

# Chatbots — an organisation's friend or foe?

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**ABSTRACT:** In recent years, the use of artificial intelligence has increased tremendously and the hospitality industry has not gone unaffected. Nowadays, chatbots, which simulate human conversations, are almost indispensable in the customer service branch of hospitality. Where organisations started rapidly with the introduction of this new technology, they are now raising the question of whether or not this technological evolution is a good development for this industry. On the one hand, chatbots improve and accelerate customer service, saving time and labour costs. On the other hand, there are privacy and security concerns, lack of personality and lack of research resulting in errors and financial expenses. Presently, chatbots are seen as a technology to support human service, but due to rapid development this situation is open to change.

**KEYWORDS:** artificial intelligence (AI), chatbots, hospitality industry, human resource management (HRM)

## Introduction

Over recent years the use of technology has been increasing, affecting different areas in numerous industries all over the world. Although the hospitality industry was slow at integrating technology, it is rapidly developing. One way in which technology is augmenting its presence in the modern world is with the use of artificial intelligence (AI). AI is defined as "a subpart of computer science, concerned with how to give computers the sophistication to act intelligently, and to do so in increasingly wider realms" (Nilsson, 1981, p. 1). With AI, computers are able to solve complex problems that in the past would not have been possible (Michiels, 2017). While some may believe that artificial intelligence is a new concept, the broad sense of artificial intelligence actually dates back to the 1950s (Newell, 1983). One of the first events regarding artificial intelligence was the "Turing Test", invented by Alan Turing (Berkeley, 1997). This test takes place between a human being, called a "judge", and two others – a computer and another human being. During the test, the "judge" must ask questions of both parties and if s/he can not distinguish which answers belonged to whom, the test is deemed successful – the computer has matched human levels (Berkeley, 1997).

Ivanov and Webster (2017) and Talwar (2015) state that companies are keen to work with new technological solutions due to a large amount of attention on social media and in the press, most of the times without considering whether or not it is worth the investment in time and other resources. Their intentions for using artificial intelligence are to improve their operational processes, to optimise their costs, to expand their service capacity and, of course, to create an improved customer experience. The concept of AI provokes different attitudes towards this concept by media, academia and politics. On the one side, there is the positive benefit of liberating human beings

from manual work (Talwar, 2015; Ivanov & Webster, 2017), and on the other there is a fear of making people outdated in a robotised community (Crews, 2016; Ivanov & Webster, 2017). Investigating artificial intelligence in companies, we find that chatbots are used more and more for online communication, with companies and organisations rather using these new processes than human beings (Hill, Ford & Ferreras, 2015). On almost every website you visit, a chatbot pops up to assist you, whatever the time of day or night. This report will reflect on the use of chatbots and give an insight into their impact on the hospitality industry and especially on human resource management.

## What are chatbots and how do they work?

According to Shawar and Atwell (2007), chatbots are computer programs interacting with human beings by means of natural languages. There are different terms that have been used for the chatbot, such as machine conversation system, dialogue system, virtual agent, and chatterbot. According to Dale (2016), chatbots are referred to as applications that use written language to communicate. This technology was invented in the 1960s with the aim of trying to fool people by letting them believe that the chatbot systems were real humans. Nowadays, the purpose of chatbot systems is to simulate human conversations. It integrates language models and computational algorithms in order for human beings to be able to have informal communication with a computer using natural language (Shawar & Atwell, 2007). Schumaker, Ginsburg, Chen, and Liu (2007, p. x) defined a chatbot as a system that "seeks to mimic conversation rather than understand it". Where Schumaker et al. emphasise the mimicry and simulation rather than the understanding, Mauldin (1994, as cited in Pereira, Coheur, Fialho & Ribeiro, 2016) talks about chatbots being systems that have

the goal "to think". Michiels (2017) has stated that chatbots are there to provide service any time and any where.

The first chatbot invented in 1966 was called ELIZA (Pereira, Coheur, Fialho & Ribeiro, 2016). This program was created by Joseph Weizenbaum and the ELIZA program was able to hold a conversation with humans, and responded as one as well. What made ELIZA so special was that not only was she the first of her kind, she was also a huge success. Humans were not able to tell if they were speaking with a robot or another human (Pereira et al., 2016). Following the success of ELIZA, many different chatbot models were invented to further tap into this new technology and the world of artificial intelligence. Since its success and increasing popularity, chatbots have contributed to almost half of all conversations that have taken place online from 2015 to 2017 (Tsvetkova, Garcia-Gavilanes, Floridi & Yasseri, 2016 as cited in Weißensteiner, 2018, p. 6).

### Impact on hospitality

#### *Benefits of chatbots*

While the presence of chatbots is increasing, one industry that is benefiting from this form of artificial intelligence is the hospitality industry. According to Michiels (2017), there are five ways in which chatbots are improving this industry, with the first being customer service. Michiels (2017) explains that chatbots can be added to a website with the purpose of automatically answering questions. This is backed up by Ivanov and Webster (2017), who point out that by adding chatbots to a company's website, not only are they relieving staff of certain "simple" duties, but also saving on labour costs. Furthermore, chatbots can operate 24 hours a day and 7 days a week, giving companies the chance to serve customers whenever needed (Ivanov & Webster, 2017).

The second and third advantages explained by Michiels (2017) can be analysed together. These involve chatbots and mobile apps as well as social media channels. With the use of mobile apps increasing exponentially (Rakestraw, Eunni & Kasuganti, 2013), more and more hospitality companies are choosing to develop their own apps, as well as increasing their online presence using social media. Chatbots can manage these various channels and connect with users. Ivanov and Webster (2017) state that by using chatbots, companies have the opportunity to interact and serve many customers simultaneously. Weißensteiner (2018) explains that this is much easier for the consumer as they are typically already using these applications for different reasons on a daily basis.

Michiels (2017) explains that the fourth area in which chatbots are an advantage to the industry is that of the "internet-of-things". In this situation, chatbots can understand and respond to users' commands, as well as reach out to more people using all languages (Ivanov & Webster, 2017), which is an advantage in the hospitality industry that operates and caters to guests all over the world. Michiels' (2017) fifth statement goes deeper by explaining that chatbots have the ability to hold conversations and communicate with natural language, thus improving interactions with customers.

Although Michiels (2017) has focused on five areas in which chatbots are advantageous to the hospitality industry, there are numerous other ways in which this technology is aiding companies. For example, Weißensteiner (2018) states that

while chatbots do improve customer service channels, they can also identify customers' opinions and their expectations of the service. Furthermore, Ivanov and Webster (2017) suggest that chatbots add value to a company's brand, giving it the image of being a "high tech" company, and improving its reputation.

#### *Pitfalls of chatbots*

Although there are a lot of benefits regarding chatbots in the hospitality industry, we can also think of several disadvantages and barriers in the use of chatbots. First of all, consumers are concerned about their privacy and security (Michiels, 2017). Chatbots are becoming better skilled in the imitation of human conversations which can be seen as an advantage but also as a disadvantage since information can be captured by the wrong people. Hackers will be able to create their own bots to convince consumers to share personal information, for instance their bank details, which could cause trouble for consumers (Wasserman, 2018). Next to this, chatbots have access to a global network of information by using open internet protocols through which the chance of hacking and phishing of their private information increases (Kar & Haldar, 2016).

A second downside of using chatbots in the hospitality industry is that they sometimes turn out to not be intuitive enough (Michiels, 2017). Chatbots can be properly used in communication with end users when the conversation flows in the right direction as the chatbot is programmed with the help of natural language processing. However, chatbots do not have their own identity or personality with feelings and emotions like real human beings. People often look for a connection and engagement during a conversation, making the lack of personality a concern.

As a result, consumers might feel uncomfortable and unsure about how to use the chatbot (Ivanov & Webster, 2017). Consumers might not have enough knowledge about this technology and this could lead to a refusal to use it. They might consider chatbots as inferior to work done by real human beings and are therefore not willing to pay the same amount of money for both types of service (Ivanov & Webster, 2017).

Although more and more research is being done on the use of chatbots (Pereira et al., 2016), natural language processing is not the core competency in information technology (IT) as it is still in development (Michiels, 2017). The programs are not yet able to capture variations in human conversations through which errors occur. These errors can influence the customer experience and satisfaction, thus affecting customers' buying behaviour. This is why companies and organisations are very careful in using chatbots since they are afraid it will cause damage to their brand's image (Michiels, 2017).

Apart from the risk of implementing chatbots, there are high financial costs associated with acquiring, updating and hiring specialists (Ivanov & Webster, 2017). Chatbots need to be integrated into already existing infrastructure, which is costly and time consuming. They also need to be developed into multiple languages which is for international companies a large effort to make (Michiels, 2017). It can be said that renting or leasing the chatbot would mitigate these costs. In that case, the use of a chatbot with a monthly fee to pay is financially comparable to human beings doing the work for their monthly salary (Ivanov & Webster, 2017).

## Impact in HR

After having discussed AI and chatbots' influence on the hospitality industry, we now focus more specifically on human resources management within the industry. When analysing this department, we find that there is much debate about whether AI and technological advances are a negative or a positive for an organisation. On the one hand, Ivanov and Webster (2017) state that chatbots carry out jobs much faster than human beings, which therefore increases the productivity and is a cost-saving solution. As a result, human positions could be replaced by chatbots, which from the companies' perspective, could be seen as an advantage. In addition, Ivanov and Webster (2017) mention that chatbots are also more efficient when it comes to seasonal positions, where companies are able to rent the robots for a short period of time rather than having to go through the entire hiring and firing process, and the challenges of non-permanent employees. However, Ivanov and Webster (2017) also state that chatbots and other forms of AI are not substituting human beings, but rather enhancing them and their ability to perform efficiently. While technology has evolved tremendously, it has not yet reached the point where chatbots can perform all tasks independently.

## What will the future look like?

### AI in hospitality

After considering the past and how AI and chatbots have developed over the years, it is important to think about the future. In the long term, as the technology continues to evolve, certain customers may feel intimidated by it and with their lack of knowledge, prefer the human interaction over that of a machine. People like what is familiar, and anything new will be seen as a threat to what they know as their "normal". Based on current growth rates (Pereira et al., 2016), it is likely that the presence of AI and chatbots will continue to grow in the hospitality industry. Businesses may wish to consider tutorials for the customers, explaining how to use the technology. They will then feel supported and more comfortable using these services.

### AI in human resources

Regarding the HR aspect of the hospitality industry, there are two main sides that could be seen for the future based on what was mentioned earlier. Firstly, the term "human resource management" says just that – managing humans. With the implementation of chatbots, companies are removing the very thing that makes HR what it is. Therefore, the future of HR in the hospitality industry may be quite different as there will be much less to manage.

On the other hand, chatbots are not able to do everything on their own which means that people will still be needed to assist in this process. As a result, human resource management will still be important and there will be even more aspects to take into consideration when implementing more technology. Therefore, it could be more a matter of change in this department rather than disappearance.

To conclude, future predictions are that humans will always be necessary in the hospitality industry as it is a people business. To remain hospitable, the hotels will require human contact with guests. Thus, for the immediate future only the most

basic processes will be automated. However, on reflection, the speed of development with AI and chatbots could see many things change. A few years into the future, chatbots may have "emotion" and the ability to make decisions, but they are currently limited to being a useful support technology for human service.

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