Analysis of Outsourcing Strategies on Information Systems for Tourist Hotels in Taiwan

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Abstract: Since outsourcing strategy of information systems has become one of the key businesses for tourist hotels in Taiwan. This paper tried to analyze the hotels' outsourcing strategies by exploring current information system statuses and requirements of 69 tourist hotels and comparing to past research findings. Results of this research reveal that most tourist hotels chose business outsourcing (18.84%) and total outsourcing (71.01%) as their strategies. In addition, operational systems on front fields and automatic systems on back offices are denoted as the most outsourcing information systems. On the other hand, small scale hotels took the strategy of total outsourcing and large scale hotels preferred to choose the strategy of business outsourcing. Hence, this research suggested that the tourist hotels could outsource information systems with basic competition technologies to reduce cost and invest more on core competition information systems to ensure long-term market strength. High level management systems on back fields are still insufficient to support current hoteliers and must be developed by tourist hotels themselves.

Keywords: Tourist Hotel, Outsourcing Strategy, Information System

1. Introduction

Because the past researches about information technology (IT) outsourcing revealed that their survey data were almost reached from huge businesses or large enterprises. The results could not apply to Taiwan's tourist hotels adequately. Lu [1] had also indicated the drawbacks of install a computer department in a non-IT relative company. But, with the change of tourism market environment, Taiwan's hoteliers will face more intense competition and require more powerful information systems in the future. For most of Taiwan's tourist hotels, they cannot set up a complete IT department to overcome the IT requirements because of the scale constraints themselves. IT outsourcing has become the most feasible method to construct and maintain information systems of hotels. As executing information systems outsourcing process, insufficient IT professional knowledge will make many hoteliers to face more actual straits and blocks. The selection of self-development and IT outsourcing should be a key strategy for tourist hotels in Taiwan.

The room number of most Taiwan's tourist hotels is between 200 to 400 rooms. It was indicated that Taiwan's tourist hotels are belongs to middle-scale industry [2]. Goal of this paper is tried to find out the outsourcing strategies on information systems for tourist hotels in Taiwan. Models of IT outsourcing strategy will be conducted from literature review and current IT outsourcing statuses of tourist hotels will be explored by questionnaire survey process. The final results will represent differences, intentions and insufficiencies of these tourist hotels by integration and analysis primary data.

2. Literature Review

2.1 Tourist Hotels in Taiwan

Tourist hotels in Taiwan mean the profit-seeking enterprises that operate international tourist hotels and general tourist hotels to provide travelers accommodation and related services.[3] According to the statistical data of Tourism Bureau at January 2010, there were 96 tourist hotels including 65 international tourist hotels and 31 general tourist hotels in Taiwan. The categories structure of Taiwan's hotels is shown in Figure 1.
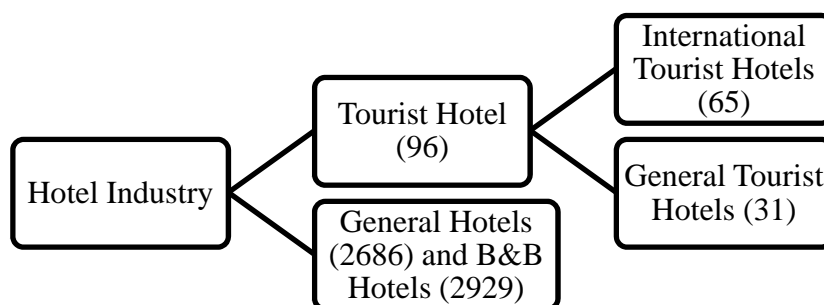

Figure 1. The categories structure of Taiwan's hotels [3]

Since there were many researchers discussing about the future developments of Taiwan's tourist hotels, this study summarized the opinions suggested by Chou[4], Lin *et al*.[5], Wang[6] as following seven trends: 1. Eco-friendly hotel, 2. Applications of information technology, 3. Integration of hospitality and leisure industries, 4. International and chaining operations, 5. Human resource development, 6. Multi-branding operations, 7. More social responsibilities.

Although the operation scale of Taiwan's tourist hotels is belongs to small-middle industry, they must include multiple functions of accommodations, food & beverage, leisure & sports, convention, entertainment and easy information supply. Because the operation and management of tourist hotels contain sophisticated service process planning, use of information communication technology (ICT) can promote and improve the operation efficiency effectively. On the other hand, the rapid change of ICT was a big challenge for improving operation quality. Outsourcing strategy of information systems (ISs) has become one of the key businesses for tourist hotels in Taiwan.

2.2 Information Systems Used in Hotels

Since the requiring information systems of tourist hotel would be differed due to the variant features of operation types and scales. There was not best practice definition and categories to describe the whole picture of complete hospitality management information system, which including hotel management and restaurant management IS, in the past literatures. [7][8]

Thus, according to related contents in Kasavana & Cahill [8], Shaw and Chen [9][10], Ku [11] and Liu and Chou [12], this study introduced 5 categories and 28 application systems to describe the whole structure of information systems used in hospitality industry. These ISs could also be separated into operational systems on front fields, automatic systems on back offices and high level management systems on back fields by the view point of users. The detail categorizations of information systems used in tourist hotels can be shown in Table I.

In this study, the 28 application systems will be used as the survey basis to classify Taiwan's tourist hotels into four type of IT outsourcing categories. The tourist hotel using more the number of 23 applications will have more complex the hotel information system. More the number of used applications were

IT outsourcing, the tourist hotel will be set as higher degree of IT outsourcing.

2.3 Outsourcing strategies on information system

Sun [13] denoted the definition of information system outsourcing as following: An organization takes part or whole functions of information system to authorize system venders by compact contracts. Then, the system venders provide development and maintenance, system operating, network communication management and maintenance, and other related purchasing and consulting service of the outsourcing system applications during the contract period.

Table 1. The detail categorizations of information systems used in tourist hotels

Functional categories	Information systems	users view categories
Property management system (PMS)	(1) reservation management, (2) room management, (3) guest accounting management	Operational systems on front fields
Restaurant management system (RMS)	(4) point-of-sale (POS), (5) recipe costing, (6) hotel-restaurant interface	
Back-office management system (BOMS)	(7) sales management, (8) banquet management, (11) receivable accounting, (12) payable accounting, (13) inventory management, (14) payroll management, (15) purchasing management (16) financial reporting	Automatic systems on back offices
	(9) revenue management, (10) enterprise resource planning (ERP),	High level management systems on back fields
Guest service management system (GSMS)	(17) self-accommodation registering, (18) self-settlement check-out,	
	(19) in-room entertainment, (20) in-room vending, (21) guest information, (22) voice message, (23) call accounting, (24) electronic door-locking, (25) energy management, (26) internet accounting	Operational systems on front fields
E-Commerce (EC) system	(27) corporate image website (28) on-line reservation system	High level management systems on back fields

According to the IS complexity and degree of outsourcing range, Lee [14] classified IT outsourcing into four different strategy models. They were called business outsourcing, selective outsourcing, self-development, and total outsourcing models respectively. The definitions of IS complexity and degree of outsourcing range are listed below:

IS complexity

$$= \frac{\text{Number of installed systems}}{\text{Number of total systems}} \quad (1)$$

(If the ratio is higher than 0.8, it is high IS complexity, others is low)

Degree of outsourcing range

$$= \frac{\text{Number of outsourcing systems}}{\text{Number of install systems}} \quad (2)$$

(If the ratio is higher than 0.5, it is high degree of outsourcing, others is low)

The four different IT outsourcing strategy models can be classified as follows:

(1) Business outsourcing: IS complexity and degree of outsourcing range are both high.

(2) Selective outsourcing: IS complexity is high and degree of outsourcing range is low.

(3) Self-development: IS complexity and degree of outsourcing range are both low.

(4) Total outsourcing: IS complexity is low and degree of outsourcing range is high.

Then relationship of four IT outsourcing strategy models is shown in Figure 2 below

In summary, this study concludes relative literatures of IT outsourcing to define the IT outsourcing of tourist hotels as "part or all functions of information systems in tourist hotels are supplied by outside professional service providers in contract type. This task could help tourist hotels to execute works of operating, managing, planning and developing the hardware and software of information systems." Because of the similar service processes in hospitals and tourist hotels, this study used the IT outsourcing strategy models proposed by Lee [14] to divide Taiwan's tourist hotels into four types of IT outsourcing.

Figure 2. Relationship of four IT outsourcing strategy models (Lee, 2009)

3. Research Design

Traditional questionnaire survey method was used to acquire primary data of information system outsourcing statuses of tourist hotels in Taiwan. 96 questionnaires were sent to managers of information technology relative department of every tourist hotels during February 2011. Number of return questionnaires is 85 (88.54%) with 69 (81.18%) effective

sampling contents. These effective responding hotels include 54 international tourist hotels (78.26%) and 15 general tourist hotels (21.74%). The information system outsourcing statuses can be divided into four answers: "do not need to develop", "did not develop", "developed by self" and "developed by outsourcing". Every respondent would answer the statuses of the pre-described 28 ISs in his tourist hotel. Then, the IS complexity and degree of outsourcing range of each tourist hotel could be determined from the responding

data. Clustering analysis method will be used to identify outsourcing strategies of these tourist hotels. In addition, correlation between hotel characteristics and outsourcing strategy will be conducted by cross analysis method.

4. Results and Discussions

4.1 Hotel Characteristics

There were 43 hotels with room number from 101 to 300 which hold the majority of respondents (62.32%). Numbers of the hotels with less 100 rooms and from 301 to 500 rooms are 9 (13.04%) and 13 (18.84%) respectively. Additionally, there were 4 hotels (5.80%) with over 500 rooms. On the other hand, there were 45 hotels (65.22%) with independent IT department and 24 hotels (34.78%) without IT department. If considering the number of IT staffs in hotels, 34 (49.28%) and 14 (20.29%) hotels have one and two IT staffs respectively. The other hotels with three, four and five IT staffs are 16 (23.19%), 4 (5.80%) and 1 (1.45%). Although 54 hotels are denoted as international tourist hotel, there were only 15 hotels using international property management system (PMS) like Micros Fidelio.

4.2 IS Complexity

Analysis on IS complexity of responding hotels showed that 7 information systems have 100% conversation rate. They are reservation management, room management, guest accounting, call accounting, receivable accounting, payable accounting and financial reporting modules which are belong to property management system (PMS), guest service management system (GSMS) and back office management system (BOMS) respectively. The systems with conservation rate higher than 90% are corporate image website (97.10%), on-line reservation system (95.65%) and payroll management modules (94.20%) which are belong to e-commerce system (EC) and

BOMS respectively. On the other hand, the systems with less than 20% conservation rate are self-settlement check-out (5.80%), self-accommodation registering (8.70%), in-room vending (17.39%) and ERP (17.39%) modules which are belong to GSMS and BOMS respectively. Hence, most of the unconstructed systems can be categorized as high level management system on back field. The systems with high conversation rate can belong to operational system on front field and automatic system on back office.

4.3 Degree of Outsourcing Range

Analysis on outsourcing range of hotels showed that the systems with higher outsourcing rate are reservation management (95.65%), room management (95.65%), guest accounting (95.65%), call accounting (89.86%), receivable accounting (85.51%), payable accounting (85.51%) and financial reporting (85.51%) modules. The systems with most hotels developed by self are corporate website (23.19%) and guest information system (18.84%). The systems with most hotels do not develop are energy management (28.99%), in-room vending (26.09%) and guest information (24.64%) systems. The systems with most hotels need not to develop are self-settlement check-out (82.61%), self-accommodation registering (82.61%) and ERP (65.22%) modules. Results of outsourcing rate analysis showed that these tourist hotels focused on the necessity of staff operation systems and ignored the requirement of guest operation systems. Additionally, restaurant management systems played a middle important role and strategy management relative systems are always insufficient for these hotels.

4.4 Outsourcing Strategy Models of Information System

Based on high and low of IS complexity and outsourcing range degree, this study classified 69

tourist hotels into four categories. It is shown that 49 hotels in 71.01% used "total outsourcing" strategy and subsequently 13 hotels in 18.84% took "business outsourcing" as their strategy. Most responding hotels used these two outsourcing strategy and few tourist hotels took "self-development" and "selective outsourcing" as their strategy. There were 4 (5.80%) and 3 (4.35%) hotels can be classified to "self-development" and "selective outsourcing" strategy models respectively.

The results of cross analysis on characteristics and outsourcing strategies of the responding tourist hotels will be described as followings. It is shown that general tourist hotels all took "total outsourcing" strategy because of their business and capital scales. If comparing to numbers of rooms, hotels with less than 100 rooms all used "total outsourcing" strategy while hotels with more than 400 rooms intend to use "business outsourcing" strategy. On the other hand, hotels with more IT staffs proposed to take "business outsourcing" strategy because of the managing capability of IT relative business. Results of cross analysis can be represented on Table II, III and IV respectively.

Table 2. Results of cross analysis on hotel types and their outsourcing strategies

Strategy \ Type	Business out-sourcing	Selective out-sourcing	Self-development	Total out-sourcing	Sum
International tourist hotel	13 (24.07%)	3 (5.56%)	4 (7.41%)	34 (62.96%)	54 (78.26%)
General tourist hotel	0 (0.00%)	0 (0.00%)	0 (0.00%)	15 (100.00%)	15 (21.74%)
Sum	13 (18.84%)	3 (4.35%)	4 (5.80%)	49 (71.01%)	69 (100%)

Table 3. Results of cross analysis on hotel room number and outsourcing strategies

Strategy \ Rooms	Business out-sourcing	Selective out-sourcing	Self-development	Total out-sourcing	Sum
N ≦ 100	0 (0.00%)	0 (0.00%)	0 (0.00%)	9 (100.00%)	9 (13.04%)
101 ≦ N ≦ 200	4 (19.05%)	0 (0.00%)	2 (9.52%)	15 (71.43%)	21 (30.43%)
201 ≦ N ≦ 300	2 (9.09%)	2 (9.09%)	1 (4.55%)	17 (77.27%)	22 (31.88%)
301 ≦ N ≦ 400	1 (14.29%)	1 (14.29%)	0 (0.00%)	5 (71.43%)	7 (10.14%)
401 ≦ N ≦ 00	2 (33.33%)	0 (0.00%)	1 (16.67%)	3 (50.00%)	6 (8.70%)
501 ≦ N	4 (100.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (5.80%)
Sum	13 (18.84%)	3 (4.35%)	4 (5.80%)	49 (71.01%)	69 (100%)

Table 4. Results of cross analysis on hotel IT staff number and outsourcing strategies

Strategy IT staffs	Business out-sourcing	Selective out-sourcing	Self-development	Total out-sourcing	Sum
n = 1	3 (8.82%)	0 (0.00%)	1 (2.94%)	30 (88.24%)	34 (49.28%)
n = 2	2 (14.29%)	1 (7.14%)	3 (21.43%)	8 (57.14%)	14 (20.29%)
n = 3	4 (25.00%)	2 (12.50%)	0 (0.00%)	10 (62.50%)	16 (23.19%)
n = 4	3 (75.00%)	0 (0.00%)	0 (0.00%)	1 (25.00%)	4 (5.80%)
n = 5	1 (100.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.45%)
Sum	13 (18.84%)	3 (4.35%)	4 (5.80%)	49 (71.01%)	69 (100%)

5. Conclusion

According to the results of classification and cross-analysis, most tourist hotels used "total outsourcing" and "business outsourcing" models as their outsourcing strategies and number of rooms and IT staffs will deeply affect outsourcing strategies of tourist hotels. In addition, operational systems on front fields and automatic systems on back offices are denoted as the most outsourcing information systems with high conservation rate. On the other hand, small scale hotels took the strategy of total outsourcing and large scale hotels preferred to choose the strategy of business outsourcing. Hence, this research suggested that the tourist hotels could outsource information systems with basic competition technologies to reduce cost and invest more on core competition information systems to ensure long-term market strength. High level management systems on back fields are still insufficient to support current hoteliers and must be developed by tourist hotels themselves. For the future planning, information systems which support guest services and solve energy cost problems will be new trend to increase guest satisfaction and decrease energy expend.

References

[1] Lu, S.P., 1998. Thirty-Six Methods of Internet Competitions, Taipei, Yangchih Press

[2] Chang, T.Y., 2002, A Study of Causalities Between Resource Capability and Operation Performance for International Tourist Hotels in Taiwan, Unpublished PhD Thesis, Taipei, Ming Chuan University.

[3] Tourism Bureau of Taiwan, 2010. Administration Information Systems, online searching date: 2010.Feb.10, http://admin.taiwan.net.tw/indexc.asp

[4] Chou, M.C., 2003. Operation of Restaurants And Hotels Investment, Taipei, Hwatai Press.

[5] Lin, Y.S., Liu, Y.A., Sun, Y.H., Lee, I.M. and Lin, L.T., 2003, Management of Restaurant and Hotel, 2nd Ed. Taipei, Creative & More Press.

[6] Wang, X.M., 2003. A Study of Competition Strategies for International Tourist Hotels – for Example Grand Formosa Regent Taipei, Unpublished Ph.D. Thesis, Taipei, National Taipei

University.

[7] Tesone, D. V., 2006. Hospitality information systems and e-commerce. NJ: John Wiley & Sons.

[8] Kasavana, M. L., and Cahill, J. J., 2007. Managing technologies in the hospitality industry. MI:AH&LA.

[9] Shaw, C.A., and Chen, Y.D., 2000. Hotel information system. Taipei, Yangchih Press

[10] Shaw, C.A., and Chen, Y.D., 2000. Food & beverage information system. Taipei, Yangchih Press

[11] Ku, C.S., 2005. Hospitality information system. Taipei, Yangchih Press

[12] Liu, T.Z. and Chou, H.C., 2010, A Study of Effect Factors Affecting Implementation of Food & Beverage Information System into Chinese Restaurant", 2010 Asia Tourism Forum (ATF2010), CD-Format Promised Land Resort, Hualien Taiwan, May 7-9. 2010.

[13] Sun, S.Y., 2001, Exploring Affect Factors of IT Outsourcing Collaboration Relationship by Social Intersection Theorem, Unpublished PhD Thesis, Kaohsiung, National Sun Yat-sen University.

[14] Lee, K.F., 2009. A Study of IT Outsourcing Strategy of Hospital Information Systems, Unpublished Master Thesis, Nantou, National Chi-Nan University.