

Technological Innovations and Service Quality With reference to Selected hotels in Visakhapatnam.

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Abstract:

In the wake of technological innovations the world is changing in the faster pace. Every industry in the world is undergoing massive change making research and development an ever ending process for the companies in the industry. As technology innovations transform every industry service industry is not an exception. With innovative technologies weaving themselves into all areas of contemporary human existence, the hospitality industry is not exempt from this steady change towards higher efficiency and elevated long-term productivity. The hospitality industry is immense because it contains businesses in the food and beverage area, travel, and entertainment. The hospitality industry is one of the largest revenue producers for country like India which is rich in heritage and culture and giving more scope for hospitality industry. Business conventions, trainings, and meetings in different countries can also affect the hospitality industry greatly. In this context the paper focuses on the new challenges the hospitality industry is going to face with growing technological innovations. The objective of the research is to focus on growing opportunities and challenges in the hospitality sector in India.(179 words)

Key Words: *Technological Innovations, Hospitality, Tourism, Hotels, Heritage*

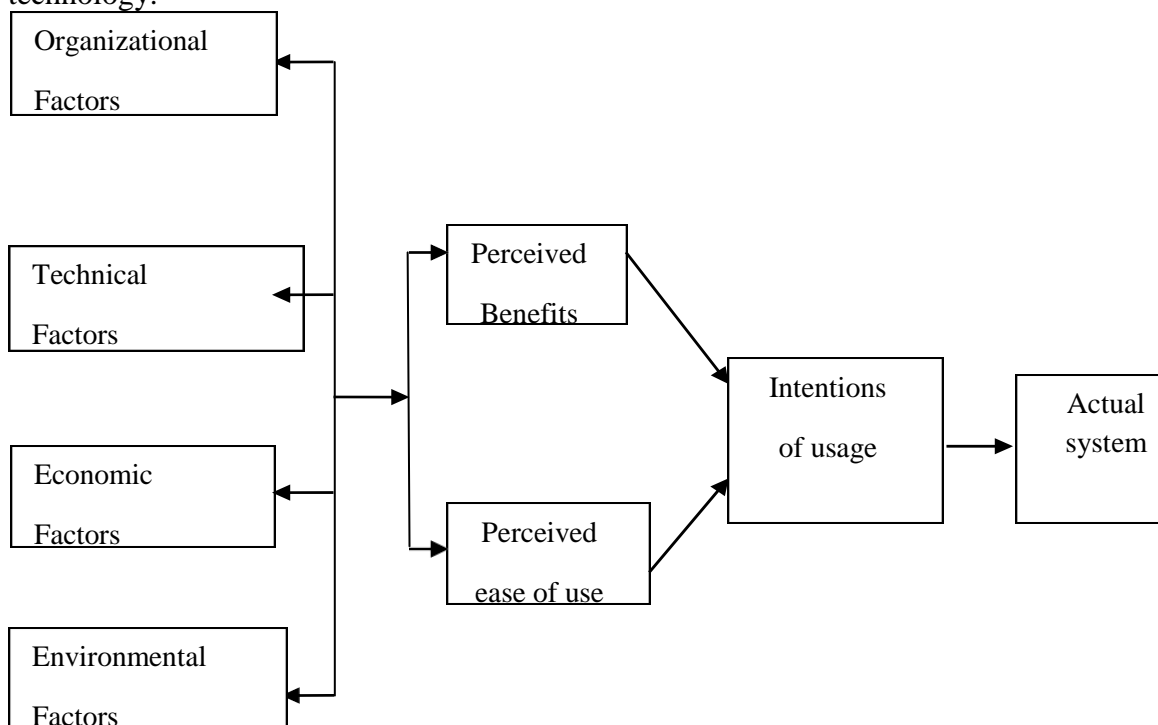
Introduction

The world population is living in the era of Technological revolution 4.0 with variety of innovative applications in banking industry, health care services, retail services, Transportation Management and so on ((Ostrowski, 2010). Hospitality services occupy one of the most important positions in the modern economic world. Hospitality services especially hotel industry is not an exception. The modern trends in tourism encouraged participants in hotel industries to upgrade the infrastructure with new innovations. With the extreme competition in the hospitality sector the customers are becoming more dominant and discriminative. In fact the customer's preferences have changed a lot with availability of hospitality services at competitive prices. In such market conditions the competitiveness among the luxury hotels depends on the level of innovation activity which make them provide the quality services at lower costs. It is evident that the hotel and travel companies who failed to adapt quickly the innovations are being left behind. Now a days the customers are prone to self-service technologies. The self-service technologies are allowing the customers to engage in delivery of services without involvement of hotel staff. The technologies are changing the business patterns in hotel industry.(Lui and Picolli, 2010). Many customers were not satisfied because of variety of reasons like unskilled staff, inexperienced staff, Longer service time etc. Due to innovations in self service operations the hotels can overcome the problems and can provide better experience to customers (Watkins 2009). The self-service technologies in hotels are available with variety of options depending on the business purposes. The telephone based technology, technology based on internet connection, interactive Kiosks, image based technologies have changed the working patterns of serving the customers and customers are gaining a better experience in hotels.(

(Mayock, 2010). There have been number of studies observed on technological acceptance and self-driven technology services. These type of studies have conducted in developed nations but not observed in India. India as a emerging country for tourism having diverse portfolio of niche tourism products like cruises, medical, wellness, sports, MICE, ecotourism, film, rural and religious tourism the study has focused on luxury hotels established in India.

Conceptual model

The model designed by Rofhok-Bjorni(2006) was used as model for the study as it contains different variables that are important for implementation and adaption of Information technology applications by hotels. As shown in the diagram there are four variables that influence the use of ICT applications. In any of the organisation the organisation tries to evaluate the benefits perceived by the customers in the case of innovation. They also assess the perceived ease of use. The perceived use always determine the usage behavior and specifies that they adopt the technology which easily saves time and reduces the operational costs. In the last stage the customer starts actual utilization process and adopt the technology.



Conceptual model for ICT utilisation in hotel operations;

Source: Adapted from Rofhok-Bjorni (2006).

Review of Literature

In the world the technology advancements have influenced all the industries . The service sectors are also demanding for better technology for customers satisfaction. Hospitality and tourism in India has also been influenced by technological advancements. To support the delivery services the technology is contributing support in operating the business with usage of telecommunications, computer capabilities advancement and sophisticated software.(Olsen and Comolly 2000).Poon(1993) in his study described about the usage of computers in several departments like energy management, Back office operations, Rooms management, food and beverage control, guest accounting, distribution , marketing etc.

Technological advancements in the world influenced hospitality and tourism business as well as all other businesses. Technology has become a major factor in the operation of hospitality businesses with the blossoming of the telecommunications industry, advancements in computer capabilities, and the development of sophisticated software to support delivery of

services (Olsen and Comolly 2000). Van Hoof, Collins and Combrink (1995: 64-69) have put it that: "As we enter the next millennium, technology will have a profound impact on our personal and professional lives." As is reputed to be the world's largest industry (O'Connor 1999), tourism industry could not remain negligent of these advancements in the technology that reshaped the production and delivery systems of most businesses. Further, IBM's branch of Travel and Transportation in 1996 published that overall spending in tourism industry for IT exceeds far \$35 million US dollar; and aims of these fund allocations of companies for IT expenditures were assumed to be entering the new markets, meeting the guest expectations and reaching the guests with the appealing rates (IBM Travel and Transportation 1996). Poon (1993) describes the use of computers in hotels as core information processing centers of marketing and distribution, front office, back office and food & beverage control. According to Poon (1993), information technologies are diffusing in eight key areas of hotel operations: Marketing, distribution, reservation and sales, Telecommunications, Guest accounting, Rooms management, Back office operations, Food and beverage control, Energy management, Safety and security control. The customers are using Self-service technologies and getting engaged with the services and helping the customer in enjoying the services. Self service kiosks are one of the popular emerging trends that are observed in hotels. Self-service kiosks were first deployed in hotels around the world in the late 1990s, but this implementation did not deliver the desired results (Mayock, 2010). The reasons were identified for the failure of adoption and out of that some customers felt the operations complex, the location or place of kiosk is not appropriate, customers were not ready to accept the kiosks and they are happy to interact with hotel staff than doing service themselves. Long Pham (2018) studied the aspects on technology readiness and the four factors that are optimism, innovativeness, discomfort and insecurity.

García, & Consolación (2012) cited that rooms in hotels with lower prices have a higher consumers' evaluation. Wilensky & Buttle (1988) expressed that travelers always try to evaluate physical attractiveness, standard of service, personal service, appealing image, opportunities for relaxation and of course value for money. Rivers, Toh, & Alaoui (1991) mentioned that the hotel selection factors also depends on members and nonmembers of frequent guest programs.

The advantages resulting from ICT application in travel and tourism sector have been confirmed by an extensive number of studies, referring e.g. to the obliteration of traditional barriers, such as time and geographical limitations, which are overcome by using the Internet in searching for information and purchasing tourist services on-line (Buhalis and Main, 1998). Thanks to ICT the impact of online reviews (an electronic form of word-of-mouth - eWOM) on hotel consumer behavior among hotel selection factors can be bigger. ICTs enable two-way communication between the hotel industry and consumers, so they have a growing impact on hotel promotion and sales (Buhalis and Jun, 2011; Jenčková and Abrhám, 2015). Hotel services are better advertised via the Internet rather than published brochures, leaflets, or catalogs. Multimedia message is more attractive to customers. ICTs allow also to recognize consumers' profiles and offer personalized services. Many of researchers consider advantages associated with new information and communication technology to include reduction of operational costs for business, convenience for consumers, and rapid speed of transactions (Parsons and Oja, 2013; or Abrhám et al., 2015). It enables spreading the marketing message rapidly at a minimum cost. The use of ICT results in a significant cut on transaction costs for hospitality sector enterprises and eliminates the geographical barriers created by distance (through accumulating, processing and distributing proper data), which were necessary to control business processes and, in that sense, the healthy development of a company (Buhalis and Law, 2008; Minghetti and Buhalis, 2009; Ma, Buhalis and Song, 2003). Information and

communication technologies offer a wide spectrum of solutions influencing the increased efficiency level of economic processes in the area of marketing and sales. ICT usage supports efficient functioning of enterprises, since it speeds up management procedures and upgrades both efficiency and quality of economic operations performed in an enterprise. The introduction of modern information technologies allows for taking better advantage of the resources at the disposal of a hotel enterprise, whereas their fast development imposes the need for reorganizing enterprises and making investments.

Research questions

The research attempted to answer the following questions:

1. What is the extent of usage of technological innovations by hotels in states of Andhra Pradesh and Telengana in India ?
2. Which factors influence the implementation of technology innovations in hotels?
3. What are the perceived benefits of customers in adopting the technological innovations in hotels ?

Objectives of the study

The general objective of the study is to analyse the usage of new technology innovations to provide better service for customers in states of Andhra Pradesh and Telengana .

The specific objectives of the study are to:

1. Ascertain the use of new technology based applications in hotels in the Central Region.
2. Identify the factors that influence the customers in adoption of new technology in hotels.
3. Determine the perceived benefits of customers in ICT usage in hotels.

Research design

Cross sectional survey design has been adopted for the study. Babbie (2011) clearly expressed that when cross section of population of observations of the sample are made in one point in time cross section design can be used. The design helps in enriching a study as it it allows a large population to be studied at a single point in time.

Population of the study

The study was conducted in the hotels located in the states of Telengana and Andhra Pradesh. Two states are rich in heritage and attracting more number of tourists every year. The increased number of tourists have made hotels competitive and more innovative. The study focused on the management, supervisors and customers of hotel establishments of three star and five star category. These categories were selected because the research aimed at utilization and adoption of technology innovation implemented in hotel business operations.

Data Analysis and discussions.

Table no 1 Sex of respondents and hotel category.

Gender of respondents	Category of hotel					Total	
	5 star %	3 star %	2-star %	Guest houses %	Budget %	N	%
Male	63	54	60.9	61	53.2	247	57
Female	37	46	38.1	39	46.6	186	43
Total	100	100	100	100	100	433	100

Source: Primary Data

Table no 2 Age distribution of respondents and hotel category

Age of respondents	Category of hotel	Total
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	5 star %	3 star %	2-star %	Guest houses %	Budget %	N	%
< 30	12.5	50.0	51.0	57.7	46.7	213	49
30-39	25.0	42.9	27.7	26.9	33.3	136	31.4
40-49	62.5	7.1	14.9	11.6	15.0	67	15.5
50 and above	-	-	6.4	3.8	5.0	18	4.1
Total	100	100	100	100	100	433	100

Source: Primary Data

Table no 3 Potential innovative technologies used in hotels business operation.

Technology innovation	Category of hotel					Total	
	5 star %	3 star %	2-star %	Guest houses %	Budget %	N	%
Self Service kiosks	30.7	22.8	16.7	55.3	41.9	143	32.9
Smart sensors	23.6	19.5	16.7	21.2	19.6	90	20.6
Mobile Hub Spots	15.0	19.5	16.7	15.0	11.9	67	15.4
Social Listening	17.6	10.6	16.7	8.5	10.5	57	13.0
Mobile device as door key	10.5	14.6	16.6	-	9.8	44	10.9
Tech Lounges	2.6	13.0	16.6	-	6.3	32	7.2
	100	100	100	100	100	433	100

Source: Primary Data

Table no 4 Perceived benefits of ICT usage in hotels business operations.

Areas of operation	Hotel category					Total	
	5 star	3 star	2-star	Guest houses	Budget	N	%
	%	%	%	%	%	N	%
Easy Information access	34.8	25.3	36.7	41.3	36.3	150.25	34.7
Qualitative customer services	26.1	24.1	22.0	33.2	26.5	110	25.4
Increase in patronage	26.1	21.5	21.1	21.2	21.2	93	21.6
Convenience	8.7	16.4	11.0	4.3	11.5	42	11.4
Strong security network	4.3	12.7	9.2	-	4.5	31	6.9
Total	100	100	100	100	100	433	100

Source: Primary Data

Table No 5 Rotated component matrix showing factor loadings and amount of variance explained for the implementation of technology innovations in Andhrapradesh and Telengana Hotels

Factor	Variable	Factor loading	Eigen value	% of variance explained
Economic factors	Software prices	0.778		
	Cost of infrastructure	0.722	2.797	18.944
	Cost of training	0.695		
	Computer hardware prices	0.647		
	Affordability of equipment	0.433		
Technical factors	Compatibility	0.852		
	Accessibility	0.453	1.253	15.563
	Convenience to use	0.339		
Total			4.05	34.557

Source : Primary data

Table 6. Mean comparison of performance of computers and telephone usage in areas of operation among hotel categories.

Areas of operations by hotel category	N	Kruskal Wallis mean	Rank	X ²	Df	(N=433) P – value
Security and safety Services						
guest house	56	102.44	1	8.823	4	0.066
1 –star	85	86.77	2			
Budget	112	86.18	3			
2 – star	149	70.84	4			
3 – star	31	58.69	5			
Booking of clients						
1 –star	66	87.80	1	2.483	4	0.648
Budget	75	87.21	2			
Guest house	122	85.04	3			
2 – star	139	82.20	4			
3 – star	31	61.69	5			
Monitoring services						
Guest house	36	100.62	1	11.917	4	*0.018
Budget	105	92.40	2			
1-star	100	82.16	3			
2 – star	161	68.82	4			
3 – star	31	52.06	5			
Financial transaction						
Guest house	53	112.88	1	24.620	4	*0.000
Budget	88	95.54	2			
1-star	147	76.64	3			
3 – star	114	61.12	4			
2 – star	31	57.38	5			
Internet services						
Guest house	36	113.87	1	26.40	4	*0.000
Budget	105	95.29	2			
1 –star	92	77.44	3			
2 – star	149	58.39	4			
3 – star	51	51.56	5			

Source: Primary Data

Discussions and Findings

Sex of respondents

Out of the 433 respondents, it was found that more than half (57%) were males and 42.6% were females as presented in Table 1. There were relatively more male respondents (63%) from 3-star hotels than any other category of hotel. The budget hotels had the lowest percentage of (53.2%) of male respondents. The budget hotels had the highest percentage of female respondents (46.6%), whilst 3-star hotels had the lowest.

Age distribution of respondents

The highest proportion of the respondents (59%) were below 30 years age group in Table no 2. The respondents were more from guest houses (57.7%) and lowest (12.5%) was for 5 star hotels. The respondents from age group of 30-39 were 33.3% and for age group of 40-49 were 15% and age group 50 and above were 5%.

Potential innovative technologies used in hotels business operation

The research study revealed in Table no 3 that hotels are using new innovations like self-service kiosks representing (32.9%) in hotels business operation; followed by the usage of smart sensors (20.6%); and mobile Hub spots (15.4%) presented in Table 4. The least preference was given to social listening (13%), mobile device as door key (10.9%) and tech lounges (7.2%). It was also seen that no guest houses used Mobile device and tech lounges.

Perceived benefits of ICT in hotel operations

Table no 4 represents the opinion on perceived benefits of the respondents in using innovations in different areas of operation. The findings were (34.7%) accepted that due to innovation information access was easy, 25.4% opined that customers are provided qualitative customer services, 21.6% have opined that there is increase in patronage, 11.4% opined that they have provided convenience and, and 6.9% agreed that it increases strong security network.

Factors influencing the implementation of technology innovations

Table 5 reveals that the rotated component matrix was used to analyse the factors influencing the use of innovations which recommended that economic factors (component 1) 18.944% and technical factors (component 2) 15.563% are the main factors that statistically influence the use of innovations in hotels. This confirms the support for the findings that was made for hotels in Portugal by Calatrava (2005).

Conclusion And Implications

At present there is a continuous increased demand for the hospitality industry to look forward to implement innovative technologies with the growing ends in IT industry. The new innovations like sensors, mobile apps, mobile device, self-service kiosks, Robots have provided convenience to the customers and ease of services. The hotels of Andhra Pradesh and Telengana should have collaboration with different tourism authorities to promote and encourage the hoteliers in attracting more number of tourists use hotel services. It also have to concentrate on the skilled personnel to work out on new innovations and design the strategies to implement it to increase the productivity and maximize the profits.

Lack of trained personnel, unreliable power supply, slow internet connectivity, virus infection of files and lack of ICT facilities which affect ICT utilization by some hospitality firms in the region. The hospitality firms in the Central Region need to invest in ICT so as to benefit from the opportunities it offers. There is also the need for hotels to work out strategies for a long term ICT investment as a way of increasing productivity and maximizing profit.

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