AI BASED DISCOURSE FOR BANKING INDUSTRY

INTRODUCTION :

Recent technological developments have transformed the way consumers and financial institutions interact with each other (Shaikh and Karjaluoto, 2015). Moreover, the COVID-19 pandemic has led to rapid shift to digital technologies and banks have transitioned to remote sales and provision at a fast pace (McKinsey, 2020). The rise of artificial intelligence (AI) based technology is contributing extensively to this transformation as more and more banks have begun to implement AI-based applications with the aim of deepening customer relationships, providing more personalized offers, detecting and preventing fraud, improving processes for anti-money laundering, and cost saving (Business Insider, 2021).

One very popular and impactful form of technological development in the financial sector is the implementation of the AI-based chatbot technology (Richad et al., 2019). Chatbot technology is a system based on AI that communicates with users and performs basic tasks through chat or speech interfaces (Nguyen and Sidorova, 2017). According to forecast, the chatbot market size is projected to reach 102.29 billion USD by 2025 (Mordor Intelligence, 2019), and the success rate of bot interactions (queries completed without the interference of a human operator) in the banking sector is expected to be over 90% by 2022 (Juniper Research, 2020). Yet, in order for both banks and consumers to exploit from the advantages of the banking chatbot technology, it is important to examine the drivers of consumers' willingness to adopt this technology.

The adoption of innovations applied in the banking industry, such as i-banking and m-banking, is widely studied in the literature. Although the above mentioned studies provide essential contribution to technology adoption in the context of the banking industry, there is limited knowledge on the acceptance of banking chatbots. There are already a few studies that highlighted the importance of studying chatbot acceptance in the context of the banking industry, but only one has conducted a research related to the technology acceptance model (Richad et al., 2019), and one is related to the customer experience for consumers who are banking with chatbot technology (Trivedi, 2019). In order to extend the knowledge regarding chatbot acceptance in banking, the present study aims to investigate the determinants of chatbot adoption in the banking industry, based on technology adoption literature in the banking industry.

The aim of the current study is to identify those factors that have an influence on consumers' intention to use chatbot technology applied in the banking industry. A special adoption model was developed for banking chatbots, extending the TAM model. Data is collected through an online, self-administrated questionnaire and the conceptual model is examined using the PLS-SEM method. The structure of the paper is as follows. First, in the Literature review section, earlier research findings on banking technology adoption (e.g. i-banking and mbanking) are presented, and the chatbot technology and research on its adoption in the banking industry are described. Next, in the Conceptual framework development section, the research model is conceptualized and hypotheses are formulated. Thereafter, in the Data analysis section, the data and methods used in this study are presented. 15 Finally, the results are discussed, including the implications for theory and practice, limitations of the study and further possible research directions are outlined, and conclusions are drawn.

LITERATURE SURVEY:

Banking technologies' adoption by customers The banking industry has been profoundly influenced by technological evolution in recent decades and consumer adoption of banking technologies is a widely researched topic in the literature. Thus, a more in-depth look into the processes behind the adoption of banking chatbots can be gained through the review of the existing literature on the adoption of other technologies applied in the banking sector, such as i-banking and m-banking. Several theories have been implemented in order to analyze the adoption of different IT systems. According to Hanafizadeh and Khedmatgozar (2012), the most influential theoretical models applied in i-banking adoption studies, are the Diffusion of innovation theory (DIT), the Technology acceptance model (TAM), the Decomposed theory of planned behavior (DTPB), the Extended technology acceptance model (TAM2) and the Unified theory of user acceptance of technology (UTAUT), the latter becoming dominant in the literature in recent years. Shaikh and Karjaluoto (2015) analyzed and synthesized existing studies of m-banking adoption and concluded that the most frequently used adoption models were TAM, followed by DIT and UTAUT, while several studies applied a combination of different technology acceptance models (e.g. TAM and DIT).

Several of the above mentioned models are composed of intention to use or actual usage as the dependent variables. Consequently, the key dependent variables in the i-banking adoption literature (Yousafzai, 2012) are behavioral intention to use and actual usage of the technology, while in m-banking adoption, besides the two earlier mentioned dependents, attitude is also adopted in order to analyze technology acceptance (Shaikh and Karjaluoto, 2015). Based on the literature review, it could be concluded that usefulness and ease of use are fundamental variables in studying technology acceptance in the banking sector. It should also be highlighted that

compatibility was found as a key determinant for m-banking (Koenig-Lewis et al., 2010; Shankar and Kumari, 2016; Giovanis et al., 2019) and i-banking (Giovanis et al., 2012) adoption. Therefore, it is expected that compatibility will influence banking chatbot adoption as well. However, technology acceptance could be inhibited directly or indirectly (Moldovan and Săplăcan, 2018) by several factors, such as different types of risk factors.

In some cases, perceived privacy risk was found to be a barrier for m-banking (Arif et al., 2016; Shankar and Kumari, 2016) and i-banking (A. N. Giovanis et al., 2012) adoption. Supposedly, perceived privacy risk will be a barrier in adopting banking chatbot as well. 2.2. Chatbot technology: description and previous research A chatbot application is a computer program that mimics human conversations in its natural format, including text or spoken language, using artificial intelligence techniques, such as Natural Language Processing (NLP), image and video processing and audio analysis (Bala et al., 2017). 16 Chatbot applications offer benefits for both companies and consumers. First, chatbots enable consumers to get in touch with companies anytime from anywhere using their own mobile devices, thus they can get quick and relevant responses to their questions. Second, the implementation of these applications allows companies to target consumers in a more direct and personal way, and companies can save on personnel costs in the area of customer services. In addition to the benefits of the technology, the usage of chatbots may also involve several risk factors, including issues regarding data security and financial risks (Vieira and Sehgal, 2017; Richad et al., 2019). Recently published scientific papers analyzed the adoption of chatbot technology in the tourism industry (Melián-González et al., 2021), in the health care industry (Laumer et al., 2020), and in the field of higher education (Almahri et al., 2020).

Regarding the adoption of chatbots applied in the financial industry, only a few studies examined the acceptance of these applications in the context of the insurance sector (Cardona et al., 2019) and the banking sector (Gupta and Sharma, 2019; Quah and Chua, 2019; Trivedi, 2019, Richad et al., 2019; Sarbabidya and Saha, 2020). Although several studies have examined the factors influencing the acceptance of chatbots, the findings carried out in different fields may not be transferable for financial services (Cardona et al., 2019). Specific research is required in case of banking. 2.3 Chatbot technology in the banking industry Chatbots applied in the financial industry can assist customers in managing financial transaction such as reviewing an account, reporting lost cards or making payments, renewing a policy or handling a refund (Tarbal, 2020).

In the literature, there are several recently published studies that focused on chatbot technology applied in the financial industry. Cardona et al. (2019) studied the adoption and diffusion of chatbots in the context of insurance, concluding that the majority of the participant were familiar with the technology and would prefer to use it at the beginning of the advisory process, while one third of the participants rejected the adoption of chatbots. Gupta and Sharma (2019) examined the customers' attitude towards chatbots in the banking industry and the findings of the study revealed positive correlation between the positive attitude for chatbots and their utility, accessibility and threats. Quah and Chua (2019) explored the effectiveness of the use of chatbot technology in Singapore's banking industry and investigated chatbot functionality to determine if it would meet customer expectations. They found that detailed information provided by the banking chatbot was the most important factor for consumers, followed by fast response, functionality, interactivity, ease of use and data privacy and protection. It was also

found that some of the users were not satisfied with the banking chatbot because it didn’t provide an immediate answer when needed.

Richad et al. (2019) investigated the acceptance factors of chatbot technology in the banking industry in Indonesia in case of Millennials based on TAM, and found that innovativeness, perceived usefulness, perceived ease of use and attitude towards using the chatbot had significant effect on behavioral 17 intention. Trivedi (2019) examined customer experience of using banking chatbots and its impact on brand love adopting the Information Systems (IS) success model among. The results showed that system quality, information quality and service quality had significant impact on customer experience, system quality being the strongest predictor. Perceived risk reduced the impact of the three quality dimensions on customer experience, and customer experience of using the chatbot led to love for the brand that provided the technology. Sarbabidya and Saha (2020) found that the role of chatbots in customer service of the banking industry was positively affected by advisory services, ease of use and convenient service, cost effective and efficient service, customer-friendly service, customized service, relationship banking services, responsive service, trustworthy service, value-based useful service and maintaining customers security and privacy.

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