

# Configuration of innovation and performance in the service industry: evidence from the Taiwanese hotel industry

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*This study attempts to state some facts about the importance of innovation in the service economy, and especially the hotel industry by classifying the configurations of innovation in Taiwanese hotels, as well as considering the types of innovation configuration that will maximise performance. Technological innovation, organisational innovation, and human capital innovation may be key sources of innovation. This study classified the configurations of innovation based on several innovation activities with two-step cluster analysis. Numerous empirical findings facilitate improved understanding of the relationship between the configurations of innovation and firm performance in the Taiwanese hotel industry.*

**Keywords:** innovation; innovation configuration; hotel industry; technological innovation; organisational innovation

## Introduction

During recent decades, the importance of services to the global economy has steadily grown while the importance of goods has somewhat declined. In fact, the service industries comprise approximately 70% of aggregate production and employment in the Organisation for Economic Cooperation and Development (OECD) nations and contributing about 75% of US gross domestic product (GDP) (Berry et al., 2006). Moreover, the economic environment has changed markedly during recent years, with most of the changes being driven by the revolution in information and communication technologies (ICTs) and by the emergence of a knowledge-based economy (Camacho & Rodriguez, 2005). To deal with competitive environments, hotel managers must find ways to outperform their competitors. According to Drucker (1994), innovation may be the key to business prosperity and survival. Innovation is crucial in the contemporary economy, being far more important than land, capital, or labour (Drucker, 1994). Innovation appears the only way that an organisation can convert change into opportunities and thus succeed spectacularly (Huse, Neubaum, & Gabrielsson, 2005). General bonus programmes can indeed endanger service relationships by reducing a customer's self-determination, but innovative bonus programmes have

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positive effects on customer's relational behaviour by meeting customers' perception of self-determination. Empirical evidences have shown a clear link between innovation and bonus strategies (Hennig-Thurau & Paul, 2007). We can restate this: service firms that fail to innovate may be left behind as competitors devise more advanced services.

Lodging and tourism services are immensely important and also of growing importance in many countries. According to statistics from the World Travel and Tourism Council (WTTC, 2007), the forum of industry business leaders, during 2006 Travel and Tourism is expected to generate US\$6477.2 billion of economic activity, including 234,305,000 jobs, or 8.7% of global total employment. Additionally, based on figures from WTTC, tourism and travel generates, directly and indirectly, 10.6% of global GDP, investment, and employment. The lodging sector is a key sector within the tourism industry since it is fundamental to the provision of all other tourism services, being the most basic requirement of the tourist after they reach their destination (Orfila-Sintes, Crespi-Cladera, & Martinez-Ros, 2005). Consequently, this study chooses the hotel industry as a suitable setting for the service economy.

Previous studies have only found evidence that firm innovation truly affects firm performance, but have not demonstrated how many innovation activities formulate different patterns of innovation. Furthermore, an improved understanding is required of which type of innovation configuration will maximise performance. This study focuses on innovation in the hotel industry, and presents an empirical evidence of hotel innovation activity for producing various innovation configurations. This study attempts to state some facts about the importance of innovation in the hotel industry, as well as considering the type of innovation configurations that can create better performance. That is, the goals of this study include: first, distinguishing between major innovation configurations; second, investigating the relationship between innovation configuration and hotel performance and finally, identifying which innovation configurations generate better hotel performance.

## **Literature review and research framework**

### ***Innovation configuration***

Numerous kinds of innovations can exist, including technological innovations (Nelson & Winter, 1982), organisational innovations (Caves, 1980), or the creation of new bundles of resources (Penrose, 1959). Individual firms may differ in their innovation abilities. Innovation ability is determined by organisational and procedural capabilities that condition the innovation process. Firms may be specialised in particular technologies or related expertise, leading them to pursue different innovation activities, in fact, the idea of innovation configuration derives from organisational configuration. Previous studies have argued that variables of strategy, structure, and environment interact to form common gestalts, archetypes, or configurations (Hambrick, 1983; Miller, 1981; Miller & Friesen, 1978, 1984; Mintzberg, 1973, 1979). These configurations describe organisations in detail, revealing their complex, gestalt, and systemic nature (Miller & Friesen, 1984). Dallago (2000) stated that an organisational configuration is the fundamental organisational and operational product of an economic system which is the coordinated (self-regulating) and stable set of economically relevant formal and informal institutions and structures. In a competitive environment, this organisational configuration determines economic specialisation, given comparative advantages and resource endowment. The configuration

approach is extremely important and is popularised not only in the strategic management field (Miles & Snow, 1978; Miller & Friesen, 1978), but also in management and organisational design (Miller & Mintzberg, 1983). Therefore, this study proposes the concept of innovation configuration, which comprises innovations based on organisational configuration.

Three classification schemas of innovation configurations from the extant literature are presented below. Beginning with the first classification – schema of innovation configuration – the intensity of the changes introduced and the impact of innovation have generally been defined as an incremental or radical innovation by Deward and Dutton (1986), and Ettlíe, Bridges, and O’Keefe (1984). Second, Fuglsang and Sundbo (2005) distinguished three innovation configurations characterised by different innovation activities, labelled “modes 1, 2, and 3”. Mode 1 is an entrepreneurial, value-based mode of innovation. Mode 2 is a technology-based functional mode of innovation. Mode 3 is the strategic reflexive model of innovation. Third, innovation capability is not confined to improving products, but can be targeted in four main ways (Francis & Bessant, 2005): Innovation is concerned with introducing or improving products, introducing or improving processes, defining or redefining the positioning of firms or products, and defining or redefining the dominant paradigm of the firm.

According to the various innovation configurations proposed by scholars, this study coordinates these as shown in Table 1, and simultaneously demonstrates the differences among the various innovation configurations. Effectively, there is no empirical evidence regarding the innovation configuration derived from innovation activity, particularly with regards to the hotel industry. In the service industries, with the exception of knowledge-intensive services such as data processing or telecommunications, most firms innovate through purchases of equipment, components, and materials from their suppliers and employee training (Barras, 1986; Sirilli & Evangelista, 1998).

Table 1. Classification schemas of innovation.

Configuration of innovation	Taxonomic standard	Scholar
1. Two categories of innovation: (1) Radical innovation (2) Incremental innovation	Based on the level or intensity of innovation, these scholars identify two diverse sorts of innovation	Deward and Dutton (1986), Ettlíe et al. (1984)
2. Three kinds of innovation: (1) Value-based entrepreneurial mode of innovation (2) Technology-based functional mode of innovation (3) Strategic reflexive mode of innovation	Based on the management of environment that fits with a firm’s purpose, these scholars distinguish three distinct kinds of innovation	Fuglsang and Sundbo (2005)
3. Innovation in four ways: 4Ps (1) Innovation in product (2) Innovation in process (3) Innovation in position (4) Innovation in paradigm	Based on two other areas where innovation is possible-market position and business models, these scholars recognise four different kinds of innovation	Francis and Bessant (2005)

Source: This research.

### ***Performance indicators in the hotel industry***

Competition in the hotel industry is based on offering “value” in the service product, and it is necessary to assess the various dimensions of hotel performance. Studies of performance indicators are discussed in the literature and measured largely by the firm’s financial outcomes; however, in the last 25 years, there has been a revolution in performance measurement (Neely & Bourne, 2000). Measurement approaches that relied solely on financial results are now being replaced by more integrated systems that combine financial and non-financial indicators (Bergin-Seers & Jago, 2007). Traditional performance measurement focused on financial data, such as return on investment, return on sales, price variances, sales per employee, productivity and profit per unit of production (Ghalayini & Noble, 1996). Using non-financial performance measures, it became apparent that improvement efforts cannot be quantified in dollar terms alone, particularly if they relate to customer satisfaction and product or service quality (Ghalayini & Noble, 1996).

In fact, hotel industry performance can be measured using occupancy performance owing to the reluctance of hotel managers to provide details regarding hotel financial performance, such as average occupancy rate (Sun & Lu, 2005). Additionally, revenue performance indicators in the hotel industry include total operating revenues and average production value per employee, etc. (Wassenaar & Stafford, 1991).

### ***Research framework***

The belief that performance differences can be attributed to configuration is grounded in structural contingency theory (Meyer et al., 1993). Contingency theory states that firms with configurations aligned with their environment should perform better than firms in non-aligned configurations (Ketchen, Thomas, & Snow, 1993). Some researchers have found support for the configuration–performance relationship (e.g., Hawes & Crittenden, 1984; Oster, 1982). This study distinguishes innovation activity among different studies to help improve our understanding of innovation, and through the implementation of this concept, the hotel can sustain its own competitive advantages and improve its performance. First, the study formulates innovation activities from three major sources: technological, organisational, and human capital innovation. Second, this study identifies main innovation factors from the foregoing innovation activities. Third, this study distinguishes innovation configuration based on the main innovation factors in the hotel industry, and finally, this study develops and explores a conceptual framework of the relationship between innovation configuration and hotel performance (Figure 1).

## **Methodology**

### ***Data collection and measures***

In relation to ICT, this kind of technological innovation provides equipment and technologies that offer new and improved tools and machinery capable of enhancing production and management efficiency, which are essential to hotel business profitability (Sheldon, 1983). Organisational innovation represents changes in organisation capital. In fact, organisational capital belongs to the company, and comprises the environment established by the firm for effective knowledge management and generation. Extensive effort must be put into firm implementation (operation start up, adjustments, etc.), enabling the organisation to develop the skills necessary for successful innovation implementation (Cohen & Levin, 1989; Griliches, 1990). It is important

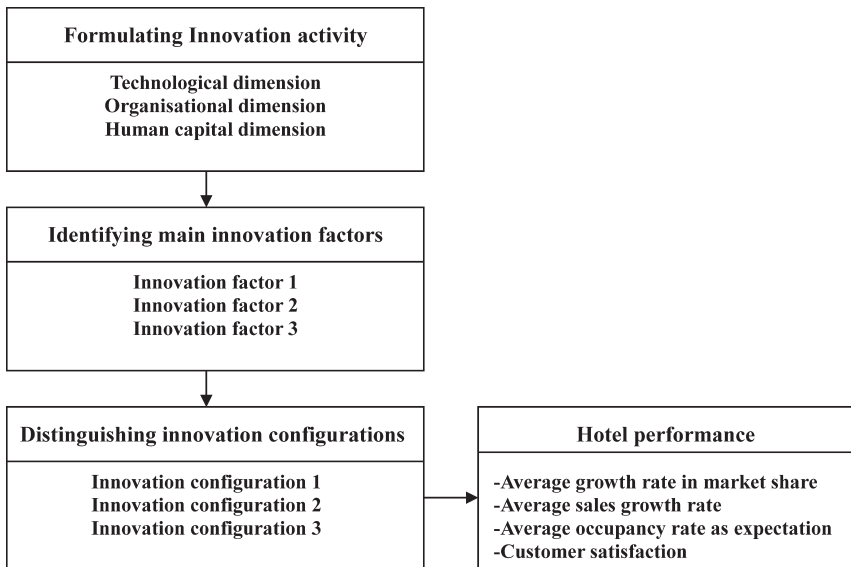


Figure 1. Research framework.

to outline the design, development and application of a diagnostic assessment, and screening tool to assist such entrepreneurs within small innovator firms, formulate more systematic strategies than the response to an initial customer (Mazzarol & Rebound, 2006).

According to Orfila-Sintesa et al. (2005), the human capital innovation suggests that the adjustment of human capital skills is roughly equal to efforts in successful innovation implementation. Updating human capital skills and capabilities emphasises the importance of changes in training and investment in human resources (Cohen & Levin, 1989; Griliches, 1990; Pine, 1992; Van der Wiele, 2007) in successful innovation (Olsen & Connolly, 1999; Sirilli & Evangelista, 1998). To measure innovation activity, the three primary constructs of innovation activities are defined as follows:

- Technological innovation primarily indicates improvements in computer power and communication. Because technological change is the strongest force changing or reconfiguring the market landscape, hotel CEOs are highly aware of the importance of innovation, especially advances in communications and information technology profoundly impacting the manner in which customers interface with service providers.
- Organisational innovation refers to innovations relating to the effectiveness and efficiency of how hotel CEOs manage and develop their own knowledge when confronting a highly competitive environment. Organisational innovation includes operation process and organisational culture.
- Human capital innovation involves collective hotel capability to extract optimal solutions from employee knowledge, and employee skills such as experience or extensive customer relationship when they are taken to be symbols of service company efficiency, particularly for a hotel.

This study reviewed theoretical discussions regarding innovation theory, innovation capital, organisational capital, human capital, knowledge management, and so on, to design multi-item

scales of the three innovation activity constructs. The 25 measures of technological innovation (Atkinson & Stiglitz, 1969; Barras, 1986; Cohen, 1995; Cohen & Levinthal, 1989; Gallouj & Weinstein, 1997; Nelson & Winter, 1982; Tseng & Goo, 2005), 24 measures of organisational innovation (Caves, 1980; Cohen, 1995; Gallouj & Weinstein, 1997; Hollenstein, 2003; Tether, Hipp, & Miles, 2001; Tseng & Goo, 2005; Wernerfelt, 1984), and 19 measures of human capital innovation (Gallouj & Weinstein, 1997; Hollenstein, 2003; Tether & Hipp, 2002; Tseng & Goo, 2005) were based on several strands of discussion in the literature (All 68 items are summarised and presented in Appendix 1). A questionnaire was employed to systematically gather data from the CEOs of each hotel. Respondents were asked to provide their overall assessment of the degree to which each innovation activity contributed to hotel performance, using a seven-point numerical scale ranging from “strongly disagree” to “strongly agree”. Numerical scales have numbers as response options, rather than “semantic space” or verbal descriptions, to response positions (Zikmund, 2003). Numerical scales are generally easy to respond to and ideal for parametric analysis.

Before this study confirmed the completed questionnaire, a pilot face-to-face interview was needed with managers of several hotels in order to filter possible problems with some questions. From the information provided by these pilot responses, absolute performance indicators are not retrieved by the survey, such as actual sales and profits. The researchers decided to employ perceptual performance indicators based on a seven-point numerical scale ranging from “strongly dissatisfied” to “strongly satisfied”. Performance indicators consist of average growth rate in market share, average sales growth rate, average occupancy rate as expected, and customer satisfaction during the past two years.

### ***Sampling and respondents***

The subjects of this study, including international tourist hotel, standard tourist hotel, and standard hotels, are listed in the Taiwan Tourism Bureau. The rationale for sample selection is as follows. First, this study takes three different hotels into account to improve the generalisability of the results, because the hotels in Taiwan are divided into three different types. Second, tourist hotels are few, so this study selected all 60 international tourist hotels (100%) and all 29 standard tourist hotels (100%) as the research sample. Finally, all standard hotels with over 40 rooms were also included in the research sample. This was done because it is a common practice in the literature on hotel activity to use the number of beds or the equivalent number of rooms to indicate hotel size (Baum & Mezias, 1992; Chung & Kalnins, 2001; Fernandez & Marin, 1998). Among 2549 standard hotels, the 863 hotels sampled (33.86%) were selected to meet the above criteria. A questionnaire was designed and a total of 952 copies were distributed to hotel directors by mail in December 2006. If respondents answered questions that were not correctly completed, this study discarded the non-completed replies. Executives from 116 of the hotels returned usable questionnaires, giving a response rate of 12.19%. In total, 42 and 55 samples are from standard tourist hotels and standard hotels, respectively, while 19 samples are from international tourist hotels. Additionally, the response rates for international tourist hotels, standard tourist hotels, and standard hotels were 70%, 65.52%, and 6.37%, respectively. The mean number of beds for those responding is not significantly different from the mean number of beds for those not responding. This result might not be biased and overly dependent on international and standard tourist hotels.

Common method variance is a problem that arises from data from a single source providing both dependent and dependent variable data (Doty & Glick, 1998). This may create systematically inflated correlations between these variables because of the same source. The Harman's one-factor test is used to test for evidence suggesting the presence or absence of a common method bias in this study (Podsakoff & Organ, 1986), and concluded that common method variance bias is not a threat to the validity of the analysis.

## Empirical results

### *Identifying innovation factors*

Based on the existing literature and the content of the returned questionnaires, the 68 innovation activities were organised into groups of similar or related statements. Following factor analysis, the 10 factors with total eigen values  $>1$  were extracted as listed in Table 2.

Restated, the 68 innovation activities statements can be grouped into the following 10 innovation factors: (1) utilisation of technology and equipment, (2) introduction of new technology and equipment, (3) frequency of launch of new products, (4) efficiency of the technology system, (5) participatory organisational environment, (6) coordination between departments and the organisation, (7) cooperation between individuals and the organisation, (8) creation of new ideas, (9) employee training, including knowledge sharing, and (10) incentive mechanisms to help the development of new abilities. The first four factors are derived from technology innovation, four factors relate to organisational innovation, and two factors relate to human capital innovation.

Cronbach's alpha is an appropriate measure to conduct the analysis of reliability. Cronbach's alpha values can indicate the consistency between individual questions of the scales. If all the scales are reliable, Cronbach's alpha values must exceed the 0.70 rule suggested by Nunnally (1978). In this study, Cronbach's alpha values of 10 innovation factors are bigger than 0.70. Hence, these constructs of innovation factors can be deemed reliable as shown in Table 2.

Table 2. Summary of 10 innovation factors derived from factor analysis.

Innovation activities	Innovation factors	Eigen value	Cronbach's alpha
Technological innovation: 25 items*	(1) Utilisation of technology and equipment	11.948	0.9130
	(2) Introduction of new technology and equipment	2.653	0.7430
	(3) Frequency of launch of new products	1.411	0.8108
	(4) Efficiency of technology system	1.024	0.7146
Organisational innovation: 24 items*	(5) Participatory organisational environment	12.770	0.8366
	(6) Coordination between departments and the organisation	1.380	0.7676
	(7) Cooperation between individuals and the organisation	1.295	0.8147
Human capital innovation: 19 items*	(8) Creation of new ideas	1.097	0.7585
	(9) Employee's training including knowledge sharing	11.330	0.8318
	(10) Incentive mechanisms to help the development of new abilities	1.002	0.7939

\*All innovation activities are drawn in Appendix 1.

### *Distinguishing innovation configuration*

Cluster analysis was performed on the sample of 116 hotels using the 10 factors derived from factor analysis as the clustering criteria. Two-step cluster analysis was used, with the optimal solution size being four clusters. Table 3 summarises the cluster profiles. Based on the score of each cluster, the Taiwanese hotel industry has four innovation configurations. As expected, the four innovation configurations display very different profiles. Cluster 1, comprising 74 hotels, is by far the largest, and these hotels are focused on holistic innovation, including not just technological, but also organisational and human capital innovation. Cluster 2 comprises 12 hotels, the innovation activities of which are mainly supported by organisational environment and member cooperation. The 22 hotels in cluster 3 are not involved in establishing a participative organisational environment and cooperative innovation. Cluster 4 consists of eight hotels that appear to have poor performance in implementing all innovation activities. Four innovation configurations thus are labelled, as follows: overall innovation (cluster 1), focus on organisational innovation (cluster 2), low participative and cooperative innovation (cluster 3), and less innovation (cluster 4).

### *Innovation configuration and performance*

Table 4 lists the ANOVA and LSD multiple comparison test findings. ANOVAs were calculated for each of the four performances. The ANOVA results demonstrate there is a significant

Table 3. Cluster analysis: mean score of clustering criteria by cluster.

Factors	Clusters			
	Cluster 1	Cluster 2	Cluster 3	Cluster 4
(1) Utilisation of technology and equipment	0.3173	-0.0258	-0.3081	-2.0748
(2) Introduction of new technology and equipment	0.3693	-1.2040	-0.4012	-0.1287
(3) Frequency of launch of new products	0.2300	-0.9058	-0.0978	-0.4741
(4) Efficiency of technology system	0.0952	0.1009	-0.3146	-0.0733
(5) Participatory organisational environment	0.3025	0.5575	-1.0574	-0.7571
(6) Coordination between department and the organisation	0.3334	-1.4010	-0.0625	-0.8393
(7) Cooperation between individuals and the organisation	0.2075	0.3413	-0.6657	-0.6273
(8) Creation of new ideas	0.1803	-0.2165	0.1409	-1.7670
(9) Employee's training including knowledge sharing	0.3428	0.1117	-0.6433	-1.6315
(10) Incentive mechanisms to help the development of new abilities	0.4816	-1.3034	-0.6736	-0.5616
Name labelled	Overall innovation	Focus on organisational innovation	Low participative and cooperative innovation	Less innovation

Table 4. The relationship between innovation configuration and performance using ANOVA and LSD multiple comparison test.

Dimension of performance	Innovation configurations	Mean	Standard deviation	F-value	Cluster difference ( $P < 0.05$ )
Average growth rate in market share	Cluster 1	5.6351	1.0673	7.1420***	1 > 2,3,4 3 > 4
	Cluster 2	4.8333	1.5859		
	Cluster 3	4.9545	1.4953		
	Cluster 4	3.7500	1.3887		
Average sales growth rate	Cluster 1	5.6892	0.9921	6.9312***	1 > 2,3,4
	Cluster 2	4.9167	1.5643		
	Cluster 3	4.7273	1.5486		
	Cluster 4	4.1250	1.6421		
Average occupancy rate as expectation	Cluster 1	5.3108	1.1812	2.8567**	1 > 4
	Cluster 2	5.1667	1.6967		
	Cluster 3	4.8182	1.4355		
	Cluster 4	4.0000	1.5119		
Customer satisfaction	Cluster 1	6.0135	0.7308	12.9439***	1 > 3,4 2 > 4 3 > 4
	Cluster 2	5.8182	0.9816		
	Cluster 3	5.2727	0.8270		
	Cluster 4	4.2500	1.5811		

\*\*The mean difference is significant at the 0.05 level.

\*\*\*The mean difference is significant at the 0.01 level.

relationship between innovation configuration and performance, that is, different innovation configurations affect hotel performance.

The multiple comparison results further indicate significant differences within each cluster regarding the relative importance of different clustering criteria. Multiple LSD comparison tests were thus run for each of the four performance dimensions. According to the *average growth rate in market share*, cluster 1 outperforms clusters 2, 3, and 4; cluster 3 outperforms cluster 4. Based on *average sales growth rate*, cluster 1 outperforms clusters 2, 3, and 4. Regarding *average occupancy rate as expectation*, the results show that cluster 1 outperforms cluster 4. In accordance with *customer satisfaction*, cluster 1 outperforms clusters 3 and 4; cluster 2 outperforms cluster 4; cluster 3 outperforms cluster 4. In short, effectively selection of innovation configuration can enhance hotel performance.

The above innovation configurations differ from those mentioned in previous studies, shown as Table 1. The notable difference between this study and previous studies significantly is the existence of a highly specific connection between innovation configuration and hotel performance. That is, each innovation configuration has not only its own specific characteristics, but also its own performance. Consequently, the main aim of this concept is to figure out which innovation configuration can create better performance, while simultaneously helping hotel managers make more effective and valuable clustering decisions.

This study uses two-way ANOVA to disclose whether hotel-specific characteristics influence the relation between innovation configuration and hotel performance or not. Hotel-specific characteristics include ownerships, sizes and types of hotels. Results of the ANOVA analysis demonstrate that all of these hotel-specific characteristics do not significantly affect the linkage between innovation configuration and hotel performance.

## Conclusion and discussion

Based on 116 of the hotels' returned usable questionnaires, the main innovation factors in Taiwanese hotels are as follows: (1) utilisation of technology and equipment, (2) introduction of new technology and equipment, (3) frequency of launch of new products, (4) efficiency of technology system, (5) participatory organisational environment, (6) coordination between departments and the organisation, (7) cooperation between individuals and the organisation, (8) creation of new ideas, (9) employee training, including knowledge sharing, and (10) incentive mechanisms to help the development of new abilities.

Given the distinct patterns displayed by these factors, the clusters can be interpreted as specific "innovation configurations". Based on cluster analysis, this study identified four innovation configurations.

- Overall innovation (cluster 1)
- Focus on organisational innovation (cluster 2)
- Low participative and cooperative innovation (cluster 3)
- Less innovation (cluster 4).

This study supports the findings of the previous related literature. Previous studies have found that innovation configuration impacts performance. This study used these capital and resource-based perspectives to examine the application of the concept of innovation configuration to enhance better performance among all hotels. The main objective of this study is to connect innovation cluster deployment to various changes in hotel performance, and specifically this study attempts to establish a link between the two. Consequently, innovation configuration is important to hotel performance. That is, these analytical results imply that cluster 1 almost always has the best innovation performance while cluster 4 has the worst.

Based on the above analytical results, this study perceives that innovativeness is very important for increasing hotel value. Effectively managing technological, organisational, and human capital enhances firm innovativeness. Restated, company organisational culture, information system, operation process, and human resources influence innovation activity. Innovative firms – those which can use innovation to differentiate their products and services from those of their competitors – outperform other firms.

In the current competitive environment, service firms innovate, and even more significantly, help other industries and institutions exploit opportunities related to innovation, thus contributing to economic development and growth. Modern businesses are increasingly obtaining competency through offering valuable innovations. Effectively integrating innovation configuration into the hotel industry is crucial. The present study clearly demonstrates that innovation will continue to provide a basis for service industry. Innovation configurations are associated with various beneficial responses to the organisation.

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## Appendix 1. Questionnaire measures

### A.1. Technological innovation

1. Our hotel uses IT to interact with customers.
2. Our hotel can examine its external and internal call system as part of efforts to improve efficiency.
3. Our hotel can use a more competitive room booking system.
4. Our hotel frequently manipulates the office internal automation system.
5. Our hotel frequently purchases hardware and related computer equipment.
6. Our hotel often purchases advanced restaurant equipment.
7. Our hotel regularly updates room facilities.
8. Our hotel regularly renews customer history data so that customers do not need to waste time repeatedly providing the same information.
9. Our hotel implements renovations and improves machinery and equipment based on improvements made by competitors.
10. Our hotel is satisfied with the speed with which renovations are conducted.
11. Our hotel uses IT to reduce bookings via the front desk.
12. Our hotel frequently applies IT to improve employee effectiveness.
13. Our hotel frequently uses new computer system, and investigates and understands their functions and attributes.

14. Our hotel has an information department to explore potential applications of IT.
15. Our hotel preserves all historical IT data.
16. Our hotel regularly researches and develops new products and service.
17. Our hotel frequently introduces techniques for improving production and operating processes.
18. Our hotel maximises profits by providing new products or services.
19. Our hotel creates numerous opportunities in market through product and new technique.
20. Our hotel rarely markets new products or services that differ from current product or service.
21. Our hotel has a good reputation for product innovation.
22. Our hotel frequently markets leading products.
23. Our hotel has previously received innovation awards for new products.
24. Our hotel can market various products and services.
25. Our hotel uses online payment to convenience customers.

### **A.2. Organisational innovation**

1. Our hotel has numerous new ideas for encouraging employee innovation.
  2. Our hotel regularly examines and improves rules and operating processes.
  3. Our hotel rapidly responds to service questions.
  4. Our hotel strives to listen to employees and respond to their suggestions.
  5. Our hotel has quick speed for developing new project.
  6. Our hotel has a high level of cooperation between individuals and the organisation.
  7. Our hotel shares its organisational culture and vision with employees.
  8. Our hotel has a high level of inter-departmental coordination.
  9. Our hotel can continually provide innovation and enhance service quality related activities.
  10. Our hotel exhibits good teamwork.
  11. Our hotel periodically organises inter-departmental meetings.
  12. Our hotel implements standardised operating process for different departments.
  13. Our hotel periodically implements brainstorming focused on innovation.
  14. Our hotel frequently advocates and implants firm's culture and management philosophy to employee.
  15. Our hotel usually has activity that improves the interaction between cross-department employees.
  16. When CEO frames new policy or project, employee frequently has opportunity of expressing ideas.
  17. All members strongly support final team decisions.
  18. Our hotel members regularly develop new methods of improving products and operating processes.
  19. Our hotel uses different operating process to rapidly achieve firm goals.
  20. Our hotel has developed a participatory working environment for the benefit of employees.
  21. Our hotel is strongly interested in change.
  22. Our hotel has a high level of support in implementing innovation.
  23. Our hotel has an open communication environment among staff and good communication with external organisations.
  24. Our hotel holds various and abundant technology knowledge.

### **A.3. Human capital innovation**

1. Our hotel usually organises employee education.
  2. Our hotel usually devises different incentive systems to encourage employee innovation.
  3. Our hotel provides many promotional opportunities.
  4. Our hotel holds annual worker camps for company holidays.
  5. Our hotel conducts training to increase service quality.
  6. Our hotel conducts courses dealing with service culture.
  7. Our hotel employees can clearly interpret the type of each hotel facility such as conference, restaurant, etc.
  8. Our employees possess numerous specialised skills, including foreign language abilities.
  9. Our hotel pays good salaries and provides benefits.
  10. Our hotel improves employee abilities by serious drillers.
  11. Our hotel usually uses rotation.
  12. Our hotel can boost customer loyalty and satisfaction by providing good employee training.
  13. Our hotel can help employees with career planning.
  14. Our hotel manager encourages employees to develop new competences.
  15. Our hotel employees generally contribute innovative ideas and obtain good awards or prizes.
  16. Our hotel pays considerable attention to the system of employee recruitment.

17. Our hotel uses new performance measures to understand individual employee contributions.
18. Our hotel cultivates employee IT skills by exchanging and sharing experience.
19. Our hotel lets employee obtain relevant IT information through discussions with and guidance from professionals.

#### ***A.4. Hotel performance measures***

1. During last two years, our hotel has performed well in market share growth.
2. During the last two years, our hotel has performed well in terms of average sales growth rate.
3. During the last two years, average occupancy rate has matched our expectations.
4. During the last two years, we have achieved good customer satisfaction.

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