

Information Transfer Model in Hotel Chain Management

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Abstract –*In the modern world the main focus of hotel competition is not only between different hotel services but also information facility to customers. As the satisfaction of the value customer is of utmost importance for the successfulness of the whole value chain, effective management of information and process transfer is crucial. The challenge of reduced operating costs while increasing customer's satisfaction is the new challenge for doing hotel business. This research question derived from real case study with budget hotel chains, B2 hotel with 18 branches. In-depth interview with owner and 30% of hotel staffs were conducted to understand the existing problems, limitations, and exceed operation costs of information technology service management that deployed in 18 hotel branches. The study aims to highlight the feature of the concept of information transfer model (ITM) and hotel information chain management (HICM) in hotel management. The results of the research provide a model of how the HICM can improve hotel process management, reduce operations costs, and increase customer satisfactions.*

Keywords: Hotel information chain management, information transfer model, hotel chain management, information chain management.

1 Introduction

Globalization and increasingly competitive markets has driven both local and international hotels to develop their standards to ensure that they are ahead or at least keeping pace with their competitors. Technological changes and organizational improvements are important for effective integration of information chains. Many hotels, especially small and medium hotel (SMH), have not deployed IT to increase more customer expectation and complete advantage. However, in the 21st century, IT investment in hotel industry has increased drastically. Emerging of electronic transactions over Internet is stimulated the competition among online received and access information from hotel industries. Online information application has been generally deployed throughout hospitality industry. The hotel technology infrastructure must support advanced customer service applications, which provide front-desk staff with the tools and capabilities that they need to anticipate customer needs and deliver excellent services. Hotel information chain management (HICM) supports to increase management

efficiency [4], to help the hotel operate profitably in spite of rising utility, labor, medical, and other operational costs [2].

According to [1] research, conducted in the U.S.A. in year 2008, there are three main instances in which hotel management considers IT to be particularly beneficial to the hotel workplace: (1) the increase in customer satisfaction, (2) employee efficiency, and (3) increasing revenue. It is notable that hotel management holds no strong belief that IT can be used as a tool for lowering expenses or improving the efficiency of their back office systems. More than half of the respondents considered IT an asset for enhancing the customer experiences [3].

The hotel business challenge is how to design a cost effective communication infrastructure that delivers advanced customer services and helps hotel staffs exceed customer expectation and to build customer loyalty. In order to improve the IT criteria of the Thailand Hotels Standard (THS), this research intends to determine the level of knowledge of currently available information technology (IT) systems, to gauge hotelier's understanding of future IT requirements in the hotel industry that can benefit hotel management professionals, and gain an understanding of the IT requirements of the hotel industry in the near future.

This research was developed a conceptual model of HICM that how hotel business process can be used to analyze the existing processes and help in renovation and integration of those processes, with a special emphasis on an inter-organizational level. It particularizes how IT and smart card (e-Money) technology would help such hotels to reduce total implementation costs by shortening develop period; minimize risk to construction for new branch hotel project by using stable and standard open platform; provide real time services to client at anytime, anywhere, and anyone; create competitive advantage among budget hotel chains [8][9]; easy to interface and connect with any other hotel chain; secure the foundation of HICM model in order to overseas expansion.

2 Information chain management

Communication technologies in the 21st century are changing the ways we live forever. Information chain management (ICM) is a portal of interchange information of each party. In this research, ICM is acting as centralized portal for all hotel breaches to access, update, exchange, and distribute their latest customer information or any

requirement. Hotel stakeholders can keep connected via internet for any information, anytime, and anyplace, as illustrated in Figure 1. ICM is working on the top layer of IT system infrastructure. The basis of IT system infrastructure consists of a heterogeneous set of IT devices; a set of supported activities; a set of network communication systems; and some computing application systems the devices may rely on in order to carry out their business objectives.

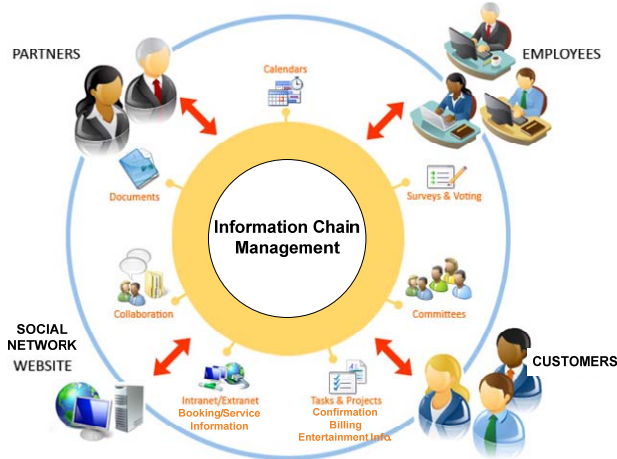


Figure 1. Information chain management

3 Research methodology

With the objective of analyzing the limitations of hotel information management (HIM) in the hospitality industry in Thailand, a case study, B2 hotel chain group in Thailand, was conducted to cover a budget hotel chain group to understand how the hospitality industry can solve the problems of the disintegration of information from the various deployment business applications. This research endeavored to answer proposed problems, interpretations, through the systematic analysis and synthesis of primary and secondary data. Primary data collection were performed through in-depth interview 180 employees, three level of hotel's employees: management (40), back office (70), and front office (70), of 18 hotels from three star hotel chain and 50 MBA students from operations management class subject to the new HIM for the year 2020 hotel management. Hotel management structure and existing IT systems were examined expose to total cost of ownership (TCO). Secondary data were investigated and analysis from the existing research papers after the year 2001, hotel standards and best practice guidelines. The new emerging technologies of IT which applies through hotel service management are the main topic of this research conditional on impact to; customer satisfactions; faster, better, and cheaper; supporting staff operations; reduce operation costs; supporting management decision; and creating new ideas of the 2020 hotel management system.

The research portrayed an interpretative approach from technology trend and service expectations from a

group of stakeholder, including managers, IT directors, employees, and customers.

3.1 Examination of existing IT systems

B2 hotel is defined a budget hotel chain and characterized as medium size hotel around 80-150 rooms. Right now, they have more than 18 hotel chain operations in many provinces of Thailand. During year 2005-2010, B2 have only 4 hotels operations which investment of each hotel in fix costs of IT infrastructure system is around \$10,000 USD and \$16,700 USD for hotel software management license (lifetime agreement with \$1,670 USD MA per year), and around \$15,000 USD for security systems. The total fix investment of IT infrastructure and HIM is around \$41,700 USD per hotel while the variable costs of operation will be \$1,670 USD for maintenance agreement (MA) per year, and IT staffs \$13,670 USD, and facility operations \$10,000 USD. The total variable costs of IT infrastructure and ITSM is around \$25,340 USD per year. During 2011-2012, B2 have built 15 hotels for investment and operations. The investment for IT infrastructure and HIM was under the same condition of fix costs and available costs.



Figure 2. Silo information of hotel management by each department

In 2006, B2 have problems with information intergration and distribution among department. Each information is created and keep in their own department. It will take more time to transfer, by manual, from one to the others. Figure 2 is described the silo information management in each department of front office and back office before applying to HICM within the same year.

3.2 Existing of software collaboration

The character of legacy hotel management is used many software working together or software collaboration. Since each software requirement and deployment was happened not the same time but they need to work together for exchange information. The problems are each software need coding gateway to transfer data in and out from their data based; or it needs third party software working as

middle tool for transferring information. Moreover, each software relies on different software companies which they cannot work together very well subject to conflict of interests [7], as demonstrated in Figure 3.



Figure 3. Software collaboration in hotel management

3.3 Survey results

The result from MBA student group shown 60% they need to know the hotel first by website, who's comments, price per night, location; 40% would like to know payment systems and must be online; 30% would like to know services that hotel provide such as free Wi-Fi, breakfast, pickup at airport, etc.

All management staffs, 100%, are believed IT will increase sales volume and created competitive advantage over other hotel competitors. Front office and back office employees, more than 70%, are concerned about loss their jobs when IT system coming. Moreover, 50% of front office and back office employees are believed IT systems help hotel reduce operation costs, increase customer satisfaction, and improve working conditions.

4 Integrated model construction

This new model was constructed and modified from the past 10 years hotel history investigation by personal in-depth interviews, group discussion, and benchmarking among 3 star hotels. Synthesis by the rule of the best in class of 3 star hotel strategies, the best strategy from each hotel were assimilated through ITM to construct and integrate information processes. Refer to hotel chain strategy of 3 star hotels, if the hotel strategic plans to enhance the operational productivities. The hotel can adopt ITM in three directions. First, the process control of food and beverage department, IT equipments such as point of sales (POS) are necessitated to deploy. Second, the deployment of inroom IT and function room embedded equipment is required. Third, online information and booking are needed to broad and wide advertising on website by supporting from local and international agency and social network. When the aim of hotel strategy is to improve the customer satisfaction and operation productivity, it is potential to deploy IT equipment and HIM software in two level approaches. First,

infrastructure level is working to facilitate information transform for all transactions and communications among hotels, agencies, customers, supplier, and regulators. Second, software level is supporting in human interaction (GUI) among hotels, agencies, customers, supplier, and regulators through web applications and/or social network applications.

4.1 Smartcard system (e-Money)

The e-Money system is a mechanism that facilitates payment, normally of limited value, in which e-Money can be considered as an electronic representative for banknotes, as shown in Figure 4. The e-Money system is described on the basis of a model with a set of sub-systems through which electronic value (EV) is transferred, under the responsibility of a system administrator who monitors the security of EV creation, EV extinguishment, and EV circulation within the system [10].

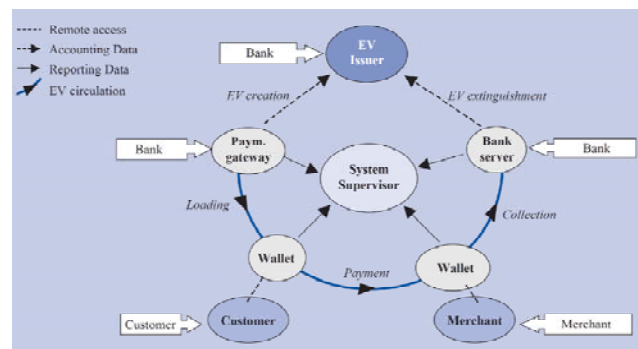


Figure 4. Functions of e-Money system management

e-Money has multi-application loading platforms, and multi-industry applications accomplished via banking IC card, guarantees the industry card financial risk avoiding and fulfills the special business requirements in the industry. As a special consuming group, campus is a typical application for the banking IC card developed in multiply industries. The benefit functions of e-Money are not only applying to customers but also to hotel employees.

1. Convenience: e-purse in the card can be used for various purchase environments, very convenient.
2. Contactless card, easy payment
3. Integrate banking function, citizen card and campus card etc. into one-card, the card can be used in campus, public transport, micro payment, purchase, utility service.
4. Customize design and application down load
5. Adopt up-dated financial standards and be compatible other industries standards

Hotel e-Service management solution design, illustrated in Figure 5, purposes a guideline of system

integration among emerging technologies such as ITM, HIM, HICM, e-Money, CRM, etc.

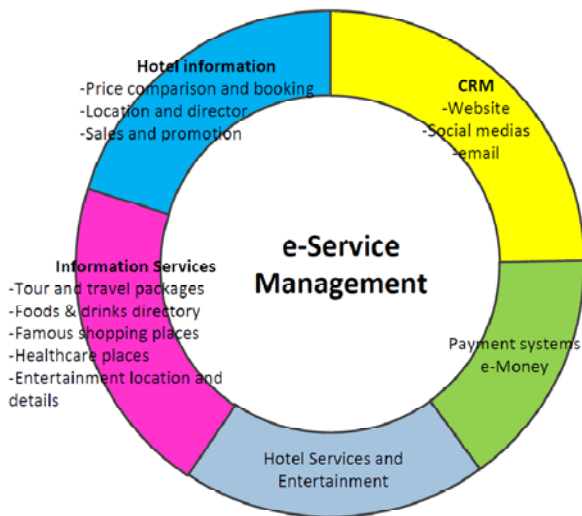


Figure 5. Functions of e-Service management

1. Using the e-Money to establish the hotel chain one-card application, recharge the card via EV and transfer machine.
2. Hotel chain: provide application identifier (AID) and master control key (leded in by mother card or plaintext) for the hotel group one-card system, the application file of hotel system defines e-purse, identification etc. functions; achieve the e-money transferred to hotel e-purse, accomplish transaction verification and hotel funds settlement.
3. Hotel e-Card check-in: the cryptographic key system of hotel check-in application platform creates application keys via the master control key offered by hotel chain; the hotel application platform issues the e-Card on top of e-Money for the and creates sub-applications and one-card system files structure under the hotel management system, installs relevant operating keys and fulfills the check-in e-Card.
4. Customer: transfer the e-money or e-deposit book amount in the banking card into the e-purse of campus card via self-service transfer machine, and accomplish purchases, time& attendance, access controlling etc via the terminals inside the campus.

4.2 Information transfer model (ITM)

ITM is working as a core value of HICM. Since researches were working on MBA student group regarding what are the information that you need before and during on travel and hotel staff group regarding what are the

popular questions from customers. The Figure 6 is described all possible functions of e-Service management of HICM model before, during, and after service management lifecycle. Each function needs to work on ITM as portal of exchange data through information from customer information to service process and business intelligence (BI) for management decision.

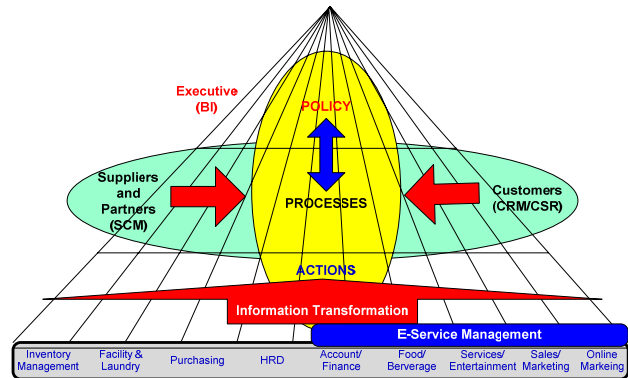


Figure 6. Functions of HICM model

There are three concern points from management level. First, the investment on software license, B2 needs to pay \$16,700 USD each time for open new hotel and 10% or \$1,670 USD of software MA each year. Second, each software hotel is running on stand alone mode. They are not desing for centralized management. Third, they are not open for third party to intergrate new features or upgrade any applications. Therefore, after 2013, the new solution of HICM is purposed. The new solution is shown in Figure 7. The intergration technologies and applications of online booking, e-Money for check-in and payment for rooms and services, ubiquitous customer access, and centralized management. These new solution needs \$333,400 USD for hardware and infrastructure, \$66,700 USD for lifetime software license and centralized management.

ITM provides internet and transactions throughout HICM network service and entertainment areas by high speed wireless (Wi-Fi, 2.4 GHz, 802.11n, at data rate 100Mbps/s.) which customers can take pleasure in surfing internet for information, entertainment, and businesses. All expenses are integrated through e-Money account and cut-off after check out. Safety level of e-Money amount can set by smartcard holder to charging terminal. e-Money card can activate as key card to access room, private lounge, or coupon breakfast. Moreover, e-Money can apply throughout 18 branches of B2 hotel chain with the same services and quality. Forward marketing and promotion can be done to member account likes cash back to e-Money directly every time they purchase to B2 services and entertainment. Moreover, social network and e-mail is the IT channels to get direct to member about Thai's festivals or special events. These are the ways to keep customer in touch everyone, every time, and everywhere with cheaper transaction.

Decentralized IT management was applied since the beginning of B2 operation in 2006. Each B2 hotel has unique IT infrastructure because the sizing of each B2 hotel is not the same room number, layout design, and room decoration. Every B2 hotel has the same platform of software hotel management system one time deployment for lifetime operation fix rate at \$16,700 USD and \$1,670 USD each year management free. Each year of new hotels coming B2 needs to pay more on fix costs and available costs. In 2012, B2 needs to pay fix costs at \$750,600 USD and accumulation variable costs at \$900,160 USD.

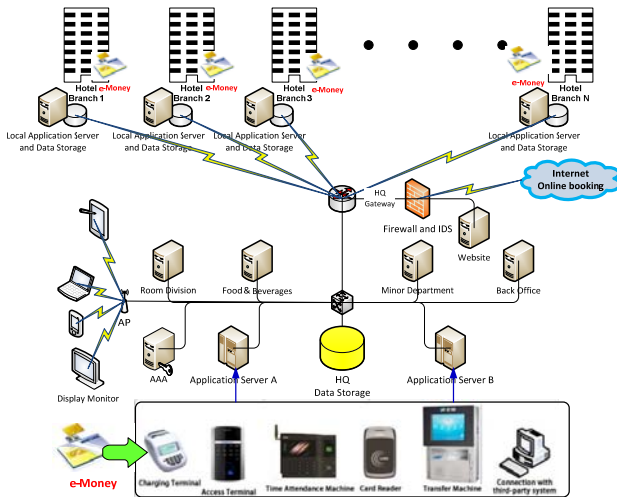


Figure 7. B2 branches inter-communication of HICM

The new centralized HICM needs to resolve fix costs and operation costs, new customer services, tracking customer's behavior, and central management system. IT System and IT infrastructure analysis has been made and conducted proposal according project feasibility study. The result comes up with positive return on investment (ROI). The second part of analysis illustrated after cut –over old system, fix costs of hardware and software license need to pay only one time for lifetime operation at \$455,000 USD, this investment include e-Money and HICM systems, with around \$45,000 USD for annual operation costs at maximum 30 hotels. Moreover, the capability system of e-Money cards can provide up to 10,000,000 card holders. The forecasting ROI in condition of B2 build 3-4 hotels per year within year 2017 the new e-Money and HICM systems will break even.

5 Conclusions

Emerging of HICM in hotel management is reinforcement mechanism to sustain hospitality industry. Many hotels are change the way human doing business to IT doing business. The research results shown new centralized HICM helps reduce long-term investment in hardware infrastructure and yearly operation costs. Moreover, it is not only created new market services for

customers such as e-Money but also improve hotel operation efficiency. Information network is not longer limited in only hotel area anymore. Customer can book, change schedule, payment, and shopping within B2 hotel chains through e-Money systems. We cannot avoid that the emerging of HICM in budget hotel services in year 2020 will change the way we live and journey forever.

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