

INFORMATION SYSTEM DEVELOPMENT OF HOTELS IN MANDALAY

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Abstract

The study intends to identify the information system development, to analyze the effects of information system development on customer satisfaction and operational productivity, and to examine the effects of customer satisfaction and operational productivity on profitability of hotels in Mandalay. To conduct this study, the primary data was collected from thirty-six hotels selected by using simple random sampling method. In March 2019, one respondent who can represent each hotel was asked with structured questionnaire prepared with five-point Likert scale. The secondary data related to the number of hotels located in Mandalay was acquired from the Ministry of Hotels and Tourism. Descriptive statistics is used for identifying the information system development of hotels in Mandalay. It is found that hotels in Mandalay are implementing information system development to many extents. Besides, multiple linear regression analysis is applied for analysis and it is found that marketing, accounting, and human resource information system developments show the negative and significant effect but integrated information system development indicates the positive and significant effect on customer satisfaction. The accounting information system development reveals the negative and significant effect; however, the integrated information system development proves the positive and significant effect on operational productivity. Finally, it is apparent that customer satisfaction describes the positive and significant effect but operational productivity shows the insignificant effect on profitability of hotels in Mandalay.

Keywords: information system development, customer satisfaction, operational productivity, profitability

Introduction

In the continuously changing business world, businesses apply proactive and reactive approaches in order to cope with the challenges and grasp the opportunities occurred in the market. They alter their business strategies by analyzing internal conditions so that they have to meet the requirements of key stakeholders who can influence businesses in some ways. To fulfill their expectations satisfactorily, business managers need to search for the accurate information which is a major resource for making strategic decisions. Accurate and timely information is crucial for making decisions correctly and providing quick responsiveness to the market. Thus, businesses have been recognizing the importance of information and they develop their information systems which are applied in their business process and functions.

Information is mostly required for conducting relationship marketing in hotels through communicating with existing customers to increase customer engagement. With the aid of information technology, hotels develop information systems so that the operations can be run smoothly. Besides, the software developing companies and software developers are supportive to hotels for using hotel management system effectively. As incorporating essential information is crucial for providing services to customers, responding competitors, and communicating with suppliers, information system is required to be systematic. Correspondingly, it is necessitated to initiate using information system and make changes the existing information system for improvement of operations.

To meet customer requirements satisfactorily and competitively, marketers need to inquire accurate information of customers. Offering personalized services to customers can be differentiated comparatively and these can persuade customers to purchase their services and stay loyal. Acquiring customer information exactly is critical for hotels so that they can increase service productivity and reduce extra costs consequently. As the technology is constantly changing, hotels

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are necessary to choose appropriate technology and create information systems to control the whole organization. The systems are required to be updated to cope with the changing conditions of external environments today.

Rationale of the Study

As Mandalay is a place for commercialization and tourist attraction in Myanmar, 226 hotels are situated (Ministry of Hotels and Tourism, 2019) for fulfilling market requirements. The hotels endeavor to keep or reach a position in the market through the use of business strategies in line with the internal and external conditions. They have to look for information concerning with potentials, existing customers, competitors, and suppliers which are included in the service supply chain process. Then, they need to analyze this information in order to create reports which are supportive to decision makers at different management levels respectively. Acquiring the exact information is fruitful for hotels to improve their customer relationship management so that customers become loyal. Besides, they need to inform customers how they are creating additional value such as making online reservation, online enquiry, and online cancellation for customer convenience. Nowadays, information technology can be used as a tool to achieve recognition from potential customers, and to maintain existing customers and attract them to share good experience of using services to the prospective customers. Accordingly, information systems are required to be developed for hotels to deal with a large amount of information.

In the hotel industry, transferring information from one employee to another, one department to other, and the hotel to external stakeholders is required to be effective. The interruption in the linkage among parties might disturb service operation process. Through the process, sharing information among different parties such as customers, tour agencies, travel agencies, employees are compulsory for providing hotel services. Hotels mostly have to deal with the customer complaints occurring due to lack of information and cooperation among employees or departments. From the management viewpoint, the accurate and timely information is supportive for making decisions to respond quickly to the market conditions. To be compatible with the increasing demand of customers and to encounter with high competition among hotels, information systems have to be developed. Thus, the information system development is of particular importance for hotels to achieve their objectives.

Objectives of the Study

The objectives of the study are

- (1) to identify the information system development of hotels,
- (2) to analyze the effects of information system development on customer satisfaction and operational productivity of hotels, and
- (3) to examine the effects of customer satisfaction and operational productivity on profitability of hotels in Mandalay.

Scope of the Study

The study is mainly concerned with identifying information system development, analyzing the effects of information system development on customer satisfaction and operational productivity, and examining the effects of customer satisfaction and operational productivity on profitability. The primary data was collected from 36 hotels in Mandalay with structured questionnaires using five-point Likert scale during March 2019 and the secondary data was collected from the Ministry of Hotels and Tourism.

Research Methods of the Study

To collect the primary data, 36 hotels were selected by using simple random sampling method. The sample represents 15% of total population because there are 226 hotels situated in Mandalay (Ministry of Hotels and Tourism, 2019). Internal consistency is tested by conducting reliability analysis and descriptive statistics was used to calculate the mean values and standard deviations of variables. In addition, multiple regression analysis was applied to prove the effects of information system development on customer satisfaction and operational productivity. Variance Inflation Factor (VIF) is calculated to check the multicollinearity in a set of variables included in the multiple regression analysis.

Literature Review

Hotels have adopted mobile reservation systems (Wang et al., 2016) and mobile interactive technology is offered during customer stay (Zhu & Morosan, 2014). Kaya and Azaltun (2012) highlighted that the internet is used to integrate parties included in the supply chain process of hotels which are crucial for providing better customer service. Ham et al. (2005) discussed the importance of information resources and information technology in the lodging industry and they are crucial for management decisions. Information system and information technology are outsourced for improving services (Ko et al., 2016) and reducing costs for hotels (Espino-Rodriguez & Gil-Padilla, 2005). Applying information technology is supportive for hotels to attain sustainable competitive advantage (Koutroumanis, 2011).

Gilbert et al. (1999) explained that the development of internet is an opportunity to be grasped as a marketing tool for hotels and the hotel industry. Marketing activities are implemented through internet and web with the rapid development of technology nowadays (Khemthong & Roberts, 2006). Information technology is required to do marketing activities and it is of vital importance for sustaining competitive advantage of service organizations (Colgate, 1998). Sääksjärvi et al. (1993) suggested that marketing work processes need to be integrated innovatively by using information system. The marketing information system comprises “the data bank, the model bank, the measurement statistics bank, and the system user interface” (Assmus, 1977). Marketing information system provides benefits of flexibility with market, immediate customer responsiveness, and functional effectiveness (Gounaris et al., 2007).

To improve the quality of information, the accounting systems are computerized and updated in business organizations (Bawab, 2017). Accounting information system is oriented for obtaining and keeping data and information concerning with the matters which have financial impact on organizations (Salehi et al., 2010). Soudani (2012) proved that accounting information system is useful and indicates the significant effect on organizational performance. Nowadays, accountants are demanded to execute accounting information system so that the process is faster than before (Weli, 2015). Mitchell et al. (1997) highlighted the importance of accounting information system development for businesses.

Hotels focus on developing information system and technology for the improvement of employee productivity as well (Siguaw et al., 2000). Computer software for developing human resource information system is available for assisting human resource decisions in practice (Kovach & Cathcart, 1999). Human resource professionals are empowered with the use of information technology for capturing the value of work (Normalini et al., 2012). As human resource information system provides the exact information concerning with profile, punctuality, performance, and compensation, it is helpful for the effectiveness of human resource management activities (Karikari et al., 2015) and profitability of a business (Nawaz, 2013).

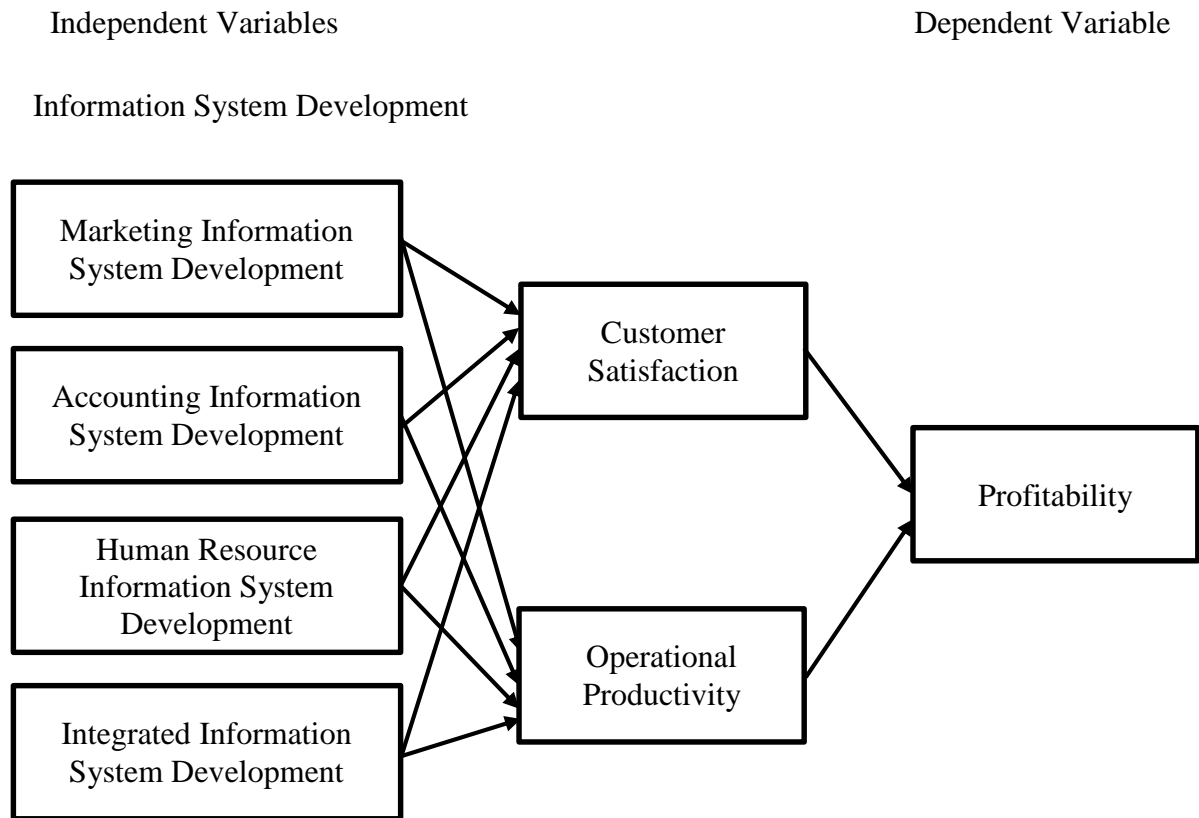
Osama (2011) indicated that room reservation should be integrated with accounting information system and thus it is required to eliminate unnecessary works and work process. The application of information and communication technology is increasing and web-based system and computer are supportive for integrating information throughout the service supply chain process (Šerić & Gil-Saura, 2011). Integrating different systems and developing new applications are done through the use of advanced technology in businesses. For example, the hotel reservation system is integrated with front office system, customer relationship management system and supply chain management system (Xiang et al., 2004).

Law and Jogaratnam (2005) pinpointed that information technology is applied in hotels to improve customer service and increase operational effectiveness. Developing new information system is a kind of deliberate organizational change and it has impact on the organization as a whole. Due to heavy investment in information systems, the outcomes of “operational excellence; new products, services, and business models; customer and supplier intimacy, improved decision making; competitive advantage; and survival” are achieved ((Laudon & Laudon, 2018, p.42). Customer satisfaction and operational productivity are used as measurements of organizational performance (Sirirak et al., 2011).

The intent of using and developing information systems fostering to provide customer services is to increase customer satisfaction through the fulfillment of customer expectations (Grigoroudis & Siskos, 2010). Similarly, Law and Jogaratnam (2005) revealed that customer satisfaction can be improved by applying information technology in hotels. Efficient use of online system is supportive to the significant increment of customer satisfaction in service organization (Vetrievel et al., 2020). As hotels can provide better customer service by promoting information and communication technology in their operations, the accelerated utilization is driven in the hotel industry (Quarshie & Amennumey, 2018).

Embracing and making development of information technology in the hotel industry changes the ways to operate businesses to fulfill the present and possible demands of customers and markets (Law et al., 2013). Data management and property management system are advantageous for developing plans and policies in hotels towards the enhancement of accomplishing business activities and functions internally (Moyeenudin, 2018). Using information technology in hotels provides the experience of increasing operational effectiveness by handling daily operational difficulties (Law & Jogaratnam, 2005). The evidence provided by Bere and Naicker (2014) highlighted the positive and significant impact of using information systems on productivity.

Customer satisfaction shows the significant effect on customer loyalty and profitability of service organizations (Hallowell, 1996). Theories and empirical studies firmly indicate the relationship between customer satisfaction and business performance (Yeung & Ennew, 2011). Vuorinen et al. (1998) discussed that productivity in the service sector needs to be measured with quantity and quality items and proved the relationship with profitability of businesses. Jacobs et al. (2016) advocate that operational productivity is crucial for improving financial performance and eliminating risk.



Source: Own Compilation Based on Previous Studies

Figure 1 Conceptual Framework of the Study

To analyze the effects of information system development on customer satisfaction and operational productivity, marketing information system development, accounting information system development, human resource information system development, and integrated information system development are used as independent variables and customer satisfaction and operational productivity are used as dependent variables. To examine the effects of customer satisfaction and operational productivity on profitability, the customer satisfaction and operational productivity are applied as independent variables and profitability is applied as dependent variable.

Findings

To identify the information system development of hotels, the respondent perception is indicated with the mean values and standard deviations. In addition, the number of items and the Alpha values are depicted to check the internal consistency among variables. As illustrated in Table (1), the Alpha values for all variables are above 0.8 which shows high internal consistency.

Table 1 Reliability Test

Sr.	Variables	Items	Alpha
1	Marketing information system development	5	0.855
3	Accounting information system development	5	0.813
3	Human resource information system development	5	0.852
4	Integrated information system development	5	0.915
5	Customer satisfaction	5	0.842
6	Operational productivity	4	0.833
7	Profitability	4	0.843

Source: Survey Data (March 2019)

The mean value explains the average perception of hotel managers on information system development of hotels in Mandalay and the standard deviation illustrates how much deviates from the mean values. Besides, the mean values and standard deviations for customer satisfaction, operational productivity, and profitability are described in order to realize the performance of hotels.

Table 2 Descriptive Statistics

Sr.	Variables	Mean	SD
1	Marketing information system development	3.36	1.158
3	Accounting information system development	4.16	1.027
3	Human resource information system development	3.00	1.171
4	Integrated information system development	3.51	1.325
5	Customer satisfaction	3.88	0.609
6	Operational productivity	3.40	0.932
7	Profitability	3.47	0.779

Source: Survey Data (March 2019)

To identify the information system development of hotels in Mandalay, marketing information system development, accounting information system development, human resource information system development, and integrated information system development are asked with the agreement level using five-point Likert scale. The standard deviation of each information system development describes above one, it can be deduced that the extent of implementing the development of information system is not similar among hotels included in the sample. As depicted in Table (2), the emphasis on each information system development is different in hotels, Mandalay.

(i) Marketing Information System Development

The finding indicates that the marketing information system development of hotels is above the neutral level. Through the utilization of information technology, they develop marketing information system in order to share information related to the availability of new services and new products through their web page or other platforms. They use the auto reply system for routine

matters but sometimes reply uncommon customer enquiries through interaction with customers. To be responsive to customers immediately, they need to appoint employees who specialize in giving quick feedback and tracing customer information. At present, most hotels probably assign the receptionists to do such tasks and thus this system is not largely developed.

(ii) Accounting Information System Development

Among the information system developments, accounting information system development indicates the maximum mean value which explains focusing largely on it so that internal audit can easily be conducted and it seems to be conscious financial issues in hotels. The hotels do not have difficulties to change or develop the existing accounting software when they have experience in using any accounting software. Thus, it is found that the hotels in Mandalay are developing accounting information systems to control financial conditions which are primarily interested by business owners.

(iii) Human Resource Information System Development

Human resource information system development shows the minimum mean value and it is at the neutral level. It can be inferred that many hotels are using traditional human resource management system without using information technology in practice. To be familiar with the new information system, the hotels need to give effective training to employees so that they can apply confidently. When they consider priorities for immediate execution, time and financial investment hinder the plan for development of such system and thus human resource management information system is developed to some extent.

(iv) Integrated Information System Development

The integration among different parties using information technology is crucial for hotels to provide customized services effectively, however, its mean value shows above the neutral level. In practice, it is difficult to acquire the involvement of every staff in utilizing information system during the service chain process. The initial investment is quite large and the attitude of every party needs to be changed. Therefore, the development of integrated information system can be made to some extent by hotels in Mandalay.

It is prominent that the information system developments of hotels are at and above the neutral according to their mean values. It is thus needed to make additional developments in information systems because of current and future demands in the market.

Table 3 Multiple Regression Analysis of Information System Development and Customer Satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
Constant	4.623	0.372				
Marketing information system development	-0.197***	0.067	-0.374	-2.924	0.006	1.276
Accounting information system development	-0.145*	0.077	-0.245	-1.897	0.067	1.303
Human resource information system development	-0.205***	0.063	-0.395	-3.272	0.003	1.136
Integrated information system development	0.323***	0.056	0.703	5.804	0.000	1.147
R square	0.603					
Adjusted R square	0.552					
F	11.771***					

Note: *** and * show statistical significant at 1% and 10% levels respectively.

Dependent Variable: Customer Satisfaction

Source: Survey Data (March 2019)

Investigating the effects of information system development on customer satisfaction is conducted and the result is described in Table (3). It is found that there is no multicollinearity according to the Variance Inflation Factor (VIF) as shown in the table. The adjusted R square is 0.552 and the predictors have explained 55.2% of the variance in the dependent variable of customer satisfaction. The value of F-test, the overall significance of the model, indicates significance at 1 percent level. According to the multiple regression results, customer satisfaction is 4.623 even if hotels in Mandalay do not develop information system.

The result shows that marketing information system development describes the negative effect on customer satisfaction at 1 percent significant level because the unstandardized coefficient for marketing information system development is -0.197 and p-value is 0.006. It explains that the more the hotels develop marketing information systems, the less the customers are satisfied. When the hotels increase the development of marketing information system by one unit, it tends to decrease customer satisfaction by 0.197 while holding other variables constant.

In addition, accounting information system development also shows the negative effect on customer satisfaction at 10 percent significant level because the unstandardized coefficient for accounting information system development is -0.145 and p-value is 0.067. It infers that the higher the hotels develop accounting information systems, the lower the customers are satisfied. When the hotels increase the development of accounting information system by one unit, it tends to decrease customer satisfaction by 0.145 while holding other variables constant.

Likewise, human resource information system development depicts the negative effect on customer satisfaction at 1 percent significant level because the unstandardized coefficient for human resource information system development is -0.205 and p-value is 0.003. It can be deduced that the greater the hotels develop human resource information systems, the lower the customers are satisfied. When the hotels increase the development of human resource information system by one unit, it tends to decrease customer satisfaction by 0.205 while holding other variables constant.

However, integrated information system development delineates the positive effect on customer satisfaction at 1 percent significant level because the unstandardized coefficient for integrated information system development is 0.323 and p-value is 0.000. It explains that the more the hotels develop integrated information systems, the more the customers are satisfied. When the hotels increase the development of integrated information system by one unit, it tends to increase customer satisfaction by 0.323 while holding other variables constant.

Table 4 Multiple Regression Analysis of Information System Development and Operational Productivity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
Constant	3.679	0.731				
Marketing information system development	0.009	0.132	0.012	0.071	0.944	1.276
Accounting information system development	-0.396**	0.151	-0.436	-2.629	0.013	1.303
Human resource information system development	0.148	0.123	0.186	1.203	0.238	1.136
Integrated information system development	0.253**	0.109	0.360	2.314	0.027	1.147
R square	0.346					
Adjusted R square	0.261					
F	4.094***					

Note: *** and ** shows statistical significant at 1% and 5% levels respectively.

Dependent Variable: Operational Productivity

Source: Survey Data (March 2019)

Examining the effects of information system development on operational productivity is conducted and the result is described in Table (4). It is found that there is no multicollinearity according to the Variance Inflation Factor (VIF) as shown in the table. The adjusted R square is 0.261 and the predictors have explained 26.1% of the variance in the dependent variable of operational productivity. The value of F-test, the overall significance of the model, indicates significant at 1 percent level. According to the multiple regression results, operational productivity is 3.679 even if hotels in Mandalay do not implement the information system development.

The result shows that the insignificant effect of marketing information system development on operational productivity because the unstandardized coefficient for marketing information system development is 0.009 and p-value is 0.944. It can be assumed that the effect of marketing information system development is not apparent currently. In the long-run, it probably has significant effect on operational productivity because marketing is one of business functions supporting the whole operation of a hotel.

The result shows that accounting information system development describes the negative effect on operational productivity at 5 percent significant level because the unstandardized coefficient for accounting information system development is -0.396 and p-value is 0.013. It explains that the more the hotels develop accounting information systems, the less the operational productivity is obtained. When the hotels increase the development of accounting information system by one unit, it tends to decrease operational productivity by 0.396 while holding other variables constant.

The result shows that the insignificant effect of human resource information system development on operational productivity because the unstandardized coefficient for human resource information system development is 0.148 and p-value is 0.238. It can be assumed that the effect of human resource information system development is not apparent currently as it is rarely introduced in all hotels. This development might have some effects on employee absenteeism, employee satisfaction, and employee motivation at present. In the long-run, it probably has significant effect on operational productivity because human resource function is one business function which is helpful to provide customer services satisfactorily in some ways.

Integrated information system development indicates the positive effect on operational productivity at 5 percent significant level because the unstandardized coefficient for integrated information system development is 0.253 and p-value is 0.027. It explains that the more the hotels develop integrated information systems, the more the customers are satisfied. When the hotels increase the development of integrated information system by one unit, it tends to increase operational productivity by 0.253 while holding other variables constant.

Table 5 Multiple Regression Analysis of Customer Satisfaction, Operational Productivity, and Profitability

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
Constant	0.923	0.761				
Customer satisfaction	0.578**	0.212	0.452	2.271	0.010	1.228
Operational productivity	0.091	0.139	0.108	0.652	0.519	1.228
R square	0.258					
Adjusted R square	0.213					
F	5.745***					

Note: *** and ** show statistical significant at 1% and 5% levels respectively.

Dependent Variable: Profitability

Source: Survey Data (March 2019)

Examining the effects of customer satisfaction and operational productivity on profitability of hotels is analyzed and the result is described in Table (5). It is found that there is no multicollinearity according to the Variance Inflation Factor (VIF) as shown in the table. The adjusted R square is 0.213 and the predictors have explained 21.3% of the variance in the dependent variable of profitability. The value of F-test, the overall significance of the model, indicates significant at 1 percent level. According to the multiple regression results, customer satisfaction is 0.923 even if hotels in Mandalay do not attain customer satisfaction and do not have operational productivity.

Customer satisfaction indicates the positive effect on profitability of hotels at 5 percent significant level because the unstandardized coefficient for customer satisfaction is 0.578 and p-value is 0.010. It explains that the more the hotels achieve customer satisfaction, the more the profitability is attained. One unit increase in customer satisfaction tends to increase profitability by 0.578 while holding other variables constant.

However, operational productivity does not show any significant effect on profitability of hotels in Mandalay because the unstandardized coefficient for operational productivity is 0.091 and p-value is 0.519. Focusing on enhancing operational productivity might reduce costs, however, it probably infringes the quality of customer service. As a consequence, customers feel indifferent quality of services and it hinders customer retention and positive word-of-mouth. It can also be assumed that operational productivity might not be related directly to profitability but it might be indirectly related to profitability. Because of operational productivity, hotels can provide better services to customers and they can create customer satisfaction consequently. Thus, its effects might go to profitability through customer satisfaction.

Discussion

In examining the information system development, it is found that hotels make information system development to many extents so that they can cope with the changing needs of market. The finding indicates that the accounting information system development is widely conducted by hotels in Mandalay because the accounting software is available cheaply in the market. As it can be operated without the help of technicians, the usage rate is increasing at present. Thus, the development of accounting information system indicates the maximum mean value. The human resource information system development shows the minimum mean value. Hotels emphasize only the compulsory systems due to the financial constraint. Using human resource data and information traditionally is supposed to be convenient for human resource management. Changing this information system drives the hotels to offer training to employees, to persuade them to accept it, and to spend additional cost for switching.

The results of the analysis illustrate the negative and significant effects of marketing information system development, accounting information system development, and human resource information system development on customer satisfaction in this study. Continuously developing marketing information system makes customers feel complicated and frustrated. Especially senior citizens are not used to marketing information system and they are not willing to access this system. Understandability of customers might be disturbed by the complexity of the system. Thus, the result of the study reveals the negative effect of marketing information system development on customer satisfaction. In addition, employees have to be familiar with new software and application when accounting information systems are developed all the times. It is impossible to provide services satisfactorily if employees do not have enough skills for using accounting software and application. Changes from the old version to the new one take time to be user friendly, and hence errors may occur during transition period. Thus, the negative effect of accounting information system development on customer satisfaction is found in this study.

Although human resource information system development is supposed to have positive effect on customer satisfaction, the negative effect is found in this study. When employees concern greatly with human resource functions, they lessen their concentration on their work related activities. Thus, human resource information system using information technology makes employees feel complicated and cannot provide services to customers completely. Besides, cooperation among different departments and integration of information are necessitated for managing the whole operation of hotels. The study highlights the positive effect of integrated information system development on customer satisfaction. Integration through the service supply chain process is of vital importance to create customized services. When hotels fulfill unmet needs and expectations, customers will feel satisfied with their services.

Analyzing the effects of information system development on operational productivity provides the useful insights to the hotel industry. The findings describe the insignificant effects of marketing information system development and human resource information system development on operational productivity. The negative and significant effect of accounting information system is different from assumptions but the positive and significant effect of integrated information system is as expected. Although increasing awareness of customers on marketing information system implemented by hotels, they are reluctant to start involving it. It is not efficient in operations when customers accept this system slowly and they do not appreciate it largely. Their participation cannot be attained and employees need to be involved in the operations of hotels. Due to the ignorance of customers, the role of marketing information system development is not apparent for achieving operational productivity.

Additionally, accounting information system is important for providing accurate financial information to customers and financial reports to decision makers. However, new accounting software and application come out increasingly and it may motivate hotels to run them. Moving data and information from one application to another might have difficulties which may hurt the ongoing operation process. Therefore, the result shows the negative and significant effect of accounting information system development on operational productivity. Nowadays, human resource information system can be accessed through using advanced information technology. However, its development does not play an important role for increasing operational productivity. As employees are end users of this system, they feel complicated to access the functions of new system. Their conscious and unconscious mind might be influenced by accessing this new system and they might feel anxiety of making errors. Thus, it does not show significant effect of human resource information system development on operational productivity. Besides, integration of information from different employees and different departments is crucial for accomplishing the fulfillment of customer requirements. As hotels have to provide 24 hour service to customers, employees are assigned to day shifts and night shifts. In such a situation, integration among employees is required to transfer one's job to another. As customers assess the whole service quality, the departments have to cooperate each other. Accordingly, the positive effect of integrated information system development on operational productivity is significant.

As the result of customer satisfaction and operational productivity, profitability of hotels is analyzed in this study. It is necessary to achieve customer satisfaction by fulfilling customer needs and requirements in every business. Satisfied customers tend to be loyal customers and advertiser through their positive-word-of-mouth to potentialities. Without incurring the advertisement costs, more new customers can be attracted to visit the hotels. The result spotlights the positive and significant effect of customer satisfaction on profitability of hotels in Mandalay. Accomplishment of organizational goals and objectives in an effective and efficient manner is pivotal for hotels. However, operational productivity is not supportive to increase profitability of hotels. It can be deduced that efficiency only is not enough to promote the level of profitability according to the

findings which is the insignificant effect of operational productivity on profitability of hotels in Mandalay.

Conclusion

The study highlights the effects of information system development on customer satisfaction and operational productivity. As the marketing information system development, accounting information system development, and human resource information system development shows the negative effects on customer satisfaction, these need to be handled carefully. Changing one system to another causes system errors, human errors, transaction errors, processing errors due to unfamiliarity. It is suggested that the hotels should analyze the strengths and weaknesses of the existing system and they should decide to change or develop the existing one later on. When they make improvements in marketing information system, accounting information system, and human resource information system, appropriate training programs should be provided to employees to be familiar with the new system. Besides, customers should be informed in advance so that they are adaptable with the new systems early. The positive and significant effect of integrated information system development reveals its essentiality for hotels in Mandalay. Thus, they should search new technologies and ways to make integrated information system development continuously.

In examining the effects of information system development on operational productivity, the study indicates the insignificant effects of marketing information system development and human resource information system development. Customers might not recognize current marketing information system development conducted by hotels in Mandalay and might not access this system. In the long-run, it might play significant role in improving operational productivity much. It is recommended that the hotels should inform how they are implementing marketing information system so that customers can adapt them. Similarly, human resource information system development does not show significant effect on operational productivity and the hotels are not implementing largely the development of this system. However, this development probably contributes to managing human resources who are the main players of hotels and it is supportive to managing the operations. It is suggested that the hotels should initiate with a few functions of human resource information system development. The negative and significant effect of accounting information system development pinpoints the necessity for careful selection of new accounting information system. Nowadays, hotel managers or owners might want employees to test some accounting softwares which are freely available. Shifting from the old to new system makes the operations interrupted and thus it is recommended that they should consider thoroughly before moving to the new one. Additionally, the positive and significant effect of integrated information system development spotlights its importance. Thus, it is advocated that new software and application which are supportive for integrated information system should be investigated. Then, the existing system should always be upgraded by discussing with the technicians.

The investigation on the effects of customer satisfaction and operational productivity on profitability of hotels is conducted and the result describes the positive and significant effect of customer satisfaction. As customers are the key stakeholders of hotels, they should examine customer needs and wants. Through improving customer value based on customer requirements, profitability will be high in hotels, Mandalay. Thus, it is recommended that customer information should be inquired so that they are directly persuaded by hotels. Operational productivity does not show any significant effect although it can be assumed that it can reduce cost and increase profit. Prioritizing operational productivity causes hotels to reduce resource utilization for running its operations and providing services to customers. It seems to be beneficial during the short-term but the comparatively indifferent feeling of acquiring services which cannot persuade customers to

return the hotels next time. Consequently, the hotels are insecure to create loyal customers who can contribute the improvement of profitability. Thus, the hotels need to check whether emphasizing efficiency hurts the effectiveness of their organizations. They are required to reconsider the implementation of activities for increasing operational productivity through analyzing the tangible and intangible consequences. It is suggested to prioritize not only efficiency but also effectiveness of hotels in Mandalay to foster the positive strategic impact.

Limitations and Needs for Further Research

The study focuses on information system development and its outcomes but it does not analyze the driving forces. Technological and social changes can be investigated as the driving forces for information system development. In addition, information system development is classified into four: marketing, accounting, human resources, and integrated information system developments. There are specific kinds of information system development in hotel industry such as reservation system, customer relationship management system, and supply chain management system.

In this study, operational productivity and profitability of hotels are measured with respondent perception using five-point Likert scale. If they are measured with financial data, the specific implications might be provided. In addition, using both financial and non-financial measures might give different results. Thus, further studies should measure with financial and non-financial data to represent these completely.

As the sample represents only 15 percent of total population, further research should enlarge the sample size to generalize the findings. The study is based on hotels in Mandalay, the generalization on information system development is limited. According to Myanmar Tourism Statistics (2019), there are 1,984 hotels located in Myanmar. The study scope can be extended to generalize the information system development of hotels in Myanmar so that the implications for the whole industry can be provided.

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