INFORMATION SYSTEMS SUCCESS FACTORS FOR INTERNAL SERVICE MANAGEMENT IN HOTEL INDUSTRY

(A case study of Chinese InterContinental Hotel)

A.Y. Senevirathna

149064G

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Department of Computer Science and Engineering

University of Moratuwa

Sri Lanka

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DECLARATION

"I hereby certify that this dissertation does not incorporate, without acknowledgment, any material previously submitted for a Degree or Diploma in any University and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself expect where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organization."

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ABSTRACT

In the modern world, almost all the businesses utilize information systems. In the early 2000s, the use of IT in service industries was limited to simple tools such as emails and similar technologies. However, it has gradually progressed in the last 15 years, and Information Systems have become a critical component of service industries and of business management. The hotel industry is a large industry that utilizes technology in managing its services and in this industry, utilization of the technology has become quite widespread, because, there are a number of information processes in its daily operations. Therefore, the hotel industry has started to utilize information systems for their service management. However, there has not been any research conducted in the hotel industry for IS evaluation. This study attempts to investigate the factors that affect the success of these information systems.

The targeted service industry group is IHG (InterContinental Hotels Group). Going by the number of rooms, IHG is the world's largest hotel group. In Greater China, there are numerous IHG hotels and this number is increasing daily. This research was carried out as a case study research on IHG – Greater China. In this thesis, the researcher after reviewing the literature found out the key factors that affect the success of information systems that are more specifically related to the internal service management in the hotel industry. Accordingly ,the most relevant independent variables namely: system quality, information quality, support service quality, quality of information use, end user training, user satisfaction, intention to use and IS use, were adopted for further study which relates to IS success. Moreover, a survey approach was adopted for data collection and a questionnaire was designed based on the literature review and the research model. The questionnaire was sent to a number of "IS" users in IHG hotels - Greater China Region. The respondents of the data collection include most "IS" users who use "IS" for their internal service management. Although it was expected to gather data from the proposed sample as described in the methodology section, there were fewer respondents due to some of the limitations.

After the data analysis and discussion, the results indicate a significant statistical link between each independent variable and the IS success specifically for the hotel industry. Secondly, it provides conclusions regarding the most relevant factors, particularly for hotel industry internal service management. Compared to general "IS", end user training and quality of information usability were strongly correlated to success of IS in hotel industry. This emphasizes that these factors have a huge impact on IS success in hotel industry internal service management. This includes some of the important facts on which a system designer can focus more on when designing the systems for hotel industry internal service management. Further studies on these aspects were suggested for future research.

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

Abbreviation	Description
IHG	InterContinental Hotel Group
IT	Information Technology
IS	Information System
HR	Human Resource
GSA	Guest Service Agent
IA	Information Architecture

1. INTRODUCTION

1.1.   Background of Research

In the modern world, information systems have become the backbone of most organizations. For instance, without proper computer and information systems banks could not process payments, governments could not collect taxes regardless of how many collectors there are, hospitals could not treat patients though treatments are available, and supermarkets could not stock their shelves. In almost every sector such as government, hotel industry, education, finance, military, health care, manufacturing, and small businesses information systems play a vital role. With the support of information system technology, a company can become competitive in all aspects of its customer relationships. It is quite hard to separate IS (Information System) and any kind of business since these two are bonded each other. Dealing with the daily workload, communication with clients and suppliers, information gathering, sharing, and making difficult decisions etc., all depend on information technology (IT) and information systems (IS). As a practical example , consider visiting a travel agency to book a trip; a number of interconnected information systems will be used for checking for the availability of flights and perhaps another system or the same system will searching   for hotels and room availability. Imagine a situation when there are no such information systems and all the above activities have to be done manually. .Such a situation will be extremely inefficient and frustrating for both parties. Making an electronic payment is another excellent example. Usually this interacts with the bank's information system rather than with the employee of the bank. Regardless of workers' involvement, the payment can be made quickly with the support of IS. In 2012 a study conducted by Abubakar and Tasmin discussed about the impact of IT on banking productivity in a banking environment. Sawant (2011) found that Indian banks use information technology not only to improve their own internal processes but also to increase facilities and services to their customers. Moreover, a research study done by Rawani and Gupta (2002), attempt to explore empirically the difference in the role of IS in the banking industry. Computerization is one of

the factors that improve the efficiency of the banking transactions. Modern supermarkets, whatever their size use Information Systems to maintain the stock and the sales, and this information is applied to forecasting. As per Fanno (2012), Wal-Mart is the leader in utilizing technological supply chains systems to manage all their activities. Those technology systems enable Wal-Mart and their suppliers to predict the needs based on key information on consumer trends. In huge retailers like Wal-Mart, an information technology system is used to update inventory instantly and free of human error. Such information is also communicated to suppliers and facilitates better coordination for both Wal-Mart and their suppliers. Likewise, most organization, whether large or small, all rely heavily on their information systems for making their business a success.

This research is focused on the hotel industry and its success in using Information Systems (IS) in its internal service management. This includes internal information sharing, information based decision-making, knowledge sharing, service deliver managing, forecasting, guest service, internal staff services, maintenance etc. In other words, all the activities that are relevant to internal service management will be considered in this research. Bilgihan et al., (2011) proposed a conceptual framework that illustrates how information technology (IT) applications may lead to competitive advantage in hotel companies. The hospitality industries have widely adopted information systems to reduce costs and enhance operational efficiency. Furthermore, IS has become an important factor that improves service quality and customer experience especially in service industries. Therefore, it is reasonable to say that the modern hotel industry is mainly driven by information systems, the employees are the key followers of these information systems and the hotel guests, and owners are the benefited party. As per Law et al., (2013) information systems enables hotels to reduce costs, increase productivity and increase revenue. This research therefore sought to investigate the factors influencing the success of information systems in hotel industry using a case study of Chinese IHG hotels.

Many organizations have adopted information system driven methods since they have a real impact on the organization growth. Efficient and timely deployment of new IT applications offer opportunities to improve guest services to meet increasing customer expectations, improve cost control, develop more effective marketing strategies, and expand opportunities (Piccoli, 2008; Law and Jogaratnam, 2005). In many researches, it has been proved that IT investments will increase hotels' productivity (Bilgihan et al., 2011). In addition, it has been proven that IT reduces costs, while at the same time adding value to the services and products offered to the customers. Hence, investments in IT applications in the hotel industry have increased over the past decades (Armijos et al., 2002; Ham et al., 2005). However, it is hard to find many researches related to this topic, which is investigating the factors influencing success of IS for hotel industry. There is a famous quote from Bill Gate as follows

"*The successful companies of the next decade will be the ones that use digital tools to reinvent the way they work. These companies will make decisions quickly, act efficiently, and directly touch their customers in positive ways.* "; Bill Gates (1999)

This quote emphasizes that none of the organizations can be very successful without an information system or an automated digital system, and this is very relevant to the hotel industry. The hotel industry is one where there is a large volume of data processing; it can be guest request/complaints, equipment details, defect of equipment, room information, security information, financial information etc.

IHG is the world largest hotel chain, and IHG hotels use a number of information systems to control their operations. Reservation Management, Guest Complain Management, and Guest Engineering/Housekeeping/Concierge/FO/IT/Security request Management, Finance Management, etc. are the most important systems of these hotels. In greater China, there are about 250 IHG brand hotels, which consist of InterContinental, Hualuxe, Crowne Plaza, Hotel Indigo, Holiday Inn, Holiday Inn Express brand names. In addition, there are a number of hotels in the pipeline

that are about to establish their hotel services business in various cities. There are a number of information systems utilized in their hotel industry to manage its services. Reservation management system, request management systems, HR systems, surveillance security systems, energy-data management systems, and internal service management systems are some of them. There has been no research carried out to evaluate any of these systems and the factors, which affects the success of these systems for internal/external service management. As it is essential to investigate this problem, the research idea was built up. Since there are a number of hotels and resorts in China and also this region uses 'IS' for many of their service management activities , it was decided to carry out the research as a case study on Chinese InterContinental Hotels.

In the hotel industry, the most vital factor is providing an excellent customer service. By having a successful information system to manage all the related activities , employees can efficiently focus on their own work, management can easily control the work , increase productivity, minimize human errors, plan work effectively , easily manage the inventory etc. This implies IS can be used as a tool to improve employee working efficiency and productivity. In return, the organization receives better customer satisfaction and better customer retention. According to Ramli (2015) & Watkins (1995), IT begins with the customer and it ends with the customer in a hotel. Though IT investments can be very expensive, it could benefit the hotel if it enables customers to have a better experience than before, and it provides a better environment to hotel staff to work more efficiently and to serve customers well. Likewise, Olsen and Connolly (2000) argued that the use of IT could place knowledge and information at the core of a hospitality organization's competitive profile.

As mentioned above, this research intends to investigate factors, which influence information systems' success in the hotel industry for internal service management. Internal service management includes several areas. When a hotel needs to provide some services to their customers, the hotel staff has to share and manage a large volume of information internally. Therefore, the research aims to find out how IS

can be successful in this scenario. The research findings would be useful for other industries (hotel chain) to focus their investment on these systems. In addition, success in using IS systems will lead to a proper management of the hotel, better service to the guest and a positive income for the owner.

1.2.   Research Motivation

Information Systems play a major role in every organization/business. Organizations in diverse fields such as military, education, health, technology, production, researches are highly dependent on information systems and the outcomes they produce. The investment in IS in hotel industry is comparatively high. Therefore, it is necessary to measure the factors that affect the success of these information systems. In the modern world, the hotel industry utilizes information systems highly to manage their entire operations. Because of the complexity of hotel operations, information systems provide various methods to deliver perfection in the hotels operations. The research investigates the most relevant factors for the success of IS in the hotel industry. As mentioned by Turban et al., (2005) there are number of reasons why 'IS' need for an organization. Those are listed below.

- For business process reengineering
- To meet the company's goals and objectives
- For better decision making
- For productivity development
- Enhancing the product quality
- Building a competitive edge
- Retention of change management environment
- Creation of a research and innovation environment

According to the reasons above, it can be determined that the information system should be of high quality and focused on the needs of the organizations

requirements. So the question we are faced with is, how the "IS" can become a successful one. From a different angle, the following table illustrates some different reasons, (somewhat similar to above) with some examples, why organizations are motivated to invest in IS.

Table 1.1 Reasons of Investing on IS

Reasons	Description	Practical Sample	Reference
Operational excellence	With a highly competitive business world to achieve higher profitability, firms need to improve the efficiency of their business operation. An Information System provides managers with the resources to achieve a high level of efficiency and profitability in business operations. In addition, of course minimizing the errors. Wal-Mart uses a Retail Link System; it digitally links its suppliers to every one of Wal-Mart's stores. Once an item is sold from a store, the supplier monitors the item and the store, and knows a replacement is needed for	Wal-Mart (Retail Link System)	Traub (2012), O'brien and Marakas, (2005).

	that particular store.		
Customer/ Supplier intimacy	Through surveys, organizations have noticed that when customers are well served, they generally respond by returning and purchasing more goods and services. In the case of the Mandarin Oriental in Manhattan and other high-end hotels, they demonstrate the use of information system and technology to achieve customer intimacy. They use computer-based systems to keep track of in-house guest preferences such as their preferred room temperature, check-in time, television programs etc. Moreover, that information is used for serving the guest.	Mandarin Oriental Hotel	Laudon and Laudon, (2004)
Improve decision- making	Decision-making is a very important factor that should always be examined seriously. Depending on the	CDSS – Clinical Decision Support Systems,	Schniederj ans and Hamaker (2010),

	competitive nature of any industry, a wrong decision can easily lead to the downfall of an organization or its profit. The lack of the right information at the right time to make a decision has resulted in costs increasing and losing customers. We can see this in the case of many managers who operate in an information bank, never having the right information at the right time. Information Systems have made it possible for the managers or decision makers to use real time data from the marketplace when making decisions.	D-Sight	Leidner and Elam (1993, January).
Competitiv e advantage	Naturally, every organization aspires to have a competitive advantage. When an organization achieves one or more business objectives such as operational excellence,	Toyota Production System	Jayaram, Das, and Nicolae, M. (2010), Monden, (2011),

	business models, and launching new products or services, customer/supplier intimacy, and improved decision-making, which highlights the opportunities, they have already achieved a competitive advantage. Outdoing competitors, charging less for superior products and responding to customers and suppliers in real time increases sales and profit. Information Systems have made this possible. If we look at the Toyota Production System, we see that it focuses on organizing work to completely eliminate waste and achieving continuous improvement. In fact, the System is based on what customers have actually ordered.		Dyer and Nobeoka (2002), Adler Goldoftas, and Levine (1999).

As mentioned in above table 1.1, it is clear that IS has several functional ways of benefiting the organization. That is proven by examples given in above table. This emphasizes that from 'IS' system developer side, and from 'IS' system implement

side, from 'IS' system user side has a great responsibility to get the highest benefits from IS to their organization. Therefore, it is worth stressing that finding out the factors for IS success in hotel industry for service management, was the main motivator to carry out this research study. There are many researches similar to this research area, but it is hard to find any study that has been carried out on the research objective in the   hotel industry. For that reason, this research will be carried out as a case study on IHG – Greater China Region.

The outcome of the thesis contains both strategic suggestions and, opportunities for hotels to improve the day-to-day operations of their information systems.

1.3. Research Objectives and Questions

1.3.1. Research Question

In hospitality industry, responsiveness to the customer is essential. To provide a fast and accurate response, the employees must obtain the correct information related to the requirements in a timely manner. This implies the employees should have proper information about the requirements of each guest in order to serve them in timely manner. Facilitating the required service within the period and fulfilling the needs of customers with the highest rating is what amounts to quality service. Service quality has been defined in many different ways. Eshghi et al., (2008) clearly defined it as the overall assessment of the service by the customers. Many experts in the field also define the service quality as the difference between customer's expectations for the required service and the perceptions of the service that was received (Munusamy et al., 2010). Responsiveness involves willingness to help customers and provide rapid service. In the service industry it is essential that hotel staff is willing and able to assist customers, provide prompt service and meet customers' expectations.

If we look at the increasingly diverse methods, in which business is being conducted around the world today, information systems and technologies have

become a vital component for successful businesses and organizations. However, it is obvious that organizations need to made a huge investment in order to completely integrate IT in to the organization; the big question is how important is it to understand the role of IT in an organization? Once this is clear then it is easy to manage requirements for the investment and process implementation. When we talk about information systems, we think of databases, relationship, management, business models, process, computers/technologies, interface etc. The most important factor is how these external things integrate with the people who are in the organization. All organizations have information supply chains, which they used to manage, integrate, and analyze data. Organizations should be interested in leveraging their data, so that they can provide a better quality service to the customer.

Many organizations today see information systems as a foundation for conducting business and for the survival of the business. Being in business today is difficult without extensive use of information technology and related systems. 'IS' have become essential for helping organizations to operate in the worldwide economy. To become more competitive and efficient, most organization try to transform themselves into digital organizations since almost all core business processes and relationships with goods, customers, dealers, suppliers, employees are digitally enabled. Without extensive use of information technology, it could be very difficult to achieve strategic business goals. Table 1.1 elaborated the many reasons why organizations are moving to investment in IS. However, the major issue is "how the information systems can be successfully employed in a business environment?" What are the factors influencing the success of IS?

In the hospitality industry revenues are always driven by guest satisfaction; providing better service is the key to success. If a hotel runs on IS, the success of IS represents the success of the hotel and service management. Therefore, the research problem can be summarized as below.

❖ What are the factors driving the success of the information systems used for internal service management in the hotel industry?

1.3.2. Research Objectives

The proposed research is aimed at investigating the factors affecting success in using Information Systems (IS) in hotel industry. What are the factor affecting for the success of 'IS'. Apart from these general objectives, the following matters will also be also examined.

➢ Investigation of the success factors of IS for hotel industry internal service management
➢ Determine the factors most affecting the success of IS for Service Management in Hotel Industry
➢ Establish whether they are the same as typical IS success factors

Result from this research may help the hotel industry to improve their decision-making on IS selection and implementation. On the other, hand the system developer can focus on key factors where customer is given more attention.

1.4. Chapter Summary

The main objective of this chapter is to introduce the research requirement and research background. Further, in this chapter the author argues for the necessity of information systems in current business organizations. The reasons why organizations invest hugely on information systems in the current context is also briefly discussed. In addition, author presents the research problem including the list of objectives that research is going to investigate. In the next chapter, a literature review will be done to review and address the research objectives and end of the chapter the variables and dimensions of the research will be discussed.

2. LITERATURE REVIEW

In this chapter, the different dimensions of this topic in order to identify the current level of knowledge of IS system in hotel industry are discussed. In addition, the conceptual framework will be developed as an outcome of this literature review discussion.

2.1. Main Functions of the Hotel Industry

This chapter explains the distinctions between the duties and responsibilities within each service department in the hotel industry. In addition, it briefly discusses the benefits of using information systems in each department. The purpose is to give a brief idea about department activities and using information systems to manage them. Moreover, the part of the chapter discusses the use of IS in the hotel industry.

2.1.1. The Rooms Division (Housekeeping)

In the standard hotel, the Rooms Division consists of three major departments, namely front office department, housekeeping department, and uniformed services department. The front office is the revenue producer for the hotel among these three departments. The other areas are staff functions. The main guest representative of the front office is the Guest Service Agent (GSA). GSA is the position that welcomes guests, registers them, assigns guest rooms and rates, checks them out, and answers numerous questions about the hotel and the surrounding community (Rutherford and O'Fallon, 2007).

As per Peter Jones, (2009) the Housekeeping department is usually the largest department in all hotel properties. In some hotels, their own laundry is done by the Housekeeping Department; sometimes they have separate laundry department. On the other hand, some send the laundry outside to be done. In either case, the housekeeping department will be in charge of these functions. If they do their own

in hotel, then there will be laundry attendant/s that operate(s) the washers, dryers, and ironers. The largest numbers of employees in housekeeping are room attendants. These attendants clean the guest rooms and the public spaces of the hotel. There are inspectors who supervisor the work of the room attendants. Nowadays many hotels have eliminated the housekeeping inspector position, choosing instead to have random inspection performed by a duty manager in the hotel. All these are cost-cutting methods.

In a standard hotel, the uniformed services section of a hotel generally consists of bell-staff, doorpersons, valet, and concierge. Because of cost many properties, have eliminated many of these positions. However, at major hotels members of the bell-staff still can be seen. These staff will take the baggage to each guest's hotel room; introduce the many services of the hotel that are paid or non-paid. Moreover, they are generally able to answer virtually any question guests may have about the property or surrounding area like nearest location etc. Even though they are becoming less common, some of the main hotels may also have doorpersons. This staff will transfer a guest's baggage from their vehicle to a bell cart. They also hold the door for guest until to enter the property. Valet representatives park the guest's vehicle. These employees are voluntarily available in major downtown hotels or resort complexes where parking is scarce or remote to the property. A concierge employee can be a person in charge of several things; he/she can be a facilitator or expeditor. Most of the modern hotels incorporate the concierge into the GSA (Rutherford and O'Fallon, 2007), meaning Guest Service Attendant.

In the presence of the hotel system (IS), the housekeeping management can manage everything that is usually needed to have work force. It is easy for them to access the information about the occupancy in the hotel and the guest arrivals. 'IS' can provide required information to housekeeping management. Having required information in advance, the housekeeping department can deliver the hotel management system with better services to satisfy the guests.

Benefits of Information Systems in Housekeeping Work

- Instant communication between housekeeping staff and real time availability to streamline check-in / check-out at reception
- Saves time in room allocation process and management of housekeeping schedules
- Increases room attendant productivity by providing them with required information
- Saves time of floor supervisor by enabling automation communication
- Eliminates calls to front office by providing best service to guest
- Helps in optimizing laundry and housekeeping schedules throughout the day
- Allows fair spread of work among housekeeping staff – Automatic work allocation
- Minimizes expenses of overstaffing and understaffing on daily, weekly and monthly basis
- Provides accurate forecasting of staffing needs – inventory management
- Keeping work history and enabling it to be used as a tool for improving service quality

2.1.2. Front Desk Management

Hotel activities related to the guests depend much on the front desk management. They are the ones who govern, control, and administer these activities. The front desk welcomes the guests and prepares the accounts of the outgoing guests. They require a good inter-department communication to prepare the invoices and bills of the guests. With the assistance of hotel management software or any computerized system, the front desk management is capable of knowing every detail of the outgoing guest related to his stay and other payable services used.

Reservation and Booking

Online reservation is also a duty of the front desk department. However, in the modern context hotel management information systems allows the hotel to provide better reservation and booking management to the guest. In this modern age of internet, most of the hotels have their own websites or the hotel group provides that facility. This web site offers the visitors reservation and booking facilities, which are connected to the in-hotel management system. A Hotel information system automatically updates information rapidly. For instance, if a guest has just checked-out of the hotel, the front desk updates it to the information system that will make immediate update of vacant rooms in the hotel, and that appears in the web site. The next guest can easily book that room.

Benefits of Information Systems in Front-Desk Work

- Reservations Management
- Reception schedule work update
- Front-office cash flow management
- Night audit schedule management
- Guest Messages delivery
- Keeping guest history/needs
- Establishing link to corporate
- Housekeeping / Rooms Management
- Management related functions of Information System
- Loyalty management

2.1.3. The Food and Beverage Division (F and B)

This division may be the second largest division in a hotel. It may include several outlets depending on the hotel size. Restaurants generally operate for breakfast, lunch, and dinner. There may be several restaurants, depending on the size of the

facility. A large hotel may have numerous restaurants and each restaurant may specialize in a different food category; these categories may include Western, Chinese, and Seafood etc. (Rutherford and O'Fallon, 2007).

Catering department is the place, which can potentially generate the greatest profit to hotel. Outside catering also can generate much of revenue to the hotel. However, this department is very labor and equipment intensive. For generating many businesses in their hotel banquet rooms, most hotels use their catering department. The catering department is always a sales arm for the hotel. It takes the desires and wishes of the client and converts customer needs into orders. Therefore, with customer orders the hotel must provide proper service in order to make them satisfied and make them into repeat customers. Catering department usually has sales people and clerical staff. Banquets department have servers, bartenders, and housemen (Rutherford and O'Fallon, 2007).

2.1.4. The Maintenance Department

Maintenance and upkeep of the hotel according to standards is the key responsibility of a hotel general manager. Hotel owners refer to this as preserving the asset; that is the simple meaning of preventative maintenance. The department that is generally charged with maintaining the asset is Engineering or Maintenance. Out of total costs, 90% of the costs of a hotel are fixed. This means, that once the hotel is built and commencing operations, about 90% of the cost of the property has already been spent. In a hotel obviously the building, is a huge expense. Apart from that heating and cooling systems, plumbing, and electrical systems are major expenses. Furthermore, furniture and fixtures that have been purchased for every guest rooms are another major expense. Further, in most modern hotels, the entire hotel property has computer systems that are more expensive than physical assets. Moreover, in the kitchen there are ovens, fryers, steamers likewise electric or gas equipment. The key thing is here that in the hotel industry before they make even one dollar as income, major costs of a property are expended. Each of these areas needs maintenance in a different frequency. The maintenance task falls to the

maintenance department. Some large hotels usually have to take responsibility for external maintenance also since internals are not enough. Apart from major machinery maintenance, snow removal, landscaping, lighting, decorations are also included. The maintenance department is a small department but with major responsibilities; without a proper maintenance department hotel will not be a successful one (Chan Lee and Burnett, 2001; Lai and Yik, 2012).

Benefits of Information Systems in Maintenance Department

- Sends requests immediately to allocated staff, without wasting time
- Provides open communication to all levels
- Tracks staff productivity
- Measures Contractor performance
- Provides the basis on which to improve
- Improves Guest Satisfaction
- Tracks guest issues throughout the hotel - especially in guest rooms
- Allows you to listen to guest needs
- Excellent support tool for TQM projects
- Ensures rooms are out of inventory for the shortest period

2.1.5. Kitchen Department

This is the department where the food is produced for the guest. It is an important department of a hotel. Its responsibilities are, overseeing food and pastry production for all food outlets and banquet functions under limited supervision. It sets up the menus for a week or month, food purchase specifications, and creates recipes. The department also directly supervises all production and pastry staff and maintains the highest professional food quality and sanitation standards. The executive chef is head of the kitchen. With the assistance of information systems they will not be able to keep record of orders, keep record of broken equipment, update working times etc.

2.1.6. Safety and Security Department

It is one of the most significant departments of the hotel, since it has the responsibility for ensuring safety of the guests and staffs and their belongings. To establish such security they have to maintain all the fire equipment standards. This department also takes care of the hotel property as well. To keep records all the fire equipment details and their services, this department extensively uses information systems.

2.2. Productivity Concept in the Service Industry

Establishing a proper productivity management and quality management is a critical challenge of hotel management. Generally, the productivity concept is mostly associated with goods producing industries; perhaps it may be because measuring productivity is easy in a goods producing industry. Obviously, it is rather difficult but critically important to monitor and manage the productivity concept in the service sector as well since this sector is developing rapidly all over the world and service is always close to human business. In the recent years, the word productivity has gained popularity in the business world. When it gets more popular gradually, all organizations realize that enhancing their productivity would contribute to the success of their business operations. Therefore, productivity has become a matter of great concern amongst these organizations.

According to Wikipedia, "Productivity is an average measure of the efficiency of production. Productivity is a ratio of production output to what is required to produce it. The measure of productivity in any industry is defined as a total output per one unit of a total input". This emphasizes that the general meaning of the word productivity is a ratio between input and output at a given quality level (Slack et al., 2007, Jones and Lockwood, 1989). Soleimani (2010) also defines productivity as ratio between input and output related to specific production operation. Productivity can be calculated for specific dimensions such as productivity for shifts, productivity for individual jobs, productivity for departments, or productivity for a property as a whole. Productivity levels can be

measured for all factors of production, including labor, goods, times, service, etc. In the hospitality industry like hotels, there are many possible input and output units, which may be usde for productivity management purposes. During last 10-20 years, more attention has begun to be paid to the productivity concept in the service sector, particularly for the hotel industry (Sirirak, Islam, Ba Khang, 2011; Baker and Riley, 1994; Gummesson, 2014). As mentioned at the beginning of this chapter, this is because hotels are facing more challenges and aggressive competition than ever before, and need to achieve more and valuable output with the same or less input. Therefore, improving productivity is a key aspect for industries to survive and succeed in the long term. For a specific hotel and its departments, the most meaningful input/output which needs to be taken into productivity concept needs to be decided upon beforehand; only then can management focus on the productivity and work efficiency. For instance, input units can be measured in terms of, hours worked per day, hours worked per week, hours worked per month etc. Output units can be evaluated in terms of revenue or profit, number of rooms cleaned the number of check-ins / check-outs, number of fixed items in rooms, etc. Simply, for the hotel industry there can be various inputs/outputs based on department.

As per Kilic and Okumus, (2005), there are many factors, which influence productivity results in any organization. These include capital of organization; facilities for employee, materials used number of staff, end user training, service quality, organization forecasting, servicing customers, and desired technology. In addition, this can be divided into organizational (internal) factors and the environmental factors (external). Most studies regarding productivity are limited to manufacturing industry; however, service industry now needs to discuss more widely about productivity since modern business extensively based on services. Customers are direct active participants in many service encounters, and therefore customer is an important influence on productivity (Martin et al., 2001). Quality of service is an aspect of service industry productivity that cannot be isolated from productivity. As per Gummesson (2014) and Johnston and Jones (2004), since service is an intangible, the importance of psychological outcomes such as comfort

and pleasure become challenging factors in measuring and understanding productivity in service industries .

The key issue in service industry such as a hotel is the measuring of productivity (Atkinson and Brown, 2001). By means of productivity concept, it requires to identify the input and output of for measuring productivity. According to Djellal and Gallouj, (2013), outputs are easier to measure when a limited type of output, which can be stored, is produced. However, in hotel service industry it is hard to measure since the production is intangible. Hotel and service sector in general supply a diverse that are difficult to measure, such as customer satisfaction, brand image, and atmosphere. Poor service creates customer dissatisfaction, which in turn influences sales and productivity; therefore, it creates a cycle of poor productivity (Kimes, 2001; Reynolds, 2004). In other word, service delivery becomes a vital factor for service productivity. Satisfied staff and management capability are the two factors management feels have the most positive influence on productivity. The following table illustrates factors influencing productivity in service industry.

Table 2.1 Factors Influencing Productivity in Service Industry

Factors	Internal or External	Influence
Satisfied Staff	Internal	Technology, Training, Benefits
Management Capability	Internal	Technology, Information based decision making
Internal Communication	Internal	Technology
Training	Internal/External	Human Resource, Material, Data
Employee Retention	Internal	Employee Satisfaction, Income, User Friendliness
Technology use	External	Information System, Decision Supporting System, ERP
Customer Satisfaction	External	Service success, Input output ratio

Source: Milne et al., (2007)

Productivity is included in the following collection of definitions:

1.   Doing the right work with a proper method;

2.   Efficiency as well as effectiveness in work and life;

3.   The optimum use of resources to produce goods and greater and better services

The first one above explained that the activity could be completed in the right way or with the proper method, and this also becomes a factor for productivity, but it is not the complete meaning of productivity. As per the second definition, it is a measurement of efficiency and effectiveness in work and life. To achieve efficiency in productivity all the service industries need to utilize resources in

optimal way (Pinda and Copenco, 2001). The productivity is the measurement of every activity in relation to   the goal of doing of that activity.

2.3.   Efficiency of Works

Productivity concept is complex and it correlated with a wider area. That includes utilization, efficiency, effectiveness, quality, and other performance dimensions (Johnston and Jones, 2004). Efficiency means doing the right things while optimizing all the existing resources. On the other hand, efficiency means getting the same result by expending less input. Usually, this calculation is based on the input and output variance, but there are a number of different methods for measuring the same. As per the various definitions by various people, efficiency is not just about reducing costs; there are other business objectives too, including service qualities that also have to be achieved in order to keep existing customers and revenue. To enhance productivity and efficiency of work in service industry, obviously a huge investment must be made. Many organizations are concerned about this cost. However, they are not sufficiently aware of the real business value in improving efficiency of work. Information systems had been widely used by many corporations to automate and integrate the business operations of their organization. The main objectives of many businesses in adopting this system are to improve their organizational productivity and efficiency, and further increase competitiveness. Research by Kharuddin , Ashhari, and Nassir, (2010) have shown that information system adoption does increases a firm's performance and operations efficiency.

Efficiency – "A measure of whether the right amount of resources have been used to deliver a process, service or activity. An efficient process achieves its objectives with the minimum amount of time, money, people, or other resources." By Matthew Burrows (2012)

Effectiveness – "A measure of whether the objectives of a process, service, or activity have been achieved. An effective process or activity is one that achieves its agreed objectives." By Matthew Burrows (2012)

When discussing about service delivery, one objective must be to deliver services that meet customer requirements. However this delivery may be linked to any range of expenses, that can be 0 or some $ value. In the existing economic climate, cost is obviously a major factor for any organization. Therefore reducing the cost of delivering services is often the key objective of improving operational efficiency. The technical meaning of efficiency of a hotel service is a comparative measurement of how well it actually processes inputs to achieve its outputs, as compared to the optimum possible way of doing so; the optimum   is represented by its production possibility frontier. A hotel can be technically inefficient if it operates below the frontier (Barros, 2005). In the modern era, automation is used as one of the key techniques to improve efficiency. With automation, an organization can achieve significant benefits when implemented with effective business change. Automation is humans using technology effectively to do tasks that would otherwise have been done manually by humans. With technology such as Information Technology/Systems, there are various methods to improve the efficiency of work (Davenport, 2013).

It can generate the following benefits:
- Improve the speed of the tasks – providing channels for communicating
- Remove human error and manual activity – being automation
- Improve quality as well as reducing costs – reduce time waste, task can be properly defined
- Data management and analytics - Using data collected from customer to analyze their preferences
- Service automation - Streamlining and automating business processes to improve efficiency and keep costs low

- Self-service optimization - Finding ways for customers to interact with business when they want
- Workforce effectiveness - Encouraging staff to embrace new ways improving customer treatment by providing tools and training to deliver better service

The hotel industry's biggest challenge is delivery of quality service to guests and maintaining the same (Paraskevas and Buhalis, 2002). The traditional hotel industry has placed great importance on the establishment of quality service to guests. Regarding the competitiveness of hotel industries, guests have many options when they want to choose a hotel for few days stay. Therefore, guests have selection options among a large number of hotels. By providing better service and making guests experienced the best of service is the key to brand the hotel as the best among the competition. Therefore, hotels are focusing and investing huge amounts of money for different methodologies to improve their service level. As a result, and also with the increasing demand for intensive information from customers and hotel practitioners, modern hotels have adopted computerized information system facilities to improve operational efficiency which may also assist to reduce costs, and enhance service quality of hotel operations (Law et al., 2009; Cobanoglu et al., 2000). Aligning the business with IT/IS, the hotel management expects to increase their profit margin and the highest financial benefits. To align IS to business requires a good understanding the main function of the hotel management. After reviewing many hotels' day-to-day operation, it can summarize that hotels usually focus on the following.

Table 2.2 Management Perception in Hotel Services

Improves Operational Efficiency	Protects Revenue	Maximizes Investment in Assets
Sends guest requests/complaints immediately to allocated staff, no time wasted	Improves Guest Satisfaction	Ensure assets are maintained according to International standards
Provides open communication to all levels	Tracks guest issues throughout the hotel - especially in guest rooms	Allows for budgeted equipment replacements based on life cycle costs
Tracks staff productivity	Allows you to listen to guest needs	Identifies top issues for refurbishments and Quality Evaluation
Measures Contractor performance	Excellent support tool for TQM projects	Defers capital, saves energy and improves running costs
provides the basis on which to improve	Ensures rooms are out of inventory for the shortest period	

To establish a better service and manage operations in proactive way, and with intensive demands for information from customers and hotel practitioners, hotels have to adopt some kind of technology based system facilities to improve operational efficiency, reduce costs, and enhance service quality.

2.4. Information Systems for Hotel Services
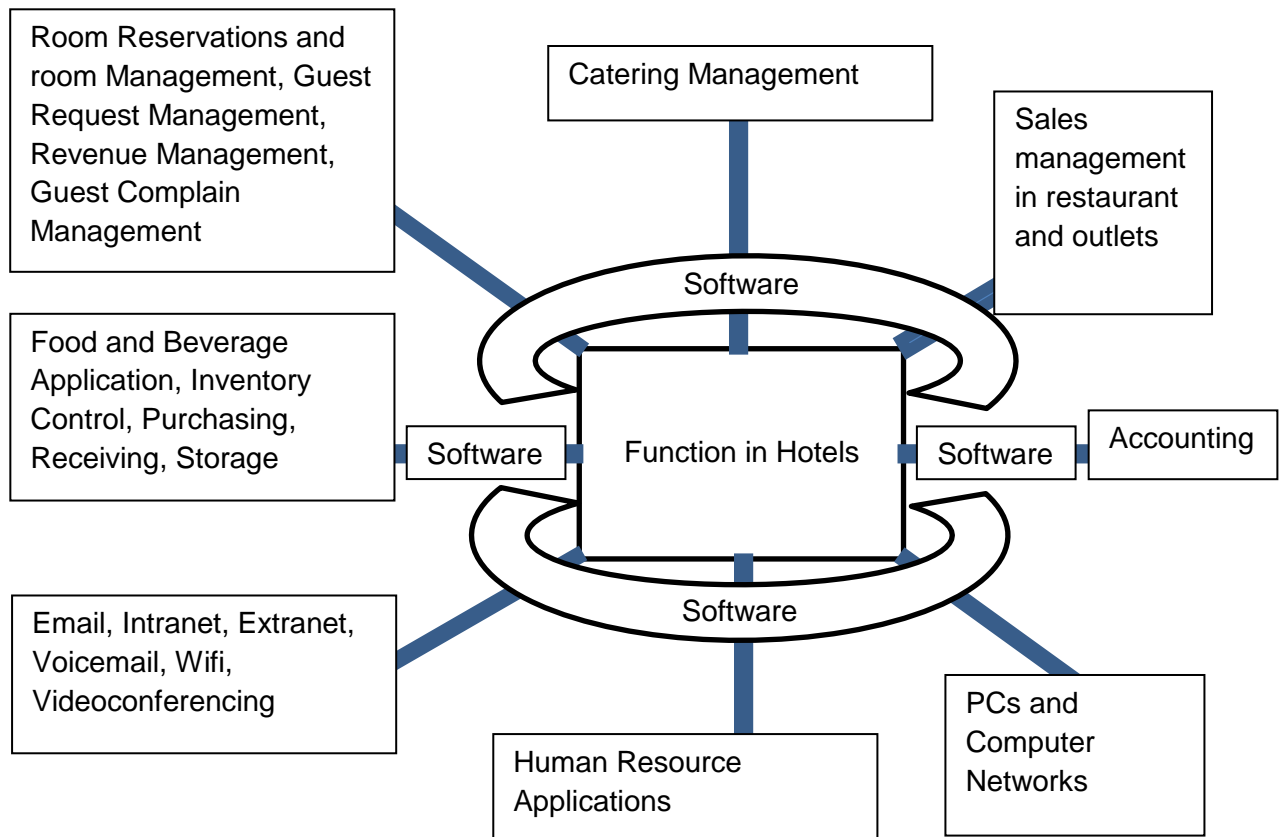
Figure 2.1 IS and Hotel Organization

In the above diagram, it clearly explains how modern hotel industry has adopted to IS more than before. Earlier, most of the functions, which are shown above, have been controlled by humans, but with rapid technological growth, software has taken some of the human responsibilities into its hand. In the modern world, in the vast majority of organizations 'IT' has become a natural part of the complete organizational structure (Oliveira and Martins, 2010). However, researches have

proved that many organizations still fail to take best advantage of the technology as they might to maximize revenue opportunities. Nevertheless, hospitality industry is a service intensive industry; currently information systems have been widely used in these industries (Sirirak, Islam, and Ba Khang, 2011; Poon, 1993).

With the increasing competition among the hotel business, the hotels are trying various interactions, and profitable service methods to draw customers. In order to achieve that, hotels surely need to identify what the customer needs and have to consider how that should be delivered to the customer. Moreover, the result would show-up the productivity in each department as the key for better service. As discussed by Dinnen and Hassanien, (2013) any organization, large or small, can only operate successfully and profitably, if they are providing a service that the customer desires and can afford. When this is not achieved, a gap is formed between customer expectations of a product or service that they purchased, and the actual standard of this product or service that is delivered by the particular organization. This gap does not necessarily indicate that the guest will express his or her dissatisfaction in the form of a complaint. Alternatively, the disappointed customer concerned may choose to take their business to a competitor or engage in negative word of mouth communication. Previous research indicates that customers are reluctant to complain and only a very low percentage complains about the service. The majority of dissatisfied-customer are just walking away and never coming back (Ekiz, Khoo-Lattimore, and Memarzadeh, 2012). This emphasizes the importance for encouraging customer complaints within organizations, as the effects of not doing so result in loss of business. It is also more cost efficient to keep the present customers happy as recruiting a new one costs five times as much as retaining a current one (Hanić, and Domazet, 2011; Blodgett et al., 1995). There are procedures that management within an organization can carry out in order to attract and handle complaints.

When considering the guest service in hospitality industries, as the center of front office activity, we see that the front desk is very responsible for coordinating guest services. In some hotel, concierge department works together with the front office

to make things more efficient. Typical guest services involve providing guest required information, special equipment, and supplies. Front office employees need to respond to guest requests by having their requirements details. As mentioned by Pizam and Holcomb (2008), customer satisfaction is "The capability of an organization to accomplish the desires of its customers". In hotels, customer satisfaction is an essential thing.

When guest requests special equipment, service, or supplies during the reservation process, in front office check-in or during their stays in the hotel, reservation agents should have some kind of method or recording system to record such requests. When a guest requests s special equipment or supplies at the registration or during occupancy, they will usually ask a front desk agent. The agent then communicates the request to the suitable service delivery center or hotel department for processing. Common equipment and supplies requested by guests may include bed board, clothes hangers (additional), adapter, transformer, additional blanket, vase, hairdryer, baby cot etc. All these items are tangibles. Customer service is the delivery of high standard service to meet the guest expectations, which can be intangible services as well as tangible supplies (Vallen and Vallen, 2009). Whatever the need, hotel should have a system to separately record these requirements, and if it is automated relevant people of the hotel get alerts about the guest needs. Then when the guest expects the item or service the staff can provide that quickly. As per Jones and Lockwood's (2004), within the front office, the use of technology is important in the delivery of standards. The most well known technology today is IT based information systems.

The major challenging factors involved are:

- The complexity of the hotel environment, which historically has required many different systems to interact with each other
- A lack of awareness of how much efficiency could be improved through the use of modern integrated systems (IS)

- A historic preference for investing funds in FF and E rather than in the systems themselves or in regular training for their users
- The difficulty of providing comprehensive, expert technical support at the individual property level for the multiple systems used there
- Employee knowledge on Information Systems
- Investment in Technology
- Difficulties on training the service employees to make them into IS based service employees

If hotel use information systems, the system needs to be sophisticated and well integrated. Multi-disciplinary tools are capable of helping hotel properties of all types and sizes. The system must be capable of attracting more guests, generating more revenue to owner, and reaching higher levels of efficiency. Through long-term development processes in expanding the abilities of individual systems and with the improvement of all the integrated methods, today system developers have produced far more comprehensive and well-integrated systems than in the past(Lari, 2002). These systems can now cover virtually all areas of even a huge complex resort property, and the kinds of hotel-chain that have multiple properties together. Obviously, these systems bring benefits from having more complete and accurate data, both operationally and concerning guests' profile and history information. The information produced by the information systems can contribute to effective decision making of the hotel or for future planning to be carried out (Patterson, 2005).

Several authors have cited the introduction of advanced technology as an important and positive influence on productivity (Sigala, 2003; Sharma and Upneja, 2005; Lee et al., 2003; Black and Lynch, 2001). However, these positive impacts do not simply appear, but have to be obtained using IT capabilities (Sigala, 2003). Technology is always developed to support employees. Furthermore, it contributes to enhancing the quality of service, improving efficiencies, assist in gaining competitive advantage to the organization, maintaining the relationships

with customers, and increasing profitability (Lee, Barker, and Kandampully, 2003) of the organization. Similarly, when the managers or owners make a poor investment in technology (along with poor training) it reduces the profitability of the organization (Milne and Ateljevic, 2001; Milne et al., 2004). According to Milne (2004), several studies have shown that SMEs in the hospitality sector have special difficulties in maximizing the productivity potential of information technologies. Such enterprises are more likely to recognize the limitations of technology use and emphasize the importance of the human touch for service management (Gummesson, 2014). At the same time, most of SME owners and managers gradually move in to the out-sourcing option when it comes to aspects of IT. Most of the Holiday Inn Express hotels in IHG group are like this; they have outsourced their entire service team.

Employees feel that technology such as wireless digital equipment can certainly improve the productivity and efficiency of hotel service. However, to accomplish such improvement, it is essential to have better communication among staff and management. Then positive productivity results can be expected. Technology makes it easier to perform multiple tasks and to perform them appropriately, particularly for new staff. However, some employees also have a sense that it is often hard to learn new technology without having successful training. This is where lack of effective training becomes a significant factor for system use and it is related to the productivity of organization. Training on the job may serve for the basics. However, introducing of new technology for an organization and the extra demands it places on staff may sometimes require the input of external training. That perhaps is not beyond the capabilities and resources of those particular smaller firms. As mentioned by Kong et al., (2011), a study has shown that effective hiring and training is linked to a better capabilities to satisfy the requirements of a target market , greater organization commitment, more effective use of new technology like IS (Milne and Ateljevic, 2001; Milne et al., 2004), and enhanced work outcomes.

2.5.   Service Management and Customer Satisfaction

The main function of hospitality organization such as hotels is that employees must perform delivery of quality service to their customers; customer in the sense guest in the hotel. Service quality has been defined as how well a customer's needs are met. In addition, it has to link with how well the service delivered fulfills the customer's expectations (Dabholkar, (2015). Perceived quality of service is dependent on a comparison between expected and perceived service, simply meaning that what customer expects must be provided just to make him satisfied (Fiedler, Hossfeld and Tran-Gia, 2010). Li et al., (2011) has defined the service quality as the difference between a customer's perceptions and expectations. Equally, he stated that ''perceived service quality'' is the difference between a customer's expectations and perceptions as a measurement of service quality. The smaller the gap, the better the quality of service and greater the customer satisfaction. Magnini et al., (2011) recommends that the customers may be excellent sources of information for management on how the organization can deliver quality service. Through surveys and focus groups, customers are able to help management to determine which service areas are most in need of enhancement. Providing services that customers prefer is obviously a starting point for providing customer satisfaction. A comparatively easy way to determine what services customers prefer is simply to ask them.

A number of research studies on customer satisfaction in the hospitality industry have focused on identifying service qualities. In other words, a customer has needs and wants. From a marketing perspective, customer satisfaction means, fulfilling the needs and wants of the customer (Sin et al., 2005). Sin et al., (2005) carried out a study to assess the customers' expectations and perceptions of the service quality, and recognized a gap between the two. They also explored the impact of service quality factors on inclusive customer satisfaction. Their findings discovered that reliability of service, responsiveness of the service and assurance of the service are the most significant factors in forecasting customer satisfaction. The purpose of measuring customer satisfaction is to assess the quality of the existing

management practices and identify directions for improvement. The intention of managing satisfaction is to obtain a higher rate of customer retention and improve a business's market share and profits. Several researchers propose that customer satisfaction influences customer loyalty, which mean positive emotion on service, also, it is opportunity to generate positive effects on organization profitability (Gummesson, 2014). Therefore, it is obvious that customer satisfaction depends on the service quality. Quality service is a key element of a successful business. However, many businesses struggle to enhance service and retain their customers. A bad experience about the service can drive a customer away for years. There are several methods to improve quality service at any business, from having clearly defined, measured service goals, and motivating employees, to using customer feedback and updating service tools to establish a better service to the customers. To establish better service quality, hotels move in to IS based mechanisms which is the trend in most organizations in the current era (Table 1: Reasons of Investing on IS).

As mentioned by Dominic and Guzzo (2010), Customer satisfaction is a business philosophy. Customer satisfaction leads to creating value for customers, anticipating the needs, and managing their expectations. Present-day enterprises exist because they have a customer to serve (Valdani, 2009). The key to achieving sustainable advantage lies in delivering high quality service that result in more satisfied customers. In order to achieve better customer satisfaction, it is required to recognize and to anticipate their needs. Hotels are increasing their investments to improve service quality and the perceived value for guests to achieve better customer satisfaction and loyalty, thus resulting in better relationships with each customer who receives the services (Jones et al., 2007). Moreover, that leads to the guest satisfaction on services. Particularly in the hotel industry, a satisfied guest promotes positive word of mouth at no cost for the hotel. This result and credibility is superior as conventional advertising for hotel (Lee et al., 2006, Tarn, 2005, Villanueva et al., 2008).

With present day advance of information technology, new systems can be used to improve the power of organizations for reduction of internal management costs, better relationships with the customers and environment, which may consequently lead to economic profit in the end. In this regard, it has been shown that different classes of hotels implement different Customer Relationship Management systems (Moriarty-Jones, Rowley, and Kupiec-Teahan, 2008). The hardware and software of these systems can be an asset organization to serve their customers in an effective manner and consequently improve customer satisfaction, loyalty, and customer retention, which in turn can lead to improve financial performance of organizations (Abdulattef, 2011). The effective use of information technology will improve productivity and service quality, and it will benefit in decreasing the potential for customer service errors and recovery costs associated with such errors (Chathoth, 2007). Efficient and timely implementation of information technology can result in some benefits to hotel industry including enhanced customer service quality to meet customers' expectation, improved service cost control, improved internal operational efficiency and effective marketing strategies s (Cobanoglu, Corbachi and Ryan, 2001; Law and Jogaratnam, 2005; Piccoli, 2008).

In hospitality industry, one of the benefits of the adoption of IS or ICTs is to improve guest service quality. Some studies indicate that hoteliers could track customers' stay patterns and their preferences through information technology. By this hotelier can provide personalized services to them (Palmer et al., 2000), thereby improving customer loyalty (Martin, 2004). In addition, Chathoth (2007) highlighted in his research, that use of information technology acts as a replacement in the hotel industry for guest service production and process delivery. The study concluded that the effective use of ICTs for service management not only improves service quality, but also maximizes guest satisfaction, thereby increasing profitability. A study done by Singh et al. (2006) on Korean hotels, investigated the influences of ICTs on guest service satisfaction, guest convenience, and operational efficiency of hotel. Their findings suggested that the impacts of ICTs vary in terms of category of hotels. Therefore, it is important for

managers and owners to select and implement the most appropriate technologies such as IT based systems in their hotels in order to enhance service quality.

2.6. Factors Leading To Information System Success

Modern systems or product evaluations always pay more attention to user satisfaction. For instance, large car production companies always improve their product to facilitate users to be more comfortable. Perhaps they pay more consideration to r user satisfaction rather than performance of the product. Therefore, it can be said that the most important indicators of system success are that the system performs as intended and the users of the systems are satisfied with it. However, as mentioned, always the overwhelming attention of the development team is on building and refining the technical side of the system. Therefore, the result is that many systems are delivered with which the users are not satisfied. Measuring user satisfaction of using the system is a significant factors when measuring success of any system. End-user satisfaction has long been used as an important measure of information system success (Russell and Yilmaz, 2006; Abdinnour-Helm, Chaparro and Farmer, 2005; DeLone and McLean, 2003). Since the mid-1960s, IS developers have realized that end-user satisfaction was critical to the success of developed systems. The culture that precedes people's expectation of an information system demands that systems should be flexible and easy to use even to a beginner. In addition, highly rated information systems are expected to be reliable, user friendly, fast in response, increase productivity, have less bugs, etc. As cited by Livari (2005) in his paper, there is a strong relationship between system quality and user satisfaction. Several types of information systems have been examined, and the type of information system affects how some researchers measure system quality. For example, the functionality of an information system, which is one measure of system quality, has found to be considerably related to user satisfaction. In modern industry, most of the system developers largely spend their time and effort on making systems more users friendly: perhaps on that rather than thinking of the internal functions of the system even if it is more costly. Many studies have observed the importance of

system quality for user satisfaction in different types of information systems. Gelderman, (2002) found system quality to be significantly related to user satisfaction of a management information system. Likewise, in a knowledge management system, system quality was also found to be key related factor to user satisfaction (Kulkarni et al., 2006; Wu and Wang, 2006; Halawi et al., 2007).

There have been many studies dealing with different measures of a system's quality. Some researchers concentrated on other technical issues in the system, such as the reliability of the computer system, the response time, and the ease of use (Gorla, Somers, and Wong, 2010). Measuring system characteristics, such as the content of the database, response time, and system accuracy, system flexibility and ease of can possibly evaluate the system quality (Gable, Sedera, and Chan, 2008). Further flexibility and user friendliness was presented by Gorla in 2010 in his research. Ease of learning is also a factor to be evaluated related to system quality (Sedera and Gable, 2004). As mentioned by Nelson (2005) if the system component is integrated that will be a plus point for the success of that system. Chang and King (2005) have found that easiness of system customization, system benefits, system meeting requirements, user expectation, and ability of problem identification are the factors, which deal with system quality.

Employees always need proper information from any person or system in order to accomplish the task that they are entitled to do. Therefore, the information must be quality, which means it should carry valuable data. If any 'IS' can provide information which user needs in a timely manner, that has a direct effect on their work satisfaction. As described in the literature, user satisfaction and information quality has a strong relationship (Iivari, 2005; Wu and Wang, 2006). Some studies have found a consistent relationship between information quality and user satisfaction at the individual unit of analysis (McGill et al., 2003; Wixom and Todd, 2005; Kulkarni et al., 2006; Halawi et al., 2007). Most of the users in the current era always use online shopping facilitated by web based information systems, simply called Websites. Numbers of studies specifically have been examining the information quality aspects of Web sites. This may include testing

on web site content and layout of information quality and user's reaction to that. In Palmer's (2002) research, it has been proven that there is a significant relationship between user satisfaction and information quality. The meaning of information quality is determined by how the information is perceived and used by its customer. However, entire qualities are important; it is how those attributes are perceived, now and in the future, that defines information quality. Some researchers also conclude that identifying quality information involves two stages. First highlighting the attributes is important, then determining how these attributes affect the customers in question. Understandability (Al-Mamary, Shamsuddin and Aziati, 2014), clearness (Gorla et al., 2010), Importunity, availability, well organizing, up-to-date and creative definitions (Chang and King, 2005), relevance (Gorla et al., 2010), accessibility (Doll et al., 1994; Gorla et al., 2010) and timely availability (Gorla et al., 2010, Srinivasan, 1985) are the most common dimensions used for similar research.

The value of empathy and speed of response are vital factors of service expected by the users. The services mean here the system owner or system developers' assistance to system users when it required. The latter emphasizes that the response time to compliance be short while empathy encourages the value of respect and humility in attitude of the support personnel. Moreover, several studies have examined the relationship between service quality and user satisfaction. A study by Bano and Zowghi (2013) found that the technical performance of the developer team (based on their responsiveness to problems) is positively correlated with end user satisfaction. More research has a similar result in that developer skill of developing system had a significant effect on user satisfaction of expert systems (McLeod and MacDonell, 2011). Examining service quality more generally, rather than just in terms of personnel and training, there is still mixed support for its effect on user satisfaction. Many studies of services found a relationship between service quality and user satisfaction. They identified software upgrades, staff response time assisting system issue, and providing required documentation of end user training materials (which may also include video) as the service quality factors having the most influence on user satisfaction. Knowing

the job well, timely responsiveness, understanding the needs have e becomes factors for service satisfaction (Gorla et al, 2010; Carr et al., 2002).

In the past, information systems (IS) implementation was costly and had a relatively low success rate. Since 70s, many IS research has contributed to a good l understanding of this process and its outcomes. The early challenge was concentrated on the recognition of factors that facilitated IS use to organization. It became obvious that, for practical reasons, these factors had to be assembled into a model in a way that would enable analysis of IS use. In 1985, Fred Davis proposed the technology acceptance model (TAM). This model concluded that there is an intermediating role of perceived ease of use with perceived usefulness in their relation between systems characteristics (external variables) and the probability of system use (an indicator of system success). System use is based on the facility which system provides to user to minimize his/her dump work. If the particular 'IS' can make users' day to day work easier, then user would intend to use the system and fulfill the responsibilities.

The information produced by any system should be easily usable for different purposes, which is a quality factor about information. For instance, if there is information, which cannot be used to develop, produce, or conclude something, that information is defined as non-quality information. Information architecture (IA) focuses on organizing, structuring, and labeling content on information in an effective and sustainable way. The goal is to help users find information and complete tasks. To do this, system should provide better information where user can then easily use them for difference purposes. The purpose of IA is to help users understand where information is, what information has found, what is around, and what to expect from it. Designing usable information means planning the access, presentation, flow, and support of information for particular uses. For hotel service management, information on guest expectation is very valuable. If user of IS can easily compare the information on guest's preference with the past, present and future, then that would be a guideline for them to make the guest impressed. For instance if a regular guest arrives at the hotel, if in a systematic

way we can find out what the guest is interested in, which room number is the favorite, what is his/her getting up time, then the service management for this particular guest also be easy and further it is easy for hotel employees as well.

Table 2.3 Literature Paradox

	Gorla et al., 2010	Gorla et al., 2010	Nelson et al., 2005	Chang and King 2005	De Lone and McLean, 2003)	Gorla et al., (2010)	De Lone and McLean, 2003)
System Quality	x	X	x	x	x	x	x
Quality of Information Usability				x			
Information Quality	x			x			
Support Service Quality		X					
Intention to Use IS				x			
System Use		X		x		x	
User Satisfaction		X		x			

				x			
End- User Trainin							
Net Benefit s/IS				x	x		

Table 2.4 IS Success Factors

Construct	Description	Related References
Information Quality	This refer to characteristics of the output presented by the Information System, such as accuracy, timeliness, and completeness	Gorla et al., (2010); Nelson et al., (2005); Srinivasan, (1985); Chang and King, (2005); Palmer, (2002)
Quality of Information Usability	Easiness of information usage, comparison, information based problem identification, sharing.	Gorla et al., (2010); Palmer, (2002); Chang and King (2005)
System Quality	System Quality refers to the performance of the Information System in terms of reliability, convenience, ease of use, functionality, and other system metrics	Gorla et al., (2010); Srinivasan, (1985); Nelson et al., (2005); Chang and King, (2005) ; Palmer, (2002); J. Iivari, (2005)
Support Service Quality	Support service quality means support of users by the Information System management department or system vendors, often	Gorla et al., (2010); Carr et al., 2002; Leonard-Barton and Sinha, (1993)

	measured by the responsiveness, reliability, and empathy of the support organization.	
Intention to Use IS	This variables refer to the degree to which an individual user believes that using the system enhances his or her productivity and job performance, Usefulness; perceived usefulness; impact on end-users' jobs; impact; perceived benefits	Chang and King, (2005); Kahn et al., (2002); Wang et al., (2006) ; Fred Davis (1986)
IS System Use	The individual's behavior of, or effort put into, using the system, System use, usage, or utilization; frequency of use	Chang and King, (2005); Fred Davis (1986)
User Satisfaction	The extent to which the user believes that the system meets his or her information requirements, user satisfaction; user information satisfaction ; end-user satisfaction or computing satisfaction; overall satisfaction	Gorla, Somers and Wong (2010) ; Kahn et al., (2002); Chang and King, (2005); Mirani and Lederer, (1998); Russell and Yilmaz, (2006); Abdinnour-Helm, Chaparro and Farmer, (2005); DeLone and McLean, (2003)
End-User	The extent to which an	Huber, M. (2010);

Training in IS	individual has been trained about ISs through courses, training, manuals, and so on Training; user training ; end-user training ;	Chang and King, (2005); Davis and Bostrom, (1993); Gupta, Bostrom and Chang and King, (2005)
IS Success	Net Benefits The effect an IS has on an individual, group, organization, industry, society, etc., which is often measured in terms of organizational performance, perceived usefulness, and effect on work practices	Petter et al., (2008); DeLone and McLean, (2003); Brynjolfsson et al., (2002); Thatcher and Oliver, (2001);

2.7.   Employee Communication Based On IS

Communication is a basic function of management and it is a connection process. According to Keyton (2010), the members of an organization necessarily need to communicate with each other as they perform their individual duties. People can only interact and learn about organizational activities only through communication within the organization. As per Maviş, (2001) Communication plays an integral part throughout the management process and in an effective completion of organizational tasks (Lindner and Wald, 2011; Mavis, 2001). Communication plays one of the most important roles in the manager's success and the efficiency of organizations.

When discussing the success of a hotel, it is a key to have a quick and efficient distribution of information through the organization; not only for the hotel service sector, is it a key for most of the service industries. Formal communication may frequently form in the frame of an information system or technology. Especially in

a highly unstable and susceptible industry such as hotels, information and communication technologies are intensively used to obtain information that is essential to maintain effectiveness and to distribute through the organization. A Hotel uses separate information systems for the functions of production, marketing, accounting, human resources, and finance activities. It also uses many integrated information systems and automation systems with internet and intranet for managing guest services (Ruiz-Molina el al., 2011). Hotel automation systems assist departments to obtain instant information, to increase time efficiency and to provide faster responses to guests' necessities, thus improving satisfaction and productivity. The ability of staff and management to communicate effectively is vital to creating   lower-stress workplaces (Johlke and Duhan, 2000). Stress is associated in a number of research studies, and has been proven that stress reduced work output and caused poor employee performance (Lo and Lamm, 2005). Some research (Hu and Cheng, 2010; Repetti and Wood, 1997) resulted in the fact that unfriendly and stressful conditions in hospitality environment will have an extreme negative influence on service quality, employee productivity, and business performance. Good communication in a team has a significant impact on the efficiency of staff and their ability to perform the service, and helps to improve the customer experience.

2.8.   Individual End-User Training for Information Systems

End user training has been recognized, as one of the key factors responsible for ensuring successful IS usage (Gupta et al., 2010; Davis and Bostrom, 1993). Research has shown that training increases system usage, helps users to feel comfortable with system utilization in their work, and consequently indirectly increases system acceptance (Compeau, Higgins and Huff, 1999). It has also been empirically publicized that training is strongly correlated with many factors as shown in Table 2.3.

Table 2.5 Training factors

Factors	References
The system usage and the improvement of decision-making	Aggelidis, and Chatzoglou (2012); Mykytyn (1988)
Users' efficiency and effectiveness	Aggelidis, and Chatzoglou (2012); Quaddus and Intrapairot (2001)
Users' satisfaction	Aggelidis, and Chatzoglou (2012); Soliman, Mao, and Frolick (2000)

Therefore, end-user system training is a key factor in the long-term viability of IS in a given organization (Yi and Davis, 2003), (Rouibah and Ould-ali, 2002), (Solomon, 2005). Unfortunately, training costs and constricted system implementation budgets can result in organizations move in to limited training prior to actual usage (Scott JE, 2005). In addition, the cost comes as separate expenses for the hotel, further training requires more time, which means employee-working time. Especially in some organizations, likewise hotels can find only limited time for providing training to managers, which result reduced managers' interaction with the system. End-user training account for a significant part of teaching on how to use information systems effectively in practice. Thus, appropriate literature on end-user training is used to explain the relationships between individual characteristics such as learning styles of trainees and matching training methods. The number of computer applications used in hotels is gradually increasing. Therefore, computer literacy is more and more essential for workers (Gupta et al., 2010). Consequently, trainings are applied to increase knowledge of the system, ensure better performance with the system, change attitude towards the system, and the utility of such computer applications in domain of information systems (IS) (Sánchez and Hueros, 2010; Arthur et al., 2003). End-user trainings teach future users to use that information system effectively and with that enabling the organization to gain more from the system. It has been shown that such end-

user trainings increase the adoption of the given information system within the company (Sánchez, and Hueros, 2010; Igbaria et al., 1995). Service provider or training initiators need to define the training method according to the degree of information system is involved. The goal of end-user training is to teach users how to use software (system). Therefore, literacy of technology is essential to some level. If user knowledge of computer literacy is limited, then gaining of system-knowledge will also be limited to some level. This, the training method also needs to plan based on the audience by using various learning techniques.

What effect can training have on IS use?

- Has positive effects in behavior, performance, acceptance of technology, attitudes and beliefs
- Allows users to understand their work's relation to other functional areas within the company
- Teaches users to easily prevent problems in the system
- Fights fear and hesitations related to technology
- Helps overcome resistance of managers and employees to organizational change brought on by system
- Provides opportunity for users to learn the abilities and skills essential to the success of the system throughout the organization
- Works are a preventive mechanism to downtime caused by errors within the system
- Ensures use of the information system by employees is efficient and effective

It is fair to say that if service providers (vendors) make sure that employees have proper training and skills to use the system, vendors are on the right path to making system implementation a success. In addition, ongoing training such web-based training can proactively provide more support to improve the end-user knowledge of the system and its upgrade.

2.9.   Chapter Summary

The chapter emphasized how complicated hotel management is by explaining its various departmental activities. Further, the chapter explained   how effectively IS can be aligned to the hotel industry utilizing modern technology and systems. Productivity of service industry is an essential measurement in modern service business, so the chapter describes system uses and improving the productivity. The key finding of this chapter is measuring variables for research. Findings can be listed as in the following table.

The next chapter will describe the methodology of this research including variable, dimensions, and measurement.

3. RESEARCH METHODOLOGY

3.1. Overview

This chapter introduces the research methodology used for this study. Further, it describes how it has guided data collection, analysis, and development of theory. Interview and/or the questionnaire for the hotel managers and staff depend highly on the information systems, which they already use in the hotel. This research is a quantitative method research. All the measurements will carry out based on the questionnaires. The questionnaire was developed based on each variables and dimensions.

The following graphical flow chart explains the whole process of this research study.
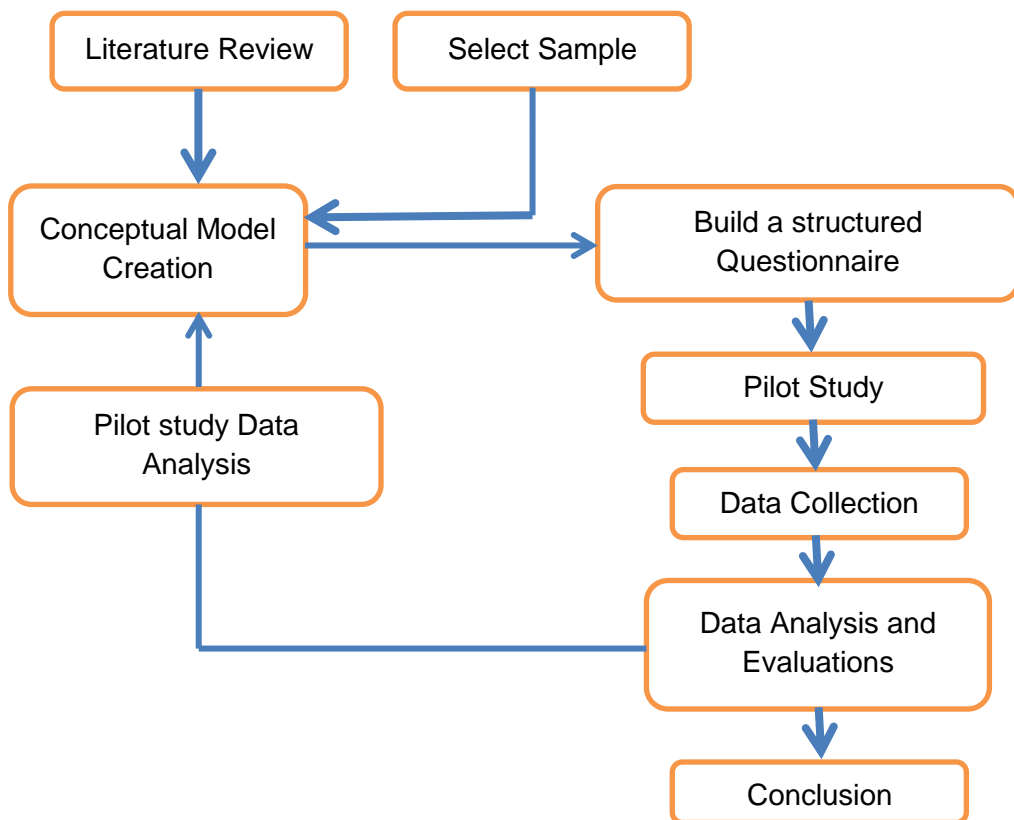
Figure 3.1 Research Plan

3.2. Study Population and Sample Selection

The study population for this research is 250 or more hotels that use information systems in their day-to-day operation. Among these 250 hotels, there will be approximately 6250 employees who use 'IS' including managers. Sample is selected from the IHG – South East Asia industry that used information systems in their operations. The sample includes the profession categories of IT managers, chief engineers, assistant chief engineers, front office managers, housekeeping managers, executive housekeeper etc. The main reason to select the Chinese InterContinental hotel employees is that they use technology for all their work. Compare with other countries' employee, Chinese is utilizing technology more than the others do, and they attempt to test various methods to improve it.

The sample design is based on the hotel industry IS users. The IS users are the employees of hotel; therefore they have to provide a proper service to their guests. Management provides them facilities such as 'IS'. The respondents who are in this survey are very significant, because they have to use IS in their day-to-day operations since management requires them to use it. With the functions of modern IS and the ease of applying it to individuals' work, users are more eager to use the IS. Nearly 5-10 employees in a hotel engage with 'IS' at a decision making level. Moreover, generally 5-15 employees totally engaged with the 'IS' that use for internal service management under these decision-making employees. Under this calculation, the sample size resulted as 362 and researcher has taken the same as the research sample size. To get accurate data, 5% was the confident interval that was used in the sample calculation.

3.3. Method of Data Collection

A Structured questionnaire will be used for a quantitative method. This questionnaire is a series of questions asked from employee to obtain statistically useful information about IS Success in hotel industry for service management. Moreover, the questionnaire is designed based on the literature review and research model, which is an easy method for data collection and analysis. In addition, the researcher has adopted SPSS in order to analyze the collected data, the applications such as correlation analysis.

3.4. Conceptual Framework

In the literature survey, eight variables of IS success were identified. Those are shown as below. (IV = Independent Variable, DV = Dependent Variable)

Table 3.1 Variables Identification

Construct	IV/DV	Description
Information Quality	IV	Information Quality characteristics of the output offered by the IS, such as accuracy, timeliness, and completeness
Quality of Information Usability	IV	Ease of information usage, comparison, information based problem identification, sharing.
System Quality	IV	System Quality performance of the IS in terms of reliability, convenience, ease of use, functionality, and other system metrics
Support Service Quality	IV	Support of users by the IS department, is often measured by the responsiveness, reliability, and empathy of the support organization. This can be either the system owning organization or the hotel IS department. Therefore, the desired service given by the individual IT/IS department and system service representative need to be evaluated.
Intention to Use IS	IV	The degree to which an individual believes that using the system enhances his or her productivity and job performance, usefulness;

		perceived usefulness; impact on end-users' jobs; perceived benefits
IS System Use	IV	The individual's behavior in, or effort put into, using the system, System use, usage, or utilization; frequency of use
User Satisfaction	IV	The extent to which the user believes that the system meets his or her information requirements, User satisfaction; user information satisfaction ; end-user satisfaction or computing satisfaction; overall satisfaction
End-User Training in IS	IV	The extent to which an individual has been trained about ISs through courses, training, manuals, and so on Training; user training ; end-user training ;
IS Success	DV	Net Benefits The effect an IS has on an individual, group, organization, industry, society, etc., which is often measured in terms of organizational performance, perceived usefulness, and effect on work practices

The following conceptual framework serves as a foundation to model relations between the ways to use IS and effects of IS (organization, employee and management psychological reactions).
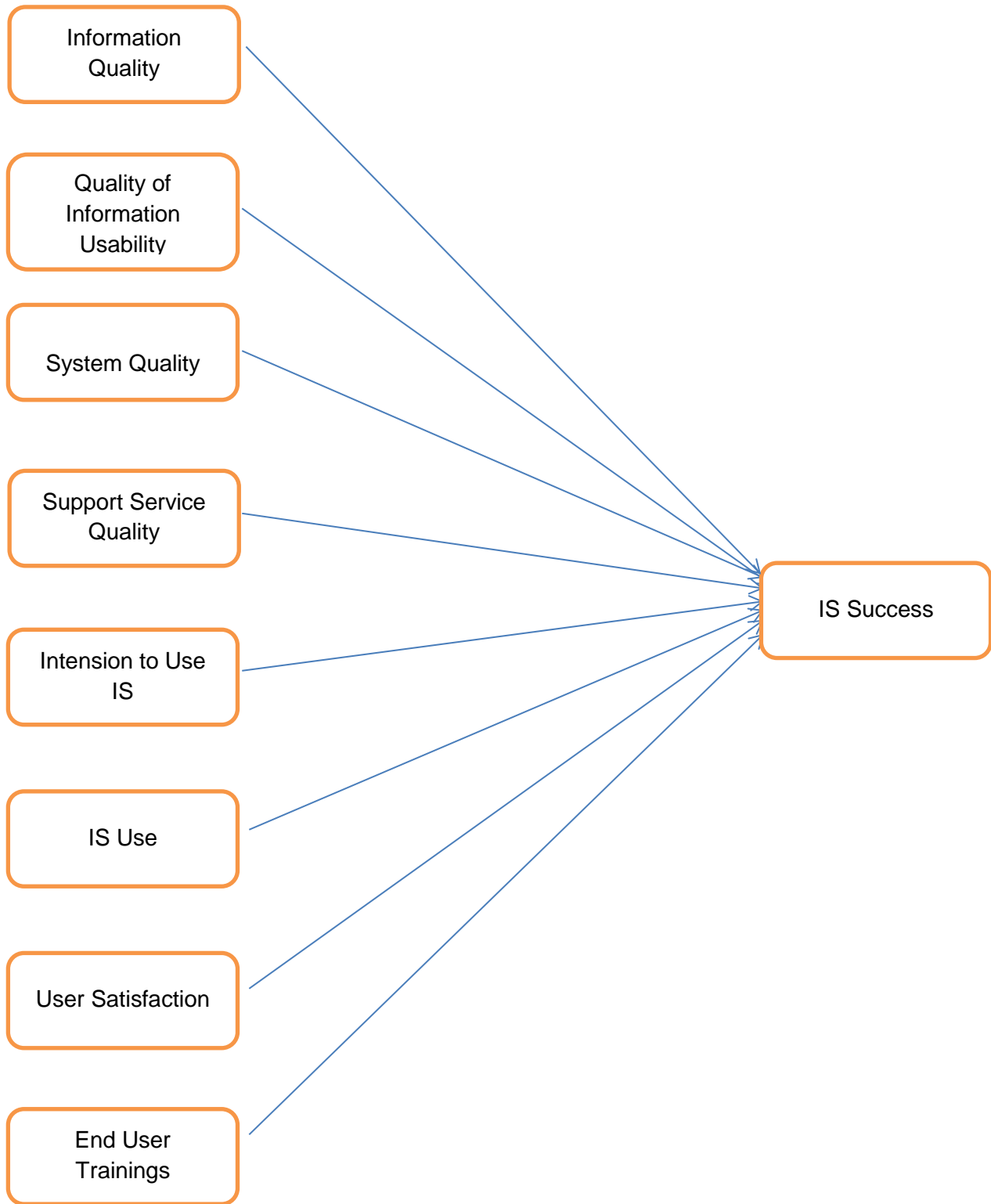
Figure 3.2 Conceptual Framework

3.5. Theoretical Framework

The theoretical framework of this study posited two classes of variables, which can labeled as the independent variables and dependent variables. The dimensions of success include:

Table 3.2 Theoretical Framework

Variable	Dimension	Measurement	References
System Quality (IV)	Reliability	System reliability	Gorla et al., (2010), Srinivasan, (1985)
	Flexibility	System flexibility	Gorla et al., (2010), Nelson et al., (2005)
	Ease of Use	System is easy to use	Gorla et al., (2010), Srinivasan, (1985)
	Ease of Learning	System is easy to learn	Gable et al., (2008)
	System Integration	System is well integrated	Nelson et al., (2005)
	System Customization	System is easy to customize	Chang and King, (2005) Nelson et al., (2005)
	Maintainability	System can be easily maintained	Nelson et al., (2005)
	System Benefits	System is used for multiple	Chang and King, (2005)

		purposes	
	Benefits for Problem Identification	System is useful for problem identification	Chang and King, (2005)
	User Expectation	System meets expectations	Chang and King, (2005)
	User Requirements	System meets requirements	Chang and King (2005)
	System Benefits	System provides benefits for the entire organization	Chang and King, (2005), Mirani and Lederer, (1998)
	User Friendly	System is user friendly	Gorla et al., (2010)
Quality of Information Usability (IV)	Comparability	Can be compared with past information	Al-Mamary et al., (2014); Wang and Strong, (2002); Petter et al., (2008)
	Usability	Can be used for multiple purpose	Chang and King, (2005)
	Meeting the Requirement	Information meets my requirement/need	Chang and King, (2005)

	Beneficial for Solution	Information useful for problem solving	Chang and King, (2005)
	Decision Making	Information is useful for decision making	Kahn et al., (2002)
	Decision Effectiveness	Information is useful for decision effectiveness	Kahn et al., (2002)
	Problem Identification	Information is useful for problem identification	Chang and King, (2005)
Information Quality (IV)	Understandability	Information is understandable	Al-Mamary et al., (2014); Wang and Strong, (2002)
	Clearness	Information is clear	Gorla et al., 2010
	Importunity	Information is important	Chang and King, (2005)
	Relevant	Information is relevant to me/my job	Gorla et al., 2010; Wang and Strong, (2002)
	Well Organized	Information is well organized	Chang and King, (2005)

	Well Defined	Information is well defined	Chang and King, (2005)
	Available	Information is available	Chang and King, (2005)
	Accessible	Information is accessible	Wang and Strong, (2002); Doll et al., (1994)
	Up-dated	Information is up to date	Chang and King, (2005)
	Timely Availability	Information received in timely manner	Gorla et al., (2010); Wang and Strong, (2002); Srinivasan, (1985)
Support Service Quality (IV)	Know Their Job	Service representative are well trained	Gorla et al., (2010); Carr et al., 2002; Parasuraman et al., (1990);
	Timely Responsiveness	Service representatives respond to my query in timely	Gorla et al., (2010); Carr et al., 2002;

		manner	Parasuraman et al., (1990);
	Understand the Need	Servicer representatives can easily understand the need of user	These dimensions came up from the author, which refer to support service quality; When hotel IT/Service provider can understand the needs of user then that becomes a factor for success.
	Service satisfaction	Users' satisfaction with the service representative	These dimensions came up from the author, which refer to support service quality. This refers to the user's satisfaction toward to the service representative.

	Quality of Service Provider	Users' satisfaction with service provider	These dimensions came up from the author, which refer to support service quality of provider.
Intention to Use IS (IV)	Facilitate Easiness	Makes it easier to do my own job	Chang and King, (2005)
	Support on Decision Making	Facilitate decision making	Kahn et al., (2002)
	Knowledge Transfer	Facilitate Knowledge Transfer	Chang and King, (2005)
	Cost Cutting	Reduces the process cost	Chang and King, (2005)
	Productivity	System increases the productivity	Chang and King, (2005)
	Efficiency	System increases the work efficiency	Mashayekhi, (2000)
	Performance	System increases the work performance	Wang et al., (2006)
System Use (IV)	Problem Identification	Use for identifying	Chang and King, (2005)

		issue/needs	
	Problem Managing	Use for identifying, complete, update works	Chang and King, (2005)
	Work Arrangement	Facilitate arranging works	Chang and King, (2005)
	Sharing	Facilitate knowledge sharing	Chang and King, (2005)
User Satisfaction (IV)	System Quality	System provides everything that is required to do the job	Gorla et al., (2010)
	System Efficiency	System facilitates decision making effectiveness	Kahn et al., (2002)
	System Effectiveness	System facilitates decision making effectiveness	Kahn et al., (2002)
	System Benefits	System provides benefits to the entire organization	Chang and King, (2005); Mirani and Lederer, (1998)

End-User Training in IS (IV)	Usefulness	Training programs are useful	Gupta, Bostrom and Huber,. (2010); Chang and King, (2005); Davis and Bostrom, (1993)
	Covering Needs	Training programs cover specific needs	Chang and King, (2005)
	User Needs	Training programs cover user needs	Chang and King, (2005)
	Frequency of Availability	Training programs are frequent	Chang and King, (2005)
	Instructive	Training programs are instructive	Chang and King, (2005)
	Cost Effective	Training programs are cost effective	Chang and King, (2005)
	Facilitate New Learning	Training programs helps to learn new things	Chang and King, (2005)
Net Benefits/IS Success	Service Growth	Impact on service growth	Brynjolfsson et al., (2002)

(DV)	Productivity	Increase the productivity	Thatcher and Oliver, (2001)
	Guest Perception	System result in positive impact on guest satisfaction	Gorla et al., (2010)
	User Satisfaction	System user satisfy with the system	Nelson and Cheney, (1987)

3.6. Hypotheses

Table 3.3 Hypothesis

Hypothesis #	Hypothesis
$H1_A$ $H0_A$	Information Quality and IS Success are strongly positively correlated There is no significant positive correlation between Information Quality and IS Success
$H1_B$ $H0_B$	System Quality and IS Success are strongly positively correlated There is no significant positive correlation between System Quality and IS Success
$H1_C$ $H0_C$	Support Service Quality and IS Success are strongly positively correlated There is no significant positive correlation between Support Service Quality and IS Success
$H1_D$ $H0_D$	Intension to Use and IS Success are strongly positively correlated There is no significant positive correlation between Intention to Use and IS Success
$H1_E$ $H0_E$	Use of IS and IS Success are strongly positively correlated User Satisfaction There is no significant positive correlation between Use of IS and IS Success
$H1_F$ $H0_F$	IS User Satisfaction and IS Success are strongly positively correlated There is no significant positive correlation between IS User

	Satisfaction and IS Success
H1$_G$	End User Trainings and IS Success are strongly positively correlated
H0$_G$	There is no significant positive correlation between end user trainings and IS Success
H1$_H$	Quality of Information Usability and IS Success are strongly positively correlated
H0$_H$	There is no significant positive correlation between Quality of Information Usability and IS Success

3.7. List of questionnaire

Table 3.4 Questionnaire for each dimension

Variables	Dimensions	Measurements	Questions
System Quality (IV)	Reliability	System is reliable	9(a)
	Flexibility	System is easy to use	9(b)
	Ease of Use	System is easy to learn	9(c)
	Ease of Learning	System is easy to learn	9(d)
	System Integration	System is well integrated	9(e)
	System Customization	System is easy to customize	9(f)
	Maintainability	System can be easily maintained	9(g)
	System Benefits	System can be used for multiple purposes	9(h)
	Benefits for Problem Identification	Systems is useful for problem identification and sharing	9(i)
	User Expectation	System meets my expectations	9(j)
	User Requirements	System meets my requirements	9(k)
	System Benefits	System meets my requirements	9(l)
	User Friendly	System is user friendly	9(m)

Quality of Information Usability (IV)	Comparability	Can be easily compared to past information	11(a)
	Usability	Can be used for multiple purposes	11(b)
	Meeting the Requirement	Meets my requirements	11(c)
	Beneficial for Solution	It is useful for solving problems	11(d)
	Decision Making	It is useful for making decisions	11(e)
	Decision Effectiveness	Improves decision effectiveness	11(f)
	Problem Identification	It is useful for problem identification	11(g)
Information Quality (IV)	Understandability	Information is Understandable	10(a)
	Clearness	Information is Understandable	10(b)
	Importance	Information is important	10(c)
	Relevant	Relevant (Relevant to my Job)	10(d)
	Well Organized	Information is well-organized	10(e)
	Well Defined	Information is Well-defined	10(f)
	Available	Information is Available (Always)	10(g)
	Accessible	Information is	10(h)

		Accessible	
	Up-dated	Information is Up-to-date	10(i)
	Timely Availability	Information Received in a timely manner	10(j)
Support Service Quality (IV)	Know Their Job	Service representatives are well trained	13(a)
	Timely Responsiveness	The service representative responds to my quires in a timely manner	13(b)
	Understand the Need	Service Representative can easily understand my requirements	13(c)
	Service Satisfaction	Overall, I am very satisfied with the Service representative	13(d)
	Quality of Service Provider	Overall, I am very satisfied with the Service provided by the company	13(e)
Intention to Use IS (IV)	Facilitate Easiness	Makes it easier to do my job	7(a)
	Support on Decision Making	Helps my decision making	7(b)

	Knowledge Transfer	Facilitates knowledge transfer	7(c)
	Cost Cutting	Reduces process costs	7(d)
	Productivity	Using the system increases productivity	7(e)
	Efficiency	Using the system saves time	7(f)
	Performance	Using the system improves job performance	7(g)
System Use (IV)	Problem Identification	I use system to identify the needs in the hotel	8(a)
	Problem Managing	I use system to arrange/complete guest/staff requests	8(b)
	Work Arrangement	I use system to arrange/plan my work	8(c)
	Sharing	I use system to share information/knowledge with others	8(d)
User Satisfaction (IV)	System Quality	I am satisfied with the system that provide me everything to do my job	14(a)
	System Efficiency	I am satisfied with system efficiency	14(b)

	System Effectiveness	I am satisfied with system effectiveness	14(c)
	System Benefits	Overall, I am very satisfied with the System and it benefits for my work	14(d)
End-User Training in IS (IV)	Usefulness	Training programs are useful	12(a)
	Covering Needs	Training programs Cover specific needs	12(b)
	User Needs	Training programs cover my needs	12(c)
	Frequency of Availability	Training programs are frequent	12(d)
	Instructive	Training programs are instructive	12(e)
	Cost Effective	Training programs are cost effective	12(f)
	Facilitate New Learning	Training programs help me to learn the various use of the system	12(g)
Net Benefits/IS Success (DV)	Service Growth	It has positive impact on hotel service growth	15(a)
	Productivity	It has positive impact on Employee productivity growth。	15(b)

	Guest Perception	It has positive impact on hotel guest expectation	15(c)
	User Satisfaction	Overall, I am satisfied with the system/Software。	15(d)

3.8. Limitations

Hotel Industry is an industry spread throughout the country and all over the world, the sizes of their units varying. The different geographical and social affiliations will affect the selection of a sample for the research study. As mentioned in many researches to measure the service success based on IS, it is essential to question customers who receive service from the hotel, but we have to limit the scope by not questioning customers since that was not granted by the study group (IHG).

4. RESULTS AND DATA ANALYSIS

4.1. Introduction

The preceding chapter presented the descriptive analysis from the 102 usable data responses collected in this research. The respondents represent the Chinese employees who work in IHG China hotels. There will be quantitative results, which are discussed from sample analysis regarding "Information Systems Success Factors for Internal Service Management". The questionnaire was designed based on variables in the research so the questionnaire was divided into ten sections as explained in table 3.4.

Using the data and some basic statistical methods such as reliability analysis, correlation analysis, and the analysis was completed. Moreover, the results are displayed with various graphs and tables.

4.2. Data Gathering Limitation

The research design was to collect data from 362-sample respondents from all over the Chinese IHG hotels. The questionnaire was sent to 362 people around China who work in IHG hotels. However, in the process of survey the respondent sample size was reduced to 102 out of 362. Due to the permission issue from IHG, some of the clients refused to answer the questionnaire since they may be afraid that it will affect their contract, which they have with IHG. China is a country, which utilizes the technology for many of their human activities. Comparatively, their computer literacy is low, but they too are advanced in technology. In addition, there were some practical barriers in contacting other South East Asian countries. Therefore, due to these reasons the research was carried out among Chinese respondents.

Also due to limited timeframe, also due to some companies' privacy policy the data of the company will not be revealed to the public. Since these limitations, data-

collection was limited to 102 respondents. Therefore, the targeted sample size decreased to 102, and because of that confidence interval increased to 9.62 (10).

Figure 4.1 Confidence interval

4.3. Demographic Characteristics of Respondents

The sample design is based on the hotel industry IS users. The IS users are the employees of the hotels; therefore they have to provide a proper service to their guests. Management provides them facilities such as IS. The respondents who participated in the survey are more significant, because they have to use IS in their hotel for day-to-day operations since management requires them to use it. With the functions of modern IS and that the ease of applying it to individuals' work, users are more eager to use the IS. Nearly 5-10 employees in a hotel engage with IS at the decision making level. The analysis part was done with the data collected from these users.

4.3.1. Terms of employment - Tenure and Work Experience

All of the respondents (100%) are full time and they are working for the company under survey for more than 5 years (25% of responses). According to Table 4.3, only 16.3% of the respondents have been with their hotel for less than a year; 16.3% of the respondents have 1 – 2 Years work experience. Respondents who have worked

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between 2-3 years accounted for the second highest percentage (22.5%) of the survey participants. Highest respondent percentage was about (25%) for those who had experience of more than 5 years with the hotel.

Table 4.1 Full Time or Part Time

	Frequency	Percentage (%)	Valid Percentage (%)
Full Time	102	100	100
Part Time	0	0	0
Total	102	100	100
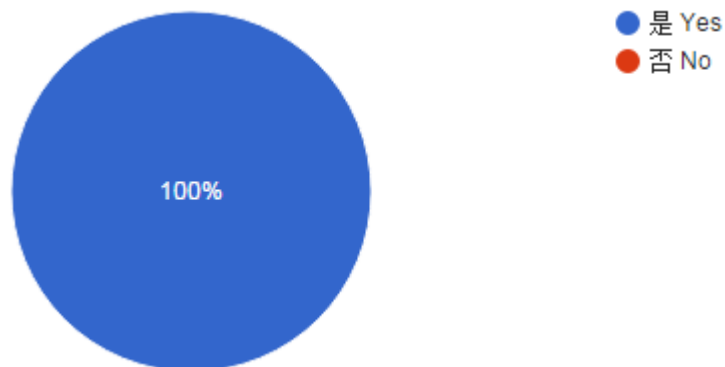
Figure 4.2 Terms of employment of attendees

The result is obvious, since hotel management will not allow outside (contract-based) employees to use the information in the hotel. Moreover, in industries like hotels, always all the employees should be full time workers. This is the reason for getting this result as 100%. Even though the modern hotel industry includes part time workers, according to the table 4.1 the selected sample was 100% full time workers. This information is very valuable, since it confirms that the selected sample is not containing any outsiders to the hotel. It may be due to information security reasons. In addition, it implies that the participants in this survey were 100% full time employees; therefore, the research result would be more reliable.

Table 4.2 Years of profession in the Hotel

	Frequency	Percentage (%)	Valid Percentage (%)
Less than one year	17	16.7	16.7
1 – 2 Years	14	13.7	13.7
2 – 3 Years	22	21.6	21.6
3 – 5 Years	23	22.5	22.5
More Than 5 Years	26	25.5	25.5
Total	102	100	100
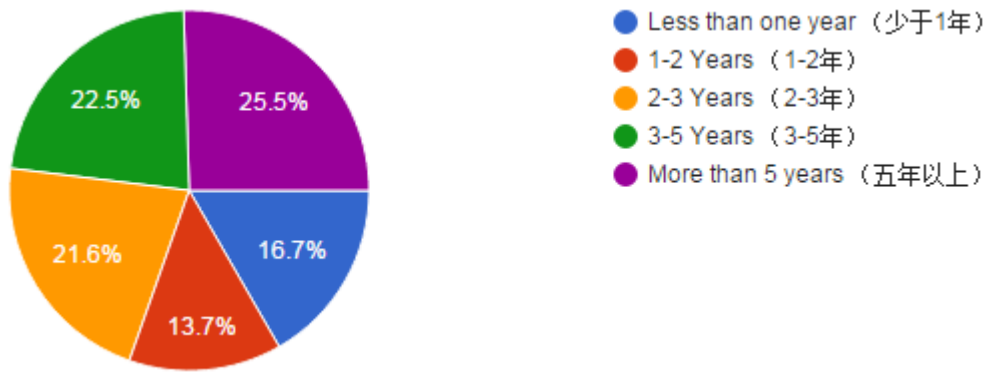
Figure 4.3 Years of profession in the hotel

The above pie chart explains the sample is comprised of different work-experience level employees. The highest portion is for the employees who have more than 5-year experience, and the figure for 3-5 years' experience is very close to same percentage. In addition, the sample includes people who have minimal experience (less than a year) who make up about 16.7%. This means that the inexperienced people have not engaged with this survey. Probably since their experience is low and since they are Chinese people, they do not want to criticize the system. This is the usual behavior of Chinese, they are very much afraid of their seniors. However, it can be concluded that the sample has been very reasonably spread. As per the result in Table 4.2 when considering the service experience of respondents, a large

percentage account for years of experience "more than 5 years". However, compared with "2-3 years" and "3-4 years" it is not that much different. This emphasizes that employees who have much experience actually use IS for their work and this may be the reason for success of IS in this industry. Once, less years experienced people become senior or reach a more experienced level, then they will engage more with IS rather than running around the hotel for planning or serving guests. Perhaps at the beginning level management forces them to engage with many different types of work. This obvious result represents reasonable satisfaction about the sample of respondents.

4.3.2. Information System Usage Frequency

There were a number of questions looking into IS system usage by employees of the hotels. We asked the respondents about the frequency of using the systems in their day-to-day operations. Results are seen as in the Table 4.3. The result probably indicates the quality of the information system or maybe the knowledge that employee has about IS. If knowledge is low then user will not able to use the system for work, even though actually the system provides that facility.

Table 4.3 System Usage Frequency

	Frequency	Percentage (%)	Valid Percentage (%)
Never	1	1	1
Rarely	4	3.9	3.9
Sometimes	14	13.7	13.7
Often	49	33.3	33.3
Very Often	34	48	48
Total	102	100	100
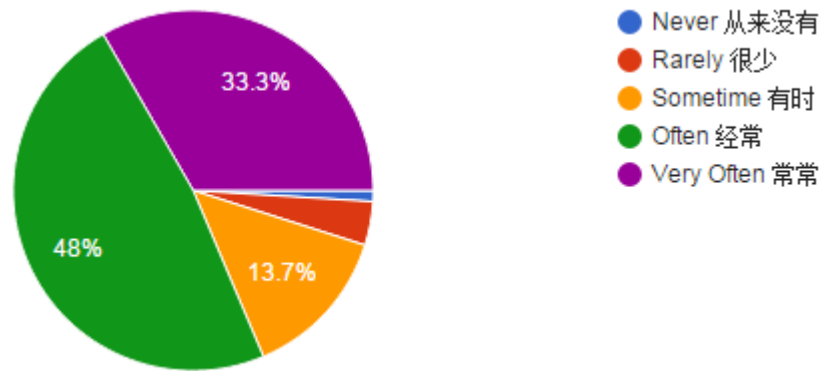
Figure 4.4 System usage frequencies

Therefore, the results emphasize that people who are not using the system or using it rarely account for less than 10% of the total (result 3.9%). As this is an international group, most of the work is linked with information systems; so this infrequent percentage of 3.9% is satisfactory. In addition, there are about 80% (often/very often) respondents who claimed that they are using the system at a high frequently. Therefore, it can be concluded that sample has a reasonable amount who apply information system in their work on hotel internal service management. In addition, it can be concluded that sample is very acceptable.

When displaying the result of table 4.3 the results represent very significant information about IS usage frequency. 48.0% of respondents answered that "Often" they use IS, and 33.3% answered as "Very Often". With these two results, two things can be concluded. One is that maybe the information system is not sufficient to manage all the required work of the users. The other may be that regardless of the status of the system, there are still things included in their job description that are not applicable for IS. However, in hotel groups like IHG there can be many different unplanned work which cannot be aligned with IS; such work could be account for this result. However, the result can be decided on as acceptable.

4.3.3. User discipline on using information systems

This finding is extremely valuable since the result can direct us to different research related to employee perception on technology. The question was designed to gather information about IS users perception on information systems for their working environment. The result can be seen Table 4.4.

Table 4:4 Usefulness of the IS for Work

	Frequency	Percentage (%)	Valid Percentage (%)
It is my job responsibility	40	39.6	39.6
Manager need me to use it	12	11.9	11.9
It help me to do my work	21	19.8	19.8
Without it I cannot do any of my work	13	12.9	12.9
I must provide report to my management	16	15.8	15.8
Total	102	100	100

The above data can be analyzed as bellow.

Figure 4.5 the usefulness of the IS for work

According to the result a large portion of sample using information system considered that is it their job responsibility. Actually, this is acceptable since hotel groups like IHG, should have clearly identified each employees duties and the related system for it. In addition, an acceptable percentage considers the system as helpful, and so using it to get best out of it. As a large portion has answered, they are using the system since it is their responsibility; this may be since Chinese employees are not willing to give a direct answer about system quality or any weakness of system. Therefore, they just say it is their responsibility to use this system. The intention in using any system is an important reason for the success of that particular system. As per the table 4.4, the survey respondents have given a significant value for this "intention"; 39.6% have answered that they use the system because that is in their job responsibility list. However, there is large portion (19.8%) of this sample who answered that the system helps them to do their work, and that has been the reason for using the system. It can be concluded that, still there are users who really use IS for their work as it is easy to do with IS, and not merely, because it is their responsibility to use it.

4.3.4. Actual support from IS to its users

This question can be named as the best question in this research questionnaire. The reason is that a hotel or any organization that spent millions to find, purchase, tests, implement a system should use the systems in their organization and gain benefits from it. So it is fair to ask from the system users whether that expensive system is a help to their work or not. The result would be helpful for the management to decide between different future choices on IS use in their hotel.

Table 4:5 Actual Support from IS for Work

	Frequency	Percentage (%)	Valid Percentage (%)
None of my Work（0%）	1	1	1
Some of my work (0% - 25%)	13	12.7	12.7
Half of my work (25% – 50%)	27	26.5	26.5
Larger amount of my work (50% - 75%)	51	50.0	50.0
Almost all work (75% - 100%)	10	9.8	9.8
Total	102	100	100
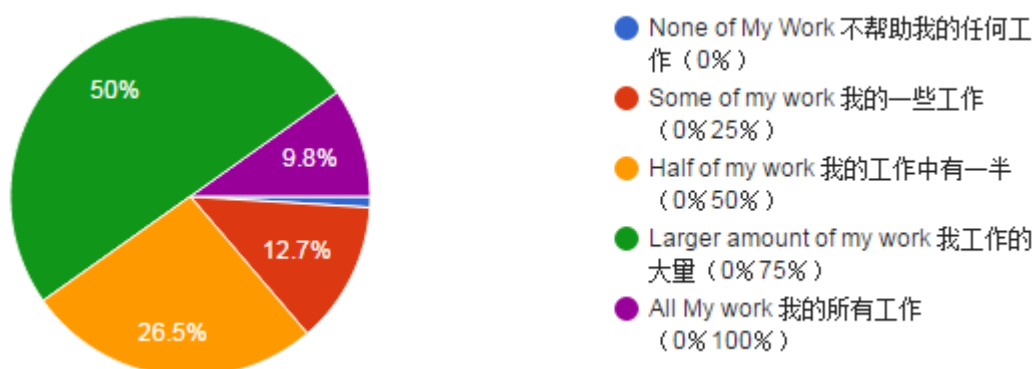
Figure 4.6 Actual support from IS for work

This result gives clear results on how IS affects the employees work management, in other word hotel internal service management. As a result, 50% of sample says that the system helps them to accomplish a large amount of their internal service management related work. This is good evidence to prove the success of information system for the internal service management. As discussed in the literature survey the investment for IS in the hotel industry is quite large in modern day business. When relating that to this result it can be concluded that the investment is not just spending

money, it has positive results for the workers. Again, if we consider the other possible side of this given answer, perhaps these employees do not want to criticize the systems. Therefore, the answer was given as above. Equivalently, this answer gives a proper meaningful idea about the benefits of IS for hotel users. According to the results in Table 4.5 from the total respondents 50% of respondents have clearly answered that IS can support them to do "larger amount of their day-to-day works (50-75%)". Also 9.8% have given the answer that IS helps them to do 100% of their works. Combining these it gives around 60% of survey respondents, and they all have considered that 'IS' is a success for their work, which means internal service management of hotel industry.

4.3.5. Software/System Being Used

Table 4.7 below presents the kind of software implemented in our sample. The majority of the companies are mainly using Internal Work Management system (ESCAP). This is the target audience, but it seems that they all have to use different systems to carry on their work. The majority of the sample respondents are mainly using work management system (ESCAP) which is from the hotel group. In addition, ESCAP system is targeted for employees who work in engineering, housekeeping, concierge, front office, and IT departments to guest service management, so result shown below is very acceptable.
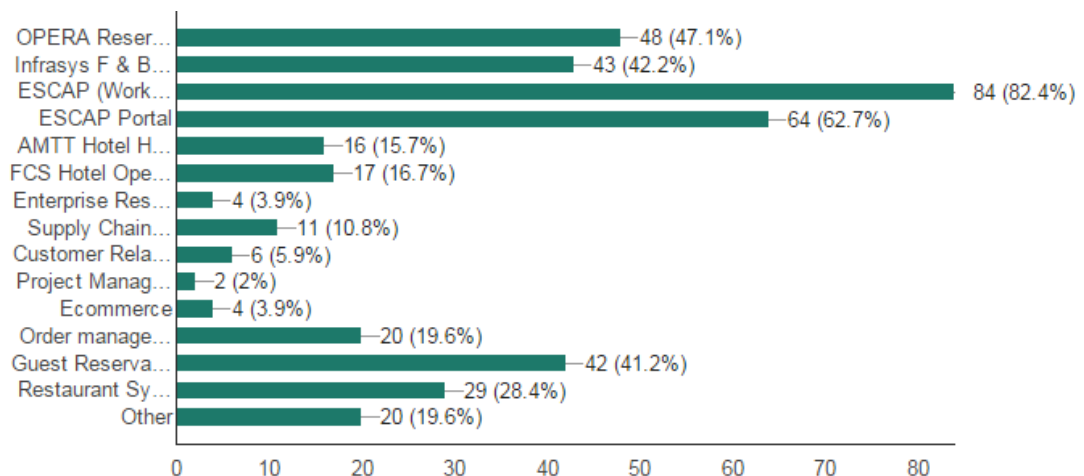
Figure 4.7 Enterprises System

4.4. Reliability Analysis

In the world of research, Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is most commonly used when research has multiple Likert questions that form a scale in a questionnaire, and the researcher wishes to determine if the scale is reliable. After performing reliability analysis for all the correlated variables, the results are interpreted below.

Table 4.6 Reliability Analysis

Variables	Number of Questions	Cronbach's alpha
Intension to Use – IS	7	.872
IS Use	4	.844
System Quality	13	.940
Information Quality	10	.951
Quality of Information Usability	7	.906
End-User Training	7	.924
Support Service Quality	5	.876
User Satisfaction	4	.804
IS Success	4	.902

According to the above tables, all the value of Cronbach's alpha of all the variables are above 8.00. This emphasizes that "all the variables" are very reliable. In addition, this implies that all the data is very reliable. Therefore, these data can be used for interpretation.

4.5. Descriptive Statistics for the variables

The Mean, Standard deviation, and variance of the independent and dependent variables of the study are as in Table 4-7 below.

Table 4.7 Descriptive Statistics

	N	Mean	Std. Deviation	Variance
Intension to Use	102	28.80	4.331	18.753
Information System Use	102	14.71	2.954	8.725
System Quality	102	48.83	8.639	74.635
Information Quality	102	37.14	6.531	42.654
Quality of Information Use	102	26.62	4.259	18.139
End User Training	102	26.31	4.895	23.960
User Satisfaction	102	15.40	2.634	6.936
Service Quality	102	19.82	3.511	12.325
Information System Success	102	15.77	2.743	7.523
Valid N (list wise)	102			

4.6. Measurement of Information System Success

In the following section, relationships between variables will be discussed. Relationship with IS success for hotel industry with other variables will be measured with SPSS output. The following section presents and discusses the findings from 9 questions (5-point Likert scale) seeking to measure the different aspects of IS effectiveness and the perception of the IS users regarding the use of the IS. In addition, how the user feels about system quality and information quality. Later we evaluate the system effectiveness for the entire organization.

4.6.1. Information Quality and IS Success

- $H1_A$: Information Quality and IS Success are strongly positively correlated
- $H0_A$: There is no significant positive correlation between Information Quality and IS Success

Table 4.8 Correlation Analysis between Information Quality and Information System Success

Correlations			
		Information System Success	Information Quality
Information System Success	Pearson Correlation	1	.659**
	Sig. (2-tailed)		.000
	N	102	102
Information Quality	Pearson Correlation	.659**	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significance value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that information quality and IS Success are strongly positively correlated. According to the statistical calculation, Pearson Correlation was 0.659, which was a positive correlation. That means the relationship between two variables was a positive relationship. However, the correlation coefficient has a considerably high value, (in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.6.2. System Quality and IS Success

- $H1_B$: System Quality and IS Success are strongly positively correlated
- $H0_B$: There is no significant positive correlation between System Quality and IS Success

Table 4.9 Correlation Analysis between System Quality and Information System Success

Correlations			
		Information System Success	System Quality
Information System Success	Pearson Correlation	1	.686[**]
	Sig. (2-tailed)		.000
	N	102	102
System Quality	Pearson Correlation	.686[**]	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significant value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that system quality and IS success are strongly positively correlated. According to the statistical calculation, Pearson Correlation was 0.686, which was a positive correlation. That means the relationship between two variables was a positive relationship. However, the correlation coefficient is of considerably high value, (in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.6.3. Support Service Quality and IS Success

- $H1_C$: Support Service Quality and IS Success are strongly positively correlated
- $H0_C$: There is no significant positive correlation between Support Service Quality and   IS Success

Table 4.10 Correlation Analysis between Support Service Quality and Information System Success

Correlations		Information System Success	Service Quality
Information System Success	Pearson Correlation	1	.760[**]
	Sig. (2-tailed)		.000
	N	102	102
Service Quality	Pearson Correlation	.760[**]	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significant value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that support service quality and IS success is strongly positively correlated. According to the statistical calculation, Pearson Correlation was 0.760, which was a positive correlation. That means the relationship between two variables was a positive relationship. However, the correlation coefficient has a considerably high value,(in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.6.4. Intension to Use and IS Success

- $H1_D$: Intension to Use and IS Success are strongly positively correlated

- $H0_D$: There is no significant positive correlation between Intention to Use and IS Success

Table 4.11 Correlation Analysis between Intension to Use and Information System Success

Correlations		Information System Success	Intension to Use
Information System Success	Pearson Correlation	1	.672[**]
	Sig. (2-tailed)		.000
	N	102	102
Intension to Use	Pearson Correlation	.672[**]	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significant value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that Intention to use and IS success are strongly positively correlated. The direction of the relationship is positive, meaning that these variables tend to increase together. According to the statistical calculation, Pearson Correlation was 0.672, which was a positive correlation. That means the relationship between two variables was a positive relationship. However, the correlation coefficient has a considerably high value, (in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.6.5. Information System Use and IS Success

- $H1_E$: Use of IS and IS Success are strongly positively correlated User Satisfaction

- $H0_E$: There is no significant positive correlation between Use of IS and IS Success

Table 4.12 Correlation Analysis between Information System Uses and Information System Success

Correlations		Information System Success	Information System Use
Information System Success	Pearson Correlation	1	.653**
	Sig. (2-tailed)		.000
	N	102	102
Information System Use	Pearson Correlation	.653**	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significant value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that information system use and IS success are strongly positively correlated. According to the statistical calculation, Pearson Correlation was 0.653, which was a positive correlation. That means the relationship between the two variables was a positive relationship. However, the correlation coefficient has a considerably high value, (in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.6.6. User Satisfaction and IS Success

- $H1_F$: IS User Satisfaction and IS Success are strongly positively correlated
- $H0_F$: There is no significant positive correlation between IS User Satisfaction and IS Success

Table 4.13 Correlation Analysis between User Satisfaction and Information System Success

Correlations		Information System Success	User Satisfaction
Information System Success	Pearson Correlation	1	.776**
	Sig. (2-tailed)		.000
	N	102	102
User Satisfaction	Pearson Correlation	.776**	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significant value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that user satisfaction and IS success are strongly positively correlated. According to the statistical calculation, Pearson Correlation was 0.776, which is a positive correlation. That means the relationship between two variables was a positive relationship. However, the correlation coefficient has a considerably high value, (in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.6.7. End User Training and IS Success

- $H1_G$: End User Trainings and IS Success re strongly positively correlated
- $H0_G$: There is no significant positive correlation between end user trainings and IS Success

Table 4.14 Correlation Analysis between End User Training and Information System Success

Correlations		Information System Success	End User Training
Information System Success	Pearson Correlation	1	.610**
	Sig. (2-tailed)		.000
	N	102	102
End User Training	Pearson Correlation	.610**	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significant value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that end user training and IS success are strongly positively correlated. According to the statistical calculation, Pearson Correlation was 0.610, which is a positive correlation. This means the relationship between the two variables was a positive relationship. However, the correlation coefficient has a considerably high value, (in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.6.8. Quality of information on Use and IS Success

- $H1_H$: Quality of Information Usability and IS Success are strongly positively correlated
- $H0_H$: There is no significant positive correlation between Quality of Information Usability and IS Success

Table 4.15 Correlation Analysis between Quality of Information Use and Information System Success

Correlations		Information System Success	Quality of Information Use
Information System Success	Pearson Correlation	1	.727[**]
	Sig. (2-tailed)		.000
	N	102	102
Quality of Information Use	Pearson Correlation	.727[**]	1
	Sig. (2-tailed)	.000	
	N	102	102
**. Correlation is significant at the 0.01 level (2-tailed).			

According to the Pearson correlation (2- tailed) as shown in the above table, the significant value is .000 (<0.05). Hence, the null hypothesis will be rejected and the alternative hypothesis will be accepted. Therefore, it can be concluded that quality of information use and IS success are strongly positively correlated. According to the statistical calculation, Pearson Correlation was 0.727, which is a positive correlation. That means the relationship between the two variables was a positive relationship. However, the correlation coefficient has a considerably high value, (in between +0.5 and 1). Therefore, it can be concluded that this has a strong correlation. The direction of the relationship is positive, meaning that these variables tend to increase together.

4.7. Demographic data analysis with variables

This represents the relationships found by hypothesis testing with demographic data within the group variables. In the results there are some values related to some variables that represent some kinds of pattern of system users. Most significant results will be discussed below.

4.7.1. Correlation Analysis between Intension to Use and Information System Success in Each Age of Experience Group

1-2 Years

Table 4.16 Correlation analysis between End-user training and Information System Success – 1-2 Years

Correlations		Information System Success	End User Training
Information System Success	Pearson Correlation	1	.383
	Sig. (2-tailed)		.159
	N	15	15
End User Training	Pearson Correlation	.383	1
	Sig. (2-tailed)	.159	
	N	15	15

The above table represents the results of Pearson correlation in each hypothesis specifically under each length of experience group. In under 1-2-years groups significant value of information system success and end user trainings is 0.159 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the years of experience is lower (1-2 years), those employees do not have enough experience with the system. Therefore, user trainings become indeed a factor for their individual satisfaction. Therefore, it can be concluded that in the range of 1-2 years' experience end-user trainings and IS success is not correlated. According to the statistical calculation, Pearson Correlation was 0.383, which was a positive correlation. That means the relationship between two variables was a positive relationship. However, the correlation coefficient has considerably low value, (in between +0.5 and 0). Therefore, it does not have a strong correlation.

3-5 Years

Table 4.17 Correlation Analysis between Intension to Use and Information System Success – 3-5 Years

Correlations			
		Information System Success	Intension to Use
Information System Success	Pearson Correlation	1	.172
	Sig. (2-tailed)		.433
	N	23	23
Intension to Use	Pearson Correlation	.172	1
	Sig. (2-tailed)	.433	
	N	23	23

Above table, represents the results of Pearson correlation in each hypothesis specifically under each length of experience group. In 3-5-years group significant value of 'information system success' and 'intention to use' is 0.433 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the years of experience is higher (3-5 years), those employees are trying to search for more advance features of the system. Perhaps those new functions are still under construction, so they may experience this in the near future. However, their intention will be changed as they were in early age. Therefore, it can be concluded that in the range of 3-5 years' experience, intention to use system and IS success is not correlated. According to the statistical calculation, Pearson Correlation was 0.172, which is a positive correlation. That means the relationship between two variables was a positive relationship. However, the correlation coefficient has a considerably low value, (in between +0.5 and 0). Therefore, it does not have a strong correlation.

Table 4.18 Correlation Analysis between Information System Use and Information System Success – 3-5 Years

Correlations		Information System Success	Information System Use
Information System Success	Pearson Correlation	1	.345
	Sig. (2-tailed)		.107
	N	23	23
Information System Use	Pearson Correlation	.345	1
	Sig. (2-tailed)	.107	
	N	23	23

The above table represents the results of Pearson correlation in each hypothesis specifically under each length of experience group. In 3-5-years groups significant value of 'information system success' and 'information system use' is 0.107 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the years of experience is higher (3-5 years), those employees think about giving up the use of the system. Perhaps the quality of the system does not give value r them in this group or frustration will be the reason. However, this becomes very different in the low years of experience. Therefore, it can be concluded that in the range of 3-5 years' experience, information system use and IS success is not correlated. According to the statistical calculation, Pearson Correlation was 0.345, which is a positive correlation. That means the relationship between two variables has a positive relationship. However, the correlation coefficient has a considerably low value, (in between +0.5 and 0). Therefore, it does not have a strong correlation.

4.7.2. Correlation Analysis between Intension to Use and Information System Success in Each Use of Frequency Group

Rarely

Table 4.19 Correlation analysis between Information system use and Information System Success – Rarely

Correlations		Information System Success	Information System Use
Information System Success	Pearson Correlation	1	.882
	Sig. (2-tailed)		.118
	N	4	4
Information System Use	Pearson Correlation	.882	1
	Sig. (2-tailed)	.118	
	N	4	4

Above table, represents the results of Pearson correlation in each hypothesis specifically under each use-frequency group. Under "rarely" groups significant value of 'information system success' and 'information system use' is 0.118 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the frequency of use is rarely, that has an effect on the success of the system. Perhaps the quality of the system does not give value to them or perhaps they have no time to use any information system in their day-to-day work. Therefore, it can be concluded that in the range of use- frequency is rare, information system use and IS success is not correlated. According to the statistical calculation, Pearson Correlation was 0.882, which is a positive correlation. That means the relationship between the two variables is a positive relationship. The correlation coefficient has a high value, (in between +0.5 and 1). Therefore, it does have a strong correlation.

Table 4.20 Correlation Analysis between System Quality and Information System Success – Rarely

Correlations		Information System Success	System Quality
Information System Success	Pearson Correlation	1	.877
	Sig. (2-tailed)		.123
	N	4	4
System Quality	Pearson Correlation	.877	1
	Sig. (2-tailed)	.123	
	N	4	4

Above table, represents the results of Pearson correlation in each hypothesis specifically under each use-frequency group. Under "rarely" group significant value of 'information system success' and 'system quality' is 0.123 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the frequency of use is rare, that has an effect on the success of the system. It is proved that the quality of the system does not give value to them. That becomes a reason for this result. Therefore, it can be concluded that in the range of use- frequency is rare, system quality and IS success is not correlated. According to the statistical calculation, Pearson Correlation was 0.877, which is a positive correlation. That means the relationship between the two variables is a positive relationship. The correlation coefficient has a high value, (in between +0.5 and 1). Therefore, it does have a strong correlation.

Table 4.21 Correlation Analysis between Quality and Information System Success – Rarely

Correlations			
		Information System Success	Information Quality
Information System Success	Pearson Correlation	1	.886
	Sig. (2-tailed)		.114
	N	4	4
Information Quality	Pearson Correlation	.886	1
	Sig. (2-tailed)	.114	
	N	4	4

The above table represents the results of Pearson correlation in each hypothesis specifically under each use-frequency group. Under "rarely" group significant value of 'information system success' and 'information quality' is 0.114 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the frequency of use is that it rarely happens, that has an effect on the success of the system. It is proved now that the quality of the information which user gets from the system does not give value to them, or quality is not sufficient for them. That becomes a reason for this result. Therefore, it can be concluded that when the range of use- frequency becomes rare, information quality and IS success is not correlated. According to the statistical calculation, Pearson Correlation was 0.886, which was a positive correlation. That means the relationship between two variables is a positive relationship. The correlation coefficient is also of high value, (in between +0.5 and 1). Therefore, it does have a strong correlation.

Table 4.22 Correlation Analysis between Quality of Information Use and Information System Success – Rarely

Correlations		Information System Success	Quality of Information Use
Information System Success	Pearson Correlation	1	.869
	Sig. (2-tailed)		.131
	N	4	4
Quality of Information Use	Pearson Correlation	.869	1
	Sig. (2-tailed)	.131	
	N	4	4

The above table represents the results of Pearson correlation in each hypothesis specifically under each use-frequency group. Under "rarely" group significant value of 'information system success' and 'quality of information use' is 0.131 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the frequency of use is that it rarely happens, that has an effect on the success of the system. It is proved now that the quality of the information s does not give value to them. That becomes a reason for this result. Therefore, it can be concluded that in the range of use- frequency is rare, quality of information use and IS success are not correlated. According to the statistical calculation, Pearson Correlation was 0.869, which is a positive correlation. That means the relationship between the two variables was a positive relationship. The correlation coefficient is also of high value, (in between +0.5 and 1). Therefore, it does have a strong correlation.

Table 4.23 Correlation Analysis between User Satisfaction and Information System Success – Rarely

Correlations		Information System Success	User Satisfaction
Information System Success	Pearson Correlation	1	.886
	Sig. (2-tailed)		.114
	N	4	4
User Satisfaction	Pearson Correlation	.886	1
	Sig. (2-tailed)	.114	
	N	4	4

Above table, represents the results of Pearson correlation in each hypothesis specifically under each use-frequency group. Under "rarely" group significant value of 'information system success' and 'user satisfaction' is 0.114 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the frequency of use is that it rarely happens, that has an effect on the success of system. Based on the result it is proved that the user is not satisfied with the system. That e is the reason for this result. Therefore, it can be concluded that in the range of use-frequency is rare, user satisfaction and IS success is not correlated. According to the statistical calculation, Pearson Correlation is 0.866, which is a positive correlation. That means the relationship between the two variables is a positive relationship. The correlation coefficient is also of high value, (in between +0.5 and 1). Therefore, it does have a strong correlation.

Table 4.24 Correlation Analysis between End User Training and Information System Success – Sometimes

Correlations		Information System Success	End User Training
Information System Success	Pearson Correlation	1	.358
	Sig. (2-tailed)		.253
	N	12	12
End User Training	Pearson Correlation	.358	1
	Sig. (2-tailed)	.253	
	N	12	12

The above table, represent the results of Pearson correlation in each hypothesis specifically under each use-frequency group. Under sometimes group significant value of 'information system success' and 'end user Training' is 0.253 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the frequency of use is sometimes, that has an effect on the success of the system. Based on the result it can be said that the end-user training is getting too important when the users use the system rarely. That becomes a reason for this result. Therefore, it can be concluded that in the range of use- frequency is sometimes, end user training and IS success is not correlated. According to the statistical calculation, Pearson Correlation is 0.358, which is a positive correlation. That means the relationship between the two variables is a positive relationship. The correlation coefficient has a considerably lower value, (in between +0.5 and 0). Therefore, it does not have a strong correlation.

Table 4.25 Correlation Analysis between Support Service Quality and Information System Success – Sometimes

Correlations			
		Information System Success	Service Quality
Information System Success	Pearson Correlation	1	.393
	Sig. (2-tailed)		.207
	N	12	12
Service Quality	Pearson Correlation	.393	1
	Sig. (2-tailed)	.207	
	N	12	12

The above table represents the results of Pearson correlation in each hypothesis specifically under each use-frequency group. Under 'sometimes' groups significant value of 'information system success' and 'service quality' is 0.207 (>0.05), which means null hypothesis will be accepted. Therefore, it can be concluded that when the frequency of use is 'sometimes', that effects on the success of system. Based on the result it can be said that the service quality is getting too important when the users use the system 'sometimes'. That becomes a reason for this result. Therefore, it can be concluded that in the range of use- frequency is 'sometimes', service quality and IS success is not correlated. According to the statistical calculation, Pearson Correlation was 0.393, which is a positive correlation. That means the relationship between the two variables is a positive relationship. The correlation coefficient has a considerably low value, (in between +0.5 and 0). Therefore, it does not have a strong correlation.

4.8. Detail Measurement Using Two-Way ANOVA

Relationship between dependent and independent variables is measured and the intention is to find out which independent has the strongest relationship with the dependent variable. The two-way ANOVA compares the mean differences between

groups that have been split on two independent variables (called factors). The primary purpose of a two-way ANOVA is to understand if there is an interaction between the two independent variables with the dependent variable. Higher F value means higher impact on result variables.

4.8.1. ANOVA Table for Information Success

Table 4.26 Two-way ANOVA Table between Information System Success and Intension to Use with IS Use

Tests of Between-Subjects Effects						
Dependent Variable: Information System Success						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	643.930[a]	61	10.556	3.644	.000	.847
Intercept	12713.324	1	12713.324	4388.318	.000	.991
Intension to Use	124.443	16	7.778	2.685	.006	.518
Information System Use	93.229	10	9.323	3.218	.004	.446
Intension to Use * Information System Use	123.662	34	3.637	1.255	.243	.516
Error	115.883	40	2.897			
Total	26141.000	102				
Corrected Total	759.814	101				
a. R Squared = .847 (Adjusted R Squared = .615)						

Because of the significant value of intention to use and information system use are both less than 0.05, it can be concluded that there is a positive relationship between said variables and IS Success. In addition, comparatively it can be said that information system use (F = 3.218) is having a strong relationship with IS success.

Table 4.27 Two-way ANOVA Table between Information System Success and System Quality with Information Quality

Tests of Between-Subjects Effects						
Dependent Variable: Information System Success						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	653.349[a]	75	8.711	2.127	.017	.860
Intercept	14786.104	1	14786.104	3610.964	.000	.993
System Quality	152.335	27	5.642	1.378	.208	.589
Information Quality	103.473	22	4.703	1.149	.364	.493
System Quality * Information Quality	74.777	23	3.251	.794	.710	.413
Error	106.464	26	4.095			
Total	26141.000	102				
Corrected Total	759.814	101				
a. R Squared = .860 (Adjusted R Squared = .456)						

Because the significant value of system quality and information quality are not less than 0.05, it can be concluded that there is no positive relationship between said variables and IS Success. However, comparatively it can be said that system quality is having relationship with IS Success.

Table 4.28 Two-way ANOVA Table between Information System Success and Quality of Information Use with Information Quality

Tests of Between-Subjects Effects						
Dependent Variable: Information System Success						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	656.947ª	63	10.428	3.852	.000	.865
Intercept	13475.523	1	13475.523	4977.996	.000	.992
Information Quality	139.013	23	6.044	2.233	.014	.575
Quality of Information Usability	126.069	15	8.405	3.105	.002	.551
Information Quality * Quality of Information Use	96.094	23	4.178	1.543	.115	.483
Error	102.867	38	2.707			
Total	26141.000	102				
Corrected Total	759.814	101				
a. R Squared = .865 (Adjusted R Squared = .640)						

Because the significant value of quality of information use and information quality is less than 0.05, it can be concluded that there is a positive relationship between quality of information and IS success. In addition, comparatively it can be said that quality of information usability (F=3.105) is having a strong relationship with IS success.

Table 4.29 Two-way ANOVA Table between Information System Success and End User Training Use with User Satisfaction

Tests of Between-Subjects Effects						
Dependent Variable: Information System Success						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	685.180[a]	54	12.689	7.991	.000	.902
Intercept	15291.493	1	15291.493	9629.748	.000	.995
End User Training	61.785	15	4.119	2.594	.007	.453
User Satisfaction	111.806	8	13.976	8.801	.000	.600
End User Training * User Satisfaction	138.743	29	4.784	3.013	.000	.650
Error	74.633	47	1.588			
Total	26141.000	102				
Corrected Total	759.814	101				
a. R Squared = .902 (Adjusted R Squared = .789)						

Because of the significant values of end user training and user satisfaction are less than 0.05, it can be concluded that there is a positive relationship between said end user training and user satisfaction with IS success. Comparatively, user satisfaction (F= 8.801) has the strongest relationship with IS Success. In addition, both variables are together (F = 3.013) having a significant relationship.

Table 4.30 Two-way ANOVA Table between Information System Success and End User Training Use with Support Service Quality

Tests of Between-Subjects Effects						
Dependent Variable: Information System Success						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	652.480[a]	60	10.875	4.154	.000	.859
Intercept	13993.414	1	13993.414	5345.310	.000	.992
End User Training	70.942	16	4.434	1.694	.087	.398
Service Quality	118.100	12	9.842	3.759	.001	.524
End User Training * Service Quality	105.270	31	3.396	1.297	.216	.495
Error	107.333	41	2.618			
Total	26141.000	102				
Corrected Total	759.814	101				
a. R Squared = .859 (Adjusted R Squared = .652)						

Because of the significant value of support service quality is less than 0.05, it can be concluded that there is a positive relationship between said support service quality with IS success. Comparatively, support service quality has the strongest relationship with IS Success.

4.9. Chapter Summary

The chapter discussed the analysis of data received from the questionnaire and relationships between variables based on correlation and ANOVA test. In the next chapter, the results will be discussed. Further, the discussion will be linked to the

literature review combined with the research model in order to suggest some new studies in this research field.

5. DISCUSSION OF RESULTS AND CONCLUSIONS

5.1. Introduction

This chapter is devoted to discussing the results of data from data analysis in chapter 4 and providing conclusions in the context of research objectives. In order to find out some new research studies in this research area, the discussion is linked to the literature review and combined with the research model. Some research limitations are presented in order to explain the weaknesses of this research project. In addition, research conclusion that links with the research objectives and research problem in chapter 1, and some recommendation for future researchers for similar projects are also given in this chapter.

5.2. Discussion of the Results

The first section of the questionnaire from 1 – 6 was targeted at understanding the targeted audience and their culture in this research. As per this demographic analysis in the above section, it can be concluded that the demographic variation is very good.

The questionnaire 7 – 15 was used to investigate the following: intention to use IS, IS use, Information quality, system quality, support service quality, quality of information use, end user training and user satisfaction related to information system success for internal service management in the hotel industry. The entire result can be summarized and shown as in 5.1 Table below. According to the correlation results in Table 5.1, it can be clearly concluded that mentioned variables have a very strong influence in information system success for internal service management in the hotel industry.

Table 5.1 Summary of Results

	Information System Success	Result
	Pearson Correlation	
User Satisfaction	.776	Positively strongly correlated
Support Service Quality	.760	Positively strongly correlated
Quality of Information Use	.727	Positively strongly correlated
System Quality	.686	Positively strongly correlated
Intension to Use	.672	Positively strongly correlated
Information Quality	.659	Positively strongly correlated
Information System Use	.653	Positively strongly correlated
End User Training	.610	Positively strongly correlated

As per above table, research results have yielded the correlation for each variable. The highest correlation result is 0.776, which is for user satisfaction. This implies that user satisfaction has the strongest positive correlation with information system success. The result justifies the conclusion that when users are satisfied it has huge impact on the success of the system. Secondly, support service quality has reached 0.760, which implies that when user receives an appropriate service from both system vendors and system admin that positively affects the success of the information system. When the user can use the information to generate other information that is more useful or results that will affect their self-satisfaction in other ways it also results in information system success. As per the above table it has 0.727 Pearson correlations, which emphasizes that quality of information use has

strong correlation between IS success. In addition, the rest of the four variables have almost similar correlation values, which emphasizes that have a similar effect on the success of information systems. However, the last variable regarding the impact of end user training on the success of IS, has a somewhat low value compared to the others. The reason may be the system is user friendly, therefore users can easily learn without much training.

In the experience group of 1-2 years the result (Table 4.16) indicates that end user training and information system success is not correlated. This may due to, this bracket represents the young generation, and they might not need end user training since they are more familiar with IT systems than the senior level employees; they are also capable of using smartphones, and so they have more knowledge than the older generation. In addition, people who have 1-2 years' experience might not have a choice, and they have to learn. Another possible reason is, that when years of experience are low, they might have many other duties, which are assigned by their managers. Therefore, they may not interact with 'IS' that much.

The results of employees with 3-5 years' experience (Table 4.17 and 4.18) shows that there is no correlation with IS success against intention to use as well as information system use. This category of respondents may be comfortable with their job. However, even if they know the system is quality, but they are not willing to use the system since they may have confidence on being done the job. In addition, when they gain more and more experience they might need more system features or benefits than they did earlier. If the system cannot fulfill this, then the motivation for using systems can be reduced. However, they might think that information system, support service quality is higher.

In the group with experience above 5 years, the employees are the top management level people. Therefore, they actually need data and they use it. However, the middle level managers, who are in the group 3-5 years' experience, may be people who manage daily tasks; so the daily report would be enough for managing their tasks. Information such as, the profit, the cost-break-down of each item/service, are

important for top managers. Therefore, they might need to use the system to obtain these results. This can be the reason for the high correlation in this category.

In the frequency group tested under 'sometime', the result (Table 4.24) indicates that the Pearson correlation is low. In addition, significant value is comparably high. From this, we can conclude that success of information systems does not correlate with end user training. This may be due to time of the users involved in training.

Also in the 'sometimes' group support service quality has not correlated with IS success (Table 4.25). This may due to people who use the systems use it occasionally, so they do not get time to interact with the support side personnel. Therefore, the result indicates a very low correlation.

The variables introduced such as 'end user training' and 'quality of information use' can be further investigated in future research in order to get more meaningful relationship for IS success.

5.3. Research Limitation

Although the research was completed and result is positive, however there are numerous limitations in the process of this research. Target population sample was 334 respondents. In addition, while the questionnaire was sent to 350 people, however, only 102 respondents were taken into account. The reason for this low value is that some hotels are not willing to divulge their information, and some were rejected due respondents' time availability.

As the clients (survey respondents) are not Sri Lankan, there were some limitations in getting a large number of respondents for the survey. In addition, because the respondents are foreigners, it was hard to get face-to-face interviews to obtain more valuable data related to this study. Further, due to time limitations, this research was limited to a small population. Similarly, the language of communication may be a reason for some respondents not to answer since the sample is Chinese employees in

the hotel industry in China. Finally, because of hotel employees' lack of knowledge of 'IT' and 'IS', there are some limitations when collecting data for this survey.

The research confidence level initially planned to be kept at 5%. However, due to the response v volume and the representative parties the final confidence level reached 9.51% (almost 10).

5.4. Research Conclusions

As mentioned in chapter 2, the research question was "What are the factors directing the success of the information systems used for internal service management in the hotel industry". In addition, there were a few more sub-questions as research objectives.

1. What are the factors directing the success of the information systems used for internal service management in hotel industry.

Therefore, in chapter 3 we discussed many 'information system success' factors specifically related to hotel industry internal service management. After reviewing the literature following variables were identified as key factors effect for information system success in hotel industry internal service management: User satisfaction, support service quality, quality of information use, system quality, intension to use, information quality, information system use, and end-user training.

After the developing a theoretical framework hypotheses were developed to investigate the further objectives based on the questionnaire. According the data analysis in chapter 4, all the null hypotheses were proven as false. Therefore, it can be concluded that all the proposed factors are positively correlated with information system success for hotel industry internal service management –IHG Chinese Hotel.

The second objective was to identify the factors s most affecting   the hotel industry internal service management specifically.

2. Determine the factors most affecting for the success of IS for Service Management in Hotel Industry.

According to the ANOVA analysis, it can be said that information system use, system quality, quality of information use, user satisfaction, and support service quality are the most significant factors for information system success in hotel internal service management.

The third objective was as below:

3. Compare whether they are same as typical IS success factors

Compared with the existing research done on general IS, system quality, information quality, support service quality, intention to use, system use, system success, are the most common factors that affect success of information systems. However, end user training and quality of information usability is not much affecting to the success of information systems. When compared with the hotel industry these two factors have a very high correlation with the success of information system use in hotel industry. Therefore, there is room for future research to investigate further into this.

5.5. Recommendations for Future Research

Although, this research concluded with some valuable results, it was still restricted by the time and sample size. In order to get more results that are accurate we need to extend the sample size widely. Further, rather than collecting data based on a questionnaire more accurate information can be obtained interviews of real IS users. This way, the researcher can ask questions face to face until users ascertain both the positive and negative sides regarding the IS.

The audiences in this research study are not fully from to technological background, so there are is room for future studies, perhaps only with IT managers who can

share information that is more valuable related to perceptions of IS uses regarding their work.

The research finding about the years of age, experience related results can be further investigated in order to get clearer conclusions on how 'old age' employees can use IS compared to the young generation. Moreover, how the end user training and intention to use change based on the age of experience.

5.6. Chapter Summary

This chapter presented the data results from the previous chapter and presented some research limitations during the process of research development. The last section of this chapter shows the conclusions of the research, while some recommendations for future research were also given.

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Appendix - A - Research Questionnaire

Dear Sir/Madam,

Thank you for taking time to fill in this survey on analyzing the aspects of Factors Affecting Success of Using Information System in Hotel Industry for internal Service Management. The purpose of this is to collect data for my MBA in IT research at the University of Moratuwa. Responses will be kept strictly confidential and will be used for this research and during the data analysis only.

Please do take a couple of minutes to rate the below questions.

Thanks in Advance

A.Y.Senevirathna

Google Document URL in first attempt -
https://docs.google.com/forms/d/1qH7l8uTHaEN7bRF6ML9AeRWylWkG_u-w5VOjCZM-0eE/viewform
After editing, many times the final version of questionnaire is as bellow.

Final Google Document URL for questionnaire -
http://goo.gl/forms/8UTdw9GB69FmMLml1

1. Are you a full time employee in this company?你是否在此公司为全职人员？

   是 Yes 否 No

2. How long have you been employed in this company? (Please check one)你在此公司工作了多长时间？（请查看如下）
   - Less than one year （少于 1 年）
   - 1-2 Years （1-2 年）
   - 2-3 Years （2-3 年）
   - 3-5 Years （3-5 年）
   - More than 5 years （五年以上）

3. Which Software/information system/systems you are using? (Please check as Appropriate)为做酒店的工作哪些软件/信息系统您使用？ （请恰当的检查）
   - OPERA Reservation System ORS
   - Infrasys F and B Solution
   - ESCAP (Work Management and Preventative Maintenance Solutions)
   - ESCAP Portal
   - AMTT Hotel HD Digital Frontend System
   - FCS Hotel Operation Management Applications (eSolution)
   - Enterprise Resource Planning (ERP)
   - Supply Chain Management (SCM)
   - Customer Relationship Management (CRM)
   - Project Management (PM)
   - Ecommerce
   - Order management System
   - Guest Reservation Management (OPERA)
   - Restaurant System
   - Other

4. How frequently you use the above mentioned software/Information System in your day to day work 您常使用以上说的软件/系统为您的日常工作吗？
   - Never 从来没有
   - Rarely 很少
   - Sometime 有时
   - Often 经常
   - Very Often 常常

5. Why do you use above-mentioned software/System? Because,为什么您使用以上说的软件/信息系统？ 因为，
   - It is my job responsibility 这是我的工作职责
   - Manager need me to use it 经理需要我用它
   - It help me to do my work 它帮我做我的工作
   - Without it I cannot do any of my work 如果没有它，我不能做任何我的工作
   - I must provide report to my management 我使用它必须提供报告给我的经理

6. With the above mentioned software/IS (Information System) I can do 使用以上说的软件/系统我能做
   - None of My Work 不帮助我的任何工作（0%）
   - Some of my work 我的一些工作（0%25%）

- Half of my work 我的工作中有一半（0％50％）
- Larger amount of my work 我工作的大量（0％75％）
- All My work 我的所有工作（0％100％）

7. The following statements ask you to assess how this software/System affects to your work.下面的声明告诉您评估该软件/系统如何影响您日常的工作
Please rate the questions referring to your attitudes from 1-5. The scale will be
1: Strongly Disagree, 2: Disagree, 3: Moderately Agree, 4: Agree, 5: Strongly Agree.
1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

Intention to Use IS	1	2	3	4	5
7(a)Makes it easier to do my job 使用以上说的电脑系统我的工作更加容易					
7(b)Helps my decision making 它帮助我做出决定					
7(c)Facilitates knowledge transfer 它促进知识转移跟酒店的其他员工					
7(d)Reduces process costs 系统减少处理成本					
7(e)Using the system increases productivity 使用信息系统提高了工作效率					
7(f)Using the system saves time 使用系统可节省工作完成的时间					
7(g)Using the system improves job performance 使用系统/软件提高工作绩效					

8. The following statements ask you to assess the software/System use in your day to day work. 下面的声明告诉您如何评估该系统的使用在您的日常工作中
Please rate the questions referring to your attitudes from 1-5. The scale will be
1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.
1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

System Use	1	2	3	4	5
8(a)I use system to identify the needs in the hotel 我使用系统来了解酒店的要求					
8(b)I use system to arrange/complete guest/staff requests 我使用系统安排/完整来自客人/工作人员的要求					
8(c)I use system to arrange/plan my work 我使用系统来安排/计划我的工作					
8(d)I use system to share information/knowledge with others 我使用系统交流信息/知识跟酒店的其他人					

9. The following statements ask you to assess the technical and some general characteristics of the IS. 下面的声明要求您评估技术和该软件的一些一般特性。

Please rate the questions referring to your attitudes from 1-5. The scale will be

1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.

1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

System Quality	1	2	3	4	5
9(a)System is reliable 系统是可靠的					
9(b)System is flexible 系统是灵活的					
9(c)System is easy to use 系统是容易使用的					
9(d)System is easy to learn 系统是容易学习的					
9(e)System is well integrated 系统是综合应用好的					
9(f)System is easy to customize 系统容易定制					
9(g)System can be easily maintained 系统容易维护					
9(h)System can be used for multiple purposes 系统能多用途的使用					
9(i)Systems is useful for problem identification and sharing 系统对于问题识别和共享有用					
9(j)System meets my expectations 系统符合我的期望					
9(k)System meets my requirements 系统符合我的要求					
9(l)System provides benefits for the entire organization 系统对整个组织提供了好处					
9(m)System is user friendly 系统是用户友好的					

10. The following statements ask you to assess the general characteristics of the information provided by the IS. 下面的声明告诉您评估该系统提供信息的一般特性。

Please rate the questions referring to your attitudes from 1-5. The scale will be

1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.

1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

Information Quality	1	2	3	4	5
10(a)Information is Understandable 信息是可理解的					
10(b)Information is Clear 信息是很清楚的					
10(c)Information is important 信息是很重要					
10(d)Relevant (Relevant to my Job) 信息是相关对我的工作					
10(e)Information is well-organized 信息是良好组织的					
10(f)Information is Well-defined 信息是明确定义的					
10(g)Information is Available (Always) 信息是总是可用的					
10(h)Information is Accessible 信息是可访问的					
10(i)Information is Up-to-date 信息是最新的					
10(j)Information Received in a timely manner 信息及时接收的					

11. The following statements ask you to assess the general characteristics of the information provided by this Software/System.下面的声明告诉您评估该软件/系统提供信息使用的一般特性

Please rate the questions referring to your attitudes from 1-5. The scale will be

1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.

1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

Quality of Information Usability	1	2	3	4	5
11(a)Can be easily compared to past information 能容易的比较以前的信息					
11(b)Can be used for multiple purposes 能用于多用途					
11(c)Meets my requirements 达到我的要求					
11(d)It is useful for solving problems 对于解决问题很有用					
11(e)It is useful for making decisions 对于做出决定很有用					
11(f)Improves decision effectiveness 提高决策的有效性					
11(g)It is useful for problem identification 对于问题识别很有用					

12. The following statements ask you to assess the End-User training and the services provided by the service provider. 下面的声明告诉您评估提供的软件/系统用户的培训和服务。

Please rate the questions referring to your attitudes from 1-5. The scale will be

1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.

1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

End-User Training in IS	1	2	3	4	5
12(a)Training programs are useful 培训课程很有用的					
12(b)Training programs Cover specific needs 培训课程涉及具体用户的需求					
12(c)Training programs cover my needs 培训课程覆盖我的需求					
12(d)Training programs are frequent 培训计划频繁的（经常有）					
12(e)Training programs are instructive 培训课程是有益的					
12(f)Training programs are cost effective 培训课程具有成本效益（免费的）					
12(g)Training programs help me to learn the various use of the system 培训课程帮助我学习各种系统的使用					

13. The following statements ask you to assess the services provided by the software owning company. 下面的声明告诉您评估软件公司提供的服务 Please rate the questions referring to your attitudes from 1-5. The scale will be

1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.

1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

Support Service Quality	1	2	3	4	5
13(a)Service representatives are well trained 服务代表有良好的知识关于系统					
13(b)The service representative responds to my quires in a timely manner 服务代表准时回答我的问题					
13(c)Service Representative can easily understand my requirements 服务代表可以很容易地理解我的要求					
13(d)Overall, I am very satisfied with the Service representative 总来说，我很满意关于服务代表					
13(e)Overall, I am very satisfied with the Service provided by the company 总来说，我很满意关于软件公司的服务					

14. The following statements ask you to assess the User Satisfaction about the system. 下面的声明告诉您评估用户的满意度对系统

Please rate the questions referring to your attitudes from 1-5. The scale will be

1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.

1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

User Satisfaction	1	2	3	4	5
14(a)I am satisfied with the system that provide me everything to do my job 我对系统很满意的，该系统提供了我需要的信息简单的做我的工作					
14(b)I am satisfied with system efficiency 我对系统效率很满意的					
14(c)I am satisfied with system effectiveness 我对系统的有效性很满意的					
14(d)Overall, I am very satisfied with the System and it benefits for my work 总来说，我对系统和系统的受益对对我的工作很满意的					
14(e)I am satisfied with the system that provide me everything to do my job 我对系统很满意的，该系统提供了我需要的信息简单的做我的工作					

15. The following statements ask you to assess the Success of using mentioned Software/System. 下面的声明告诉您评估该软件/系统的成功为您酒店的工作

Please rate the questions referring to your attitudes from 1-5. The scale will be

1: Strongly Disagree, 2:Disagree, 3:Moderately Agree, 4:Agree, 5:Strongly Agree.

1：完全不同意，2：不同意，3：中等同意，4：同意 5：非常同意

Net Benefits/IS Success	1	2	3	4	5
15(a)It has positive impact on hotel service growth。该系统/软件对酒店的工作有很好的帮助					
15(b)It has positive impact on Employee productivity growth。该系统/软件对酒店员工的工作效率有很好的帮助					
15(c)It has positive impact on hotel guest expectation。该系统/软件对酒店客人的要求有很好的帮助					
15(d)Overall, I am satisfied with the system/Software。总来说，我是关于系统/软件很满意的。					