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# Investigating Behavioural Intention toward Adopting Artificial Intelligence Service Robots Technology in Hospitality in China

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**Abstract**
The pandemic accelerated the blooming of service robots in the hospitality industry in recent years in China. The researcher drew upon extended UTAUT2 theory and satisfaction to construct the conceptual framework and spent time on smartphones as mediating and moderating roles. Besides, IBM SPSS and SmartPLS were conducted to analyse the collected data with 310 valid responses through questionnaires. The results of this study contributed practical insights for relevant governmental departments and hotel operators as well as restaurant managers in their decision-making on whether to adopt AI unmanned services in the hospitality industry in China.

Keywords: Hospitality Industry; Service Robots; Artificial Intelligence; Behavioural Intention.


DOI:

## 1.0 Introduction

With the COVID-19 pandemic continuously affecting people's lives, Artificial intelligence (AI) has been broadly conducted in the hospitality feild from 2019 to 2023 to sustain a safe distance. It profoundly changes and reshapes tourists' and businesses' behaviours and experiences (Li et al., 2022). Indeed, Adopting AI technologies enhances the quality of service while increasing management ability and efficiency, saving costs, and creating a competitive competence (Lukanova & Ilieva, 2019). Nonetheless, aligned with the economy of China entering a deflationary state and rising per capita wages make it difficult for the hospitality industry to maintain its current profitability. Therefore, this paper utilised UTAUT2, and the mediating variable satisfaction, as well as the moderating variable, spent time on the smartphone to investigate the acceptance of consumers to AI technology in China, whether their behavioural intention tendencies to AI services and determining whether the hospitality industry should continue to invest the relevant equipment as well.

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*1.1 Problem of Study*

Despite that, nearly 72 relevant journals' previous research was involved in the scope of AI in the hospitality industry (Doborjeh, et al., 2021). As presented in Table 1. Most of them have focused on investigating the impact of the widespread AI technologies on hospitality during the COVID-19 pandemic or paying more attention to the algorithms and performances associated with AI (Doborjeh et al., 2021). Limited studies involved time spent on smartphones and satisfaction as the moderating and mediating roles to reveal customers' behavioural intentions in the AI hospitality industry

Table 1. The relevant published papers from the top A* and related to AI in hospitality from 2010 to 2021

| Journals | Publishers | Selected | Rating |
|---|---|---|---|
| Cornell Hospitality Quarterly | Sage Publications | 2 | A |
| International Journal of Contemporary Hospitality Management | Emerald Group Publishing | 50 | A |
| International Journal of Hospitality Management | Elsevier | 6 | A* |
| Journal of Hospitality and Tourism Research | Sage Publications | 4 | A |
| Journal of Hospitality and Tourism Technology | Emerald Insight | 10 | A* |

*1.2 Objectives of Study*

Big Data and artificial intelligence have become the most cutting-edge tools, guaranteeing the streamline of customer service and keeping the excellent quality of employees. This research investigates the factor of Artificial intelligence influencing the customer's intention to use AI in the hospitality industry in China. In addition, this study identifies the impact of satisfaction as a moderating variable to reveal customer's intention to use AI devices. Moreover, according to Hus and Peng (2022), spending time on smartphones can represent a person's acceptance of new technologies. Therefore, this study explores the effect of both time spent on smartphones as a the moderating role of, and the mediating role of satisfaction between the extended version of UTAUT2 theory and the intention to adopt AI robotic technology in the hospitality industry in China.

## 2.0 Literature Review

In order to avoid the spread of the virus between service staff and customers during COVID-19, many companies have conducted artificial intelligence (AI) robots to provide contactless services (Kim et al., 2021a; Pelau et al.,2021). The benefits of intelligent services for waiting in line to pay with the risk of COVID-19 can attract consumers and guarantee employee safety (Hongye, 2020). Therefore, In March 2020, the Standing Committee of the Political Bureau of the Central Committee of the Communist Party of China (CPC) held a meeting to propose that developing new infrastructure centred on big data and artificial intelligence will help the hotel industry transform an ungrade. After the pandemic, the hotel industry will pay more attention to integrating and developing multiple business modes to enhance the hotel industry's anti-risk (State Administration of Market Supervision and Administration (SACMA), 2019). Under this policy support, AI devices have widely combined the big data run in an increasing number of luxury Chinese hotels, such as Hilton Flyzoo, (Jia, 2020., Qingyun, 2021).

*2.1 The Unified Theory of Acceptance and Use of Technology (UTAUT2)*

As the aforementioned in the study objectives, the extended version theory of UTAUT2 was conducted in this study. Venkatesh et al. (2016) claim UTAUT with the combination of eight influential constructs for individual adaptation of newly developed IT tools, which has been widely used to explain technological adoption from the customers' perspective in the tourism and hospitality industry. There are four primary constructs, including performance expectations, effort expectation, social influence, and facilitating conditions for acceptance of new technology behaviour from the UTAUT theory, which is based on the original theory TAM model. Except for the variables mentioned above, two new constructs, price-saving orientation and time-saving orientation, were mentioned in the extended version of UTAUT2 in order to disclose the relationship between customer satisfaction and intention to use the AI technology (Yeo et al., 2017) since there are limited relevant theses in the context of the hospitality industry through the smartphone.

*2.2 Performance Expectancy*

Venkatesh et al. (2003) declaimed that performance expectancy is the expectation of customers to help them improve their job performance. Therefore, individuals would like to attempt to use new technologies when they consider it is beneficial to their job performance, which is consistent with previous literature by (Shaikh et al., 2018), where the performance expectancy of the hospitality field anticipated a significant effect on satisfaction and intention to use. In this study, performance expectancy to explore consumer's intention to use artificial intelligence technology in hospitality. Nonetheless, this study needs to find more findings of the relationship. Therefore, the hypothesis was proposed that:

H1: Performance expectancy significantly influences behaviour intention toward the AI-adopting hospitality industry in China.

*2.3 Effort Expectancy*

Venkatesh et al. (2003) posit that anticipated workload refers to the usability of a system during its utilization. In the given context, it pertains to the usability of artificial intelligence within the hotel industry. While interacting with AI-based hotel services, end-users Effort Expectancy (EE) appears to be implied in most instances. If these expectations are met at a different level than consumers anticipate (Wirtz et al., 2019), or if a substantial amount of effort is required, it can pose a barrier. Consequently, the objective is to cultivate an optimistic perception of the "ease of use" among users (Venkatesh et al., 2003). Prior research has indicated that confidence in one's ability to navigate technological systems significantly influences the intention to use such systems, directly impacting technology adoption (Fridin & Belokopytov, 2014). Therefore, based on this, it is hypothesised that:

H2: Effort expectancy significantly influences behaviour intention toward the AI-adopting hospitality industry in China.

*2.4 Facilitating Conditions*

Facilitating conditions can be defined as an individual's degree of belief in the availability of organisational support and technological infrastructure to assist system uses, which are referred to as educational, training, infrastructure, and service platform support for the use of new technology and other resources for technology users (Venkatesh et al., 2003, 2012). Resources such as equipment, software, Internet access, and skills are needed to use new technology. For example, customers of the Internet who want to order online need smartphones, subscriptions to online data services, and phone operation skills. A hypothesis supporting the relationship is as follows.

H3: Facilitating conditions significantly influence behaviour intention toward the AI-adopting hospitality industry in China.

*2.5 Social influences*

Social influence refers to the extent to which individuals perceive the opinions of others as necessary to influence their behaviour in adopting a new system (Venkatesh et al., 2003). Furthermore, social influence reflects how peers' viewpoints might impact individuals' perceptions of a program or technology. The higher the perceived value of adopting emerging technologies, systems, or facilities among peers, the more likely they are to embrace it (Lee et al., 2017). Given the limited research on AI robots in hospitality, the researcher proposed that:

H4: Social influence significantly influences behaviour intention toward the AI-adopting hospitality industry in China.

*2.6 Price-Saving Orientation*

Price-saving orientation refers to the economic benefits of technology, as it allows individuals to acquire goods or services at lower prices. People use various applications and websites to compare prices. Enterprises capable of offering lower prices are considered more efficient platforms (Yeo et al., 2017). Such discounts or promotions attract price-sensitive customers who prefer avenues that offer the most value for their money. Customers' cost-saving practices are evaluated based on service quality; buyers and sellers actively engage in agreements utilizing artificial intelligence technology. Hence, the hypothesis in this study is that:

H5: Price-saving orientation significantly influences behaviour intention toward the AI-adopting hospitality industry in China.

*2.7 Time-saving orientation*

The time-saving orientation indicates that individuals consistently aim to save time when it comes to online shopping. A previous study found that people find shopping in physical stores more challenging due to changes in customer lifestyles. Therefore, the research establishes a connection between time-saving orientation and customers' attitudes and intentions to use artificial intelligence systems (Yeo et al., 2017). This study defines time-saving orientation as individuals perceiving technological infrastructure that enables the use of AI service robots as supportive services. Hence, the hypothesis in this study is that: time-saving orientation is defined as individuals perceiving technological infrastructure that enables the use of AI service robots as supportive services. Hence, the hypothesis in this study is that:

H6: Time-saving orientation significantly influences behaviour intention toward the AI-adopting hospitality industry in China.

*2.8 The moderating role of spent time on smartphones*

According to Taiwanese Research, people there are highly technically skilled and have few technology-related worries. In Taiwan, a considerable portion of senior people, or 96%, have been using mobile phones for an average of 11 years, according to Research by Hsu and Peng (2022). This Research shows that people in Taiwan have a generally optimistic perspective and solid technological aptitude. This underlines how crucial it is to consider the distinct views and capacities of the population when developing and putting into practice projects and services involving AI technology. Hence, the following hypothesis in this study is that:

H:7 Spent time on smartphones significantly influences behaviour intention toward the AI-adopting hospitality industry in China.
H7a: There is a moderating role of spent time on smartphones between performance expectancy and behaviour intention toward the AI-adopting hospitality industry in China.
H7b: There is a moderating role of spent time on smartphones between effort expectancy and behaviour intention toward the AI-adopting hospitality industry in China.
H7c: There is a moderating role of spent time on smartphones between social influence and behaviour intention toward the AI-adopting hospitality industry in China.
H7d: There is a moderating role of spent time on smartphones between price-saving and behaviour intention toward the AI-adopting hospitality industry in China.
H7e: There is a moderating role of spent time on smartphones between time-saving orientation and behaviour intention toward the AI-adopting hospitality industry in China.
H7f: There is a moderating role of spent time on smartphones between facilitating conditions and behaviour intention toward the AI-adopting hospitality industry in China.

*2.9 Customer Satisfaction Theory (CST)*
In addition, customer satisfaction theory (CST) can be defined as the extent to which a client's wants, expectations, and wishes are met through their interactions with a product, service, or organisation; AI-adopting robot service is also a crucial factor in the famous of every hotel in the hospitality field and has been wide-ranging studied and discussed in many of years due to its increasing importance to operators (Volles, & Ferrari, 2017;).in conclusion, the theory of UTAUT2 and the customer satisfaction theory were integrated to develop the hypotheses and research model in this study.

*2.10 The mediator role of satisfaction*
According to Chotigo & Kadono (2022), High customer satisfaction theory is crucial in reducing a company's operating costs in the long run. When customers are satisfied with a company's products or services, they are likelier to remain loyal and continue doing business with it. This loyalty eliminates the need for additional efforts and resources to acquire new customers, which can be expensive and time-consuming. Therefore, the hypothesis in this study is that:

H8: Satisfaction significantly influences behaviour intention in the AI-adopting hospitality industry in China.
H8a: There is a mediating role of satisfaction between performance expectancy and behaviour intention toward the AI-adopting hospitality industry in China.
H8b: There is a mediating role of satisfaction between effort expectancy and behaviour intention toward the AI-adopting hospitality industry in China.
H8c: There is a mediating role of satisfaction between social influence and behaviour intention toward the AI-adopting hospitality industry in China.
H8d: There is a mediating role of satisfaction between price-saving and behaviour intention toward the AI-adopting hospitality industry in China.
H8e: There is a mediating role of satisfaction between time-saving orientation and behaviour intention toward the AI-adopting hospitality industry in China.
H8f: There is a mediating role of satisfaction between facilitating conditions and behaviour intention toward the AI-adopting hospitality industry in China.

Building upon the aforementioned academic review, guided by existing theories and empirical evidence, this study proposes the following research framework and its direct causal pathways (Figure 1).

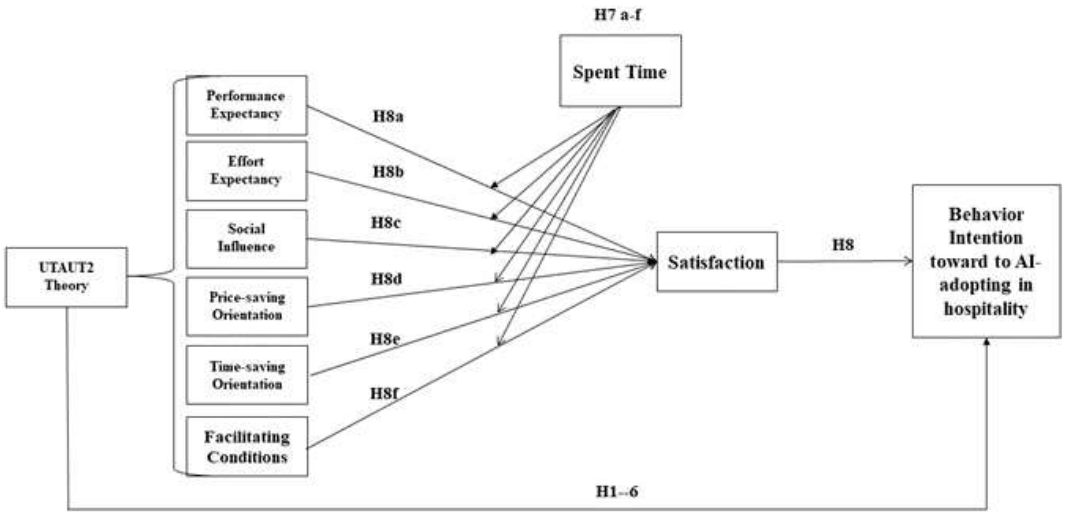


*Fig. 1: Research Framework*
*(Source: Author)*

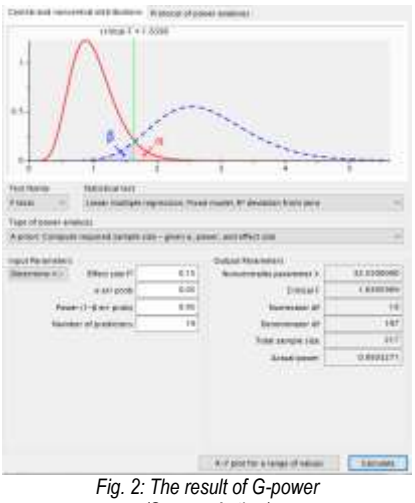

*Fig. 2: The result of G-power*
*(Source: Author)*

## 3.0 Methodology

The sample size derived from applying the G-power analysis was 217, as illustrated in Figure 2. Theoretically, a sample size exceeding 217 respondents is justifiable. Subsequently, an online questionnaire was administered to 349 respondents through sojump.com, resulting in 310 valid responses, all Chinese participants. Furthermore, a pilot test was conducted, with Cronbach's Alpha indicating the acceptability of all instruments, ranging from [specific range not provided]. Data was analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM). As depicted in Table 2, nine constructs were identified: performance expectancy, effort expectancy, social influence, facilitating conditions, price-saving orientation, time-saving orientation, spent Time on smartphones, satisfaction, and behaviour intention toward AI advertising in the hospitality industry.

Table 2. Constructs and their related studies

| Constructs | | Studies |
|---|---|---|
| i ) | Performance Expectancy | Venkatesh et al., (2003)； Palau-Saumell et al. (2019)； Suk Won et al. (2019) |
| ii ) | Effort Expectancy | Venkatesh et al., (2003)； Palau-Saumell et al.(2019)： |
| iii ) | Social Influence | Venkatesh et al., (2003)； Palau-Saumell et al.(2019)： |
| iv) | Facilitating Conditions | Venkatesh et al., (2003)： |
| v) | Price-saving orientation | Escobar-Rodríguez and Carvajal-Trujillo, (2013) |
| vi) | Time-saving orientation | Alreck and Settle, (2002)； |

| | | |
|---|---|---|
| VII) | Spent Time on smartphone | Hsu & Peng，(2021)； |
| VIII) | Satisifcationn | Anderson and Srinivasan (2003); Wang, Tseng et al. (2019); Lee and Chung (2009) |
| IX) | Behaviour Intention Toward to AI-adopting in hospitality | Venkatesh et al.,( 2003) |

*(Source: Author)*

*3.1 Demographic Profile*

As Table 3 illustrates, the proportion of respondents of different genders is similar, with the majority being employed white-collar professionals. Regarding income, most of the respondents' income falls within the range of 4000 to 5000 yuan. Eventually, the majority number of respondents are from a degree education level.

Table 3. Constructs and their related studies

| Variables | Frequency(%) |
|---|---|
| Male | 162 (52.3) |
| Female | 148 ( 47.7 ) |
| **2) Occupational status：** | |
| Student | 65（21.0） |
| White collar | 230 (74.2) |
| Self-employed | 15 (4.8) |
| **3) Income Level:** | |
| RMB 1000-2000 | 25 (8.1) |
| RMB 2000-3000 | 40 (12.9) |
| RMB 3000-4000 | 79 (25.5) |
| RMB 4000-5000 | 92 (29.7） |
| RMB 5000-6000 | 64 （20.6） |
| above 6000 | 10 （3.2） |
| **4) What is your education level?** | |
| College diploma | 84 (27.1) |
| Degree | 145 (46.8) |
| Master | 61 (19.7) |
| Doctor | 20 (6.5) |

*(Source: Author)*

## 4.0 Findings

As depicted in Table 4, the data showed that without the item of spent Time, all other items except one have good loadings ranging from 0.645 to 0.915 with composite reliability of 0.634 to 0.917 for the constructs. The constructs' average extracted (AVE) is higher than 0.75, showing an acceptable validity for the constructs.

Table 4： Results of measurement items

| Model Construct | Measurement Item | Loading | CR | AVE |
|---|---|---|---|---|
| Performance Expectancy | 1. I find that AI and robotics technology in the hotel is useful when ordering for food and beverage. | 0.907 | 0.919 | 0.804 |
| | 2. I believe that using AI and robotics technology in hospitality industry can help me to order food and beverage more quickly. | 0.890 | | |
| | 3. I believe that using AI and robotics technology in hotel improve my productivit-y when ordering for food. | 0.901 | | |
| | 4. Using AI and robotics technology enable me to accomplish the purchasing of food and beverage more quickly. | 0.889 | | |
| Effort Expectancy | 1. I believe that learning how to use AI and robotics technology in the hotel is easy. | 0.913 | 0.924 | 0.814 |
| | 2. I believe that my interaction with AI and robotics technology is clear and understandable. | 0.899 | | |
| | 3. I find that AI and robotics technology in the hotel easy to use. | 0.890 | | |

| | | | | |
|---|---|---|---|---|
| | 4. I believe it is easy for me to become skillful at using AI and robotics in the hotel. | 0.907 | | |
| Social Influence | 1: I believe that many people use AI and robotic technology in the hotel. | 0.869 | 0.909 | 0.733 |
| | 2: I believe that many people express their desire to use AI and robotic technology in the hotel. | 0.858 | | |
| | 3: I believe that many people search or order services using AI and robotic technology in hospitality industry. | 0.863 | | |
| | 4: People who influence my behavior think that I should use AI and robotic technology for purchasing food in hospitality. | 0.840 | | |
| | 5: People whose opinions I value prefer that I use AI and roboI can install the AI and robotic technology app on my smartphone or tablet technology for pu-rchasing food in hotel. | 0.850 | | |
| Price-saving Orientation | 1: AI and robotic technology offers better value for my money in hotel. | 0.893 | 0.840 | 0.756 |
| | 2: I would like to search for cheap food deals using unmanned AI or robotic techn-ology service in the restaurant of the hotel. | 0.856 | | |
| | 3: Using AI and robotic technology is reasonably priced to order. | 0.858 | | |
| Time-saving Orientation | 1. I believe that using AI and robotic technology is very useful in the hospitality service. | 0.883 | 0.886 | 0.746 |
| | 2. I believe that using AI and robotic technology helps me accomplish things more quickly in the purchasing process. | 0.851 | | |
| | 3. I believe that I can save time by using AI and robotic technology service in the purchasing process. | 0.865 | | |
| | 4. it is important for me that the purchase process is done as quickly as possible using AI and robotic technology. | 0.855 | | |
| Facilitating Conditions | 1. I can install the AI and robotic technology app on my smartphone or tablet. | 0.854 | 0.896 | 0.705 |
| | 2. I can easily get knowledge about using the AI and robotic technology app | 0.829 | | |
| | 3 I got technology technical support for AI and robotic technology app. | 0.815 | | |
| | 4. When I have a problem using the AI and robotic technology app in hotel, it is easy to find someone who can help me. | 0.833 | | |
| | 5. it is important for me that the purchase process is done as quickly as possible using AI and robotic technology. | 0.867 | | |
| Spent time | 1. Daily smartphone or tablet use | 1.000 | 1.000 | 1.000 |
| Satisfaction | 1. My overall experience of AI and robotic technology use was very satisfied | 0.904 | 0.907 | 0.782 |
| | 2. My overall experience of AI and robotic technology was very pleased. | 0.879 | | |
| | 3. My overall experience of AI and robotic technology use was absolutely delighted. | 0.881 | | |
| | 4. My overall experience of AI and robotic technology use was very contented. | 0.873 | | |

*(Source: Author)*

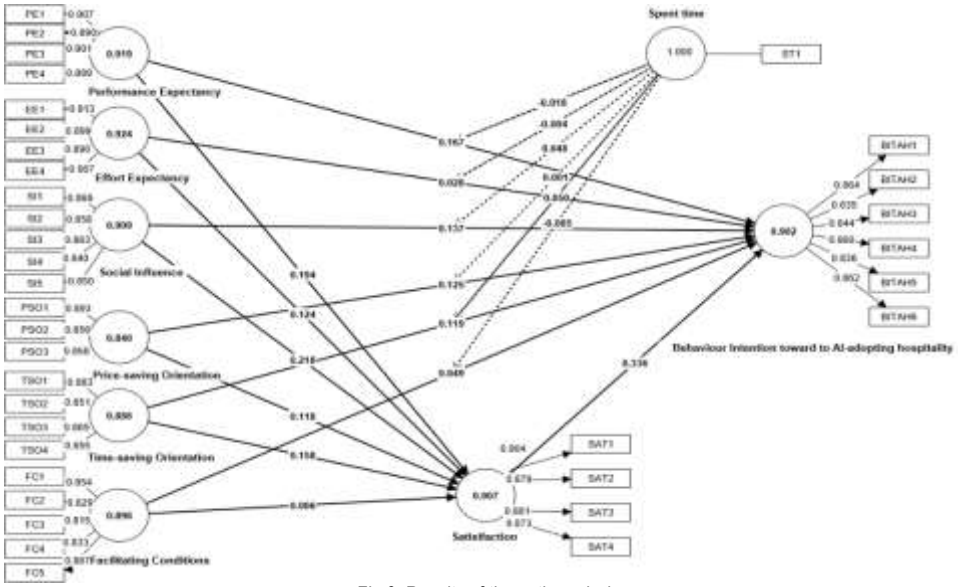


*Fig.3: Results of the path analysis*
*(Source: Author)*

In the above Figure 3, the results of the path analysis for performance expectancy (PE1-PE4), effort expectancy (EE1-EE4), social influence (SI1-SI5), price-saving orientation (PSO1-PSO3), time-saving orientation (TSO1-4), facilitating conditions (FC1-5) towards behaviour intention towards to AI-adopting in hospitality (BITAH1-6) is 0.902 whereas satisfaction (SAT1-4) is 0.907 which is similar the BITAH effect. The model can explain 90.7% satisfaction in China with 90.2% of the BITAH effect.

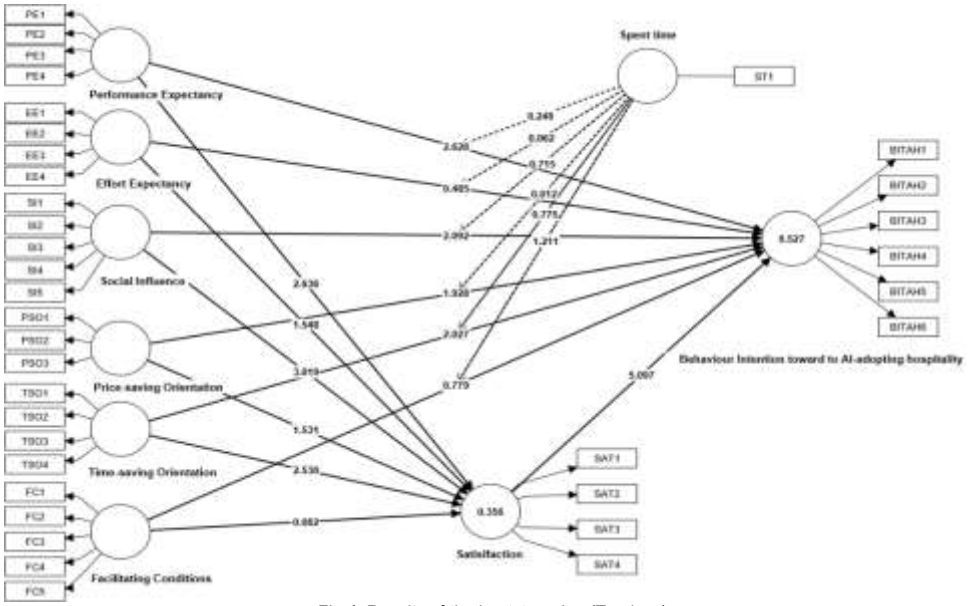


*Fig.4: Results of the bootstrapping (T-values)*
*(Source: Author)*

As Figure 4 illustrates that the bootstrapping results show the T-values of the moderating effect of spent time, performance expectancy (PE1-PE4), effort expectancy (EE1-EE4), social influence (SI1-SI5), price-saving orientation (PSO1-PSO3), time-saving orientation (TSO1-4), facilitating conditions (FC1-5) towards behaviour intention towards to AI-adopting in hospitality (BITAH1-6) and the mediating effect of satisfaction (SAT 1-4) towards BITAH in China.

Table 5 Results of hypothesis testing

| Hypothesis | Relationship | T-statistics | P-values | Results |
|---|---|---|---|---|
| H1 | Performance expectancy -> BITAHI | 2.628 | 0.009 | Accpeted |
| H2 | Effort expectancy -> BITAHI | 0.485 | 0.628 | Rejected |
| H3 | Facilitating conditions -> BITAHI | 0.779 | 0.436 | Rejected |
| H4 | Social influence -> BITAHI | 2.092 | 0.036 | Accpeted |
| H5 | Price-saving orientation -> BITAHI | 1.928 | 0.054 | Rejected |
| H6 | Time-saving orientation -> BITAHI | 2.027 | 0.043 | Accepted |
| H7 | Spent time on smartphone -> BITAHI | 0.053 | 0.197 | Rejected |
| H7a | Performance expectancy -> Spent time on smartphone -> BITAHI | 0.248 | 0.804 | Rejected |
| H7b | Effort expectancy ->Spent time on smartphone -> BITAHI | 0.062 | 0.951 | Rejected |
| H7c | Social influences->Spent time on smartphone -> BITAHI | 0.715 | 0.475 | Rejected |
| H7d | Time-saving orientation->Spent time on smartphone -> BITAHI | 0.775 | 0.438 | Rejected |
| H7e | Price-saving orientation->Spent time on smartphone -> BITAHI | 0.012 | 0.990 | Rejected |
| H7f | Facilitating conditions->Spent time on smartphone -> BITAHI | 1.211 | 0.226 | Rejected |
| H8 | Satification -> BITAHI | 5.097 | 0.000 | Accepted |
| H8a | Performance expectancy -> Satification -> BITAHI | 2.383 | 0.017 | Accepted |
| H8b | Effort expectancy -> Satification -> BITAHI | 1.451 | 1.451 | Rejected |
| H8c | Social influences->Satification -> BITAHI | 2.652 | 0.008 | Accepted |
| H8d | Price-saving orientation->Satification -> BITAHI | 1.413 | 0.158 | Accepted |
| H8e | Time-saving orientation->Satification -> BITAHI | 2.271 | 0.023 | Accepted |
| H8f | Facilitating conditions->Satification -> BITAHI | 0.081 | 0.936 | Rejected |

*(Source: Author)*

## 5.0 Discussion & Recommendations

The findings show that performance expectancy, social influence, and time-saving orientation are significantly related to behaviour intention towards AI adoption in hospitality. However, when these dimensions are moderated by spent time on a smartphone, the dependent variable BITAHI does not show a significant relationship with these constructs. This implies that smartphone time usage for customers is irrelevant to their behaviour and intention to use AI devices in the research field. Such findings do not align with Hsu and Peng's (2022) claim that spending time on smartphones moderates the relationship between PE, SI, FC and behaviour intention to adopt AI technology. Moreover, the findings support Alalwan, A.A.(2020) assertions that e-satisfaction as a mediating role of satisfaction affects the relationship between PE, PSO, FC and behaviour intention to continue using AI technology. This study proves the importance of customers' satisfaction when they want to go to a cost-effective AI hotel that is well-publicised, and they can easily use the well-equipment AI-robotic technology.

## 6.0 Conclusion & Recommendations

The findings show that performance expectancy, social influence, and time-saving orientation are significantly related to behaviour intention towards AI adoption in hospitality. However, when these dimensions are moderated by spent time on a smartphone, the dependent variable BITAHI does not show a significant relationship with these constructs. This implies that smartphone time usage for customers is irrelevant to their behaviour and intention to use AI devices in the research field. Such findings do not align with Hsu and Peng's (2022) claim that spending time on smartphones moderates the relationship between PE, SI, FC and behaviour intention to adopt AI technology. Moreover, the findings support Alalwan, A.A.(2020) assertions that e-satisfaction as a mediating role of satisfaction affects the relationship between PE, PSO, FC and behaviour intention to continue using AI technology. By conclusion, this study achieved the research objectives of the study, namely investigating whether there is a significant moderating role of satisfaction between customers' performance expectancy, price-saving orientation, and facilitation conditions on behavioural Intention of Artificial Intelligence Service Robots in the Hospitality in China. Policymakers and hospitality managers should focus on the upgrade of devices and robotic technology and invest more funds in relevant advertising.

## 7.0 Suggestion for future research

The limitation of this study is the limited time to collect the demographic factors only in the metropolises of provinces in China, which might influence the outcome of the Research. Furthermore, the quantitative data collection in this study is limited, requiring greater explanatory power to unveil the outcomes. Additionally, due to resource constraints, this study does not encompass control variables, and the reliability of the findings cannot be guaranteed in multiple circumstances. It is recommended that future research should consider more variables mentioned in other theories, such as Technology Readiness Theories.

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**Paper Contribution to related Field of study**

Operator within the hotel industry should concentrate on implementing artificial intelligence-driven robotic services in guests' accommodations, a critical factor for achieving profitability in the context of Industry 4.0's sustainable development. This investigation into the behavioural intention of the hotel industry to adopt AI services and customer satisfaction regarding their time spent in China serves as a valuable study for academic scholars. Eventually, these findings contribute to the discovery of the significant relationship between the variables of UTAUT2, and the moderating role spent time towards the BITAH in China.

(3013 words)

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