ISSN: 2321-2152

IJMECE

International Journal of modern electronics and communication engineering

E-Mail
editor.ijmece@gmail.com
editor@ijmece.com

ISSN2321-2152www.ijmece .com
Vol 6, Issue 2 April 2018

A study of hotel in formation technology applications

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Abstract

Purpose – Information technology (IT) applications in the hotel industry have largely been devotedto the handling of the routine operational problems that crop up while running a hotel. Previously, thehotel industry has been criticised as reluctant to make full use of IT. This paper reports and analysesthefindingsofarecentsurveyonITapplicationsinHongKonghotels.

Design/methodology/approach – Throughpersonalinterviewswith21managersofhotelelectronic data processing/management information systems (EDP/MIS) in 2003, different technicalandbehaviouralaspectsofITwereexamined.

Findings – Compared with a similar study performed in 1997, the empirical findings in 2003 showedthat IT was used not merely to replace the existing paper system but also to improve customerservices and to enhance operational effectiveness. Unfortunately, the empirical findings also indicatedthathoteldecisionmakersdidnotseemtorealisetheimportanceofITforthepurposeofdevelopingbusiness strategies and, therefore, IT was generally not used in hotels for high-level businessdecision-making.

Research limitations/implications – A limitation of this study was the fairly low participationrateofhotelmanagers.

Practical implications – The study does offer useful insights for hoteliers to realistically analysethepotentialbenefitsofITapplicationstotheirbusiness.

Originality/value–ThispaperwillcontributetohelpraisetheawarenessofITinvolvementatalllevels of hotel business processes, and facilitate hoteliers to proactively incorporate IT into their effortstoremaincompetitiveintheindustry.

KeywordsHotels,Information,Technologyledstrategy,HongKongPapertypeGeneralreview

Introduction

andliteraturereviewThe traditional hotel industry has placed great emphasis on the provision of qualityservicetoguests. With the increasing demand for intensive information from customers and hotel practitioners, hotels have adopted

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computer-based IT facilities to improve operational efficiency, reduce costs, and enhance service quality (Camison,
2000; Cobanoglu et al., 2001; Siguaw and Enz, 1999; van Hoof et al., 1996). With the use of IT in their businesses, hotel managers expect that their profit margins and financial returns will increase. According to Watkins (1995), IT starts and ends with customers
This project was supported by a research grant funded by the Hong Kong Polytechnic University under contract number G-T568.
in a hotel. The investment in IT thus benefits the hotel if it enables customers to have a better experience and the hotel staff to work more efficiently to better assist customers. Likewise, Olsen and Connolly (2000) argued that the use of IT can place knowledge and information at the core of a hospitality organisation's competitive profile.

In general, the hotel industry can be regarded as information intensive. Davis and Davidson (1991) claim that with IT reshaping the basic structure of the industry and society, in addition to consumers' need for more accurate and timely information, the pace of technology diffusion in hotels will increase at an unprecedented rate. Similarly, Cho and Olsen (1998) stressed that IT can transform the nature of products, processes, companies, industries and competitions in the hospitality industry. Frew (2000a, b) further emphasised that technology will bring about a major revolution in the hospitality industry.The rapid growth of the tourism industry in Hong Kong in the 1990s and early 2000s stimulated the rapid development of the local hotel industry. In the period from 1992 to 2001, Hong Kong had been able to attain an average hotel occupancy rate of over 80 per cent; whereas the corresponding figure for worldwide hotels was less than 70 per cent (HKTB, 2002). To efficiently manage the several hundred rooms in each hotel at an international standard of service, hotel managers need updated management know-how and the latest IT systems.

Prior studies have indicated that hotels do not always intend to take the lead in implementing a new kind of technology (Cho and Olsen, 1998; Sheldon, 1997). Such a slow response, according to Gamble (1988), causes the hospitality industry to lag behind other industries in IT applications. This, in turn, may cause a hotel to have a low degree of accrued benefits in terms of changes in the hotel's competitive position. Furthermore, most hotel decision makers did not receive training in IT; for this reason, their technical knowledge is fairly limited (Borsenik, 1993). The low IT knowledge of these hotel managers inevitably causes them to be reluctant or even resistant to accept new technologies because they fear that these technologies might affect their role of providing personalised services to hotel guests. Connolly et al. (1998) stated that, due to their low IT competence, many hotel managers are skeptical about the value of investing in IT. Additionally, Law and Lau (2000) commented that the low technical competence of hotel managers and the large scale of IT-assisted hotel operations mean that the hotel industry will remain at a high risk of having IT problems.

In 1997, a survey of hotel IT applications was performed in Hong Kong (Law and Au, 1998). In that survey, 48 hotel EDP managers of the 83 members of the Hong Kong Hotels Association voluntarily participated in the study and were interviewed about general IT use in their hotels. Research findings in 1997 showed that hotels in Hong Kong generally used IT to assist in daily operations. The study, however, also revealed that hotel IT applications were non-innovative and lagged behind in terms of technological applications compared to other business fields. In particular, hotel managers generally talked about service quality, marketing strategy and cost control. By contrast, computer networks, operating systems and programming environments appeared in the conversations of technical IT professionals. In other words, there had been very little mutually understandable communication between non-technical hotel managers and technical IT professionals, making hotels unable to fully utilise their IT facilities.

Methodology

Thisresearchusedanin-depthinterviewapproach.HotelmanagersinEDP/MISdepartmentswereinterviewedtoseektheirviewsontwodimensions ofITapplicationsin their hotel properties. These dimensions included technical and behavioural aspects.The questions used in the interviews largely followed a study that was performed in1997 to investigate hotel IT applications in Hong Kong (Law and Au, 1998). Thesequestions basicallycoverthe essential areas of IT facilities and

relatedissues inhospitalitybusinessapplications(Shelly*etal.*,2002;KasavanaandCahill,1997).

In this study, the population consisted of all of the members of the Hong Kong HotelsAssociation.AllEDP/MISmanagersofthememberhotelslistedinthemostrecenteditionof the *Hong Kong Hotels Directory* (HKHA, were contacted for personal interviews.Atotalof21hotelsparticipatedinthestudy,representinga27percentresponserate.Thisresponserateislowerthanthematchingfigureofthestudyperformedin1997,duringwhich48EDPmanagersoutofthe83hotelsagreedtoparticipate.Inviewoftheheavyworkload of EDP/MIS managers and the time involvement in the personal interview, theresponse rate in 2003 can still be considered as reasonable. The personal interviews anddatacollection were completed inMarch 2003.

Findings

Profilesoftherespondentsandtheirhotels

Inthisstudy,datawerecollectedonthequalificationsoftheinterviewees andbackgroundoftheirhotels.TableIsummarisesthedemographicprofilesoftheinterviewees and their hotels. This section mainly discusses the findings in 2003, butthecorrespondingfiguresforthe1997studyarealsolistedforreference.

EDP/MISmanagerswerefairlywelleducated.Forty-fivepercentoftherespondentsholduniversitydegreesandmorethanhalfoftherespondents(52 per cent) had received a formal education in technical computer science or inengineering disciplines. This indicates that the academic qualifications of EDP/MISmanagers were relevant to their jobs. Compared to the figures in 1997, EDP/MISmanagers nowadays are better educated and receive more related academic training.Besides, EDP/MIS managers have all had many years of industrial work experience,with50percenthavingworkedintheindustryforatleasttenyears.Hong Kong hotels are generally large in scale, with more than 100 rooms in eachproperty and, for this reason, these hotels require hundreds of employees to provide ahigh standard of service to their guests. In this study, 84 per cent of the hotels had morethan 200 full-time employees. However, it is somewhat interesting to note that,probably due to the cost saving factor, hotels tended to hire more part-time employees.In 2003, 17 per cent of the participating hotels had more than 100 part-time staffmembers. Additionally, most hotels (76 per cent) had two full-time employees whowereresponsibleforITdevelopmentandimplementation.However,amajorityofthehotels(80percent) didnothaveany part-timeEDP/MISstaff.Eachyear, mostEDP/MIS departments (77 per cent) were usually allocated HK$300,001-HK$600,000(US$1 ¼ HK$7.8) by the hotels. Moreover, 50 and 44 per cent of the hotels had set asideafurtherHK$10,001-HK$300,000andHK$300,001-HK$600,000,respectively,tomaintaintheircomputersystems.

Technicalaspects

MS Windows was still the most popular operating system used in hotels. This waslargelyduetothesuperboperatingcapabilityandportabilityofWindowsonpersonalcomputers. Also, since local area networks (LAN) were commonly used in businessenvironments,thenetworkoperatingsystemNovellNetwarewasusedby62percentofhotels.Otherfrequentlyusedoperatingsystemsinclude UNIX(48percent),AS/400(29 per cent) and RS/6000 (14 per cent) for property management systems. Table II liststhefindingsofthesurveyontechnicalITapplicationsinhotels.

As revealed in Table II, MS Office (76 per cent) was the most popular applicationsoftware system used in hotels. A natural outcome of the wide adoption of MS Office asthe integrated generic software was the driving out of non-integrated generic softwaresuch as WordPerfect and Lotus in 2003. FIDELIO, which ranked third in 1997, becamethe second most commonly used application software in 2003 (38 per cent). HIS, once avery popular hotel property management system, was third on the list, with onlyone-third of hotels using it in 2003. The shift in the use of property managementsystemsfrom HIS toFIDELIOwas likelyduetothe latter'sflexibility and relativelylowmaintenancecosts.Naturally,suchashiftinapplicationsoftwarecausedadecreaseintheuseofminicomputerssuchas AS/400andS/36.Inaddition,allofthesurveyedhotelsusedvariousgenerationsof Pentiumpersonalcomputers(PCs),withamajorityofthemusingP3.This contradictsthefindingsin1997,duringwhichnon-Pentium

PCs were still widely used, even though Pentium PCs were available.This finding shows that hotels in Hong Kong, while not the most high-tech oriented,werenotlaggingfarbehindintermsoftheadoption ofcomputerhardware.Sincetherecent generation of Pentium PCs can accommodate advanced graphical software,AppleMacintoshcomputers,which31percentofh otelswerestillusingin1997,weresimplydiscardedin2003.
IntermsofITequipmentand servicesthatwereavailable toguests,hotelsin2003were generally able to provide a full range of facilities that had been only partiallyavailable in 1997. Examples of the facilities that were available in all hotels includecomputers, e-mail, fax, internet access and printers. It should also be noted that allhotels had set-up home pages on the internet in 2003, while the corresponding figure in1997 was only 50 per cent. Lastly, 71 per cent hotels

Behaviouralaspects

HotelemployeesgenerallypickeduptheirITskillsthrougho n-the-jobtraining(95percent). About half of the hotels (57 per cent) also provided course-based IT training totheir staff. The constraints or difficulties in organising training sessions, as revealedbytheinterviewees,weremainlyresources,budget constraints(33percent)andtimeconstraints(14percent).H otelmanagersalsorevealedthatformalITtrainingtostaffhas been insufficient. They, however, blamed the high turnover rate in hotels, wheremost training happens on the job. As a result, skills were passed over from oneemployee to another in an unstructured manner, which easily led to inconsistentstandardsofITutilisation.Inparticular,theinte rvieweescommentedthatmanagerialstaffneededtobetrain edtoappreciatethestrategicandtacticalvalueofIT.TableIII liststhefindingsofthesurveyonbehaviouralITaspectsinhot els.

Moreover, in 2003, only 43 per cent of hotels indicated that their guests werepositive about the technologieswhereas the equivalent figure in 1997 was70 per cent. Guests in most hotels (90 per cent) expressed the view that the provision oftechnologies was sufficient or very sufficient. For particular technologies that can beusedtoimproveservicequality,otherthaninternetconnec tionswhich29percentofthe hotels had agreed were useful, there did not appear to be a specific technologywhich most hotels found useful. In other words, with the probable exception of theinternet, hotel managers did not believe that using a specific technology can helpimproveservicequality.Lastly,38percentofthehotelm anagerssuggestedthattheirhotels need to upgradetheir IT equipment, and 29 per cent recommended that the PCsin their hotels should be linked. Compared to the findings in 1997, hotels in 2003 leanedtowards connecting their PCs instead of simply asking for an equipment upgrade.Such a change is probably due to the growing popularity of PC networking, and thustheoptimisationofresourcesharing.

Discussion

Shelly *et al.* (2002) stated that because strategy is put together based upon thefundamentalbuildingblocksofinformation,asuccessful businessframeworkshouldconsistofITasanessentialcomp onentinthestrategicplanningprocess.

This approach is highly emphasised in the areas of engineering and science. In theseareas, managers understand that, without information, business activities can easilybecome guesswork. In the context of hospitality management, Peacock (1995) made asimilar claim that a strategy will become fruitless speculation if there is no information.Kasavana and Cahill (1997) thus strongly advocated the use of computers to achievethe goal of incorporating information into the hospitality strategic planning process.However, computers tend to merely be used to duplicate the existing paper system.Acomputercanbecomepartofthestrategicplanning processofahospitalityorganizationonlywhenhotelmanage rsmakefulluseofit.

In the context of the technology used in Hong Kong hotels, there have been somesignificant changes since the previous survey in 1997, especially in the use of newversionsormodels.However,aparadigmshiftdoesnots eemtohaveoccurredonthelevelofITutilisation.Onthebasis oftheinterviewfindings,hotelsinHongKongwereable to adopt IT to improve business operations, and the IT penetration rate hasgenerallyincreased.Nevertheless,hotelmanagersalsor evealedthatITismainlyusedforclericaloroperationalfunct ions.Inotherwords,ITapplicationspredominantlyfallinthe lowerlevelofthe clerical-operational-tactical-strategichospitalitymanagement

hierarchy as defined by Gamble (1988). That is, hotel decision makers do not seem to realise the importance of IT for the purpose of developing business strategies. Therefore, in most cases, IT is not treated as part of the strategic planning process. The small size of EDP/MIS departments in hotels and their role in the hotel management structure truly reflects this unfortunate situation. On the whole, EDP/MIS managers are largely disconnected from senior management positions. They therefore have no direct involvement in important decision-making of the hotel. IT budgeting and accounting are handled on an annual basis subject to the approval of the financial controller, who is usually the immediate supervisor of an EDP/MIS manager.

Hotels in Hong Kong, and very likely in other regions, are not fully utilising IT facilities to their fullest capability. Such an underutilisation occurred in processing speed, storage space and hardware connectivity. Previous studies have stated that hotels in the UK were not making full use of IT capacity (Main, 2002) and that the level of IT commitment was insignificant in hotels in Singapore (Leong, 2001). In addition, they found that hotels rarely used state-of-the-art hardware or software technology. The fact that hotels lagged behind in technology applications, compared to other service industries such as business and financial management, was largely due to the nature of customer services (Sheldon, 1997).

Hotel managers are now generally under pressure to increase profitability with the same or fewer resources. An approach to ease such pressure is to integrate IT extensively into the business environment to reduce costs and improve efficiency. It is well known that effective IT applications require the knowledge and professionalism of both the managers and the operating staff (Go et al., 1994). A challenge now faced by most, if not all, hotels is the existence of a large gap in the management hierarchy, especially between the senior hotel directors and junior hotel staff in relation to IT utilisation. The existence of such a gap is likely due to a lack of enthusiasm on the part of senior hotel decision makers in utilising IT, while the junior hotel managers or operators are in favour of utilisation.

Conclusions

The international hotel industry has been, and will be, facing a technology-basedrevolution. High profile and "high-tech" services have become a requirement fordemandingandsophisticatedhotelguests.Anewchallenge forhotelmanagersinthe21stcenturyishowtointegratethe new,complex andvaried services andITsystemsintotheirexistingbusinessoperations.

AspreviouslystatedtheemphasisinmostHongKonghotelITapplicationsisprimarilyonadministrativeandoperationalfunctions.Inotherwords,ITisstilllargelybeingconsideredasatoolorsimplyanimageinsteadofasanimportantconstituentinthestrategicplanningprocessofahotel.Sadly,thenon-strategicincorporation ofITintohotelmanagementhinders fullITutilisation. This,in turn,may resultintheloss of competitivepower in regionalandworldwide hotelmarkets.MosthotelsdonotseemtobeinfavourofadoptingadvancedsoftwaretechnologiessuchasArtificialIntelligence-basedsystemsinassistingwitheithertheirdailybusinessoperationsorlong-termstrategising.Suchadearthinstate-of-the-artITfacilitiescouldbeduetothetransactionalnatureofthehotelbusiness.Sinceprovidingquality customerservicesalwaysremainsthehighestpriority,hotel managers simplydonotattempttostriveforhigh-techapplicationsasdoengineeringandmilitary

managers.Inshort,areliableITenvironmentratherthanhigh-endITfacilitiesisviewedasnecessaryinthehotelindustry.

Recommendationsforpractitioners

ItisimportantforhotelierstoproactivelyincorporateITintotheireffortstoimproveservicequality.AnongoingimprovementofITknowledgeforallhotelemployeescanhelp achieve this goal. An overall upgrade in IT proficiency can then be assured in thehotelenvironment.Inaddition,hotelsshouldremainincl osecontactwiththeITindustry.Suchclosecontactisnecessa rytokeephoteliersupdatedonthelatestITdevelopments.Ho telmanagerscanthenintegratetheappropriateITfacilitiesin totheirbusinesses.This,inturn,willenablehotelstoremainc ompetitiveintheindustry.Afterall,ITcapabilitiesarelimit edmorebythehotelmanagement'sattitude,training, skill, ambition and financial situation rather than by the technical limitationsofhardwareandsoftwaresystems.Besides,most ,ifnotall,professionalbodiesrelatingtothehotelsectordono tseemtobetakinganactiveroleinpromotingthestrategicuse of IT.Thismatcheswith thefinding ofapriorstudyperformedinthe UK(Main,1995).Inviewofthelackofstrategicpromotionof ITinthehotelindustry,EDP/MISmanagers,therefore,urg entlyneedtoplayamoreaggressiveroleinbridgingthegapb etweenthetechnicalexperts/equipmentandthenon-technicalhotelmanagers.Toachievethisgoal,hotelEDP/MI Sdepartmentsshouldgobeyondsimplyhandlingdata processinginanelectronicenvironment astheyhavedoneinthepast.Toensurethesmoothoperation ofITfacilities,hotelEDP/MISmanagersshouldactivelyp articipateinvendor/suppliercontactsandsoftware/hardwar eevaluations.Atthesametime,theyshouldprovideprofession aladvicetodepartmentmanagersonIT capabilities and inform technical computing professionals about the importance ofbusinessgoals.Inthisapproach,dataprocessing,whilestil lanessentialpartofthehotelindustry,becomesonlyasmallp ortionoftheinformationprocessingactivities.Hence,ifopp ortunitiesemerge,EDP/MISmanagersshouldparticipatem oreatalllevelsofbusinessdecision-making.Seeingthatinformationiscrucialtothemanagem entofalltypesoforganisations,ITcancontributemorethante chnicalapplicationsandcanbepartofthemanagementappro achemphasisingquality servicesinthehotelbusiness.

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