The Influence of In-Room Technology Amenities on Hotel Guest Preferences when Choosing a Hotel in Thailand

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Hotel guests nowadays always demand technological amenities such as before travelling, during travelling and after their stay in a hotel. The guests' expectations have been increasing rapidly due to high competition and availability of information. Hotel guests want technology in the hotel room during their stay, in the same way as they enjoy technology at home. Therefore, it is important for hotel management to know guests' preferences in terms of hotel technological amenities. This study aims to examine the overall importance of in-room technology amenities on three types of technology usage, such as travellers with high, medium and low levels of technology usage and guests' preferences when choosing the hotel. Around 1000 Thai residents were selected a national database company. They provided an email address which was then chosen randomly. Out of the 1000 emailed questionnaires, 408 respondents replied and these were used for further analysis. In order to conduct the analysis, this study used Statistical Packages for Social Sciences (SPSS) version 24. Findings from this study showed that high definition music systems, internet devices and in-room fitness have a significant influence on guests' future hotel preferences.

**Key words:** *Guest experience, In-room technologies, Guest Preferences.*

Introduction

This study aims to discover the perceived importance and satisfaction levels of hotel amenities (Jermsittiparsert, Joemsittiprasert, & Phonwattana, 2019), especially for in-room technology by both business and leisure visitors. In-room technology is very important for both business and leisure travellers. The demand for in-room technology is increasing and

developing at a rapid pace (Brochado, Rita, & Margarido, 2016). To gain a competitive advantage, hoteliers are providing improved in-room technological amenities to differentiate themselves in a competitive marketplace. In-room technology helps visitors to enhance the guest experience for example using technology, visitors can modify the colours, smells sounds and overall ambience of the room. In-room technology could be the significant influential factor for overall satisfaction and could be the direct determinant of the visitors' future behaviours, such as revisiting the hotel (Kansakar, Munir, & Shabani, 2019). Hoteliers can provide high-quality personalised service through proper use of in-room technology. It was found that for visitors the third most important amenity in a hotel was in-room technological facilities, after the bathroom and bedroom facilities. The study also confirmed that among the in-room technologies, Wi-Fi is the handiest hotel amenity rated by visitors. Therefore, many hotels provide up-to-date technology in the room as they directly influence overall satisfaction and ultimately effect tourists' future purchase behaviour. This advanced technology also provides opportunities for the hoteliers to earn additional revenue. By applying a revenue management strategy, hoteliers may offer the technological amenities with some special rates, either by charging directly for the technology or charging indirectly through the accommodation cost, during their stay at the hotel (Islam & Patwary, 2013).

To improve the quality of a hotel's image, it is essential for hoteliers to keep up to date with the latest in-room technological facilities (Šeric, Gil-Saura, & Mollá-Descals, 2016). Some scholars stated that in-room technological innovation becomes the biggest contributor to enhance the customer experience. Updating in-room technology is normally expensive and therefore hoteliers need to decide on the level of investment for providing in-room technological facilities.

Figure 1 Guest Preferences for Technology Use in Hotel Industry in 2015
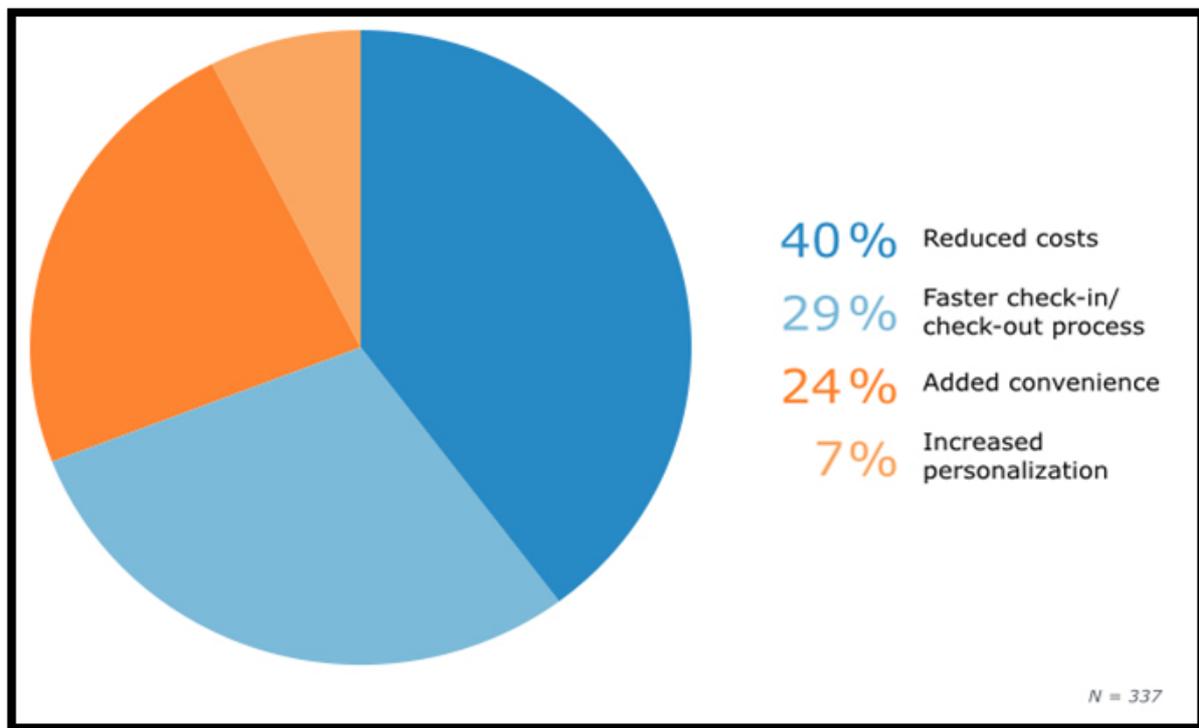
Source: www.softwareadvice.com

According to Figure 1, consumers think that the technology hotels use to provide services, such as check-in kiosks, should benefit them. Among our respondents, 40% said that reducing costs should be the primary benefit. Just behind safety and security, price is the next key factor that influences a traveller's decisions.

Besides, hoteliers might understand that all visitors may not require expensive in-room technological amenities (Chevers & Spencer, 2017). Therefore, deciding on this investment for hoteliers is another challenge. For any successful business, hoteliers should understand: how customers perceive products provided; the importance of providing the products or services; and the products performance (Zheng, Chen McCain, Lolli, & Ting, 2019). Another important factor is the financial value of providing any products in this competitive market. In the competitive lodging industry, hoteliers must evaluate the weakness, strength, importance, and performance of any products before they offer them to the customers. It is a well-established fact that technological amenities provide significant impacts on the guest' overall satisfaction level. There are many types of technological amenities that play an important role in selecting and returning back to a hotel.

More importantly, both business and leisure visitors place importance of technological amenities in selecting the hotel for their stay (Buhring, O'Mahony, & Dalrymple, 2015).

Between business and leisure travellers, business travellers have a higher need for in-room technology compared to leisure travellers. Given this fact, business traveller might often depend on the proximity and availability of technologies. Therefore, this study formulates the question of how are leisure visitors different or similar to business visitors with regard to use of in-room technology amenities.

Table 1: Hotel Occupancy Rate in Thailand by Location.

Area/Location	Occupancy Rate (%)		
	2014	**2015**	**2016**
Bangkok	67.5	76.3	78.3
Chonburi	69.1	74.8	75.2
Phuket	70.4	73.4	74.1
Petchaburi	63.6	68.9	70.5
Chiang Mai	62.2	66.3	70.0
Suratthani	62.6	66.8	69.1
Rayong	58.7	64.8	67.3
Phuket	60.8	65.7	67.1
Nationwide	**58.9**	**62.2**	**67.8**

Source: Ministry of Tourism and Sports, Thailand

Table 1 shows the hotel occupancy rate in Thailand by location. In 2016 Bangkok had the highest occupancy percentage (78.3%) and second highest was Chonburi (75.2%). In 2015 Bangkok also had the highest occupancy rate (76.3%) and Rayon had the (64.8%). In 2014 Phuket had the highest occupancy rate (70.4%) and Rayong had the lowest (58.7%). The occupancy rate of Thai hotels is increasing.

As shown in Table 1, the hotel industry in Thailand is booming. Occupancy rates are increasing and therefore hotel authorities ought to make sure they are offering the latest innovative services to the guests. Due to advancement of technology, the hotel industry everywhere is increasing its capability to adopt new hotel technologies . There are many hotels in Thailand that have various kinds of technologies. According to the theory of innovation diffusion (IDT), diffusion is the process by which innovation is invented through specific channel over the time between the member of social working system (Soliman, 2016). Therefore, it is most likely that guest satisfaction with in-room technology amenities may differ from customer to customer, as they have different levels of experience. Therefore, this study aims to examine the overall importance of in-room technology amenities on three types of technology usage such as travellers with high, medium and low levels of technology usage and guests' preferences when choosing the hotel.

Literature Review

In the hotel industry, in-room technologies are the most significance way by the customer of US whose are likely to have home-based technologies in hotel rooms and keep pace with the technologies. (Buhalis & Leung, 2018). With the application of advanced technology hoteliers increase and enhance the guests experience (Deros & Deros, 2019), hoteliers will increase revenue and enhance the guest experience with these technology applications.

Hoteliers use advanced technology to add value to its service. By successfully adopting and applying technology, hoteliers can differentiate themselves from other hoteliers, enhance the guest satisfaction and build long-term relationship with their target customers. (Sunny, Patrick, & Rob, 2019). Contemporary travellers always demand technological amenities such as before traveling, during travelling and after their stay in a hotel. For example, customers usually expect and want the same technology in their hotel room as they enjoy at home (Bulchand-Gidumal & Melián-González, 2015). Some of the technological amenities include: high-speed internet; a smartphone check-in system before the trip; and other social media such as comments and special trip pictures, to recall the memories that significantly increased the traveller's experience (Heo & Hyun, 2015). Because of this todays' comfort is tomorrow's standard and prospect (J. Kim, 2016). For example, just a few years ago a camera was added as an additional value-added feature for a cellular telephone. Now most of smartphones have two or three cameras. In the recent development in multimedia technology entertainment give rise to further approval of consumers, and therefore, increases the effect of using technology in hotel room by offerings in hotels (Kucukusta, 2017).

Welcome messages on a high definition television, video games, in-room fitness, video on demand, high-speed internet facilities and interactive TV systems are the most expected and used in-room technological amenities. These days, hoteliers are very widely adopting in-room technologies . For example, a study by Margarido (2015) shows that the majority of hotels provide in-room movies (88%),internet connections both wireless (81%) and wired (97% and VOIP phone (14%). Monahan (2016) found that a Tablet is the second most requested amenity by the customers, as an in-room facility. It also found that a coffee making machine was the first priority as an in-room facility. In-room technologies provide the guest with a customised experiences as well as providing the hotel with a source of revenue. Due to an increased in in-room entertainment products, customers expect many in-room facilities in todays' marketplace (Kazandzhieva, 2018). In such situations, hoteliers face challenges in predicting in-room technology amenities that the customers want (Melián-González & Bulchand-Gidumal, 2016). The present trends suggest that in-room technology amenities impact on the customers satisfaction and will in turn influence a choice of hotel and become their loyal brand, in the completive marketplace (Patwary & Rashid, 2016).

There are few important amenities for the last decades are the free to guest TV and in-room fitness amenities. In the hotel environment, Nintendo and Westin Hotels announced a partnership to provide a gaming environment. The hotel rooms are pre-loaded with popular games and a modified version of gaming console (Stankov & Filimonau, 2019). Many hotels provide hotel guests with in-room fitness amenities. For example: treadmill in Westin Hotels fitness DVDs, resistance bands, stationary bike, dumbbells and stability balls (Law, Chan, & Wang, 2018). Similarly, another the Hyatt Hotel offers a YogaAway program (yoga videos) on the hotel room TV. Likewise, Omni Hotels and Resorts have in-room fitness amenities such as an informative booklet of exercises, an elastic exercise band, two dumbbells and a floor mat. SLS Hotels provide Lifestyle Suites where personal training equipment is available with the choice of more than 200 activities. It could be concluded that the importance of in-room technology may differ between the leisure and business travellers (Chan, Okumus, & Chan, 2017). It could be related to familiarity of various technology by the different guests. In other words, the business and leisure travellers may rate the performance of in-room technology differently.

Due to the affordability and availability of portable technology, travellers always carry their own portable devices during their stay in a hotel (Wu & Cheng, 2018). This is an advantage for the hoteliers who do not have these in-room entertainment facilities. Thus, in turn, travellers themselves are reducing the dissatisfaction when they stay in the hotel (Smith, West, & McDaniel, 2015). However, in terms of the guest categories such as low, high and medium instead of business/leisure travellers, the significance difference found between them (Bharucha & Fukey, 2017). The guests with high level place a greater importance of using the in-room technology compared to the medium and lower level guests. The present findings also indicate that the higher users are considered the leisure travellers, in the use technological sophistication (Spencer & Chevers, 2018). In fact, hoteliers should take note on the changing attitude toward the use of in-room technology adoption. In terms of in-room technological facilities, hoteliers may avoid designing the hotels separately for business and leisure travellers as there is an insignificant difference in their satisfaction level (Padma & Ahn, 2020). More precisely, if hoteliers provide any strategy to provide different in-room technology for different travellers, it would lead to dissatisfaction. A chain hotel beach resort should have the same in-room technology as a downtown property from the same chain.

The ever-changing guest needs are unlimited and therefore hoteliers should not limit their adoption of in-room technology amenities in the present competitive market (Chen, 2015). One of the limitations for this study was not to include some technology amenities such as tablet devices and universal room control such as temperature, lights etc. Future researchers may work on those technological yet to be developed or yet to be in frequent use by the travellers. In line with technology acceptance theory, hoteliers should install user-friendly

technology to better their guests' satisfaction (W. G. Kim, Li, Han, & Kim, 2017). Any other in-room technology implemented may enhance the guest's satisfaction.

In-room technology increases the revenue in different ways. For example, industry research found that the more the guests spend in room the more they spend on dining. In addition to that guests use the pay for use services and products such as drama, TV series, movies etc. (Bogicevic, Bujisic, Bilgihan, Yang, & Cobanoglu, 2017). Therefore hoteliers may increase their revenue by providing various technology amenities offer.. Additionally, hoteliers may increase the room rates with an appropriate technological service according to the guests needs and wants. For example, Stanford Hotel's Hilton Washington Dulles property increased their revenues by up to 80% with an in-room service installation where guests have the option to connect all of their electronic gadgets to a 42-inch HDTV flat screen (Yeboah, 2015).

Technology has become a significant impact factor for tourists in recent years. In other words, with advancement in technology the tourist experience is also changing (Gibbs, Gretzel, & Saltzman, 2016). In fact,, advancement and improvement of technology that is used by the hoteliers is obviously improving the visitors experience, during their stay in hotel, more than ever before. Besides, technology adoption in the hotel industry not only improves the guest experience but also increases the hotel revenue.

Indeed, in the twenty first century, innovative technological amenities in hotels becomes the one of the key differentiators in the competitive marketplace (Chidgey, 2019). In such a situation, hoteliers must understand what types of technological amenities visitors want in the hotel during their travel in Thailand. In addition to the type of technology, hoteliers also need to understand the importance of that technology adoption. In order to remain competitive in the current marketplace, it is important to recognise the visitors' needs and wants in relation to technological amenities.

Traditionally, leisure travellers seek in-room entertainment, while business travellers expect to use the in-room technology in the hotel rooms for their business purposes (Beldona, Schwartz, & Zhang, 2018). Although the reason for using technology in a hotel room differs for leisure and business travellers', they still need and want in-room technology. Therefore, the importance of adopting in-room technology by the hoteliers is mandatory. In the case of business travellers, hoteliers must place a higher importance on high class travellers having technology in their hotel room. The results of this research demonstrate that adopting technology in hotel rooms for both business and leisure travellers are equally important. This could be due to availability and lowers prices for advanced technologies for both the business and leisure travellers. Lower prices and availability of technology is important for every type

of guest because all travellers use the technology in their everyday life (Chung & Chung, 2018). Thus, some hotels have few issues about the cost of technology for their business.

Besides that, during their visit in hotels they also require the technology they use at home. This indicates that the usage of technology is equal for everyone compare to in previous years (Rishi & Joshi, 2016). In the past mostly early adopters used the technology. This observation is supported due to a simultaneously use of in-room technology at home and travel time for both business and leisure visitors with affordable technology. It is further supported by the study's findings that there is no significant difference of their satisfaction between the business and leisure visitors (Hargreaves, 2015). The satisfaction level for business and leisure travellers does differ due to the development of portable electronic entertainment devices.

Methodology

A self-service internet questionnaire system was used for distributing the questionnaire with the five-point Likert scale. This ranges from 1 = not important at all to 5 = very important. The questionnaire measured the perceived importance and perceived satisfaction about hotel room technologies usage. At the end of the questionnaire four questions were asked to learn about their hotel preferences and priorities when choosing a hotel in the future based on its room technology. The online questionnaire used videos and images, with a verbal explanation, of each in-room technology amenity. A pilot test was conducted to understand the efficacy and clarity of the questionnaire. Based on the pilot and following recommendations by the respondents some minor changes were been made to the questionnaire.

From a national database, 1000 Thai travellers were chosen randomly to participate in the survey. A total of 408 respondents were received. In order to qualify, respondents were asked about their experience in a hotel stay in the last 12 months. If any respondent answer with "no they did not stay in hotel in last 12 months" then they were removed from the survey. This left a response rate of only 16.3% as usable data.

Data Analysis and Findings

Table 2: Descriptive Statistics of the Variables.

In Room Technology	N	Minimum	Maximum	Mean	Std. Deviation
Bring your own content (BYOC)	408	1	5	4.25	.621
Free-to-guest (FTG) TV	408	1	5	4.40	.603
Video on demand (VOD)	408	1	5	4.44	.684
High definition (HD) TV	408	1	5	4.03	.963
Promotional video	408	1	5	4.13	.899
Music system	408	1	5	4.20	.927
Video gaming console	408	1	5	3.92	.913
Internet devices	408	1	5	3.80	1.036
Guest device connectivity	408	1	5	3.95	.923
In-room fitness	408	1	5	4.06	.919
Guests' preference to choose the hotel (3 items)	408	1	5	4.32	1.117
Valid N (listwise)	408				

The respondents were asked to give their opinions on in room technologies of the hotel (Table 2). The highest score rated was for video on demand (4.44), followed by free-to-guest (FTG) TV (4.40), guests' preference to choose the hotel (4.32), bring your own content (4.25), music system (4.20), promotional video (4.13), in-room-facilities (4.06), high definition (HD) TV (4.03), guest device connectivity (3.95), video gaming console (3.92) and internet devices (3.80).

Table 3: Descriptive Statistics of ANOVA test

Factors		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Bring your own content (BYOC)	18-25	373	4.26	.629	.033	4.19	4.32
	26-30	27	4.15	.534	.103	3.94	4.36
	35 and above	8	4.38	.518	.183	3.94	4.81
	Total	408	4.25	.621	.031	4.19	4.31
Free-to-guest (FTG) TV	18-25	373	4.40	.604	.031	4.34	4.46
	26-30	27	4.37	.565	.109	4.15	4.59
	35 and above	8	4.38	.744	.263	3.75	5.00
	Total	408	4.40	.603	.030	4.34	4.46
Video on demand (VOD)	18-25	373	4.47	.649	.034	4.40	4.54
	26-30	27	4.19	.879	.169	3.84	4.53
	35 and above	8	3.88	1.126	.398	2.93	4.82
	Total	408	4.44	.684	.034	4.37	4.51
High definition (HD) TV	18-25	373	4.04	.952	.049	3.94	4.13
	26-30	27	4.11	.847	.163	3.78	4.45
	35 and above	8	3.38	1.598	.565	2.04	4.71
	Total	408	4.03	.963	.048	3.94	4.12
Promotional video	18-25	369	4.15	.885	.046	4.06	4.24
	26-30	27	4.07	.997	.192	3.68	4.47
	35 and above	8	3.63	1.188	.420	2.63	4.62
	Total	404	4.13	.899	.045	4.04	4.22
Music system	18-25	371	4.21	.923	.048	4.11	4.30
	26-30	27	4.15	.907	.175	3.79	4.51
	35 and above	8	3.88	1.246	.441	2.83	4.92
	Total	406	4.20	.927	.046	4.11	4.29
Video gaming console	18-25	373	3.91	.886	.046	3.82	4.00
	26-30	27	3.89	1.188	.229	3.42	4.36
	35 and above	8	4.25	1.165	.412	3.28	5.22
	Total	408	3.92	.913	.045	3.83	4.01
Internet devices	18-25	372	3.79	1.032	.054	3.69	3.90
	26-30	27	3.93	1.107	.213	3.49	4.36
	35 and above	8	3.63	1.061	.375	2.74	4.51
	Total	407	3.80	1.036	.051	3.70	3.90

Guest device connectivity	18-25	372	3.97	.915	.047	3.88	4.06
	26-30	27	3.85	.989	.190	3.46	4.24
	35 and above	8	3.50	1.069	.378	2.61	4.39
	Total	407	3.95	.923	.046	3.86	4.04
In-room fitness	18-25	372	4.09	.895	.046	3.99	4.18
	26-30	27	3.74	1.163	.224	3.28	4.20
	35 and above	8	3.88	.991	.350	3.05	4.70
	Total	407	4.06	.919	.046	3.97	4.15

Table 3 shows the mean differences of in room technologies for different age groups. For first hotel amenity "Bring your own content (BYOC)", the highest mean value was for age 31 and above (4.38), followed by 18 to 25 years (4.26) and 26 to 30 years (4.10). In the second amenity "Free-to-guest (FTG) TV", the highest mean value was for age 18 to 25 years (4.40), then 31 and above (4.38) and 26 to 30 years (4.37). For the third amenity "Video on demand (VOD)", the highest mean score was for age 18 to 25 years (4.47), followed by 26 to 30 years (4.19) and 31 and above (3.88). For the fourth amenity "High definition (HD) TV", the highest mean score was for age 26 to 30 years (4.11), then 18 to 25 years (4.04) and 31 and above (3.38). For "promotional video", the highest mean score was for age 18 to 25 years (4.15), then 26 to 30 years (4.07) and 31 and above (3.63). For "Music System", the highest mean score was for age 18 to 25 years (4.21), then 26 to 30 years (4.15) and 31 and above (3.88). For "Video game and console", 31 years and above had the highest mean score (4.25), followed by 18 to 25 years (3.91) and 26 to 30 years (3.89). When the respondents were asked about "Internet devices", 26 to 30 years was the highest mean score (3.93), then 18 to 25 years (3.79) and 31 and above (3.63). For "Guest device connectivity", the highest mean value was for age 18 to 25 years (3.97), then 26 to 30 years (3.85) and 31 and above (3.50). For the last amenity of in "In-room fitness", the highest mean score was for 18 to 25 years (4.09), then 31 years and above (3.88) and 26 to 30 (3.74).

Multiple Regression Analysis

Table 4: Summary of Multiple Regression Analysis for the influence of in room technology on guest preferences.

Variable	Coefficients	Standard Error	t-value	p value
Bring your own content (BYOC)	.008	.022	.391	.696
Free-to-guest (FTG) TV	.037	.021	1.721	.086
Video on demand (VOD)	.025	.019	1.352	.177
High definition (HD) TV	.137	.038	3.575	.000
Promotional video	.024	.036	.673	.501
Music system	.040	.018	2.226	.027
Video gaming console	-.001	.044	-.030	.976
Internet devices	.096	.040	2.415	.016
Guest device connectivity	.070	.049	1.429	.154
In-room fitness	.250	.018	13.616	.000
R^2= 0.439; F= 29.847 **Sig. = 0.000**				

Multiple regression analysis was conducted to examine the influence of independent variables on dependent variables. In this study independent variables are in-room technologies and the dependent variable is the guests' preferences to choose that hotel in the future. As shown in the multiple regression analysis summary (Table 4), the overall model is significant with independent and dependent variables (p = 0.000). Nonetheless, while investigating the influence of independent variables separately, high definition (p = 0.000), music system (p = 0.027), internet devices (p = 0.016) and in-room fitness (p = 0.000) have significant influence on guests' future preferences for that hotel. However, six independent variables do not have an individual effects on the dependent variable, these are bring your own content (p = 0.696), free to guest TV (0.086), video on demand (p = 0.177), promotional video (p = 0.501), video game console (p = 0.976), and guest device connectivity (p = 0.154). The independent variables in the study explain 43.9% variances on dependent variable (R^2= 0.439).

Conclusion and Implications

In the recent past, visitors had no options to take home technology during their travel to other places. Therefore, travellers were always depending on the technological facilities provided by the hotels. But now a days, with the advancement of technology such as laptops, portable DVD players, tablets and mobile devices, all the travellers have opportunity and are able to

reduce any lack of technological facilities provided by the hotels, as they always carry their own technological facilities.

The overall model of this study is significant with independent and dependent variables. When the influence of independent variables is measured separately, high definition, music system, internet devices and in-room fitness have a significant influence on the guests' future preference for the hotel. However, six independent variables do not have an individual effect on the dependent variable which are bring your own content, free to guest TV, video on demand, promotional video, video game console and guest device connectivity.

Another recommendation from the study findings are that hoteliers should adopt advanced entertainment technology as early as possible. In addition to the advanced technology, they should provide sufficient technological support and service for their guest during their stay. For example, high speed internet access for the guest' laptop and other portable devices such as mobile phones and tablets. This study also suggests that the hotel manager should provide alarm clocks with state-of-the-art speakers and an input device that allows the guest to connect their personal digital music player. Failure to provide the latest technology that guest normally use in daily life, may lead to hotels falling behind their competitors and put them at risk which, in turn, leads to guest dissatisfaction.

Although this study provides some significant findings for the hoteliers, it also has some limitations. This study was conducted in Thailand, however other developing countries may have different attitudes toward technological amenities in hotels. Another limitation of this study was the survey method which was an online questionnaire and therefore could not include guests who do not use email. One more limitation was the low response rate. A bigger response rate would provide different results. This study categorises the guest room prices in line with hotel service level such as economy, midscale, upscale and luxury. Incorporating different price-to-category description may produce significantly different results. Although hoteliers are investing huge amounts money and effort to adopt both in-room entertainment and technology amenities, it may not always result in consistent acceptance and use levels by guests. In addition, it is still lacking the importance guest attributes toward the technological amenities when selecting a hotel. This study evaluates the different customer segments and how they differ their opinions about in-room technology in the hotel industry. This study provides the insightful findings into customer adoption. The findings may suggest the hoteliers use in-room technology manufacturers when evaluating potential products.

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