

Refilling Knowledge and Intention to Use Travel Chatbot:

Indonesian Context

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Abstract—Industry 4.0 has touched all sectors of industry, including tourism. The digital world has brought competition to a higher level, and the future is much harder than right now. Previous and recent researchers have tried to seek solutions by making innovations and trying to upgrade their levels by analyzing the quantitative and qualitative data in many ways. One sure thing about upgrading levels is to ensure two-way communication. The biggest mistake for any tourism service is to let the customers wait for the response, which will disappoint the customers, and the customers will find other alternatives. A report in 2017 by Nielsen has shown that today's generation has traveled more than any generation, and the tourism world reacted by creating travel chatbots, which are now part of any tourism activities. With the increasing number of travel chatbots, customers will have abundant but also overlapping information. Data from each travel chatbot might end up giving different outcomes, different features for every app, or misleading information, and this in-return will decrease customer satisfaction. This paper addresses this issue by analyzing the literature data from previous and recent researches and find where the travel chatbots must be patterned by integrating Artificial Intelligence and blockchain. The researchers do a qualitative analysis by sending an online form to three Facebook groups of travelers and asking several questions. The informants were purposively selected. Sixty-five informants interviewed by phone and took three months from July 2019 until the end of September 2019 to collect the data. The general inductive approach was utilized to analyze qualitative data. Overall, the result shows that travel chatbots are perceived positively, although the level of knowledge Indonesian traveler for travel chatbot still below 40%. Travel companies will benefit from this paper to understand customer needs in creating the best serving travel chatbots for better services.

Keywords—travel chatbot, intention to use, tourism, artificial intelligence, blockchain

I. INTRODUCTION

Driven by a relatively robust global economy, a growing middle class in emerging economies, technological advances, new business models, affordable travel costs and visa facilitation, international tourist arrival grew 5% in 2018 to reach the 1.4 billion mark [1] see in figure 1.

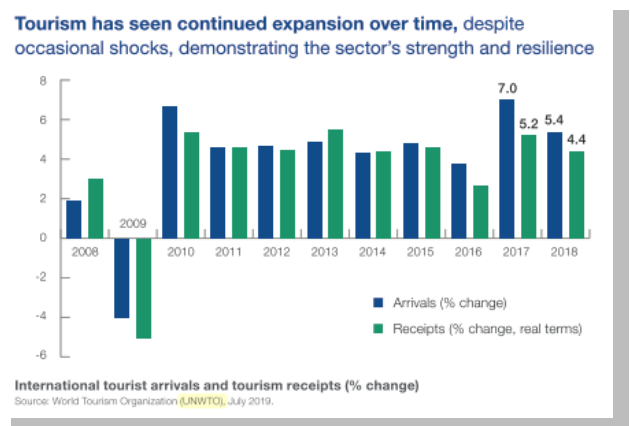


Fig. 1. International tourist arrivals and receipts.

Research by Travel search engine KAYAK.co.uk has found Chatbot is on the rise, and online booking is the new preferences. The report found a year ago, just 3% said they used a chatbot, but today nearly one in ten (8%) they used them regularly or has used them in the past month. In total, 18% of Brits have previously used a chatbot [2].

A. Travel Chatbots Use Cases

According to McKinsey Report 2017, there are four use cases for Travel Chatbot (see in figure2): Reservation agent, Disruption and Customer Care Manager, Online Travel Agency, and Local Insider [3].

Reservation agent. Reservation services such as Booking.com, Skyscanner, and others allow travelers to seek and book hotels, flight recommendations via Facebook Messenger, Skype, and Slack.

Disruption and customer care manager. Customer support via chatbot allows user to address their complaint privately. Travel businesses can track problems and track them accordingly.

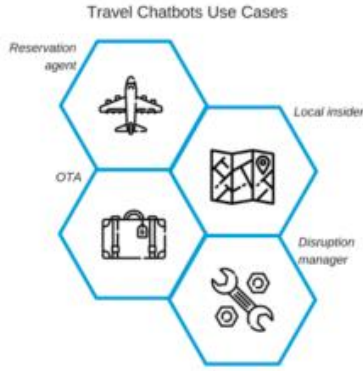


Fig. 2. Four use cases of travel chatbots.

Online Travel Agency. The chatbot will catch the trigger words and use them to find a perfect hotel, best flight deal, even locate rental services, provide weather forecasts, and find local menu if necessary based on the conversation with the chatbot.

Local insider. Many travelers want to explore locals do such as to live, eat, and relax like a native. The chatbot will assist in exploring the cities or villages by showing local reviews and recommendations.

This paper will focus on recent technology related to traveling/tourism, explore the current level of knowledge, and intention to use Travel chatbot.

This paper structured as follows: the first section tackles the literature review, the next section explains the methodology, then the results are described, and the conclusions and limitations are presented.

II. LITERATURE REVIEW

A. Chatbot

A chatbot is a computer application that interacts with users using natural language. Different terms have been used for chatbot such as virtual agent, dialogue system, conversational agents [4–8].

Chatbots could be classified into different categories based on several criteria and the design techniques in creating the agents: (1) retrieval-based vs. generative-based (2) long vs. short conversations (3) open domain vs. closed domain [9].

The use of chatbots has revolutionized customer service globally, but in Indonesia, chatbots usage still in the early stage both by the companies and customers. There are some chatbots usage in Hotels such as Hyatt with Facebook Messenger, GRT Hotels, Marriot Hotels, Casanova Hotel in Venezia, Accor Hotel with Mercure Bots, Four Seasons Hotel with Four Seasons Chat [10–12]. Indonesian VIRtual Banking also uses chatbot such as BCA with VIRA (Assistant Chat Banking), BRI with SABRINA (SmArt BRI New Assistant), BNI with CINTA (Chat with INTelligent Advisor), Mandiri with MITA (Mandiri IntelligenT Assistant) [12–15] but very few chatbots found in Travel Industry especially in Indonesia [16,17].

B. Intention to Use

Understanding the intention to use Travel Chatbot can be started by following the theory behind the intention to use.

Davis introduce Technology Acceptance Model (TAM) based on the adaptation of TRA (Theory of Reason Action) show in figure 3 [18].

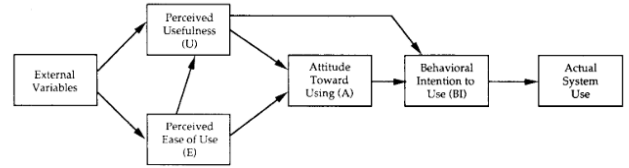


Fig. 3. Technology acceptance model [19].

TAM was developed to predict individual adoption and the use of new Information Technology (IT). ‘Individual’ behavioral intention to use (BI) IT determined by Perceived Usefulness (U) and Perceived Ease of Use (E). Perceived Usefulness defined as the extent to which a person believes that using an IT will enhance his or her job performance. Perceived Ease of Use defined as the degree to which a person believes that using an IT will be free of effort [18–21].

C. Artificial Intelligence and Blockchain

The term “Artificial Intelligence” was coined in 1955 to describe the first academic conference on the subject at Dartmouth College [22].

In recent years, Artificial Intelligence already penetrating many sectors in business, and there is a fear that it will replace humans soon [23–25]. The tourism industry is one of the sectors Artificial Intelligence also penetrate. According to Mc Kinsey's report, the tourism industry still lagged behind other industries, as seen in Figure 4 [3]. AI adoption is most significant in sectors that are already strong digital adopters. High AI adoption for high tech/telecom, automotive/assembly, financial services. Medium AI adoption for retail, media/entertainment, CPG. Low AI adoption for Education, Health care, travel/tourism.

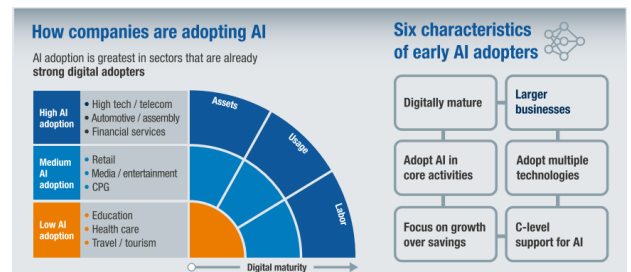


Fig. 4. How companies are adopting AI.

Blockchain technology has revolutionized our daily life, such as the way we experience traveling and tourism. Bitcoin is one of the most popular uses of blockchain technology. Bitcoin using math and cryptography to provide an open, decentralized database of any transaction involving value, money, property, goods, and knowledge [26].

Blockchain-based solutions and their effect on targeted consumers are on this sector: financial, records management, entertainment and communication, state government, supply

chain, private transportation [27]. The pro and cons use of Blockchain, the latest research on blockchain and the barriers to adoption of blockchain technology discussed extensively by some scholar [28–30].

III. METHODOLOGY

A. The Context of the Study

Indonesia is a developing country with 267 million people [31]. Facebook users in Indonesia in 2019, 137 million [32]. For the purpose of the study, data were collected from Facebook Groups for traveler groups in Indonesia. Three tourism groups purposively selected with consecutive members of 3813, 1197, and 6133 members.

B. Data Collection

For data collection, data collected by broadcasting/sharing a Google Form in the tourism groups. Data sampling uses purposive sampling — the interview conducted in a semi-structured interview by phone and take three months to interview 65 informants.

C. Informants' Selection

The informants were purposively selected when they agree to have more interviews by phone by interviewers. 65 informants agree to be interviewed.

D. Data Gathering and Analysis

The general inductive approach developed by Thomas [33] was utilized to analyze the qualitative data.

The interview with the informants asking the following questions: (1) Do you know Travel chatbot? (2) What do you think are the functions, uses, and benefits of Travel Chatbot? (3) Do you want to use Travel Chatbot? Give reasons why you want or do not want to use Travel Chatbot?

IV. RESULTS AND DISCUSSION

Of the 65 informants who agree to be interviewed when they were asked, “Do you know travel chatbot?”, 42 informants did not know about travel chatbot, and 23 informants know travel chatbot.

Of 23 informants that know travel chatbot, when they were asked *what the function of travel chatbot is?* Two informants said it is related to the recommendation; six informants said it is related to information; one informant said related to customer service, and thirteen informants said related to simplifying. See Table 1 for details.

TABLE I. TRAVEL CHATBOT FUNCTIONS AND USES

Recommendation	IN6, IN36
Information	IN1, IN23, IN28, IN40, IN48, IN58
Customer Service	IN19
Simplifying	IN5, IN11, IN14, IN16, IN27, IN35, IN38, IN46, IN51, IN53, IN61, IN62, IN64

Several interesting answers for *travel chatbot functions and uses* from informants: (1) providing information the questions asked by the user (2) helps find the Point of Interest of an Area (3) help provide information about travel and as customer service (4) help users to find hotels/transportation/airplane tickets/ travel destinations that fit the budget (5) helps facilitate

traveling for ordinary people (6) provides information about preparation, activities, and post-travel activities (7) providing convenience for customers because directly served with standardized knowledge and no need to wait for Customer Support anymore (8) to help respond to every customer who has similar or similar questions or complaints (9) to make it easier for someone to arrange their traveling planning, the chatbot can be available 24 hours (10) automatic response of a platform so as not to use too much human energy. Travel chatbot also makes it easy for customers to see flight and train departures.

Of 23 informants that know travel chatbot when they were asked, *‘Do you want to use Travel Chatbot?’* Sixteen informants said, “Yes,” five informants said, “Maybe,” and two informants said, “No.”

TABLE II. DO YOU WANT TO USE THE CHATBOT

Yes	IN5, IN6, IN11, IN16, IN19, IN23, IN27, IN36, IN38, IN40, IN46, IN48, IN53, IN58, IN61, IN64
Maybe	IN1, IN28, IN35, IN57, IN62
No	IN14, IN51

From table 2, the sample representation of their answer are:

Informants that said, “Yes”

- Want to, because it is faster to get answers than through customer service
- Want to, because it can make it easier to find the information needed
- Want to, because it can help at any time and add new experiences in traveling
- Want to use travel chatbot because it can make it easier to find flight tickets or other transportation

Informants that said, “Maybe”

- Still considering it
- I want to, but think it is less useful because of cannot directly communicate with the admin. Afraid of the miscommunication
- Do not know, depending on the definition and features of the travel chatbot itself

Informants that said, “No”

- No, because not interested in using a chatbot
- No, because have never tried it

Of 16 informants that said they want to use travel chatbot when they were asked *what is the intention to use the travel chatbot?* Four informants' intention to use is faster, eight informants for helpful, and four informants for others.

TABLE III. INTENTION TO USE

Faster	IN5, IN11, IN23, IN38,
Helpful	IN6, IN16, IN19, IN27, IN36, IN46, IN48, IN61
Others	IN40, IN53, IN58, IN64

Based on the result from the interview for the first question, “Do you know travel chatbot?” with 64.6% person does not know about the chatbot, which means many people still not aware of the existence of the chatbot. More intensive socialization needed to push the existence of chatbot.

For the question: “What do you think are the functions, uses, and benefits of Travel Chatbot? Their answer can be group into several themes: faster, helpful, and others.

For the question: whether they want to use a travel chatbot or not? Although twenty-three informants said they know travel chatbot, only six-teens confirm they want to use it (69.5%).

When these six-teen informants asked for their intention to use travel chatbot; their answer can be categorized as: faster, helpful, and others. See Table 3.

V. CONCLUSION

Based on the findings, the current level of knowledge of the informants about Travel Chatbot is only 35.4%.

Findings also found that Intention to use travel chatbot quite well, because only two informants from twenty-three informants (8.6%) do not want to use it.

In the future, in line with the findings, travel chatbot will become the best helping tool for the tourism industry to give better service like customer service [34] in providing valuable and consistent information and give feedback for the customers.

Several things need to be work-out such as how to optimize the capabilities of Travel Chatbot, i.e., the integration of Artificial Intelligence (AI) into the system to provide reliable feedback and predict consumer behavior and increase customer satisfaction. All the transactions using Travel Chatbot must be linked to a Blockchain system to minimize fraud and data falsification [30,35–39].

VI. LIMITATION AND IMPLICATION FOR FUTURE RESEARCH

There is a limitation regarding the sample data; the informants were self-selected, as they are willing to be called and interview by phone. This problem cannot be avoided in an online questionnaire, and the demographic has not been documented.

Future research would firstly make an adaptive and self-learning chatbot from unanswered questions, and the system admin will add the unanswered questions to make the knowledge-based growth. Second, the chatbot will be integrated with Artificial Intelligence and blockchain for the digital payment platform.

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