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OPPORTUNITIES OF ARTIFICIAL INTELLIGENCE IN HOSPITALITY INDUSTRY FOR INNOVATIVE CUSTOMER SERVICES

Case: Hotels in Ho Chi Minh City, Vietnam

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Bachelor's Thesis
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Abstract of Thesis

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Artificial Intelligence (AI) is a new technology that has been applied in many businesses to enhance customer experiences. It has come in many forms and applications such as chatbots, machine learnings and self-check-in kiosks. In hospitality industry, there have been researches about AI applications, yet it is not widely applied in hotels due to many reasons. Therefore, the purpose of this thesis is to identify the demand for AI in hotels in Ho Chi Minh City, Vietnam through customers' points of view since AI is promising to dramatically grow and benefit the industry in the near future.

The research methodology used in this thesis was quantitative research with hand-out survey. The target respondents were tourists who stayed or used services in hotels in Ho Chi Minh City. The survey results came out quite surprising with different opinions of respondents. Most respondents agreed that applying AI is a modern trend to follow. Some of the important points to respondents were always-on service, fast access to service and cleanliness. Many respondents would prefer to interact with employees than AI machines. Due to the wide knowledge of AI and limitation of the research, further researches should be done to gain better perspectives on AI approaches in hotels.

Key words   Artificial Intelligence, AI, self-services, hospitality, customer service, waiting lines, always-on, cleanliness

CONTENTS

1   INTRODUCTION

Modern sciences and technologies have gradually become a crucial part of human activities such as study, work and leisure. Undeniably, these are some of the most fundamental activities for human beings in this 21st century. (North 2019; Nigania 2018; Patience 2018.) Together with the considerable advancement of sciences and technologies, Artificial Intelligence (AI) has been created and evolved according to the demands of not only individuals but also businesses (Shi 2011, 1–5). The goal of AI in long-term strategy is to achieve the human intelligence level in order to reduce the amount of manual and mental work for people (McCarthy 2005, 39).

Artificial Intelligence technology, self-services and robots have been applied in tourism and hospitality industry (Gladston 2016 & Ritzer 2015 as cited in Ivanov & Webster 2017, 2). Generally speaking, since the ideas of automatic services with modern yet customer-oriented technology are improving customer experiences by minimizing the process of required actions as well as shortening the manual time (for example, self-checkin and self-checkout kiosks), the AI approach in hospitality will play an essential role in effectively operating hotels and managing financial capacity.

In the perfect application, it would be a game changer for tourism and hospitality for providing perfectionist assistants especially in tourism destinations that are facing problems such as mass tourism or lack of tourists' interests. Although AI has been used in science and factories for years, its approach in hospitality remains limited. At this current time, there are only a few tourism and hospitality companies adopting robots. For instances, Hilton, InterContinental and Yotel Hotels are some of the leading brands that apply service robots (Social Tables 2019).

The project Future Technologies in Tourism Services of Multidimensional Tourism Institute, University of Lapland is the commissioner for this thesis. The objective of this thesis is to identify the possibilities of AI approaches in enhancing innovative hotel experiences from customer perspective in Ho Chi Minh City, Vietnam. The thesis is developed by studying secondary data to build a reliable

theoretical background of the topic and gathering primary data in empirical research with quantitative methodology by conducting a handout survey. In addition, the author utilizes her own observations and experiences in hotels particularly in Ho Chi Minh City to support the thesis process. Artificial Intelligence, customer service, self-services and examples of pioneers are discussed in the theory part in order to gain sufficient information about the topic to support the process of designing the questionnaire for the empirical research.

The survey is organized for travellers who stay and/or use hotel services in Ho Chi Minh City. The target groups are mainly young adults that are under 25 years old and from 25 to 34 years old. The total number of respondents from these two age groups account for more than half of the respondents, at 56,7 percent. These Millennials who are capable of adapting and learning new sciences and technologies (Davis & Silva 2019), are the potential future guests whose opinions are important for this study purpose. The other age groups are welcomed to join in the survey for different perspectives as well.

The results of empirical research are discussed after the research methodology together with personal recommendations in the discussion part for further researches since Artificial Intelligence is a trendy yet extensive approach in hospitality industry. Accordingly, the opportunities, strengths, weaknesses and challenges of this new technology approach in hotel premises are anticipated to create innovative customer experiences.

The choice of the topic is decided according to the author's experiences and interests in tourism and hospitality industry. Being one of the Millennials, the author expects to experience modern sciences and technologies as they are the primary means of a more convenient life. She would prefer the technology tools to traditional ways of implementing tasks. In addition, as an introvert and a customer, the author finds that interacting with humans is sometimes uncomfortable. Therefore, the idea of having self-services in hospitality industry might not only offer customers their own space and time but also stimulate business growth in the field.

The author has some own experiences with AI and self-services. More specifically, self-order machines at fast food restaurants such as McDonald's

restaurant in Disneyland Paris, France has helped to shorten the waiting time and provided more individual room for guests to decide their meals during peak hours. On the contrary, long waiting lines happen quite often throughout rush hours at McDonald's in Rovaniemi, Finland where also experiences mass tourism in winter season. This might due to the fact that no self-order machine is applied to support the staffs. In addition, the Shabu Shabu restaurant chains in the Netherlands can be seen as another example of automation where self-order devices are used directly at the tables instead of the traditional ways. It is undeniable that AI helps humans with basic work so they could focus on more important things in both work and life. Thus, understanding the needs of it would benefit enterprises especially hotels to perform accurate customer services.

2 ARTIFICIAL INTELLIGENCE IN HOSPITALITY INDUSTRY

2.1 Definition of Artificial Intelligence

Artificial Intelligence (AI) is a combination of algorithms that can be taught to machines to effectively perform tasks and solve problems (Jaya 2019). Computing especially AI has played an important role in approaching modern management as businesses are rapidly developing and require fast yet rational responses (Buzko et al. 2016, 26). AI has been defined in many ways following four approaches which are Thinking Humanly, Thinking Rationally, Acting Humanly and Acting Rationally (Russell & Norvig 2010, 1–5). These approaches explain how AI can process information and react like humans with rationality. The compulsory elements of AI are the ability to communicate with the external environment by means of information and respond according to the form of self-consciousness (Luhmann 1995 as cited in Buzko et al. 2016, 27).

Overall, there are three basic forms of AI which are Narrow AI, General AI and Super-intelligent AI. Narrow AI is able to do selected tasks and General AI represents general intelligence of humans. Super-intelligent AI exceeds human intelligence. Its applications are various in different business platforms. Many AI applications in daily life are Narrow AI such as Siri, Google Translate and Chatbots. (Milani, Rahmati, Nurakbarianti & Klitzing 2017, 4; Jajal 2018.) For instance, the media-services provider and production - Netflix applies machine learning which is a subdivision of AI (Jaya 2019) to discover up to 80 percent of the next potential shows or movies for its customers (Plummer 2017; Milani, Rahmati, Nurakbarianti & Klitzing 2017, 4); and thus, it makes the user experiences personalized which is one of the factors leading to Netflix's success (Gavira 2019).

Different forms of AI have been developed to serve in service companies, and most information is provided through production companies' web pages. For instance, a model of robots called Kobi is a machine that help to mow lawns, remove leaves and blow away the snow (The Kobi 2019). This would reduce amount of effort in gardening and cleaning such as clearing the snow around hotel premises in Arctic regions. Furthermore, LG CLOi line has Serving Robot

and Porter Robot that are two of three new concept robots. Serving Robot helps deliver food and drinks to guests at hotels quickly. The Porter Robot's tasks are transferring luggage to rooms, handling fast check-in and -out as well as taking care of payment. (Hertzfeld 2018.)

2.2 AI for Enhancing Customer Services

2.2.1 Customer Services in Hotels

Travel has impact on individual's emotion, intelligence, spirit and physical aspect as well as creates a feeling of escape and freedom (Gilbert & Abdullah 2004 as cited in Altinay & Poudel 2015, 12). Travel and tourism industry include the smaller business group called the hospitality industry delivering services that meet people's demand regarding food & beverage, accommodation, recreation, travel and leisure activities (Chibili 2017, 17). When deciding the choice of hotel, customers tend to take these following characteristics into consideration: cleanliness, venue, cost, security, brand reputation and service quality (Marić, Marinković, Marić & Dimitrovski 2016, 14–15).

Scott (2002) defines that customer service is a series of actions which are designed to improve the satisfaction of customers (Amoako 2012, 134). People who make direct purchases and consume a service themselves are described as consumers. They instantly evaluate the quality of the service and will based on that to consider further purchase decision. (Williams & Buswell 2003, 26.) Service is the fundamental exchange of the economy (Vargo & Lusch 2008 as cited in Altinay & Poudel 2015, 10). Service value is the value in applications regarding customers' perspective while according to sellers it is the exchange of value following the service-dominant logic theory (Vargo & Lusch 2004 as cited in Altinay & Poudel 2015, 9).

Service quality can be viewed as a function of interactive processes (Lehtinen & Lehtinen 1991, 288). To improve customer service in enterprises is a complicated task (Kandampully, Mok & Sparks 2001, 8). The capability of dealing with problems in an effective way is important in order to maintain good reputation management of service excellence for various types of businesses (Johnston & Fern 1999 as cited in Cheng, Shaheen, Gan & Brian 2017, 1). Self-service has

certainly become a universal idea. Customers expect the services to have not only quality, comfort, personalization and price but also speed. (Bagdan 2013, 14–15.) Self-service is where customers experience the service through machines and have no interaction with human employees (Williams & Buswell 2003, 90). A service is considered a failure when it fails to meet customer expectations in regard to the service delivery standard (Ahmad 2002, 19; Cheng, Shaheen, Gan & Brian 2017, 2).

The development of technology creates marvellous possibilities so as to provide better customer experience (Altinay & Poudel 2015, 275). The possibilities for applying AI to serve in tourism and hospitality industry are enormous; however, it depends on how the enterprises recognize its potential benefits together with the demand for it in order to decide whether AI is worth pondering. The ability and willingness to adopt IT are divergent (Kandampully, Mok & Sparks 2001, 292). According to Forrester's online survey for businesses in 2016, 57% of respondents believed that the development of AI would benefit them in improving customer experience and support (Gualtieri et al. 2016).

Another project has shown that approximately one third of European enterprises have launched AI in customer service and 72% of those are receiving benefits which include massively reducing agents' time, effective dealing with high-volume tasks and offering always-on customer care (Devoteam 2018). In addition, a survey conducted in 2017 by Deloitte of 250 executives discovered 88 percent of respondents agreed that AI is important or very important in services and product offers. An additional survey made by Genpact-sponsored of 300 global executives found that over 40 percent of them believed that AI enhances customer experiences. (Davenport 2018, 63.)

2.2.2 Hiring the Right People or Hiring Machines

Regarding Human Resource (HR) department, there are two fundamental functions of HR management which are managerial functions such as planning and organizing, and operative function such as recruitment, maintenance or training (Chaudhary 2016). Employee satisfaction is considered to be essential, but employee strong effort is a primary factor for having high performance and

increase the level of customer satisfaction even above the satisfaction of employee (Wirtz & Lovelock 2016, 291). In some studies, wealthy customers and/or employers are believed to treat staffs better than less-wealthy ones (Rollins 1985 and Hondagneu-Sotelo 2001 as cited in Sherman 2007, 15), which leads to unfairness treatment between employees and customers. Furthermore, human interaction is appeared in almost all segments of services which are tangibles, reliability, responsiveness, assurance and empathy (Parasuraman et al. 1988 as cited in Mueller, Palmer, Mack & McMullan 2003, 396). Hence, it is unavoidable to have service failure (Mueller et al. 2003, 396).

Those can conceivably prove the fact that humans cannot physically and mentally perform at their best all the time, and interaction between customers and employees cannot be predicted whether it can contribute high value to the service providers and consumers. Thus, adopting robots with modern technology might help minimize unfairness and support the hotel's operation. Moreover, the potentials of applying AI with different data functions in HRM can be explored in six selected situations: predicting turnover, searching suitable applicants, assigning tasks and schedules, analysing HR sentiment, resuming data acquisition; and staff self-service (Strohmeier & Piazza 2015 as cited in Buzko et al. 2016, 27).

In addition, customers have become considerably demanding of the service quality they use (Albrecht & Zemke 1985 as cited in Lewis & Mitchell 1990, 11). There has been news spreading on social media about how hotel rooms were not carefully cleaned due to the lack of qualified employees or over tourism (see for examples: Inside Edition 2016; Morris 2017; Beaven 2015). Not all hotels have this issue, yet it has raised the concern about hotel properties' cleanliness especially in guests' rooms. Even though hotel guests might not be aware of experiencing customer service through using the accommodations, they will physically interact with their rooms during the whole stay, which means the quality of the properties passively affect the experiences; hence, the accommodations need greater care as customers are rather sensitive about the hygiene of any property.

The main tasks of housekeeping are cleaning hotels' properties, making beds and resupplying essential items such as toilet paper, towels (Ward 2018). The hotel services particularly room services are rated by the good quality which depends on the employees' expertise and responsibility. Head housekeepers should be good psychologists as this department depending on the size of enterprises is always in need of employees especially seasonal workers. (Batinić 2015.) It is responsible for managers to operate competitiveness quality of guest rooms as well as for employees to perform excellent cleaning and maintenance skills in housekeeping as cleanliness is an important role in hotels' successes.

Nevertheless, the evolvement of AI in hospitality industry can effortlessly help the tasks done with nearly perfect hygiene rates. For example, CleanseBot has been introduced for its capability of sanitizing bedsheets by eradicating bacteria (Street 2019). It is said that the robot model is created for travellers according to its small size and effectiveness, yet the price is unaffordable for everyone. It should be the role of hotels to ensure the cleanliness staying environment for the service consumers. This can be considered to be one of the weak signals for future innovations. Hotel enterprises might consider this robot line to develop a more suitable tools for housekeeping department to maximize the productivity and enhance customer experiences.

2.3   Self-Services for Fast Delivery

Customer satisfaction is seen as a foundation of standardize and excellence of many enterprises' operation (Evangelos & Yannis 2010, 1). Service providers have been under tremendous pressure to enhance their ways of doing businesses with consumers in recent years. Customers are considerably sophisticated and demanding when it comes to the service they experience. (Cook 2008, 3.) The outcome of a good customer service can only be seen through the level of customer satisfaction. A quality service should be able to deliver easy approach which can be considered as accessible location, opening hours and more importantly minimum waiting time for the service. Any overcrowded location can negatively affect the enjoyment of customers (Williams & Buswell 2003, 15).

A waiting line is created when the service demand at the moment surpasses the available capacity to offer that service (Sridhar 2001, 6). Waiting lines for receiving services might have harmful impact on the enterprises as well as create a negative impression about the service providers (Qureshi, Bhatti, Khan & Zaman 2014, 80). Not only the waiting time affects customer satisfaction, which is considered as a response instead of an attitude (Oh & Parks 1997 as cited in Lambert & Lee 2008, 96-97), but also do the customer expectations concerning services or accusation of the waiting line causes (Taylor 1994 as cited in Qureshi, Bhatti, Khan & Zaman 2014, 81).

In the customer journey from pre-experience to post-experience, customers are usually in need of searching for information either through social media platforms or face to face with quick responses. The interaction between human and computer has been studied with large number of approaches such as through natural language (NL) (Bradeško & Mladenić 2012). According to the demand for conversational agents which are gaining intensity together with the popularity of personal machines and ambition of providers to offer NL through user interfaces (Wilks 1999 as cited in Abu Shawar & Atwell 2007, 29), chatbot is invented and is one of the successful virtual assistants among other similar applications (for example: Siri, Evi, S-Voice) (Bradeško & Mladenić 2012).

Chatbot is defined as a computing program which is created to imitate conversations with users, preferably via internet (2018 State of Chatbots Report 2018). This conversational agent helps people communicate via a computer platform, which is becoming trendy in customer services (Cognizant 2017). One survey has been conducted in the United States with more than 1000 participants. It shows that 15 percent of users who have used chatbots as a way of communication in businesses in 2017. The research team of the study expects that rate to grow remarkably in the future. 37 percent of participants expected to get quick responses in an emergency and 64 percent of that expected to have 24-hour service. (2018 State of Chatbots Report 2018.) This illustrates that always-on service is extremely preferable among human users.

The conversation can be started either by the people or the chatbot depending on the service provider's platform and its setting. Users can enter key words in

chat box and replies will usually come right away. One good example of always-on customer support is AI Chatbots that have been launched in customer support through social media such as Finnair Facebook chat box. The Finnair chatbots on Facebook is currently in experiment stage. It generates most common questions with key words in the common language English to help international users get familiar with the chatbot. If they cannot find the information needed, they can choose to connect with live person through chatbots, which might take time for processing.

2.4   Examples of Pioneers

There have been artificial intelligence applications in hotels around the world. Henn-na Hotels are the world's first robot-staffed hotels and are located in Japan. Robots are employed from front office, storage room to check-in and -out services with voice and facial recognition (Henn-na Hotel 2019). (Revfine 2019.) In addition to the pioneers of AI service providers, the famous hotel brand Hilton has been investing and applying mobile app technology for recent years including digital key for accessing and offering loyalty members the capability of choosing their own rooms while checking in with the app (Ting 2017).

Furthermore, Alibaba Flyzoo Hotel in Hangzhou, China applies Tmall Genie which is a management system developed with AI technology to receive orders from guests. Moreover, the hotel uses robots that are produced at Alibaba's Artificial Intelligence Laboratory to take care of room service and laundry as well as having instantly interaction with hotel guests via automated voice prompts and gestures. Besides, customers can also check in to the hotel with smart phone devices and to their rooms with facial recognition. (Noël 2019.)

Additionally, hotels with international background in China have also developed into high technology hotels. For example, Figgy's facial recognition invented by Alibaba has been launched in hotel check-ins in Marriott International Group. Correspondingly, the InterContinental Hotel and Resorts Group has developed "smart rooms" with artificial intelligence powered by Alibaba in Beijing and Guangzhou hotels of the Group. (Noël 2019.) On the whole, undoubtedly Asia in general is leading the artificial intelligence technology.

3 REGCONIZING DEMAND FOR AI IN HOTELS IN HO CHI MINH CITY

3.1 Ho Chi Minh City as a Potential Future Artificial Intelligence Provider Destination

Saigon which is also known as Ho Chi Minh City plays an important role not only in the Southern economic center-point area but also in tourism and hospitality industry of Vietnam (Vietnam National Administration of Tourism 2019). It was ranked as 13th among 15 fastest-growing tourist destinations in the world according to Travel Supermarket (Nguyen 2018). From January to August 2019, the total number of international tourists in Ho Chi Minh City has reached approximately 11.5 million arrivals which is 8.7% higher than that of the same period last year (Vietnam National Administration of Tourism 2019).

The total of international tourists from Asia mostly from China and South Korea accounts for the highest arrivals which are nearly about 9 million followed by tourists from Europe in which number of Russians occupied the highest number with about 1.5 million arrivals. Whereas, domestic tourists reached to 80 million in 2018 which was 9.3% higher compared to that in 2017. (Vietnam National Administration of Tourism 2019.) As the data has shown, tourism industry of Ho Chi Minh City has remarkably grown, which creates plentiful opportunities for service providers to offer competitive and quality services. Nonetheless, tourism industry in Vietnam has been facing the lack of qualified human resources due to insufficient or ineffective training, which negatively impacts the industry in general (Tuoi Tre News 2019).

While Vietnam has been well-known for its picturesque and wild countryside together with the appealing coastline, pristine beaches and cuisine, Saigon represents the compound of ancient architecture and modern life of a dynamic developing country with skyscrapers, infrastructure as well as a restless lifestyle (see Lonely Planet 2019). Therefore, Ho Chi Minh City would be an ideal place to experiment modern technology approach which is Artificial Intelligence in order to serve not only luxury tourism seekers but also to provide more qualified non-human employees for better experiences. In other words, self-services, automatic self-machines and other customer support systems with AI technology such as

chat bots, robotic helpers would effectively support the businesses in taking care of customers, dealing with problems and also providing high quality yet personal, authentic experiences.

3.2 Thesis Process and Time Frame

This thesis process has started since February 2019 and the choice of the topic has come up based on the author's personal interests in hospitality industry, technology and Artificial Intelligence. Researching related theories and general information of the study was done and simultaneously finding suitable commissioner. Commissioner requests were sent to some hotels and lecturers of universities as they might be interested in the topic. Eventually, commissioner agreement was signed with Future Technologies and Tourism Services project as we shared topic's similarity.

Afterwards, questionnaire was designed and corrected errors with the guidance of the supervisors. Survey was conducted individually in Ho Chi Minh City in summer of 2019 and finished before September of 2019 due to challenges in finding respondents' acceptance to fill in the questionnaires. Survey results were analysed with charts and thus finalizing the thesis in fall 2019. Detailed process can be seen in Table 1 below.

Table 1. Thesis Process Plan

Time	Tasks
February 2019	- Theoretical Background: Gather information and analyse basic concepts - Poster idea and thesis draft submission to supervisors - Commissioner Agreement
March 2019 – May 2019	- Deep findings in AI and customer services in hospitality industry - Designing questionnaire
May 2019 – September 2019	- Conduct survey - Continue writing
September 2019 – November 2019	- Analyse survey results - Complete thesis
November 2019 – December 2019	- Final check - Thesis seminar

3.3   Quantitative Research Methodology

Secondary data were collected and analysed through the sources from online articles, prior researches, books and other reliable materials. Quantitative research methodology was used to collect primary data in order to support the analysis part of the project with numerical statistics. Consequently, the possibilities of AI approaches in innovating customer services would be recognized and analysed based on the respondents' answers.

The target group was mainly young adults, preferably under 25 years old and 25-24 years old. Young adults from age 18 to 35 are belong to the generation Millennials who are capable of adapting and learning new sciences and technologies. Unlike Boomers who were born between 1946 and 1964 accepted new technologies as necessary working tools, Millennials (1981-1996) see new technologies as the guarantee and promise of creating better lives (Davis & Silva 2019). Accordingly, the SWOT method was applied to anticipate the potentials, opportunities and challenges of AI approach in hospitality industry.

In qualitative methodology, reality is seen as dependent of mind in which no existing external foundation can claim the measurement or validation of the knowledge. Meanwhile, quantitative methodology follows the positivism. In this methodology, reality is seen as mind-independent, an external and objective matter that is waiting to be recognized based on the results of experiment and appropriate statistical approaches**.** (Lynch 1990, 269.) More specifically, quantitative methodology is used to quantify opinions, behaviours and other defined variables in a large sample size through transforming numerical data into statistics that can be used to analyse (DeFranzo 2011). During the progress of collecting data for this study, the author realized that quantitative research methodology would be beneficial for this thesis since it could help the author to understand the demand for applying AI into hospitality industry by studying future users' behaviours through numerical data gained from survey.

3.4   Data Collection

Conducting a survey involves targeting a specific group of people and assembling information from a part of them so as to acknowledge what the entire group

behaviours and opinions. Through a survey quantitative information is systematically gathered from the target group of respondents. Common ways to collect data are mail surveys, internet surveys, telephone interviews and face-to-face interviews. (Leeuw, Hox & Dillman 2008,1–2, 128–129.)

In this study research, self-administered questionnaire was used to conduct handout paper survey in chosen touristic areas in Ho Chi Minh City (see appendix 7). The questionnaire was divided into three main sections: Background Information, Service Experiences in Hotels in Ho Chi Minh City and User Experience in Artificial Intelligence Technology. In total, there were 104 answers collected through handout questionnaires and transferred manually to online Google Survey Form. Participants were both domestic and international tourists who have used hotel services in Ho Chi Minh city during the period of survey conduction in summer 2019. The analysis of the results was done with excel and online Google survey form.

3.5 Limitation and Challenges of Research

Researches about Artificial Intelligence and its approaches are numerous, yet there are not many resources of that in tourism and hospitality industry. Although AI is a trendy topic, only researchers and luxury hotels who can afford the technology are interested in the topic to participate in this project as a commissioner. Hence, there were difficulties in requesting potential commissioners but the author managed to find one eventually. Some instances of existing researches related to the field are: Artificial Intelligence: A Game Changer in the Hospitality Industry by Mazars (2018) and How Does Artificial Intelligence Affect the Tourism Industry by Martin Zsarnoczky (2017).

In addition to the challenges while contemplating this research, the original case study would have taken place in Rovaniemi, Finland with the commissioner's support. However, it was difficult to contact the commissioner as well as having a deeper understanding about their purposes and intentions. As a result, the target area has been changed to Ho Chi Minh City, Vietnam where tourism industry is remarkably growing.

Furthermore, conducting the survey in Ho Chi Minh City was quite challenging. The ideal place to conduct survey was at the airport but it was impossible to gain permission to access the area due to security concern. Nonetheless, thanks to personal travelling, the author managed to send out some questionnaires inside the airport. Together with that, some famous tourist destinations were selected to collect the majority of total respondents despite unpleasant weather in summer time.

3.6 Reliability and Validity

To improve the quality of a quantitative research, reliability and validity are essential factors to consider (Heale & Twycross 2015, 66). A valid indicator is supposed to measure the objectives of the research purpose. Understanding clearly what to measure, in this case the questionnaire, and its relevance to the theoretical background would increase the validity of the research. Reliability represents the consistency of the measurement, which indicates the repeated measurement of the questionnaire should provide the same result with the same respondent. (Treiman 2014, 242–244.) Another attribute of reliability is internal consistency which, in this case, indicates all questions of the questionnaire should be able to measure the purpose of the thesis (Heale & Twycross 2015, 67).

A significant number of resources from books, reliable articles and academic journals has been used to form the theory part of the thesis in order to design the questionnaire. The questions were carefully designed to be relevant to the objectives of the research, and were organized in a clear and understandable order. That is the validity of the thesis. The questionnaire was tested with a few respondents before the actual survey to verify its reliability. The handout survey was conducted by the author at selected destinations. The questionnaire was thoroughly explained to international respondents in situations of respondents having difficulty in understanding the questions due to language boundary to ensure the responses are as valid and reliable as possible. The respondents were chosen according to plan. However, since Artificial Intelligence is a new concept in hospitality industry and will have further advancement, the validity and reliability of the research are measured and accurate in the publication period.

3.7   Survey Results

3.7.1   Respondents' Characteristics and Behaviours

The initial part of the questionnaire illustrates general information of respondents. Figure 1 indicates age distribution in this survey. Dominant age group was under 25 years old with 34,6% followed by age group between 25 and 34 with 22,1%. This fits the study's target groups which are young adults as they will be the leading future users of Artificial Intelligence appliances.
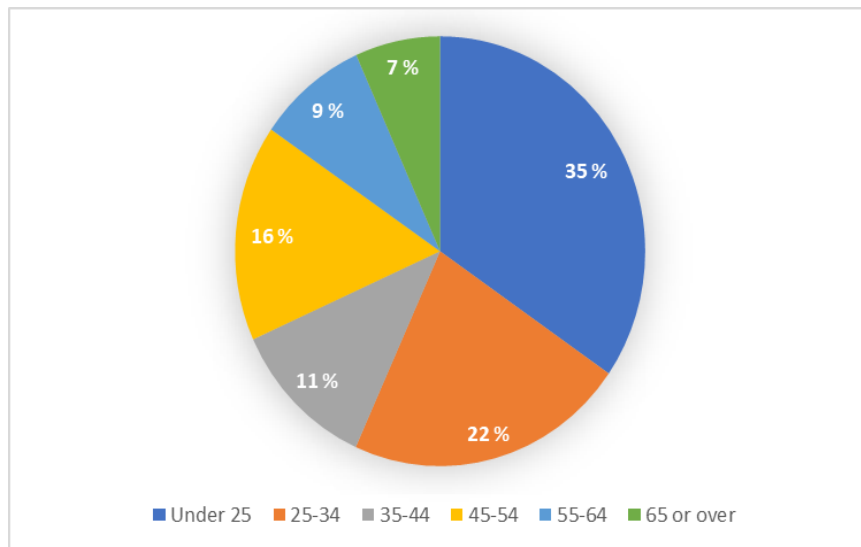

Figure 1. Age Distribution (N=104)

The distribution of nationalities was presented in Figure 2 in which almost half of the participants were Vietnamese (43%) and the other half were international tourists. Travellers from Europe accounted for the second highest percentage at 20%. According to Vietnam National Administration of Tourism (2019), Chinese and South Korean tourists were ranked as ones of the highest percentage of tourists visiting Ho Chi Minh City.

Nonetheless, it was challenging to ask Chinese tourists to participate in the survey as they were travelling with group tours and most of them were not able to communicate in English. This situation applies to other Asian tourists who were on group tours. However, the author managed to hand out questionnaires to

some Asian tourists who were travelling alone or with a small group of friends and/or families.
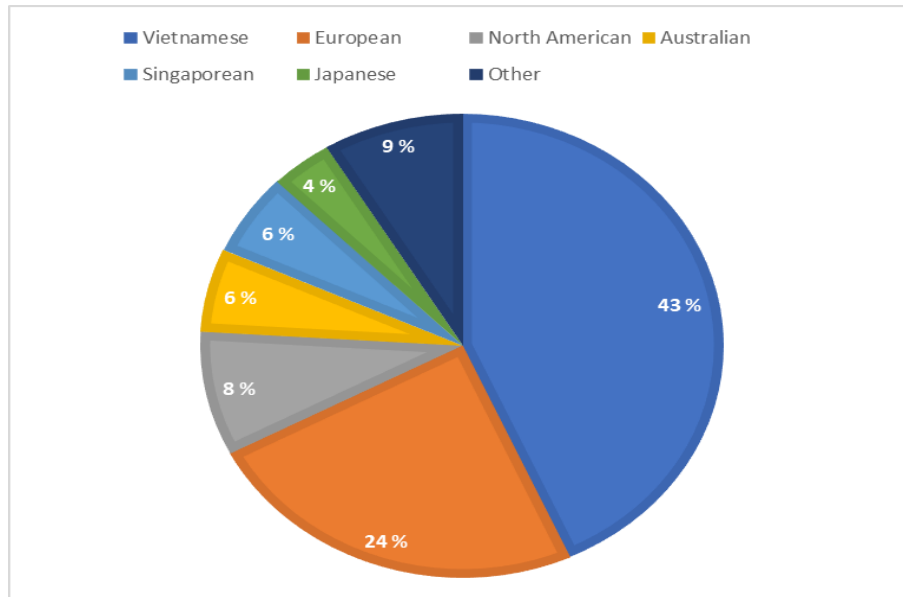

Figure 2. Nationality of the Respondents (N=104)

Figure 3 illustrates the travelling companions of respondents. More than two fifths of respondents (43%) travelled with families and/or relatives. Respondents travelling with friends and/or acquaintances occupied just over a quarter of total respondents, at 26%. Rest of the participants travelled alone, with partners, on group tours or in a company trip.
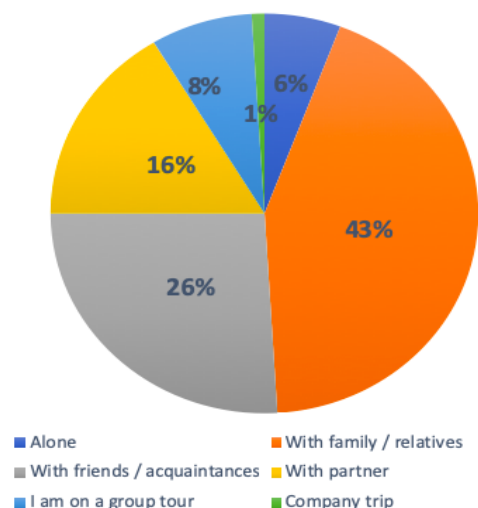

Figure 3. Travel Companion (N=104)

According to Figure 4 below, almost half of the participants stay in hotels two to four times per year (44%) followed by those who stay in hotels five times or more

(34%). Respondents who has not used hotels at all were at 4% of total. Generally, majority of the respondents in this study spend considerable time in hotels and using its services. This could show that their responses and thoughts are considered valuable to the purpose of this research in other to understand their opinions as well as demands for Artificial Intelligence applies.
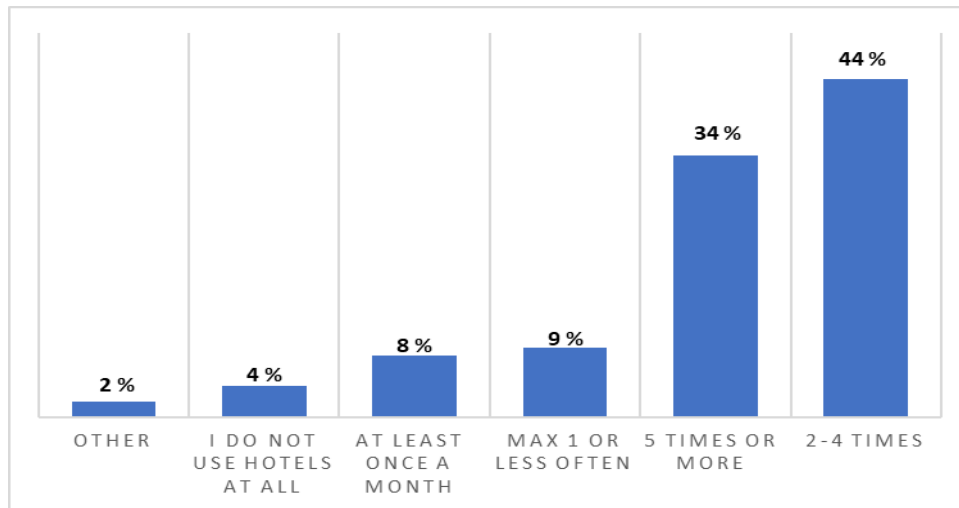

Figure 4. Number of Stays in Hotels Per Year (N=104)

3.7.2 Respondent Experiences in Hotels in Ho Chi Minh City

Different factors can affect customers' choice of hotels. According to Gursoy, Spangenberg and Rutherford (2006) as well as Voss, Spangenberd and Grohman (2003), hotel choice behaviours can be affected by cognitive aspects such as hotel brand, price and/or affective attributes such as safety and comfort (Kim 2011, 5).

Figure 5 illustrates preferences of respondents when choosing hotels based on two levels of importance on Likert scale which are extremely important and not at all important. Respondents' preferences when choosing hotels based on full levels of importance on Likert scale can be seen in appendix 3. A significant of respondents believed that cleanliness, security and privacy were extremely important, at 61%, 52% and 52% respectively. Most of all the factors listed in the questionnaire were rated very important except for Artificial Intelligence Approach and Modern Technology attributes with only 5% and 16% responses respectively (see appendix 3). Approximately one thirds of respondents (32%) felt that AI

approach was not important at all regarding their choices of hotels. This could be understandable since there are not many appliances of AI in hotels around the world at the present time in addition to the fact that hotel guests are more familiar with the traditional way of experiencing services.
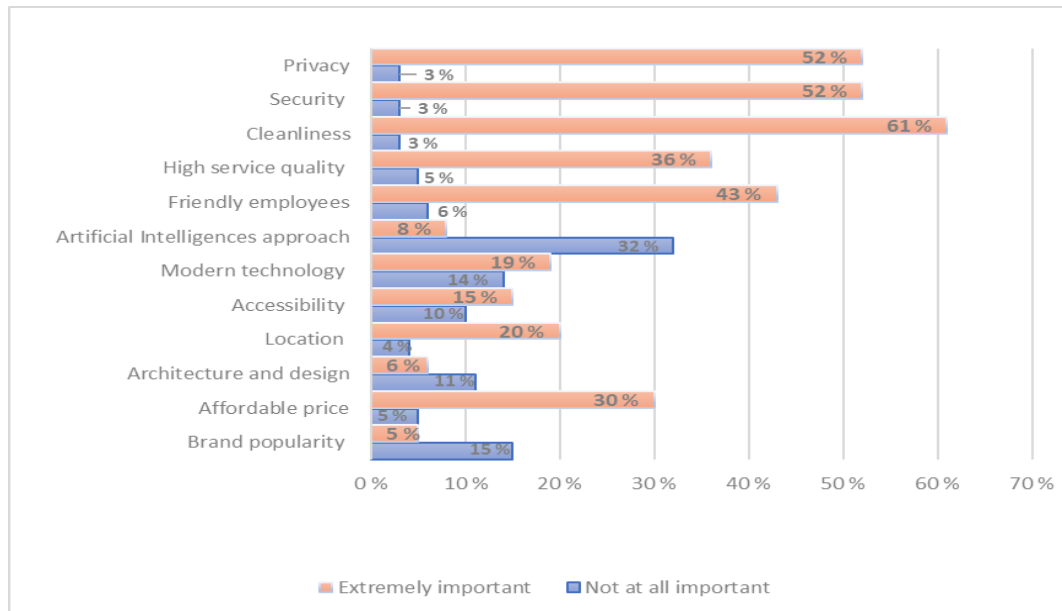

Figure 5. Respondents' Preferences of Choosing Hotels (N=100)

Based on the author's own working experiences and knowledge about hotels in Vietnam, hotels there are considered to have affordable price ranges for different groups of guests. Most standard international tourists are able to afford high ranked hotels in Ho Chi Minh City. The quality of hotels varies depending on their brands and ratings. In Ho Chi Minh City, 1 – 2-star hotels, hostels or some inexpensive Airbnb might provide low quality of rooms, services and have lack of security or hygiene.

Travellers' choice of accommodation is displayed in Figure 6. Majority of respondents chose 3- to 5-star hotels to stay while visiting Ho Chi Minh City, at 72,7 percent in total. This is predictable since higher ranked hotels offer greater accommodations and services, and yet the price is affordable for foreign tourists. Moreover, Figure 5 has shown that most respondents considered cleanliness, privacy and security extremely important or very important. Therefore, it is

noticeable that a large majority of respondents demand excellent quality services in hotels.
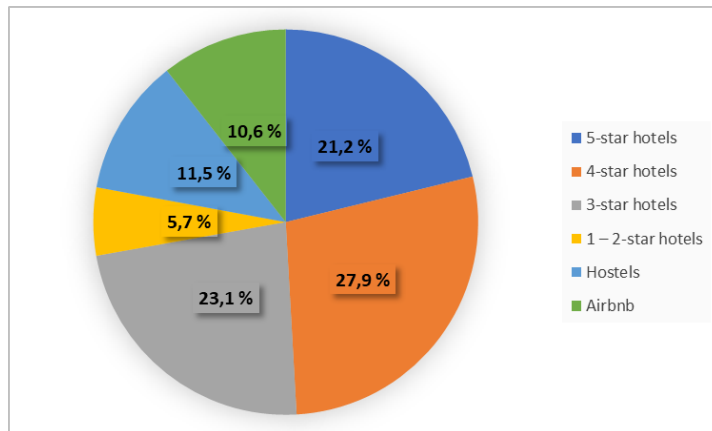

Figure 6. Choice of Accommodation in Ho Chi Minh City (N=104)

How familiar are the respondents with Artificial Intelligence and self-services is displayed in Figure 7. On the scale 0 – 5, approximately half of the participants believed that their AI comprehension was at level 3 and 4 (31,7% and 19,2%) while 12,5% of total was at level 5 of the familiarity. Only 6,7% of respondents were completely unfamiliar with the concept and its approaches.
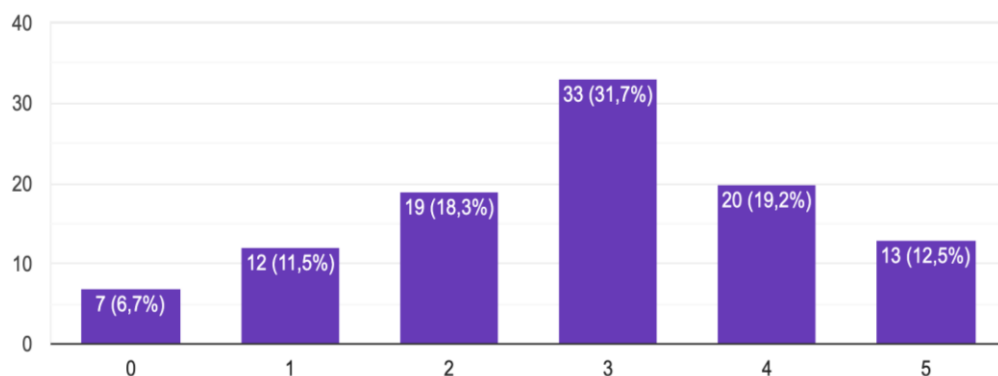

Figure 7. Level of Familiarity with AI and Automatic Self-Services (N=104)

3.7.3 Respondent Experiences and Opinions in Artificial Intelligence

In association with Figure 7, Figure 8 indicates what AI relating services the respondents have experienced. The top three services were: self-check-in machines (67,3%), self-ordering machines (51%) and chatbots (43,3%). This means the majority of the respondents have been relatively familiar with adopting new technology and services, which gives Artificial Intelligence a promising future

in hospitality and tourism industry. There were 21,2% of the respondents who have never experienced any of AI services listed in the questionnaire. This is not a massive proportion but somehow it could demonstrate that there is a notable number of people who might not have any chance to follow the accelerated technology's development nor might prefer to use the traditional ways of experiencing services.
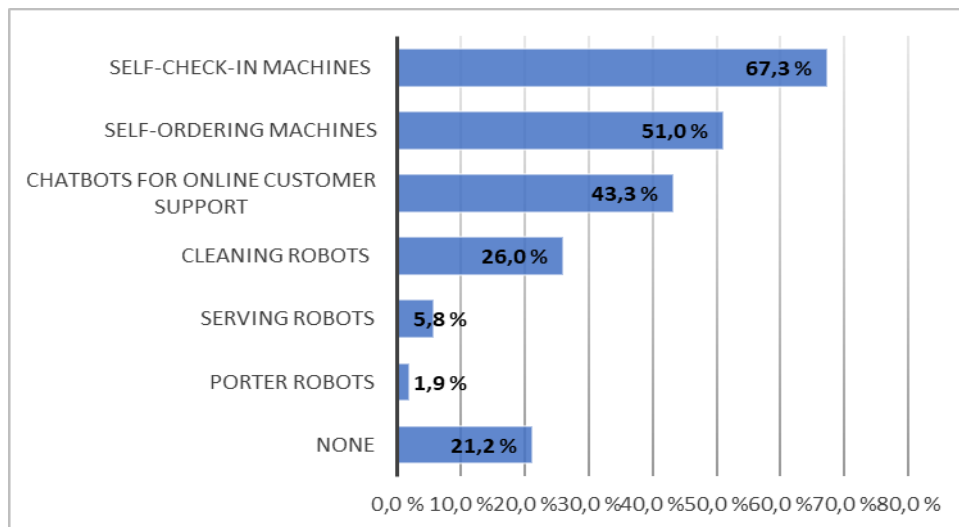

Figure 8. AI Experiences of Respondents (N=104)

What respondents expect when using Artificial Intelligence is shown in Figure 9. Unsurprisingly, 59,6 percent of the participants expecting to receive fast responses from customer support. This can be explained on account of the fact that customers usually react in irritated ways in waiting lines (Bomba & Burke 2019) and expect speed in services they use (Bagdan 2013, 14–15).
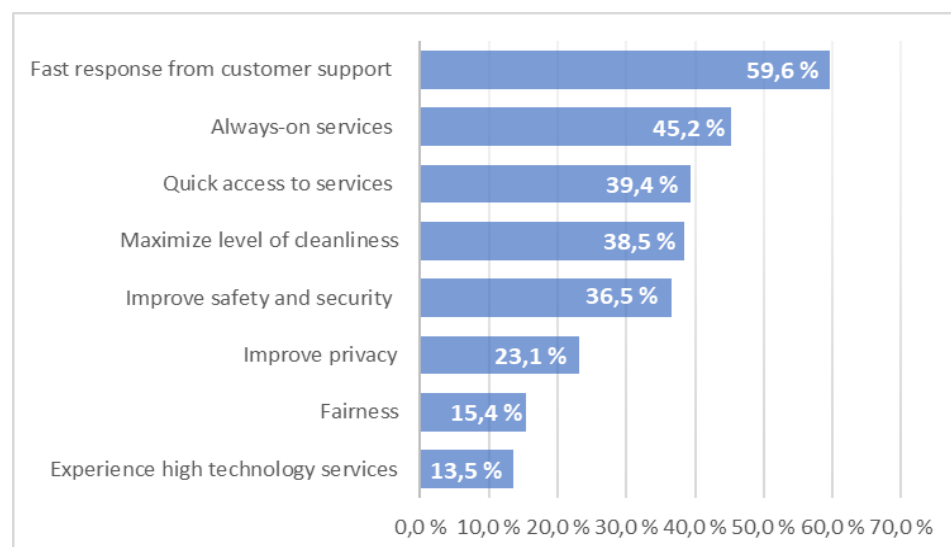

Figure 9. Expectation on AI in Hotels (N=104)

Consequently, always-on services (45,2%), quick access to services (39,4%), level of cleanliness would be maximized (38,5%) and safety & security (36,5%) accounted for a considerable percentage of the respondents' expectations. Undoubtedly, cleanliness and sanitation in hospitality industry play a crucial role in customers' accommodation decision making (Lockyer 2003, 297).

Figure 10 illustrates what unsatisfactory experiences could be avoided while using AI. Most of the respondents expected to eliminate or reduce long waiting time (68,3%) with Artificial Intelligence approaches in hotels. Refering to earlier discussion in theoretical background part, having to wait in long waiting lines for a service which could be in reception area or online customer support, could harmfully affect the business because customers might develop an unpleasant impression about the service providers (Qureshi, Bhatti, Khan & Zaman 2014, 80). Moreover, customers expect speed in customer services (Bagdan 2013, 14–15). As a result, majority of respondents expected AI would help to deal with long waiting lines, offer fast responses from customer support and quick access to services.
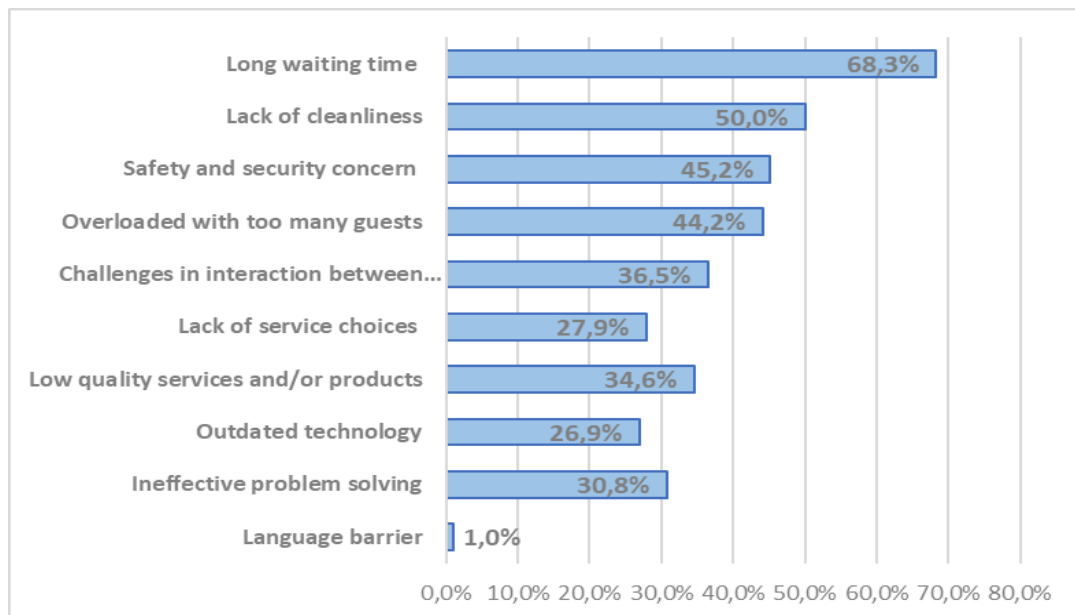

Figure 10. Avoidable Unsatisfactory Experiences When Using AI (N=104)

Furthermore, half of the respondents found lack of cleanliness as an intolerable experience followed by safety and security concern (45,2%) and mass tourism with overloaded by too many guests (44,2%). Additionally, one participant added that avoidable unsatisfactory experience would be language barriers.

Artificial Intelligence services that respondents would prefer to have in hotels in Ho Chi Minh City to enhance their experiences based on their level of interest was asked in the questionnaire. Subsequently, a balance number was calculated to represent how positively respondents felt about these AI services (see appendix 4). Figure 11 displays the balance indicator of responses on different AI services. In general, most respondents were positively interested in all the services listed. Especially, they felt positively interested in self-service machines (62,5%) followed by facial recognition (55,8%) and cleaning robots (46,2%). This fits their expectations on avoidable unsatisfactory experiences shown in Figure 10. To be more specific, self-services machines would help reduce long waiting lines, facial recognition is promised to increase safety and security (Noël 2019), and cleaning robots would help to improve hygiene status of the property.
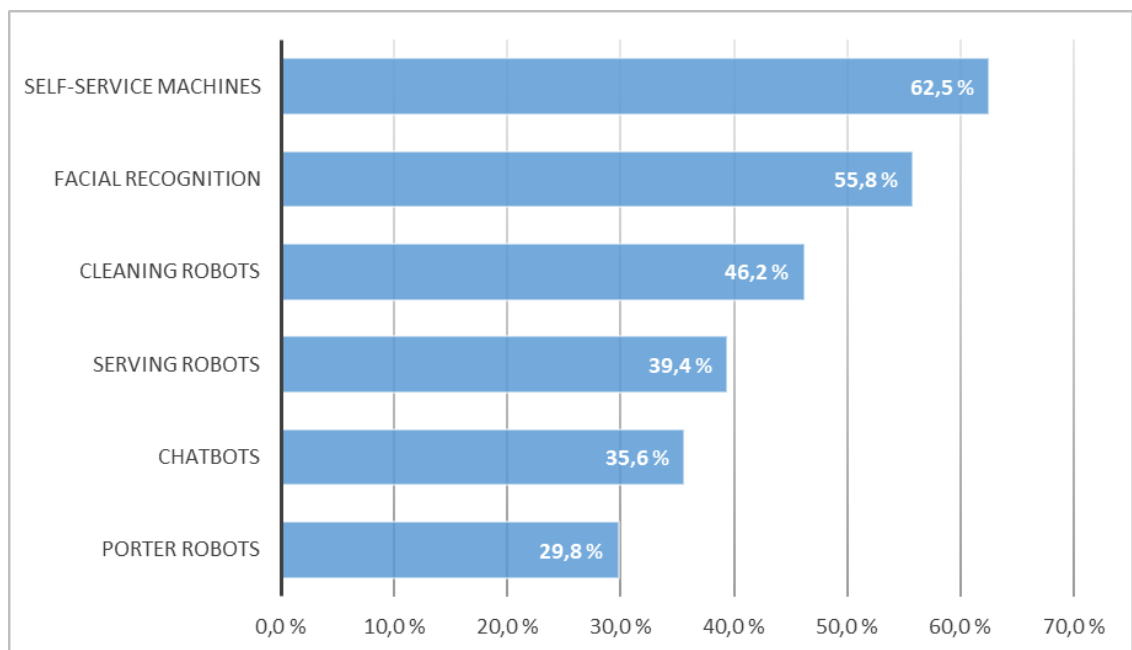

Figure 11. Balance Indicator of Reponses on Different AI Services (N=104)

In the questionnaire, respondents were also asked about their opinions on what would prevent them from staying at a hotel which is applying AI technology. According to Figure 12, over one third of respondents (35,6%) would prefer to interact with human employees. 30,8% were afraid they would not have enough money to afford the stay. Another 30,8% of respondents thought that nothing would stop them from experience Artificial Intelligence services. Around 20% of

respondents believed that robots, self-services might take wrong orders or they would not know how to use the services.
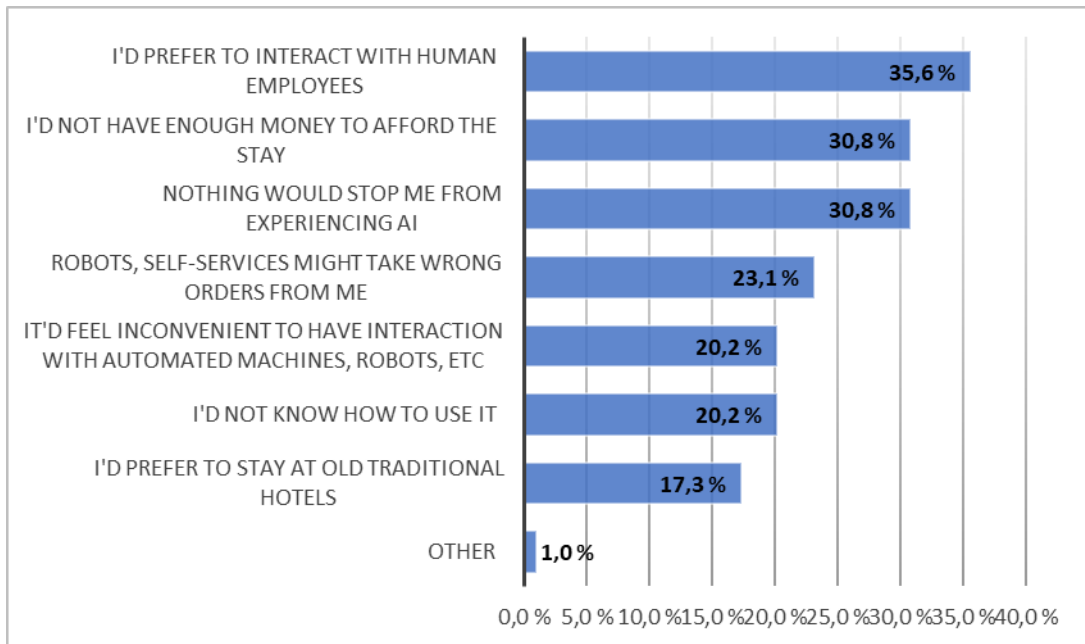

Figure 12. Factors That Could Prevent Respondents to Experience AI

To be more specific, Figure 12 shows that respondents would prefer to interact with human employees rather than communicate with machines, at 35,6% which is the highest percentage among other answers. Moreover, 20,2% of respondents found that it would feel inconvenient to interact with automated machines and robots. Understanding customers, service providers and their interactions are all essential to improve customer experiences (Altinay & Poudel 2015, 273). This means lack of interaction between customers and employees could lead to unsatisfying experiences for those who would prefer human interactions. Altogether, these reasons could be considered weaknesses that need to be recognized by any organization applying the futuristic technology.

Nonetheless, respondents' opinions on this are understandable as AI is quite a new concept in hospitality industry. Based on a survey made by Pegasystems which leads in customer engagement software, over 70% of customers are afraid of Artificial Intelligence and one quarter of them have the fear that machines might take over the world (Pegasystems 2019, 5). This is a basic misbelief and people will need time to gradually accept the new concept even though they might not realize they have been using AI in daily routine but in the basic forms of AI such

as Email spams filters, Siri and online shopping recommendations (Pegasystems 2019, 5–7).

The final question in the questionnaire was to evaluate respondents' points of view on Artificial Intelligence in general (see appendix 5). The results were analysed by calculating positive and negative statements to generate a balance number (see appendix 6) which showed whether the positive or negative opinion was the strongest. Table 2 represents the statements along with balance indicators of responses. Together with that, Figure 13 illustrates how positively respondents thought about the statements listed in the questionnaire in a decreasing order. It is clear that all the statements were responded in quite optimistic points of view. In all of the statements, the higher the balance indicator was, the more positivity there was in the opinion.

Table 2. Balance Indicator of Responses

Statement number	Statement listed in the questionnaire	Balance indicator
1	The chance human employees deliver bad services to customers in hotels is higher than that of AI machines	24,9%
2	AI helps shorten waiting time for services	61,5%
3	AI maximizes hygiene and cleanliness of hotel properties such as bed sheets and floors	44,3%
4	AI works more effectively than humans	18,3%
5	Applying AI is a modern trend to follow	71,3%

The gap among the statement balance indicators is relatively large. A majority of respondents (61,5%) felt extremely positive about statement 2, whereas a small minority (18,3%) felt slightly positive about statement 4, which makes it the most negative statement in this case. The positive statements represent the high agreement level of responses. Most respondents believed Artificial Intelligence is a trendy and helpful tool to deal with frustrated situation such as in waiting lines or to increase level of cleanliness and hygiene (statement 5, 2 and 3). On the other hand, the balance indicator shows that respondents did not positively agree

on the statements which compared AI to human employees regarding service delivery and productivity.

In other words, respondents agreed that AI would effectively support customer service innovation, yet most of them felt like AI would not promote greater customer services than employees. Nevertheless, it is optimistic that balance number for statement 5, which says applying AI is a modern trend to follow, is remarkably high. Hence, even though respondents seem to remain sceptical about how AI would work in hotels, they are open to this future trend and changes. Thus, further opportunities will arise for businesses including hotels who consider to put AI into practices.
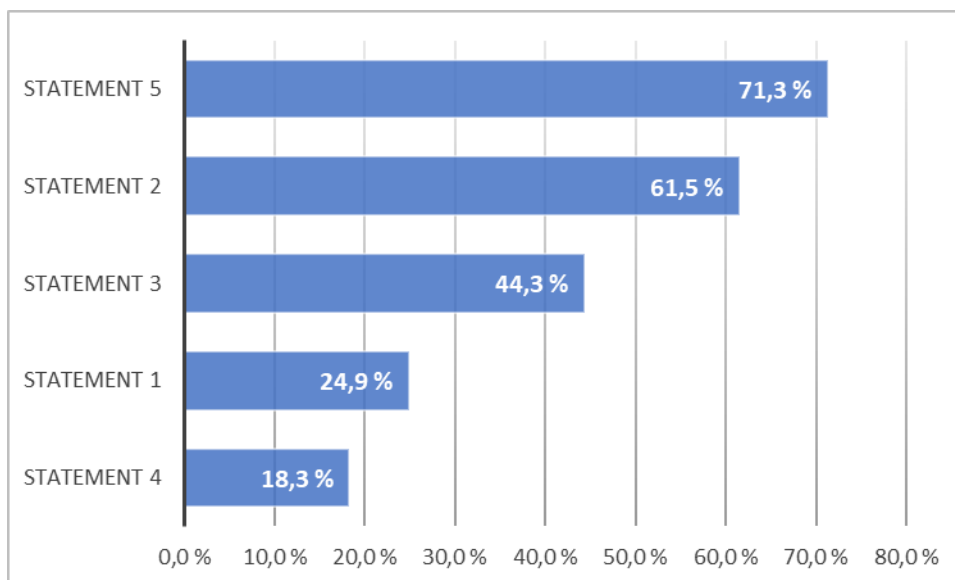

Figure 13. How Positively Respondents Feel About Each Statement (N=104)

During the process of conducting the survey, several respondents thought the topic was interesting, while some respondents expressed their fear of losing jobs to AI with a playful attitude. In the optimistic scenario of Artificial Intelligence approaches, respondents' positivity level on those statements could be perceived as business benefits to encourage hospitality organizations to effectively apply AI and earn profits from it. In spite of disputable assumptions and feelings about experiencing AI, many other respondents were eager to welcome it. Personally speaking, everything that is new is controversial and it takes time to be accepted into the society.

4   ARTIFICIAL INTELLIGENCE SWOT ANALYSIS

SWOT which stands for Strengths, Weaknesses, Opportunities and Threats is a useful tool to understand the characteristics of a business and anticipate the potentials as well as recognizing risks (Parsons 2018). Because of the newness and trendiness of Artificial Intelligence approaches in the age of technology, it is crucial to promote a realistic strategy to adopt it in tourism and hospitality industry. A SWOT analysis on the opportunities of Artificial Intelligence in hotels is shown in Table 2. This SWOT analysis was created according to discussed theories, survey results and the author's points of view on the topic in order to summarize the key points of the survey results in this research.

Table 3. Potential of AI SWOT Analysis

STRENGTHS	WEAKNESSES
- Labor decrease - Waiting line reduction - Fast access to service - Hygiene and cleanliness - Always-on customer support - Improve privacy and security	- Lack of human interaction - AI unfamiliarity - Fixing error difficulties - Financial capacity - Misunderstanding between AI and customers/employees
OPPORTUNITIES	**THREATS**
- Future human helpers - Reduce language/cultural barriers - Improve safety and security - Better world for introverts and the anti-social - Sustainable development - Solution for mass tourism	- Lack of job opportunities for people - High energy resources - Customer data security - Environmental impact - AI against humanity

Strengths are inner features and characteristics that are the benefits of having AI technology in hotels. Weaknesses illustrate the disadvantages that might occur when running AI. Opportunities are external features that AI could contribute to the hotel's development. Threats are also external aspects that the hotels need to be aware of and/or deal with in case of spontaneous incidents. (Parsons 2018.)

There are positives and negatives of using self-services in hospitality industry. The advantages are the decrease of labour, increase of service speed, increase processing, shorten waiting lines and increase of access. Meanwhile, the disadvantages could be lack of human interaction, technology unfamiliarity and difficulties in fixing errors when occur. (Bagdan 2013, 14–15.)

Likewise, applying Artificial Intelligence in hospitality industry offer tremendous not only opportunities but threats for both customers and companies. Threats worth mentioning are lack of job vacancies for people (Davenport 2018, 129), AI might take over the world (Pegasystems 2019, 5), customer data security (see Woolley 2019) and environmental impacts. Based on a survey conducted by Intel and Concentrix, Artificial Intelligence is agreed by almost three quarters of company-decision makers (74%) to be a powerful tool in dealing with environmental challenges. Scientists have discovered the real potential of AI in land, air and water environment. (Vox Creative 2018.) Whereas, the massive use of AI without any sustainable strategy could lead to producing too much energy into the surrounding environment (see Lu 2019; Ekin 2019). Furthermore, Bill Gates says Artificial Intelligence is similar to nuclear energy that is both promising and dangerous (Clifford 2019). Personal speaking, despite all of that, how people use AI is more important than how dangerous or promising it is.

Some of the opportunities of it could be promoting automated machines as human helpers in the field as well as offer a great solution for mass tourism destinations for its strengths displayed in Table 2. Other opportunities would be to create sustainability, improve safety and security. Besides, as an introvert the author would like to believe that the advancement of technology and Artificial Intelligence might have positive impact on every introvert and those who do not feel comfortable interacting with humans. More detail information can be seen in Table 2.

On the whole, every new strategy or application in businesses will consists of strengths, weaknesses, opportunities and threats. It is hard to avoid challenges especially when they offer tremendous profits. Understanding those factors in a business would help to create a suitable strategy for future development.

5   DISCUSSION

The remarkable development of technology has enhanced people's daily activities in this 21st century. Particularly, Artificial Intelligence has always been worth applying in businesses to benefit customers since it is specially targeted at acknowledging work progresses and increasing productivity in the organizations. (Davenport 2018, 25, 69.) Therefore, the purpose of this thesis is to recognize the potentials of Artificial Intelligences in hospitality industry in Ho Chi Minh City, Vietnam in order to provide innovative customer services. Artificial Intelligence approaches in hotels are seen as trendy appliances to not only reduce guests' unsatisfactory but also to provide innovative modern services in the age of technology.

The research methodology of this thesis is quantitative methodology with self-administered questionnaire for conducting hand-out survey so as to create primary data. The questionnaires were handed to respondents by author being present at the locations. Secondary data were collected and analysed from earlier theories, articles, journals and books. The analysis of survey was made with combination of excel and Google Form.

The survey results are significantly intriguing with the total of 104 respondents. More than half of the respondents were international tourists while the others were Vietnamese, and most of them found the topic was interesting Some of the factors that respondents consider to be important are: always-on service, fast access to service, safety and security, and cleanliness of the property. Moreover, being in waiting lines seems to be the most frustrated experience for respondents based on the survey results. Although not all respondents were familiar with the Artificial Intelligence concept yet, service providers could consider those important factors as weak signals to improve their services with the help of AI. Applying Artificial Intelligence in hotels might be challenging due to particular reasons such as financial capacity and size of hotels; however, it is possible for small to medium enterprises to start from basic form of AI for example, chatbots to create always-on customer services and faster responses.

Due to both the theories discussed in the thesis and the process of conducting hand-out survey, undoubtedly Asia has been leading the new technology in variety of businesses while the European countries are slowly adopting it. More specifically, China where is the biggest government-invested AI approaches, has publicized a multibillion-dollar enterprise to lead the AI technology by 2030. Other leading countries in implementing AI are Singapore, the United Kingdom, Ireland and Canada. (Davenport 2018, 94–96.) As a result, it might take time for businesses in travel and hospitality industry around the world to adopt Artificial Intelligence, which is necessary as the world will continue to grow vigorously with the development of modern technology and sciences through years. This transition will be similar to when internet was invented and has become inseparable from every person daily activity nowadays.

Because of the limitation of this thesis and a broad perspective of Artificial Intelligence in tourism and hospitality industry, further development should be done in order to achieve the goal of spreading Artificial Intelligence technology to benefit the demand of both businesses and customers. Since this thesis was done from perspectives of travellers as hotel guests, more future researches could be done from perspectives of hotel managers and employees to gain divergent viewpoints. Better communication with the project commissioner could have helped to create greater valuable results. Based on the results of the research, Artificial Intelligence is a promising technology to be applied in hotel enterprises to increase productivity and enhance customer experiences. Therefore, further researches involve AI with tourism and hospitality industry would benefit relevant organizations and the customers. Other researches could be done simultaneously to ensure sustainable growth with realistic strategy on account of considerable amount of energy would be used when applying AI.

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APPENDICES

Appendix 1. Gender Distribution (N=104)
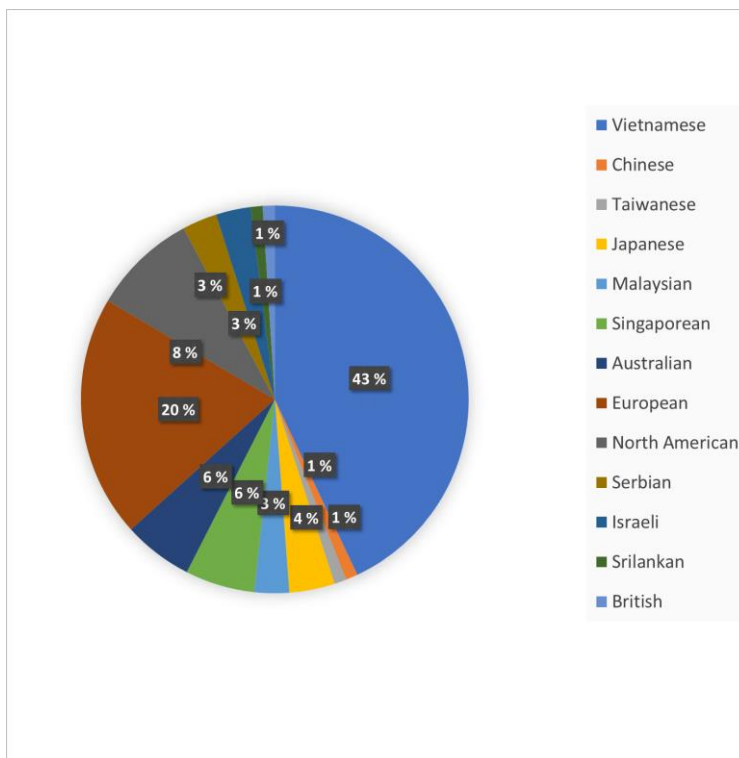
Appendix 2. Nationality of Respondents (N=104)

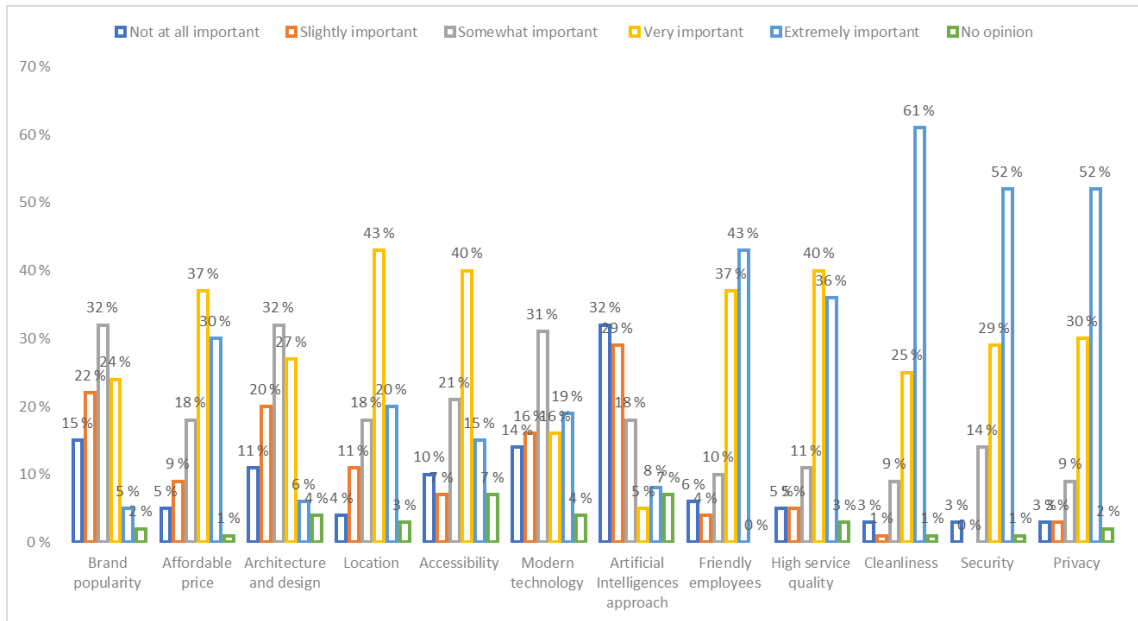Appendix 3. Respondent Opinions on Different AI Services (N=104)

	Cleaning Robots	Self-Service Machines	Facial Recognition	Chatbots	Serving Robots	Porter Robots
Extremely interested	21,2 %	26,9 %	26,0 %	16,3 %	19,2 %	18,3 %
Very interested	28,8 %	30,8 %	30,8 %	26,0 %	28,8 %	21,2 %
Slightly interested	11,5 %	6,7 %	5,8 %	9,6 %	10,6 %	14,4 %
Not at all interested	6,7 %	7,7 %	10,6 %	6,7 %	8,7 %	6,7 %
Balance	46,2 %	62,5 %	55,8 %	35,6 %	39,4 %	29,8 %

Appendix 4. Balance Indicator Calculation for Figure 11
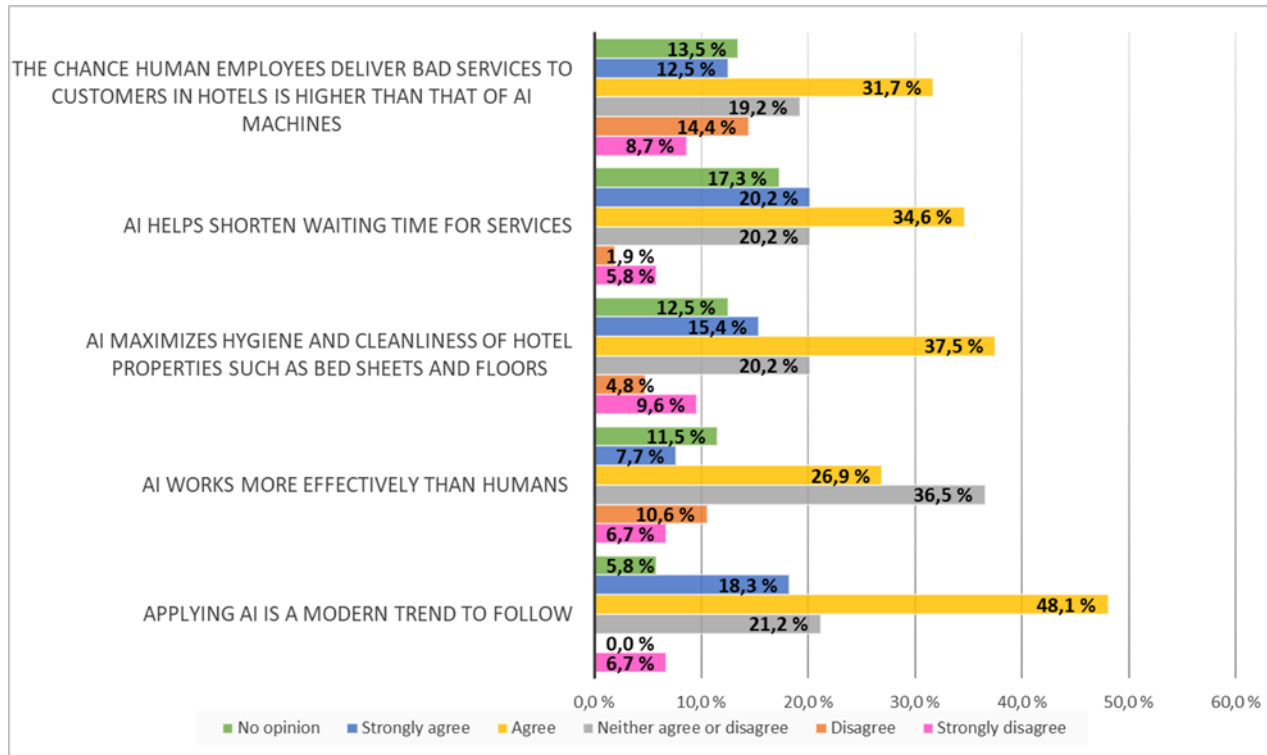
Appendix 5. Respondent Opinions on Statements (N=104)

	Statement 1	Statement 2	Statement 3	Statement 4	Statement 5
Strongly agree	12,5 %	20,2 %	15,4 %	7,7 %	18,3 %
Agree	31,7 %	34,6 %	37,5 %	26,9 %	48,1 %
Disagree	14,4 %	1,9 %	4,8 %	10,6 %	0,0 %
Strongly agree	8,7 %	5,8 %	9,6 %	6,7 %	6,7 %
Balance	24,9 %	61,5 %	44,3 %	18,3 %	71,3 %

Appendix 6. Balance Indicator Calculation for Figure 13

Appendix 7. Questionnaire

Artificial Intelligence (AI) in Hotels in Ho Chi Minh City

Dear Respondent, on behalf of Future Technologies in Tourism Services Project of MTI/University of Lapland, we kindly ask you to participate in this survey. The survey aims to examine how Artificial Intelligence can be utilized in hotels in Ho Chi Minh City in order to enhance customer experiences. It will take approximately 5-7 minutes to answer the survey. The final results of the survey will be published so that no individual answers can be extracted from them.

*Required

Background Information
1. Age *
Under 25

25-34

35-44

45-54

55-64

65 or over

2. Gender *
Female

Male

Other

3. Nationality *
Vietnamese

Chinese

Taiwanese

Japanese

Malaysian

Singaporean

Thai

South Korean

Australian

European

North American

Other:

4. Travel Companion *

Alone

With family / relatives

With friends / acquaintances

With partner

I am on a group tour

Other:

5. How often do you stay in hotels per year? *

I do not use hotels at all (Move to question 7)

Max 1 or less often

2-4 times

5 times or more

At least once a month

Other:

Service Experiences in Hotels in Ho Chi Minh City

6. What are your preferences when choosing a hotel?

	Not at all important	Slightly important	Somewhat important	Very Important	Extremely important	No opinion
Brand popularity	○	○	○	○	○	○
Affordable price	○	○	○	○	○	○
Architecture and design	○	○	○	○	○	○
Location	○	○	○	○	○	○
Accessibility	○	○	○	○	○	○
Modern technology	○	○	○	○	○	○

	Not at all important	Slightly important	Somewhat important	Very Important	Extremely important	No opinion
Artificial Intelligence approach	○	○	○	○	○	○
Friendly employees	○	○	○	○	○	○
High service quality	○	○	○	○	○	○
Cleanliness	○	○	○	○	○	○
Security	○	○	○	○	○	○
Privacy	○	○	○	○	○	○

7. How familiar are you with Artificial Intelligence (AI) and automatic self-services? *

	0	1	2	3	4	5	
Not at all familiar	○	○	○	○	○	○	Extremely familiar

8. What Artificial Intelligence services have you used? *
None
Self-check-in machines
Chatbots for online customer support
Self-ordering machines
Cleaning robots
Porter robots
Serving robots
Other:

User Experience in Artificial Intelligence (AI) Technology

Artificial Intelligence is the ability of computer program or machines to work and react like humans. Some common applications that have been applied are chatbots, self-checkin kiosks, self-ordering machines, serving robots, cleaning robots and so forth.

9. In your opinion, what would you expect from AI technology in hotels? Maximum 3 choices *
Fast response from customer support
Maximize level of cleanliness
Always-on services

Quick access to services

Fairness

Experience high technology services

Improve privacy

Improve safety and security

Other:

10. Your choice of accommodation in Ho Chi Minh City *
5-star hotels

4-star hotels

3-star hotels

1–2-star hotels

Hostels

Airbnb

Other:

11. What unsatisfactory experiences in hotels could be avoided by using Artificial Intelligence? Maximum 5 choices *

Challenges in interaction between employees and customers

Lack of service choices

Long waiting time

Lack of cleanliness

Overloaded with too many guests

Low quality services and/or products

Outdated technology

Ineffective problem solving

Safety and security concern

Other:

12. What kind of Artificial Intelligence services would you prefer to have in hotels in Ho Chi Minh City to enhance your experience? *

	Not at all interested	Slightly interested	Somewhat interested	Very interested	Extremely interested	No opinion
Cleaning robots for	○	○	○	○	○	○

	Not at all interested	Slightly interested	Somewhat interested	Very interested	Extremely interested	No opinion
maximum cleanliness						
Self-service machines for checking in and out to reduce waiting lines	○	○	○	○	○	○
Facial recognition to improve safety and security	○	○	○	○	○	○
Chatbots for always-on customer support	○	○	○	○	○	○
Serving robots for quick food and drinks delivery	○	○	○	○	○	○
Porter robots for transferring guests' luggage	○	○	○	○	○	○

13. What would stop you from staying at a hotel that is applying AI technology? *

I'd prefer to interact with human employees
I'd prefer to stay at old traditional hotels
I'd not know how to use it
I'd not have enough money to afford the stay
Nothing would stop me from experiencing AI
It'd feel inconvenient to have interaction with automated machines, robots, etc
Robots, self-services might take the wrong orders from me
Other:

14. Please answer the statements below based on your opinions on Artificial Intelligence (AI) technology *

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	No opinion
Applying AI is a modern trend to follow	○	○	○	○	○	○
AI works more effectively than humans	○	○	○	○	○	○
AI maximizes hygiene and cleanliness of hotel properties such as bed sheets and floors	○	○	○	○	○	○
AI helps shorten waiting time for services	○	○	○	○	○	○
The chance human employees deliver bad services to customers in hotels is higher than that of AI machines	○	○	○	○	○	○

THANK YOU FOR YOUR RESPONSE!