots out there right now are very misguided in terms of what they're supposed to do and if a regular website might do the

job better in terms of UX. Um, and there's a lot of yeah, pitfalls I guess, that people commit down the road. Yeah.

Q2. In your viewpoint, what do you think are the current and the future conversation design trends and innovations, key design patterns to consider while designing conversations, dialogue flows?

Answer: Yeah, I mean one of the technologies that we are very excited about obviously is virtual reality. Maybe not necessarily in the sense of the metaverse and peer-to-peer interaction, virtual reality, but more in the sense of training. So, we have this, industrial training, demo as well where you can have a lot of automation happening where usually right now, you'd have one to one training, you would lose a lot of money by sending people somewhere. We instead built this demo where you have this, hand inter or hand-based interaction via an Oculus quest. We can interact with everything very intuitively, kind of in the real world as well with a real machine, for example. Um, but in this industrial setting, you would then have this virtual trainer that's sort of standing behind you, this voice from the off, uh, that kind of guides you through everything.

In theory, you don't need a bot for that necessarily, but a bot introduces this lovely layer of being able to digress and ask, okay, why can't I plug in this cable here? What happens if I don't configure the, I don't know, route ahead or something properly for that machine or the laser cutting head. Um, so you can go very much into detail there, during the training and really bring another layer of value basically to this type of interaction. Um, so virtual reality, for example, in conversational interfaces, there's a lot of overlap and a lot of potential for the future that, from our talks with like Bosch, Lohan, Volkswagen, there's a lot of interest there. Uh, but people are also kind of afraid at this point to really commit to that. I mean, especially with innovation budgets being slashed this year and next year probably.

Um, but yeah, outside of that, I mean the biggest topic for bots that we hear from clients right now is just maintainability. Basically. You can build any bot as sophisticated as you want with if you have enough time, but the problem is most product owners, I guess, um, they're being more and more short staffed. They have less and less time basically, and they can't just magically produce content and maintain content over a long period of time. Um, so to have something that's as dynamic and as generative and as yeah, easy to maintain as possible is basically just the biggest topic in general. Other than that, I think in terms of conversation design, most big players, they're kind of stagnating like this. They we've

reached kind of the peak. It's just that where do we go from here? how do we make it easy to maintain? How do we make it easy to scale basically at this point?

Q3. In terms of user experience, how you think as the AI assistant evolved over the time? Because most of the time the bot fails when the user starts asking some complex questions or even sometimes simple questions and the bot doesn't understand, there is not much of a conversation flow that happens. So, what is the user experience? Are they really enjoying the way the businesses are developing the technologies, developing this conversation flows? Is it improved? What's your take on that?

Answer: Yeah, I think the biggest issue with bots in the previous years, especially when every started, everyone started building them, or especially when there's bots that are being developed by IT departments, the biggest problem then is expectation management, I think. So basically, the bot just starts off, I mean, just the first interaction generally something like, hey, I'm bot X, Y, Z, uh, what can I do for you? Right? an open-ended question, that's the biggest issue ever because I mean, of course anything is going to happen after that.

I guess for most companies, and it developed bots, basically, not being very clear in terms of expectation management for users, what the bot can actually do and what the bot can't do. And obviously, that very much leads to frustration if then the user anticipates that the bot can answer a question that the bot obviously cannot write. And then if you have the follow up, basically have that extend the frustration management, or the frustration deviation during the fall back. So, if you then just say, worst case scenario, okay, I don't understand, can you please repeat that and the user says the exact same thing, it's kind of stuck in this loop, I guess, as a user, leaving you to basically leave this insanely fragile form of interaction? That is the conversation. So, I mean, just those two points, I think, for many companies have improved, but you obviously still see bots that fail basically, in the very first interaction, where it's really just one message, hey, I'm this bot, how could what can I do for you, not offering next steps, and the next best action basically is just the biggest issue that we see in terms of conversational UX. And then obviously, you're coming to the visual UX part where then you also have these weird things of incredibly humanoid uncanny valley, sort of avatars. Think brands as Vodafone for a while, they used actual photos of a woman basically as an avatar for their body, which was incredibly weird to navigate, very creepy, I feel. So, that part is improving a lot as well. But it's still very difficult to get a nice feel for the personality in terms of a conversation, and also in terms of visual UX for most parts these days.

Q4. Okay, then, on the key design patterns, if you must consider and come up with a card of how you read it in terms of percentage, tapering methods or writing prompts, turn taking, what do you think are the important ones? or any other factors, if you can think of in terms of designing conversation flows?

Answer: For us, we don't really have a set process for that it just depends on both the process and the platform. But I mean, the key elements of intense training phrases, and trans down interaction is just very, very similar throughout the bench. It's just that, the conversation design, it's very flexible, there's not really a need for it. At least for us, there isn't really a need for standardization there. For example, we have some bots that are more wizard style, where you can really don't always have the chat history. So basically, for the users just about the next step forward constantly. So, that's not really a good way or there isn't really supposed to be a good way to go back. I like to read through the history again. So, it just much very much depends on the use case and the target. But we don't really have any key, design patterns that we must follow at all times.

Q5. One last question I have is on the management practices, or the team when you're developing for conversation, designers, and experts. What are the key team essentials that you think is required when you're building up such a team?

Answer: For us, I mean, same thing that I guess the thing is that we are a very diverse team from a variety of backgrounds. We do have a conversational design team. But really, that's two people, one who has a creative writing background, and one who has a UX writing background. And then we have a bunch of UX designers basically as well, some front-end developers, there's not really a fixed team for us for projects where we necessarily have set metrics that vary from any other project. From project management perspective, it doesn't really matter what kind of project we have, whether it's for website or for chatbot project here. In the end, goals that we have are still the same. I mean, we try to work very agile early. So therefore, obviously, it's important how we managed to work through our backlogs and our Kanban boards. But other than that, I mean, that's just the conversational metrics, but that only comes into play after rollout as well after launch. So, I haven't really had any tools for you there as well.

Q6. In terms of innovation to the business with AI Assistant, what you see is the current or the future way for businesses to adapt into AI assistant, chat or voice? One you mentioned is virtual reality. And anything else that you can think off from the business perspective?

Answer: Yeah, yeah, I said ecommerce, conversational customer support, those two areas on top of that, like huge. One thing that we like to implement these days a lot more storytelling Bots as well. So, when it comes to brand building, obviously, there's a large need of talking about, the evolution of brands, for example, engaging users in these natural language conversations to kind of convey messages or to educate people, something we've done for visual invest. So, it's a Robo advisor. Basically, it's also a chatbot that is supposed to help you lose your fear for thinking about finances, a lot of people feel like financial paralysis. And having a bot that kind of talks you through that and gives you tips can also help them that so yeah, education, storytelling, ecommerce, conversational commerce, and conversational Customer Care. I think those are the four big ones, basically. And under education, I guess it could come training, for VR, for example.

Q7: In terms of platform, what you would suggest to other teams that were building AI assistant capabilities? What must they consider in the industry when you're choosing from various platform offerings for building an assistant?

Answer: Yeah, I mean, for the most part just comes down to the ecosystem, all these platforms are just so incredibly similar except for one thing, or two things. And that's the integration. So how easy is it to integrate into other systems because the bot platform on its own doesn't really survive, it needs external sources. For example, if you are in the Microsoft, the Azure ecosystem, then it makes sense to kind of have a bot that's built around Microsoft Bot Framework as well. Because it allows you to integrate with Active Directory, and all these other sources, super easily. So, you just want to make it as easy as possible for yourself to build it. But then also, it's easy to maintain it. You have to kind of think about who is the people that need to look at the content and maintain the content? In the end? Do you need to build your own CMS for it, do you? Or can you work directly into the bot platform, because with Rasa that might be a bit more difficult than with cognitive, for example. So, I guess those two aspects like maintainability, and ease of integration is basically just the two biggest factors to look out for when you choose a bot platform.

Answer: Alright, thank you so much, Paul. It was great knowing more about the Lui case study and interviewing you as an expert, I will be using these inputs in my thesis, yeah. Thank you so much. Appreciate your support. Thank you.

Answer: I was glad to give you some information if I could help, yeah. Bye.

3.0 Expert Interview Three

Expert interview was conducted on 2nd December 2022 at 04:00 pm through Microsoft teams with Maaike Groenewege. She is the Conversation Designer and Coach at Convocat; Maaike is also the Program Co-ordinator at The European Chatbot & CAI Summit.

Expert Interview Questions

- Email: maaike@convocat.nl
- What use cases in the industry (products and services) do you think would possibly need AI assistants implemented?
- How are the user experiences with AI assistants evolved over time? Have there been any psychological hindrances from users that have been encountered or that you think would be impacting the bot-user interaction? How to address the same?
- What challenges do companies face today when building AI assistant that is both use case driven and offers better user experience keeping timelines of the product roadmap as a constraint?
- In your viewpoint, what are the current and future conversation designing trends and innovations?
- Would you list of key design patterns to consider for conversation designing? – (Jenga, Prompts, Tapering, other methods) along with percentage of importance to be more specific?
- Any guidelines that you suggest while choosing a platform to develop AI assistant? Which is better platform in the current times and what you think the future would have to offer in terms of AI platforms?
- What other aspects, such as design processes, management practices, and metrices need to be considered by organizations to build better user experiences with AI assistants?
- What are the other innovative ideas that business is embracing to create wow bot-user interaction experiences?

Master Thesis: How Businesses Can Innovate AI Assistants' Experiences for Users

Information Sheet

About this study

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I am conducting research and I am interested in understanding the business needs for AI assistant's implementation and what innovative approach from the business would influence in designing better user experience of AI assistants

This research will document and analyse the outcomes of the interview conducted with you.

What does it mean to take part?

If you take part, you are consenting to take part in the following activity.

Expert interview: The Interview activity may take between 30-35 minutes. I will audio record the responses to transcribe what has been discussed and take images of any outcomes produced during the interview activity session to capture your responses. The data will be used as the basis for academic analysis).

If you choose not to take part, you will be free to withdraw your participation at any point. You will not be obliged to give any reason for deciding not to take part.

What will happen to the results of the research project?

Analysis from the activities conducted - including quotations from you – will contribute to an academic presentation. Your words may also be used in scholarly reports, educational presentations to UE staff papers. These may appear online but with proper citation.

Thank you for your contribution and participation in this Expert Interview.

Contact for further information:

Investigator: Sadhana Suresh

Email: sadhana.suresh2@ue-germany.de

Consent Form

Master Thesis Title: How Businesses Can Innovate AI Assistants' Experiences for Users

You are being invited to take part in an academic inquiry. Before you decide to take part, it is important for you to understand why the study is being done and what it will involve. Please take the time to read the attached information sheet. Ask if anything is unclear or if you would like more information.

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- I fully give my consent to take part in the activities conducted only for research purposes.
- I understand that I have given approval for my opinions to be included in the thesis outputs. Anything I say may be used in academic and non-academic presentations and papers relating to the thesis, although these quotations will be cited.
- I have read the information sheet about the inquiry, which I have been asked to take part in, and have been given a copy of this information to keep.
- Why this academic inquiry is being done has been explained to me, and I have had the opportunity to discuss the details and ask questions.
- Having given this consent I understand that I have the right to withdraw from the inquiry at any time without disadvantage to myself and without having to give any reason.
- I hereby fully and freely consent to participation in the interview, which has been fully explained to me.

Expert's name: MAAIKE GROENEWEGE

Date: 2nd Dec 2022

Investigator's name: SADHANA SURESH

Date: 2nd Dec 2022

Transcript Expert Interview with Maaike Groenewege

Q1. Sometimes businesses just want to implement AI and have chat bots because it is trending, or their competitors are doing so. What use cases in the industry do you think would possibly need AI assistance implemented?

Answer: It is very important for businesses to look at what are the problems that they are trying to solve. And of course, depending on the kind of business, the use case can be anything. I mainly work on customer support, and AI there of course, is very helpful. I also see cases for health, social robotics. The one that is most famous is customer support and the one where we see the most actual results because we have been doing that for a while already.

Q2. How has the user experience been with AI assistant? Has there been any hindrances from the people to use bot for interactions? Be it chat bot or voice assistant?

Answer: I try to design in such way that they are easier to use. And I think, lots of companies, especially with an IT team, it is very technical, and people tend to forget that it is real people that need to use these chat bots. And if I look at my own use cases, the differences or the difficulties in the UI are mostly for instance, elderly people, they talk a bit slower. You need to design for that. When you are designing a voice assistant, usually when you say something to a voice assistant, it must be in a certain time slot. And for elderly people, you may need to make sure that it is a bit larger because they speak a bit slower.

They also tend to be very polite; they say please and thank you. And if your voice bot does not recognize that they will go off the track like in no time. We aim to design for human language, human speech, human kind of interaction, but most people, especially with text-based chat bots, they just do like Google search, so they under specify their questions.

I think that the clients that I work for, they are mostly big corporates. So, when you are with a bank, you can't just easily say, oh, I don't want the bank chat bot. I'll go to another bank. And all banks have chatbots. Um, what I do find is that there's people who don't want to chat to a chatbot, and the first and only thing they ask is, I want to speak to a real person. That's interesting of course, because contact with real people is the best customer support that you can get. So how do you kind of view them almost into the chatbot and still give it a try? Um, so, and that's something I design for when I design handovers to real people. I

always include like a little design turn where I say, sure, I can hand you over to a real person because that's what they're there for. But chances are that I might know the answer to your question as well, would you like to give me a try first? You must wait anyway, right? Either you must wait for 40 minutes, or you can get the direct answer from me. And sometimes it works. Sometimes people do give it a try and they often pleasantly surprised. Yeah.

Q3. What are the current and future conversation design trends or innovations that you see?

Answer: Well, chat's, G P T, as just released like yesterday. I think it's a large language model that's focused on dialogue. I've been playing around with it like the entire day, and its literally kind of mind blowing. It creates text automatically, um, that are really, good. Um, so I think that the traditional craft of writing these surface-based bots, I think will see a shift where AI can help us to generate these texts easily more consistently. Um, and perhaps in the future, even independently. No human intervention anymore. Um, will we ever have AI that can develop chat bots like completely on its own? No, I don't think so. And that's because, not because the technology is not good enough, but the human world is really, messy. And I'm sure you recognize that when you're trying to write down an instruction on, okay, how do I apply for a new bank card?

Um, the problem is not the writing. The problem is finding out what the correct answer is, because within any bank, there will be like 1600 million answers. Um, and when you asking like, okay, so which one is the correct one? People always say, well, it depends. It's up to us humans to make sense of the human world and kind of distil that into consistent information. And that's something I don't see in AI doing because they cannot kind of infer they cannot compare. Um, and they cannot read human minds. I think there will always be a case for a human in the loop. But will the traditional conversation designer across actual conversations and makes them natural? Well, no, I don't think we'll be doing that for much longer, no. With the GT this is amazing because it generates language, it generates text, so if we just input stuff, I think it will be able to, to do parts of our, our work, uh, largely independently. Yeah.

Q4. What will then the conversation designers do if there are certain tools and techniques that can even write for AI assistance?

Answer: Yeah, I don't think that conversation design as a profession will be around for very much longer, which doesn't mean that we won't be designing chat bots. Um, but if you look at me, I mean, I'm a tech writer, right? And I'm a business analyst, I'm an information analyst, I'm a system flows builder. And these skills, they've been around for ages long before we even thought of conversation design. And it will be around for a long time after conversation design stops, because to be honest, I really don't think this will be a job for like the next 50 years or something. Um, what I do see is that it will be a shift to, on the one hand, more structure-based roles. Architects and flow designers combining different parts of logic connecting systems to each other.

And on the other hand, I think that with all the generative AI that's kind of coming into play right now, um, what's really needed is good prompt designers because these ai, they don't do stuff on their own, right? They need, they, they still need input. Our role will shift more to making sure that these prompts, um, I think prompt design will almost be the new coding in a way.

Q5. When you're building these prompts and that interaction of turn taking with the bot-user interactions, what you think are the key design patterns of conversation design? Some techniques such as tapering or Jenga techniques? Is there any percentage or ways that you would say that interaction between the bot-user is great based on these design patterns?

Answer: The best bot is one that gives me the right answer in the shortest amount of time. And if it means that I need to read a bit more for that, that's fine with me if it's helpful. Um, what I do see is that, of course, one of like the baby steps that many companies they make when they start building conversational experiences is like, oh, we've got a bunch of FAQs. Oh, let's put them in a bot. And then you get like these turns that are like this big with texts and texts and texts. You really have to kind of craft, and to be honest, I don't really believe in conversational as conversational. What I do believe in is information that's tailored to the user needs in their specific context. And if the context is a chat bot with bubbles, that means that each bubble should be as independent as possible.

The standard pattern first or first bubble confirmation and okay. Um, and some empathy. Second bubble information, third bubble prompt. Um, I think that where it gets interesting is not just this little turn, but how do you combine turns in such a way that, for instance, when a person has a problem, that you know that you're answering the right problem, that you've identified the problem first before you start answering. And that's something I think that a lot of bots can still improve on, like a proper triage, if you will. Um, because people

are notoriously fuzzy when they state their problems. And I, what, what really annoys me is a bot that thinks it knows the problem and gives an answer, whereas I'm like, yeah, but that's not really what I meant. Uh, could you please check with me first, whether we're in the same problem space before you start answering.

And for that, um, yeah, I use a lot of instructional design, like, okay, what is the mental model of my user? Do I know how they formulate the problem, how they see the world at that point? And can I kind of tune into that with my bot? It is not so much the conversation design that I'm occupied with now that I think of it's more the instructional design, like, how do I make a good flow from question to answer, question answer. Um, and that also means, uh, progressive disclosure for instance. Like, okay, what kind of user is talking to me? Is it an experience one or a novel user? Do I explain every step on like instruction level or can I, you know, suffice we just stating the process, like high level do this, and then it's, it's solved. These are things that I think you also probably recognize very classical technical communication patterns more than conversation design and for conversation design. The challenges, of course, like you've got so little real estate in all these small spaces, um, so how to kind of minimalize it and still be able to, to give information that's useful. Yeah.

Q6. Okay. That was really a great input. You could well tie with the technical writing and with how you could write for bots. Any guidelines that you would suggest in terms of choosing a platform for developing bots? Because we have Google dial flow, IBM Watson, RASA, and many other platforms these days in the market. How one can choose a best platform to build these bots?

Answer: Yeah, that's a wonderful question because what we see is that most companies, they do have requirement engineers where people who are used to making lists of requirements for new software, new technology. Um, and there's usually one requirement missing because most people are not familiar with it, that the NLU engine should be compatible with your language and should be performing well for your language. Because if the language recognition is not working, then you might be having a bit of a problem when you start out. So that is something I always advise companies like start with the problem space, obviously, but also with, okay, how does the platform perform on my language and in my domain, because if there are like pre-trained models available, or do you have to train your entire bot from scratch? Another thing that most conversational

platforms are still kind of not so mature yet is the actual content and the management part of the platform and integrations.

That's the third one, most chatbot projects that I saw that fail were fading because of a lack of integration capabilities with, for instance, live chat or backend systems. It's very much kind of backend and compatibility integration stuff that's usually the bottleneck. Uh, and other than that, it really depends on the preference of your design team. Do they like visual design or flow builders to like more kind of code-based interfaces? These are all teachable, learnable, and therefore, for me, a lot more trivial than the most important ones, like language and compatibility integration.

Q7. Any design management practices you would, um, suggest when you're building a team of conversation designers?

Answer: I think the most essentials, there's two things in teams, what I usually see in content teams is that you have like content owners and for content that works well, I know a lot about this topic, so I'll write about this topic. I know a lot about that topic, so let me write about that topic. But for the language recognition, that doesn't work. Uh, because the thing is, if for instance, if one person is writing about registering a new account, the other person is about changing stuff, the recognition will go wrong on the interface of these two domains. So, for language recognition, I'd advise a more integral approach where the entire team or one or two specialists in the team work on the entire language model and not kind of siloed in different topics. Uh, because then you probably run into to trouble.

Another piece of advice that I always give content teams, people that traditionally come from a content background, it's no use writing something if people don't ask for it. And this is a mind shift for many people because especially as a writer, you are used to being complete. Yeah, but I didn't write this down. And then yeah, but if people don't ask it, they will never find it. Anyway. I've seen quite a few teams with a chapel that's full of content, but it's not the content that people are looking for, so they're like, yeah, it's not working. No, because you're writing wrong content. And that's, I guess the other design practice work data driven, because we've got our customer questions hand to us on golden plate. So, what more, what more do you want? We know what they want to know, just give them the answer.

Q8. Any KPIs and metrices that you would consider in conversation designing? How do you determine that your bot is doing the right thing for both the business and the users?
Answer: Accuracy of the language recognition is one containment. How many people stay in the bot and the counterpart drop off? How many, how many people leave the bot before they found an answer handover, and how many handovers of those could have been prevented because the bot has the answer. So why did people still go to a person and feedback, uh, feedback NPS kind of, you know, customer feedback on the bot. These are the four metrics that are kind of golden for me. And of course, you've got lots of sub metrics that derive from those four, but these for me are like the four pillars of metrics for bots.
I wish they would be part of every platform's dashboard, but unfortunately, they're not. So, and that's also something to consider when you, you go for a platform, do you have a department in your company that can build these dashboards for you, or are you relying reliant on the platform to get these insights? Um, and what I do see, especially larger corporates, they usually have like a business intelligence, like uh, department that kind of can integrate their dashboarding into the backend of the chatbot. And then of course we are fine. Um, but smaller companies, yeah, they, they really must consider this when they acquire a platform.

Q9. Thank you very much for sharing your valuable insights. Is there anything I could offer you support with work? I would be happy to do the same. Have a great evening.
Answer: All the best for your thesis, enjoy your weekend and I am looking forward to seeing how the thesis shapes up.

4.0 Evolution of User Experience with AI Assistants

4.1 Expert Interview One

Expert interview was conducted on 7th December 2022 at 11:00 am through Microsoft teams with Hans van Dam. He is the founder of Conversation Design Institute (CDI) who also works with Fortune 500 companies to make their AI Assistants more human-centric, effective, and inclusive; he leads the CDI Foundation, a non-profit that develops design standards and provides scholarships within the industry and is a frequent guest lecturer at universities worldwide.

Education: Master's - European Studies, University of Amsterdam

Expert Interview Questions

- Email: hans@conversationdesigninstitute.com
- How was the bot and the user interaction in the past and how is it developed over the time?
- With user's expectation growing high, do you have to start building more innovative bots for catering to the user needs?
- Is omnichannel experience preferred by users to communicate with digital assistants?
- Does the bot personality have any impact on how users would perceive it?
- Would you like to add any details about the uncanny valley? Is this concept something to do with the bot personality or consistency?
- How important it is that you have a user journey mapping for conversation designers? Build user journey map first and then move to the flow chart mapping of the particular use case?
- Any tools that you would recommend for building these flowcharts? When mapping multiple possible scenarios for a use case, any recommendations that you have that the conversation designer must keep in mind to build dialogue flows?
- Regarding the metrices you shared with me, would you elaborate more on the maturity model and what those patterns are about?

Master Thesis: How Businesses Can Innovate AI Assistants' Experiences for Users

Information Sheet

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Analysis from the activities conducted - including quotations from you – will contribute to an academic presentation. Your words may also be used in scholarly reports, educational presentations to UE staff papers. These may appear online but with proper citation.

Thank you for your contribution and participation in this Expert Interview.

Contact for further information:

Investigator: Sadhana Suresh

Email: sadhana.suresh2@ue-germany.de

Consent Form

Master Thesis Title: How Businesses Can Innovate AI Assistants' Experiences for Users

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- Why this academic inquiry is being done has been explained to me, and I have had the opportunity to discuss the details and ask questions.
- Having given this consent I understand that I have the right to withdraw from the inquiry at any time without disadvantage to myself and without having to give any reason.
- I hereby fully and freely consent to participation in the interview, which has been fully explained to me.

Expert's name: HANS VAN DAM

Date: 7th Dec 2022

Investigator's name: SADHANA SURESH

Date: 7th Dec 2022

Transcript Evolution of User Experience with AI Assistants - Interview with Hans Van Dam

Q1. How was the bot and the user interaction in the past and how is it developed over the time?

Answer: Well, I think initially these bots were just created to give people information quickly. And a lot of organizations would just like, oh wait, we can give them the answer and that, and if in, and now they become more transactional. Uh, so also because Alexa and Google are doing such a good job, people expect more, right? So, it used to be like a simple tool to get people the right information. Now suddenly people expect this thing to help them. That is a big change. And if you are an organization that has been creating those

old school bots for a long time, then it is very difficult to transform into that new paradigm. If you have someone that has just been adding content to just answer questions without helping people, you have been doing that for two, three years and now suddenly you need to completely think about this differently. I think that is, that is a big challenge there. People have higher expectations where actually companies maybe started out this project with just answering a question. Some of the things that has changed with people and what they expect and how to think about this AI assistance and then they think, this is just stupid because it cannot do anything. Or it did solve a problem, but you just have different expectations.

Q2. With user's expectation growing high, do you have to start building more innovative bots for catering to the user needs?

Answer: User expectations will grow, it will become more, you know, you will have less time, and you will have less real estate. It is important to be omnichannel, contextual, deeply integrated, and that's kind of like a north star that everybody is working towards. The only way to do that is to build one AI assistant and that AI assistant is tapped into chat channels, voice channels, and the metaverse rather than creating separate isolated projects. That is the big thing that needs to change.

Q3. You mentioned about Omni channels, is that something preferred by users that they can communicate through this digital assistance on any devices and have them know the context of what they are looking for?

Answer: I think a lot of companies, what they are already doing is being multi-channel. So you can target, they might have a chat bot on WhatsApp and they might have a chat bot on their website, but what a lot of people get frustrated with is that, you know, when you, when you start a conversation on WhatsApp and then you, then you go to the website or you pick up the phone and that there's no record of that WhatsApp conversation. So, a lot of, so they are now on multiple channels, so that's multi-channel. But yeah, getting it to be contextual between the channels, that is the very difficult one. And, and you might have, you might email a friend and be like, hey, I want to do this and that and that, and then the next part of the conversation will take on WhatsApp, take place on WhatsApp, and then maybe they will send a picture to you on, uh, on Instagram, hey, I am here waiting for you or whatever. And you see, but that is the relationship that you have with your friends, right?

And that's kind of what, what eventually companies will have to be able to do it at one point as well.

Q4. Does the bot personality have any impact on how users would perceive it?

Answer: The most important thing is that bot always has persona, but when it is not very well developed, uh, it is just very schizophrenic. The most important thing for people to have a good experience is that it is consistent in tone of voice. And the only way to have it consistent in tone of voice is through having a clear persona. But yeah, like you say, it could be a very boring persona, like a bank might have a very basic simple, tone of voice, but even when you create anything like you need to be able to ask yourself like, where do these words come from? you need to have like a character behind these words that you can say, how would Jimmy the banking bot actually say this? You always need a persona, but it can be basic, but as conversations get longer and more complex and more personalized, having a very clear persona becomes more important because what you say becomes more important.

But if somebody says, what are the opening hours? Is it the opening hours? Who cares at the end of the day. But if I am now ordering a product from you and I need you to get me to give you your credit card details, then it is very important that I design for trust and persona is key for trust because you know with a good persona, you get consistency that leads to trust for people. So yeah, everybody has persona and if you really want to get value from conversational ai, it is important that you really develop persona and carry it out, especially when conversations get longer. And then there's personality content, which is like chitchatting and little jokes, etc which a lot of people think you do not need that, but when you have built very little, you kind of want it because it allows you to build a relationship with people. Yeah, they become more forgiving for when the chat bot fails or when you have a lot of scope anyway, then people expect that this thing can do anything and can also talk about little chat things. So, personality content is not like an afterthought. It helps with creating a good experience.

Q5. Would you like to add any details about the uncanny valley? Is this concept something to do with the bot personality or consistency?

Answer: It has to do with the same thing. So, uncanny valley is that when something is very mechanical, people are okay with it. And when it is very humanlike, it is okay, but when it is kind of in the middle, you get confused, and it feels bad, and you want to drop

out. And the reason is that you use a different part of your brain when you interact with something than when you interact with someone. When your brain is confused about what it is interacting with, it creates this bad experience. The only way to deal with that is to have a very good persona and design for trust and be clear about what is going on. Then all those design techniques help you understand conversation design, you do not run into that problem of uncanny valley.

Q6. How important it is that you have a user journey mapping for conversation designers? Build user journey map first and then move to the flow chart mapping of the particular use case?

Answer: We do not like flow charts in general, but it is good to understand the bigger pictures because a lot of times what you see is that people will try to solve problems through conversational ai. If they have done better user mapping, then maybe the problem was completely elsewhere. For example, we have one client that reached out, we need to make our chatbot better. But it turned out that they were sending out very bad emails and that prompted people to be confused and then go to the chatbot. If they had done proper mapping and research, they would have seen that their email communication was bad, and it just confused people causing them to reach out. So yeah, better mapping of all these things help you identify the root cause of certain problems.

Depending on how big your organization is and what the full scope of the organization is, the conversation designer might be pivotal, at certain organizations, you know, uh, if you are like a global bank with so much going on and you don't even know who makes the websites or you don't even know who makes the products and your product owner just tells you, this is what we need to create. And a product owner probably does not even notice details. So yeah, it is good to be informed and be mindful of everything that is happening, but you cannot always say, you need to have access to this, or you need to be doing, this is the reality of life is that, yeah. It is more complex.

Q7. Any tools that you would recommend for building these flowcharts? When mapping multiple possible scenarios for a use case, any recommendations that you have that the conversation designer must keep in mind to build dialogue flows?

Answer: I think voice flow is the number one right now that a lot of people like, example, at cdi, we use spreadsheets. We see a lot of people get very distracted by all the fancy tools and they are not creating the best products and our best designers use spreadsheets. I never

do official recommendations, but I think voice flow is so big that it is good to look at that. Uh, our people a lot of times use spreadsheets.

Q8. Regarding the metrices you shared with me, would you elaborate more on the maturity model and what those patterns are about?

Answer: Yeah, we look at scope and experience. The more conversation you have, the better it should be. And what we do is you have all these design patterns on the first slide. When we look at a chat bot and it says, oh, that chat bot is just doing, you know, very simple FAQ bot, then we say, well that's just function, you designed for function and if you look at purple, then these are design patterns that you need to have included. We can then see to what extent people have those design patterns included. We can put them on that chart somewhere, but if you want design for trust, then you also need to include those orange design patterns as well. This allows us to look at kind of what a company's doing, to what extent they are delivering on these design patterns, and then put them on this chart and give recommendations of how to improve. And those recommendations are developing your skill sets, the integral perspective, developing the skill set, developing your strategy and culture, and developing your technology. This is how we use that. Then the, the taxonomy of use cases, that is your scope. So those things relate to scope and these patterns relate to the experience.

Q9. Thank you so much Han. Thank you for your time. Is there anything I could help you with? I would be happy to do the same. Have a great day.

Answer: Good luck with your thesis. Have a great day. Thank you.

4.2 Expert Interview Two

Expert interview was conducted on 2nd December 2022 at 04:30 pm through Microsoft teams with Maaike Groenewege. She is the Conversation Designer and Coach at Convocat; Maaike is also the Program Co-ordinator at The European Chatbot & CAI Summit.

Expert Interview Questions

- Email: maaike@convocat.nl
- What is the user psychology on using the bot? Any consideration on bot personality so there is no uncanny valley?

- How are the user experiences with AI assistants evolved over time? Have there been any psychological hindrances from users that have been encountered or that you think would be impacting the bot-user interaction? How to address the same?
- What challenges do companies face today when building AI assistant that is both use case driven and offers better user experience keeping timelines of the product roadmap as a constraint?
- In your viewpoint, what are the current and future conversation designing trends and innovations?
- Would you list of key design patterns to consider for conversation designing? – (Jenga, Prompts, Tapering, other methods) along with percentage of importance to be more specific?
- Any guidelines that you suggest while choosing a platform to develop AI assistant? Which is better platform in the current times and what you think the future would have to offer in terms of AI platforms?
- What other aspects, such as design processes, management practices, and metrices need to be considered by organizations to build better user experiences with AI assistants?
- What are the other innovative ideas that business is embracing to create wow bot-user interaction experiences?

Master Thesis: How Businesses Can Innovate AI Assistants' Experiences for Users

Information Sheet

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Thank you for your contribution and participation in this Expert Interview.

Contact for further information:

Investigator: Sadhana Suresh

Email: sadhana.suresh2@ue-germany.de

Consent Form

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- I understand that I have given approval for my opinions to be included in the thesis outputs. Anything I say may be used in academic and non-academic presentations and papers relating to the thesis, although these quotations will be cited.
- I have read the information sheet about the inquiry, which I have been asked to take part in, and have been given a copy of this information to keep.
- Why this academic inquiry is being done has been explained to me, and I have had the opportunity to discuss the details and ask questions.
- Having given this consent I understand that I have the right to withdraw from the inquiry at any time without disadvantage to myself and without having to give any reason.
- I hereby fully and freely consent to participation in the interview, which has been fully explained to me.

Expert's name: MAAIKE GROENEWEGE

Date: 2nd Dec 2022

Investigator's name: SADHANA SURESH

Date: 2nd Dec 2022

Transcript Evolution of User Experience with AI Assistants - Interview with Maaike Groenewege

Q1. What is the user psychology on using the bot? Any consideration on bot personality so there is no uncanny valley?

Answer: I think that most people find a bot with a personality extremely annoying. I do not do a lot of personality in my bot. My key directive is giving the right answer, and if the bot does not give the right answer, it does not matter how friendly or how empathetic it is, the empathy in the bot is recognizing the question and giving the answer. Um, so I am a very big proponent of letting bots be bots and humans be humans. And of course, there are some examples of bots that do have great content and a great personality on top of that. For instance, one of my clients, they, they build a bit of a cheeky bot, kind of it was a book that really kind of was there, but it works because it gives great answers. It is also very much a difference between are you writing for text-based bots, because then personality is much less important because the statement that you better design a personality because otherwise people will create an impression of their own.

That only goes when you hear a voice. When you hear a voice, then personality is key because when you hear a voice, all these primal instincts kind of go ping into place and they are like, oh, I am hearing a voice. What kind of person am I talking to? Is it your friend, should I run or can I approach? But that's voice. We text, I mean, websites do not have person entities, right? Well, of course, when it is like an explicit brand voice, but I am in customer service, people are annoyed as it is. Um, so I am just trying to help them with the right answer or an immediate handover to a real person who can empathize. I try to make the bot as invisible as possible usually.

There is two access there. It is text versus voice, that is one access. The other one is also task based versus social interaction. If you have a companion bot, then of course it needs to have a personality. And that also goes of course with text based. But if you are very much in the surface domain as I am, I am not saying that it should not have a personality, but persona for me is more about consistency. If you give the same, the consistent expected behaviour, if you consistently give good answers, then you are there because consistency, that is what builds trust and that is what make that, that is what makes people come back for more.

Q2. Do you see any significant changes in how user and bot interact? Users have that mindset that they do not want to interact with digital assistants, or has this changed in the last few years? What do you think would be the future?

Answer: I do not know how this has changed or whether it has changed because I do not have enough of a macro view on the market, I guess. The fact that people are still coming to see me and say, hey, can you help me out? Because we need another iteration of improvements on our bot means that at least people are still using it. The future for me personally, how I see it is that we will be moving more to hyper automation and hyper personalization. Chat bots, as in conversational chat bots, conversation is basically what you do when you cannot really help the user. I think the best bots will be more integrated into backend systems so that it becomes more like a self-service point rather than something that gives you the answers and you still need to go to the website and fill out a form.

Again, I am also in a corner of the world where perhaps this is not going as fast as rent is in the United States. I am not quite sure about that. But I do see more and more kind of automation happening on a very kind of personal level so that machines will be able to recognize us more and will be kind of becoming loose from our devices and the world

around us will become a conversational world where you can talk to your lamp, well, that is what we can do already, but also talk to a bus stop and ask like, Hey, when is my bus coming? Yeah. Because it will know that it is you. And that is also a bit of a scary thing because do we want that from an ethical point of view.

Q3. For conversation designers, how important it is for them to consider the user journey mapping? Or is it more important that they are building the flow charts for the interactions? Which is important? Do they really have to consider the user journey mapping, skip the flow charts?

Answer: That is a tricky one. If I look at the goals of both activities, the goal should be both, right? Because we do a user journey mapping, because we want to know where in what state our user is when they are asking the questions and where the bot hangs about, like in relation to all the other kind of modalities. Uh, should we do that in a user journey map? No, I do not. I think that for chatbots, that is a design artifact that is too big, too static. Our reality changes every day, every hour. What we can do instead is watch the customer questions very closely. So almost daily try to see if there are any trends and why are people suddenly asking other questions than we expected, and then when you build flows, you should analyse the flows.

So, you should do a journey analysis, but it will be the user journey analysis on the chatbot level, not the one on the very big kind of business level, the more abstract level. We should do both activities, but within the scope of the bot. And I think it is up to the designers around the conversational team to make sure that the conversational experience, that touch point matches with all the other touch points that might be elsewhere on like the overall user journey. But within the chat box, of course, there is also a user journey and yes, we should follow that, and our flows are more like instructions. So yeah, we must do both.

Q4. Okay, you should consider user journeys at the bot user interaction level. What are the touch points that the user will interact with the port, not like at the business level of a journey point? And thank you very much for your time to share your valuable inputs. Have a nice evening.

Answer: Yeah, exactly. You, too and all the best!

5.0 The Case Studies Methodology

For the case studies, the data were collected from the company's official website, white papers, social media pages, etc. Furthermore, the data gathered and other important details for the case studies were gathered by conducting interviews on Microsoft teams with the conversation design experts in the company. Details pertaining to user group analysis, business use case factors, bot-user interaction flows, conversation design elements considered, best practices, KPIs, and metrices were collected in the interview.

5.1 Case Study Interview with Haptik

Expert interview was conducted on 29th November 2022 at 03:00 pm through Microsoft teams with Michelle Parayil. She is the Conversation Design Manager from Haptik who played an important role in designing JioMart WhatsApp commerce digital assistant.

Case Study Interview Questions

- Email: michelle.parayil@gmail.com
- What business use cases led to JioMart from traditional web application to transitioning to WhatsApp commerce?
- What is the bot's name that we use, is there any specific name that we used for the bot that we talk to in WhatsApp?
- Where does the bot persona in the Leary's interpersonal circumplex be categorized for JioMart?
- What were the user psychology to use WhatsApp commerce for shopping groceries? Were there any user hindrances or user feedback related to the same?
- What elements were considered while designing or copywriting techniques that were considered while designing the flow charts or the dialogue flows?
- Which of these KPIs and metrices measure the user experience?

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Expert's name: MICHELLE PARAYIL

Date: 29th Nov 2022

Investigator's name: SADHANA SURESH

Date: 29th Nov 2022

Transcript JioMart on WhatsApp Case Study Interview with Michelle Parayil

Q1. What business use cases led to JioMart from traditional web application to transitioning to WhatsApp commerce?

Answer: Sure. So, number one, when JioMart launched initially, uh, it was a new business for Jio as well, and then on WhatsApp. Uh, they suddenly started seeing a lot of traffic on their customer care systems as, as is expected, you know, with a new business. And they

decided that they needed to collaborate with, to develop some sort of a WhatsApp chat bot solution because that was a more direct method for customers to reach out and be able to talk to JioMart and get their questions solve. So, we have post-purchase support, anything related to getting your order delivered on time, reporting or damage. Good. Um, anything that meant that customers needed an answer quickly, all of those are use cases that are covered by the Jio WhatsApp.

Q2. Yeah, there are a lot of materials on the website, and I think that was really helpful to know and to get started. So, what is the bot's name that we use, is there any specific name that we used for the bot that we talk to in WhatsApp?
Answer: Not as such, and in fact, this is something that we've been trying to develop over time, uh, because again, with Jio you're talking about scale that reaches up like a lot of citizens in India and you're not, you're not talking about a small scale here that's extremely targeted. So, we wanted a simple, straightforward, um, just assistant that would rather just, uh, be able to answer questions quickly. You'll see that the name is also just JioMart assist, it's referred to as the JioMart help desk. Even the persona is neutral. It's not extremely quirky. It doesn't have any, any strange references to pop culture. Anything that we felt would not resonate with the average person using the bot has been removed from the part of the persona. So, it's an extremely straightforward, neutral, friendly persona that applies to most, uh, such enterprise assistance that's been used for.

Q3. Uh, you answered my next question, that was, uh, the follow up question I had on the persona. Kind of a bit with the Larry's interpersonal circumplex, so, if we have to place the bot person in this model, uh, like is it like a friendly? when I tried out myself, the application, I found the person was friendly, but what was the design aspect when you considered building the bot person and any specific key considerations that were included in the persona? You said it's neutral, so it's no name also. So how do you define the persona?
Answer: Correct, so especially for a brand like Jio you know, where you're catering to an audience, where the audience range of the demographic really is so wide, it's, it's 18- to 60-year-old, really, it's tough to focus and narrow down, uh, on one particular small aspect of this demographic and say that we will build this persona that re resonates with only young folks because that, that just won't work with an audience that's so wide. So, we've gone for a friendly pro-social persona that would work in this enterprise context when the

goal is to be helpful, supportive, and friendly. The focus is very less on how quirky the bot is, which is why we've kept most of the focus on the bot use cases itself. Is the bot able to solve the problem end to end. Um, that is very little focus given to, you know, developing the persona specifically in a quirky direction.

It's you'll see the terms used throughout the bot, also very simple, the language used throughout the bot. Simple small words, no complicated statement or terms used whatsoever. The goal is to keep it as simple as straightforward. Um, and, you know, as generic as possible, I'd rather use a different word than generic, but it needs to work for a large demographic. So that's the big dilemma that a conversation designer must face. When you're designing a persona that needs to work for everybody, you often must scale down on the aspects that make it quirky, which are less fun to write. From a copywriter perspective, obviously we'd love to all create very easy to identify strong personalities that are fun to write, quirky people are fun to write, but with JioMart, that just wouldn't work.

It would not resonate with a lot of people in India because just imagine having a bot that just pouts pop culture references throughout, it would not work for the average Indian consumer. We on purpose had to keep it simple, obviously, like any bot, your bot is also just going to keep getting better, when you're working with such a large team and such a large team that has so many different use cases to tackle very often, I think, we definitely feel that we can put in a little bit more of a stronger persona, but that's again, like an ongoing discussion that has to go through multiple channels.

Q4. Totally makes sense. I think, yeah, when you have a wider audience, then you'll have to keep it more suitable and more generic rather than adding more personality. Thank you. What were the user psychology when they started having a WhatsApp commerce, you know shopping groceries to begin with? Did you find any user hindrances to try the app or some user research feedback on this?

Answer: Yes, absolutely. And I assume you mean what was done to make this easy for users to adopt. When JioMart was first launched, especially when it launched some of the newer WhatsApp features like buttons and PLM and all of these new updates to the UI, we were very worried that people would just not know how to use the bot because, until then there were no interactive elements, which is not part of any WhatsApp bot, and JioMart was among the very first bot to get access to this feature. Very initially we took the extremely safe route of including a video slash gif right at the start of the journey, which we'd expect customers to watch before even shopping on the bot. That's just an example

of how cautious we were while designing the experience because we knew that we're launching a completely new interface. This is, we're expecting customers to exhibit different behaviour on this existing platform, and WhatsApp is not really a shopping platform as such, so will people even know how to interact with lists and, uh, catalogue messages and, uh, browse through a catalogue, even though for the typical millennial or and above audience here, it feels like, hey, it's just you. I understand how to use it and manipulate it. But when you're dealing with the audience that WhatsApp has, you have to really be careful and conscious about every small design choice. So yes, we went as far as putting a video up at the start of the journey, teaching people how to use the bot. So, um, yeah, and over time we've learned what works and what does not, but we've gone to that extent as well.

Q5. Would you be happy to share any user research inputs in terms of, you know, hesitation to interact with the bot or if you consider like age group from 40 plus or 50 plus Indian population, then would you think there were any research done from their side to understand if we can launch this shopping and service on WhatsApp?

Answer: Think today, I mean, now, I can't really recollect, least there's no data stats that are popping into my mind. Obviously, there's small tests done throughout with mini focus groups, but not much user test data is coming to my mind right now. Very likely that the business team has this data, but I just don't have access to it now.

Q6. What channels does JioMart operate apart from WhatsApp? other channels such as on the website?

Answer: WhatsApp! Yeah, from the chat perspective, from what I know at the very least, WhatsApp is their biggest driver. Um, I'd have to check and get back to you if there are any plans for web but from at least the discussions that, you know, we've seen the whole conversation is focused on the JioMart WhatsApp presence because that's just relevant for customers.

Q7. What languages does JioMart support and any reasons for this choice of language support such as the user group?

Answer: So, English is a primary language, obviously with the JioMart bot. I believe they were testing out a bit of Hindi, but I don't know if that's live now or if it's even going live. But English is the first focus because a chat communication, the platform with which you

go live first with any customer support solution is usually English because queries on chat email are typically structured in English, given the metropolitan focus of products like Jio. But over time, yeah, we are seeing interest in the more globalized products with products that are focused a little bit more on tier three cities in India, we are seeing that Hindi is critical as a requirement as well, but the story usually starts with English. The focus is usually first, and it may go on English. We've seen that as well. People type Hindi and using Latin script, so that's very common.

Q8. Moving to the conversation designing part of it, what elements were considered while designing or copywriting techniques that were considered while designing the flow charts or the dialogue flows?

Answer: So, uh, so for Haptic number one, the conversation design stage is the most important stage when it comes to developing the user experience here, obviously, we invest very heavily into understanding the business journey as it is on the day that we start designing, and then we work toward making that one step better. Because very often what happens is we assume that any existing business process will just convert into whatever platform that we want on chat or voice without realizing that people interact very differently on chat when they're chatting. They're very likely to exhibit a certain level of discipline while typing because they must think and type, whereas on calls, they tend to talk a little bit more in free form because you're talking as like you would to a person. Um, so number one, for us, the first step was just sitting down with the business team, understanding the requirement, and going into much more detail into how those existing processes would convert.

With JioMart especially, we were working on building a bot as the business was growing, so we had to define how a chat flow was without in some cases having an existing business process. So that meant talking to the tech team and in fact, spending weeks together just understanding what APIs were available, what were not available, how would they translate to chat, are these available 24/7, is the data available for us to extract and showcase the customers? So, there are so many stages when it comes to just going from the requirement gathering to creating that first state, a first version of the design. Understanding the tech, understanding the current business journey is number one. Second is making sure that we keep our eye on how simple the journey is throughout, you'll see like I mentioned previously, easy language buttons, interactive elements being used for every step of the journey.

We knew the platform, we knew the tech, we knew what business problem we're trying to solve. And then going iterating on that design as well. It's not just that you take a first draft of the design and then ship it out to your development team. You go through that with our peer review process Haptic has a conversation design, peer review process as well. We followed all of that to then, come up with a draft which is then moved on to development. And then even after development, there are stages of user accept acceptance testing after which we go live and even after going live, we don't really say, okay, that's done and dust it.

Q9. Okay. Totally makes sense. In terms of the design elements, if I must consider like conversation design elements, do you use like prompt variations, Jenga techniques, turn taking? I felt that the app really has taken care of these elements. So, to hear from you, the conversation designer, were these principles or any of these techniques was inculcated in designing?

Answer: Yeah, absolutely. I won't get into too much of the technicality of conversation design here, and I do want to point out that, it's not just me. I'm not the only conversation designer at Haptic. We have an entire conversation design team who's responsible for JioMart implementation. So, when we talk about conversation design being implemented, all of the principles of conversation design that are applicable to a particular platform right from the start of the conversation, from chat initiation, making sure that the start message is not super overwhelming, making sure that the examples and use cases are highlighted all the way to making sure that the fallback message and the error copy is well written. The fact that there should be this am handling all of this has been taken care of and paid special attention to right from the start. I think any principle that you would see, think is relevant to designing a bot has been thought about. Um, like I said, we had to keep improving day by day. So yeah, we thought about it, and I think our playbook on the haptic website covers a lot of this as well. We have a conversation design playbook that talks a lot more about our design process in detail for this.

Q10. You were talking about the customer journey mapping. In terms of building WhatsApp bot, um, how important it is to understand the user journey mapping? Was this process done, or was it mainly focused on the conversation design flows? How are these two important or they're two different?

Answer: Yeah, I don't think it's a different stage for us. Mapping out what a customer goes through is a part of conversation design. These are not two separate stages for us as such, it's part of the same process. You must understand the user journey to complete the conversation design stage of, of your bot. So yeah, they, they're both part of the same thing. You wouldn't separate them as such.

Q11. What about the platform? We have Google dialogue flow, RASA, IBM Watson. How is Haptic playing the key role? What are its platform offerings? And any inputs on KPIs and metrices?

Answer: Platform that we're talking about? Haptic has its own proprietary platform, of course, I would recommend that you look again at the technology page on the website to understand more. We have our own bot builder; we have our own analytics tool. We have our own smart agent chat solution on all these ties in and work together to power the JioMart solution. I'd recommend that you look at the technology page on the website.

We have our own analytics dashboard that provides all the data that's needed for bot improvement, uh, and provides the metrics needed for the bot improvement framework. So that's all available on haptics platform. Uh, there are several types of metrics that can be tracked all the way from automation to completion rates. We have our own tool called a smart funnel that tells you where typically people are dropping off. All the metrics that go with completion rate, task completion, accuracy, automation, all of those are available and important to JioMart.

Q12. Which of these KPIs and metrices measure the user experience?

Answer: I think with any bot really business metrics moving mean that the users are happy, if users were unhappy, business metrics would not move. So, take something like task completion or, accuracy or automation rates, if customers overtime were asking questions that were not handled by the bot, which is a missing user experience design, you will not see that high of an accuracy or automation. In fact, there are two types of metrics that typically measured with bots. One is your technical functional metrics, and then you have your business metrics. And both are due to in some shape or form the user experience designer for bot. So, there are no separate UX metrics. Both are because of good ux. So yeah, I would track it by looking at the business metrics.

I think that was really a good to understand that, if the business is doing well, then it means that the user experience is good and that's why there is good KPIs and metrices. Okay. Thank you so much Michelle, those were some of the questions I had to understand more about JioMart. Thank you.

5.2 Case Study Interview with thinkmoto

Case Study interview was conducted on 18th November 2022 at 03:30 pm through Microsoft teams with Paul Krizsan is a Director of CAI at think moto, responsible for branded chatbots and leads the Conversational Team at think moto.

Case Study Interview Questions

- Email: paul.krizsan@thinkmoto.de
- What business use cases led to the creation of Lui for lexoffice? Why did the business choose lexoffice to have an AI assistant?
- What were the user responses when they first saw Lui on the lexoffice webpage? Is there any hindrances or psychological differences in terms of users approach towards Lui?
- what channels does Lui live currently? And the languages it supports?
- Why it was Cognigy platform that was chosen among the different platforms for building Lui?
- What techniques were used and best practices that was considered for building Lui?
- What are the key KPI and metrices used to measure the bot performance?

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Consent Form

Master Thesis Title: How Businesses Can Innovate AI Assistants' Experiences for Users

You are being invited to take part in an academic inquiry. Before you decide to take part, it is important for you to understand why the study is being done and what it will involve. Please take the time to read the attached information sheet. Ask if anything is unclear or if you would like more information.

- I understand that I have given my consent to be part of an expert interview to share my knowledge and thoughts.

- I fully give my consent to take part in the activities conducted only for research purposes.
- I understand that I have given approval for my opinions to be included in the thesis outputs. Anything I say may be used in academic and non-academic presentations and papers relating to the thesis, although these quotations will be cited.
- I have read the information sheet about the inquiry, which I have been asked to take part in, and have been given a copy of this information to keep.
- Why this academic inquiry is being done has been explained to me, and I have had the opportunity to discuss the details and ask questions.
- Having given this consent I understand that I have the right to withdraw from the inquiry at any time without disadvantage to myself and without having to give any reason.
- I hereby fully and freely consent to participation in the interview, which has been fully explained to me.

Expert's name: PAUL KRIZSAN

Date: 18th Nov 2022

Investigator's name: SADHANA SURESH

Date: 18th Nov 2022

Transcript Lui Case Study Interview with Paul Krizsan

Q1. What business use cases led to the creation of Lui for lexoffice? Why did the business choose lexoffice to have an AI assistant?

Answer: Yeah, so with lexoffice, we had like a lot of ties beforehand, like with its parent company as well. We had like some other projects done with them. From our side, we're mostly, like, we're less of a marketing agency or like an e-commerce agency in more digital innovation and brand management or like brand innovation. Um, so we've done like a lot of work with like them regarding that in the past. But when they approached us in 2019, uh, for a Black Friday campaign, so basically every Black Friday, like basically right now, uh, again as well, um, they're doing like a little campaign for, for their marketing and therefore for the promotion. They came to us and they asked us, okay, do we have some,

some ideas basically? And at that point we didn't really think about a chat, but we just started with bots and conversation interfaces in general.

Uh, at that point I was like, what, three, four years ago? And basically, we gave them three ideas, three proposals of what we could do. One of that was like a chat bot. They had this very complex, uh, campaign mechanic where you had to participate by like referrals. You had to refer lexoffice to some other people. It was more for like the existing users already to generate some new ones. Um, and they really liked the idea of the conversational element. The idea was to build Lui kind of like he is right now on like the lexoffice page, as you've probably seen in our case study on the website already as well. Kind of started out as like a bot that was supposed to be there for a month, so for the length of that campaign to sell lexoffice, I guess, or like to generate referrals.

Um, and it, it did that incredibly well. We looked at their numbers in the end and they had like, I think twice the, uh, like twice the sales that they would usually have like on a regular like Friday campaign. So, uh, like the conversion rate was amazing for the chat bot in the end. Uh, so much so that in the end they also decided, okay, I mean the bot's already there, people are reacting very well to it. Like it's a very sympathetic bot. Um, why don't we just keep Lui alive a lot longer basically, and kind of like pivot him over, not just from like the sales and pre-sales topics, also over to the support topics and yeah, kind of have him serve as a general, like first, first entity to talk to when you want to talk to lexoffice. And so that was kind of like the case behind it originally was like conversion and sales. Nowadays it's a lot more about customer interaction and about like driving innovation in the company. Basically, it's like a very young and like start-up sort of company. They're dealing mostly with freelancers. For them to appear innovative really gives them an edge over their competitors.

Q2. Yeah, totally. Sounds good. I think you also covered what are the use cases that Lui handles in the past and currently what it does. I think they're two different use cases, right? One is on the sales and now it is service oriented. So how do you, patronize the bot persona in this case? Um, was it the same for both sales and service tasks or is there any changes in the persona of the bot?

Answer: Yeah, it's roughly the same. And I mean, in terms of use cases, I mean, it's not only serviced these days, but also still like a 50 50 split, maybe even like 60 40, like 60% towards pre-sales still. The bot knows a lot of, like, in terms of content, at least the bot has a lot of content regarding what you might need to know and to kind of give you like some

recommendations for which version you need for your yeah, specific requirements. Um, but in terms of personality, there's not really a change. Like it's, it's a very flexible personality to begin with, but like also very like a very approachable one. So there, like for both purposes, like you can just use the same one. Like there's not really a huge gap between like the customer groups or like the target groups that we have.

Q3. Great. What were the user responses when they first saw Lui on the lexoffice webpage? And is there any hindrances or psychological differences in terms of users approach towards Lui? Or were they okay, how was it?

Answer: Yeah, I mean, acceptance was very high. Um, the reason for that mostly being that we offered quick replies as opposed to only free text input. Um, so you could convert, like, like talk to Lui by just simply clicking the buttons that we provided as well as like a fast-track way of like going through the conversation through the happy path. Um, and we noticed that like 95%, like 90 or 95% of all users, they, they much preferred clicking buttons over typing the answer themselves. So that really helped like, uh, users accept the bot very, very quickly. Um, obviously there were a few people, like when we were tracking the, the user inputs in the end to see if we had anything that we had to train the bot on, um, we noticed obviously that like a few people were kind of disgruntled, they don't like to talk to bots.

I mean, there's always a few of these people like here can never really catch 100% of all users, I guess, with what you want to do. Um, especially because like during the initial campaign, we replaced the entire website with Lui, like with the bot, um, for yeah, like two or three weeks, I think. Um, so basically the only way to get in touch with lexoffice was, was to be at the bot. There was a lot of users that had to go through there that did not want to talk to the bot, obviously, um, but they were like very much in the minority. So yeah, a lot of users were very happy with it. And that's also like how it's kind of like, um, got converted over into like a more permanent conversational interface because so many people said, Hey, what a great idea. Hey, how, how nice, like how, how friendly, uh, there was like a lot of positive perception.

Q4. Great. Sounds great. And, uh, what are the channels then Lui lives currently? And the languages it supports? I see in German, uh, does it go to support other languages?

Answer: Yeah, only in German, because the, uh, the, the, um, account on accounting software, I guess it's called, uh, that lexoffice is basically, so like the software that he sells

is only available in Germany anyways. Uh, so there's not really a point of like, uh, having multi-language or something like that here, like localizations. Um, in terms of channels, when we originally launched him, we launched him on both, uh, Facebook Messenger and, uh, and web chat. So, so on the website, um, originally, he only lived on his own landing page of lexoffice um, nowadays it's, also as a web chat widget basically in yeah, all sorts of like office pages, so you can see him like in the little chat box in the bottom right, even though that wasn't like the original intended target. Um, in 2020 during the back Friday campaign, we even, um, implemented him in WhatsApp because we had like one specific user group that was very, um, uh, very much active on, on this channel. And yeah, we were just, it was very easy to implement these other channels because just allows for their touchpoint agnostic integration basically. So, there wasn't really a need to build like a second bot or a second floor or something like that, just for a different channel. Like we could just use the same thing. Right now, yeah, but, but right now it's just the website in the, um, little chat box and in the full page basically. Yeah.

Q5. So currently it's only on the, uh, the website and all on all the pages on the, the like office website. Okay. And this leads to my next question on why it was Cognigy platform that was chosen among the different platforms for building the chat bot. Uh, how does it help Lui?

Answer: Yeah, so basically from our perspective, we were new when it came to conversation interfaces at that point. So we had maybe one or two projects prior to that and we'd explore some other bot platforms, like at that point we've worked with like Google Dialogue Flow and IBM Watson, but I mean that was like three years ago when all of these platform platforms were, yeah, very raw, very rough, I guess not very easy to work with and very unintuitive like we, we work with Rasa a bit, but um, all of them really had this one big flaws that the like interface wasn't very intuitive because like we, as an agency, we aren't very developer or integration heavy. Like at that point we had one or two developers basically out of, uh, not even that. I think we had like half a developer basically was also our director.

Um, so we come from this very strategic conceptual standpoint where any type of visualization really helped us and um, even though it's not in the, like at that point, it had a different interface still that we were so lucky to redesign since then. Back then it still had like an interface that was like more in a graphic sense where you had like an actual flow that you could follow basically. For us as like non-developers, it was easy to adopt. Um,

plus we managed to partner with them at that point, like during the, this project as well, and they're like one of the German companies as well, and we wanted to support like a growing like player in the conversational interfaces market, um, and to have someone that we could partner with that also responds well to us rather than like one of these larger enterprises basically that probably doesn't really listen to like smaller agencies that easily for like feature requests and that sort of stuff.

So yeah, we just kind of, um, like symbiotically, uh, decided to, uh, use Cognigy in this case and basically CO has been our preferred bot platform ever since. Like I said, um, since then for Cognigy 4.0, we also redesigned the entire interface. Um, so that was also a nice chance, but basically, um, all the other bot platforms just made it very hard for us to work with. In the end. There isn't really, like, from my perspective, there wasn't really much difference other than really the like graphical flow interface and the node based low code to no code programming basically. Other than that, I mean, they had the same feature set at that point, not much of a difference.

Q6. Yeah. Okay. Makes sense to me. The two other questions I have on this case study is, what were the conversation design techniques that was used when you have a bot and a user interaction to write these dialogue flows? What techniques were used and best practices that was considered for building Lui?

Answer: Yeah, I mean at that point we were still generating a lot of our best practices, but, uh, like very, I mean very basic user guidance principles. I mean obviously we started with a bot personality there. Like for us, um, I mean as you could probably like read in our case studies in our processes, like the personality is very key to us. Like for us there's like a like sort of legacy or heritage, uh, from our brand management and brand design perspective there, because there we also try to imagine the brand as a person basically and get as close to like having a real entity as possible with just a visual brand as well. So, when we started with chats, we adopted that process for conversational interfaces as well to have like this, this personality first like user centric, uh, approach to it. Um, so, so kind of like for, for us, the process always starts there.

Um, so conversation design always starts with, uh, trying to imagine who's, who's the persona. Google has like some nice guidelines on that nowadays, but they didn't have that back then. But they, uh, basically like imagine the bot persona first. There's like some tools that you could use. I think you mentioned leary somewhere with the interpersonal, interpersonal circumplex. That's not really what we are using. Like we are using more

methods that we call bot as a bot as a person. That's something that we developed from the brand process. Um, and then on top of that we are using happy paths in roleplaying, archetypes as well as the big five and the ocean model I guess, um, to kind of like flesh everything out. On top of that, we have like our own tool that we call, uh, bot filters or brand filters, which you can read about in our brand interactions, uh, book as well.
Um, should be on Amazon and everywhere, I guess. But, um, yeah, from there, like as we go from personality into conversation design, um, for us we try to kind of like imagine like real dialogue as soon as possible to just prototype and do something like a bit of role playing basically to kind of like flesh out the personality and how questions would befriend, obviously there's like some best practices across all bots, basically like ask closed questions, don't have too many open-ended questions, right? Um, like keep the frustrations as low as possible, especially when it comes to fallbacks. Obviously, the bot doesn't know the answer to everything, so it's good to have like several fallbacks prepared, like either in an escalating order or for different context or for different input lengths. So, something that we learned quite early on with Lui as he got live, for example, was that some users, especially older ones, uh, try to write entire essays or like emails basically into the chat input. And that point obviously we have like a multi-intent doesn't really work like the, I know you can't really handle that. And I mean you could try to kind of like, uh, un untangle that mess basically that they put into the text input. Um, but instead we just adopted this best practice of when there's like a certain character amount, like for example, 80 to 100 characters that the users write, then we just say, okay, hey, this is too long. Maybe you can shorten it up a bit just like as a broad, like please keep it short and simple. Um, and then yeah, regarding conversational design and conversational UX, we have like some basic principles like I mentioned with the quick replies, like always offer some next steps. I mean that's just like the very standard best practices I guess that we had there.

Q7. Okay, great. That sounds very good to me. Thank you so much. And lastly, what are the key KPIs and metrices that you're using in terms of Lui or since its existence from the black Friday in 2020 or before that?
Answer: The first one was 2019, and then we had another one in 2020 as well. Yeah. Um, so basically, uh, in the end, the final, uh, final number or like the final, uh, KPI that we're always looking for is conversion. And right now, we're also working on like integrating Lui into their Google analytics so that, for example, they already have their entire conversion journey, uh, mapped in Google Analytics, and now we're also implementing Lui there to see,

okay, did somebody open up Lui and to, to talk to him briefly close it and then still purchase lexoffice, for example. So, like to, to go very granularly into these, um, into these, um, potential decisions and put potential conversion moments. Um, other than that, also obviously allows like a lot of like data points out of the box that you can interpret that even have like this old data endpoint that you can use to hook up to all sorts of data analytics, uh, software's, right? Right now, we also have some, um, custom dashboards in, uh, Google what used to be Data Studio, which is now a Google Look studio. Um, so to do like some interpretation there. But basically, for the most part we were just interested in the very standard KPIs, like conversational KPIs and metrics. For example, the understood rates, uh, the length of the conversation, the interaction, uh, quality. So, like how many interactions did like one user have, for example, how many returning users do we have, that sort of stuff. Um, outside of that, the KPI that we are interested in the most, um, is the NPS rating obviously. Something that we added in 2021 was like the little banner that comes at the top, like after a certain amount of time. Um, so there we had like this large decision or like this large discussion about like, when do we want to like show this NPS rating, uh, banner basically so that we don't bias the user because we can't do it after certain steps of interactions. We also can't do it at the end of like the recommendation process because that would, that would introduce a lot of bias into this rating. Um, so that's why we kind of have it like on a timer after like 15, 20 seconds, something like that. It just appears at the top. Um, and that's also being like, uh, pulled directly into our, uh, custom dashboard so that we have like a little indicator there for like the performance. Yeah.

Q8. Okay. Great. If you could share, uh, the custom dashboards or some examples to use it in my case study data after this call, then that would be great. If you think that is something you can share it with me?

Answer: Yeah, it's very proprietary. I can give you like; I mean I can give you access to that, but I can give you, uh, a little screencast that you can take a screenshot of if you want.