



ROLE OF ICT ON CUSTOMER SATISFACTION: AN EMPIRICAL STUDY OF TSRTC

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ABSTRACT

KEYWORDS:

Information and Communication Technologies (ICT), TSRTC, Customer Satisfaction, Economic Development.

The application of Information and Communication Technologies (ICT) in developing countries represents an important tool that can determine economic development and prosperity. One of the focal areas in which technology can have a powerful impact on the economic activity is the introduction of information technology in transportation system in India. In order to improve the public sector tourism the role of information and communication technology involvement has been amplified considerably. The present study is gave an attempt to measure the role of ICT in satisfying customers with respect to the Telangana State Road Transport Corporation (TSRTC). The adoption of technology and communication strategies by TSRTC to provide tourism services to customers were tinted in this paper. A well designed questionnaire was prepared and sent to the target respondents who make use of online ticketing services provided by TSRTC.

INTRODUCTION

E-Tourism is growing as the cost of information and communication equipment, as well as communication fees, fall and the number of internet users rises. Although e-tourism liberates sellers from the need to maintain services, and customers from the need to utilize, it requires to the delivery of services from providers to customers. The current economic downturn has caused many public agencies to rethink their decision making paradigms in order to provide the most bang for their dwindling bucks. In transportation this economic squeeze is felt even more strongly because the operation and maintenance of existing system is not extinguishable.

Even in strong economic times, solid decision making based upon measurable and predictable benefits and accurate costs is desirable. There is never enough funding to complete all of the desired programs so effective decision making is a key element of effective system management. In transportation, resource decision making occurs in the planning process. This process is a mixture of public input, technical assessment and political evaluation which yields a selection of policies, projects, and programs that meet the vision of the future. The mix of perspectives in the process can often cause turbulence and discord (Kelly, 2005; Bonsall, 2005; McFadden, 2007). In addition to its nature, the role of the planning process has expanded over time. The goals of transportation plans now include the social, environmental,

health and educational impacts of transportation. These goals are not readily addressed by traditional transportation analysis methods.

Tourism as an industry; has a wide scope in our economy. Travel and tourism is one of the world's largest and fastest growing industries. Out of 181 countries, India's travel and tourism industry secured 5th rank in growth prospects and 14th rank in considering the size of the industry. WTTC, 2011 research confirms the recovery in Travel & Tourism in 2010, with the industry's direct contribution to global GDP increasing by 3.3% directly contributing 1.9% of Gross Domestic Product (GDP) in the year 2011 and the recovery is forecast to strengthen further by 4.5% creating an additional 3 million direct industry jobs. Taking into account its wider economic impacts, Travel & Tourism's total economic contribution in the year 2011 is expected to account for 9.1% of global GDP and 258 million jobs.

The Role of ICT in Tourism:

Effective and high-speed ICT infrastructure and software applications in the tourism and hospitality industry are crucial for tourism development. ICTs allow customer - management relations and supply chain management to be combined into a single source that facilitates a variety of operations - product selection, ordering, fulfillment, tracking, payment and reporting to be performed with one easy-to use tool. ICTs ultimately cut costs by enabling the provider to be

in direct contact with the consumer and also impact employment through the need for required maintenance of ICT equipment. Management within tourism companies uses ICTs to undertake a range of tasks that enhance the efficiency of employees in the workplace, notably online reservations.

The development of ICTs has also led to changes in demand and supply. A higher demand for flexible, individualized options and quality of information has personalized leisure and tourism behavior, a consequence of increased ICT use. Through new technology and social and economic ratings (e.g., social media platforms like Face book, Twitter, and blogs) customers have the ability to share information and research ratings on destination, quality of service in hotels and restaurants and environmental and social conditions. Number of hotels (e.g., Marriot Hotels and Resorts, Ritz Carlton Hotels, Hyatt Hotels and Resorts) have strengthened their brand image and communicate directly with their customers by posting links to a press release or promoting new package through Twitter.

Travel and Tourism Industry in India:

In India, *Leisure travel spending* (inbound and domestic) **generated 73.8%** of direct Travel and Tourism GDP in 2011 as compared to business travel spending whose contribution is 26.2%. The same are expected to rise by 7.6% pa in 2022 for both leisure and business travel spending. ***Domestic travel spending has also generated almost 5 times more revenue than international tourism receipts.*** The breakdown of indirect contribution from travel and tourism industry is categorized into: Supply Chain (44.8%), Investment (7.3%) and Government Collective (1.5%) with a total collection of 53.7% of the total contribution (WTTC, 2012).

Digital Revolution: Internet & E-Tourism

Internet has brought about a revolution in every sphere of life. It has given business (whether big or small) an equal opportunity to expand by reaching out to a wide range of customers throughout the world. By increasing this world wide exposure, it has raised the competitiveness of the firms who have become more creative and competitive in providing new and better services to the customers. Be it a manufacturing sector or service sector; Information & Communication Technology (ICT) is getting key component of every industry and Tourism Industry is not an exception to it. E-Tourism describes a new way of doing business. It communicates faster and access global markets with minimal costs for new businesses. Customer satisfaction is an intuitive measure that a wide range of audiences can easily grasp without specialized education. Satisfaction is a cognitive action that balances the object and subjective elements of an experience (Oliver 1980). It also incorporates the public's, who are transportation service customers, perspective. If an empirical analytic approach can be developed it has the potential to address the broader goals of transportation services. Customer satisfaction as a transportation tool may be a means to improve decision making for transparency, justification of resources and addressing the broader goals that are not accounted for in traditional analysis. Customer satisfaction is a well known and well developed concept in private sector business development and service industry research. Leveraging the research from product-based industry and adapting it to the transportation context could yield valuable insights into the use of customer satisfaction as a decision make tool. Buhalis (2003) suggests that e-tourism reflects the digitization of all

processes and value chains in the tourism, travel, hospitality and catering industries. At the tactical level, it includes e-commerce and applies ICTs for maximizing the efficiency and effectiveness of the tourism organization. The growing number of Internet users that want to obtain tourism-related information and the growing demand for new travel experiences has opened huge opportunities for developing countries. ICTs also help destinations and national tourism providers to develop, manage and sell their offerings worldwide. The reorganization of the tourism market together with effective use of ICTs could allow developing countries to build their own brand images, develop new products, promote their tourism resources and expand their customer base to ultimately increase tourism foreign earnings and contribute to local development (UNCTAD, 2005).

OBJECTIVES OF THE STUDY

The objectives of the study were formulated below:

1. To draw various conclusions given by the researchers in their research studies about the concepts of E-Tourism, Role of ICT and Customer Satisfaction in Transportation across worldwide.
2. To test the significance difference among the socio-economic factors and the factors influencing customer satisfaction with implications of ICT in E-Tourism with special reference to TSRTC.

REVIEW OF LITERATURE

Jason et al. (2014) conducted a research to explore the influence of internet towards travel satisfaction. In the study, the researchers employed four independent variables, namely, *functional benefits, complexity, perceived risks, and costs* to determine the satisfaction level tourist travelers visiting Malaysia in between January to April, 2013. By applying statistical tools like multiple linear regression and logistic regression, the findings of the study entail that the selected independent variables were significantly influencing their satisfaction except perceived risks. Masoomah et al. (2013) investigated to determine the drivers of Customer Satisfaction in Online Tourism with a case of European Countries. The paper highlighted the determinants of tourist satisfaction in on-line tourism. The results of the study yield insights for managers of e-tourism firms, by introducing the factors with the highest impact on tourism e-satisfaction. The results show that the effect of the determinants of e-satisfaction cannot be generalized to the whole e-retailing sector, since the importance and effect of each determinant on e-satisfaction can vary in different countries. Shamsher Singh (2011) examined the adoption and impact of ATM, Internet Banking and Tele-banking services on customer satisfaction and retention by leading Indian banks. From the findings of the study, it was found that ICT channels have positive impact on the customer satisfaction. Few characteristics like availability of cash and location/proximity of ATM, time to process request has very high customer satisfaction across both private and public sector banks. Davoud and Hamed (2012) in their research titled "E-Tourism and Customer Satisfaction Factors", conducted a survey and collected primary data using questionnaire to find the most important determinants of convenience in E-satisfaction in e-tourism industry among the customers. The results of the study shows that time efficiency, possibility of purchasing anywhere, convenience of purchasing anytime, direct access to information and customer service are the factors which build convenience in E-tourism comparing with the traditional travel agencies. Moreover it shows the

convenience of purchasing any time in E-tourism comparing with the limited working hours of traditional travel agencies has satisfied tourists the most. Mazen et al. (2014) investigated to examine the impact of e-ticketing technique on customer satisfaction and the study was conducted among the Jordanian Airline passengers that had booked flight tickets in the last 12 months of this research through the companies offering e-ticketing services. The findings of the study signifies that customer satisfaction with e-ticketing services was influenced by all of the independent variables measured like Data security, customer and technical support, and user friendliness were noted to have significant impact on customer satisfaction with e-ticketing services.

RESEARCH GAP & RESEARCH STATEMENT

Many of the research studies were organized so far from so many years with respect to the current research area "Role of ICT in E-Tourism and customer satisfaction". Several industries like banking, hotels, hospitals, travel agencies, e-commerce websites, and so on were adopted the implications of ICT in their firms to reach the customers through online, satisfy them and retain them with company for a long period of time. But, it was observed that only limited studies were done on role of ICT on E-tourism and its impact on customer satisfaction with reference to Indian tourism. Making this breach as a major key point, the researcher thought of determining the impact of ICT in E-Tourism and its impact on customer satisfaction with special reference to Telangana State Road Transport Corporation (TSRTC). Depending on the identified gap from the existing literature related to the research area, the following problem was formulated as a research statement for enduring further research steps.

"Espousal of ICT in E-Tourism and its impact of customer satisfaction: an Empirical Study with reference to TSRTC"

SCOPE OF THE STUDY

Due to unavoidable constraints like time, money, other resources etc, the present research is strenuous to highlight and measure the level of satisfaction among the TSRTC customers with the E-services providing by the organization. But, this research can be further persistent to explore the similar facts and conduct similar research among customers of Andhra Pradesh State Road Transport Corporation (APSRTC). Also, a research can be done to compare the levels of customer satisfaction in between TSRTC and APSRTC with their adoption of ICT in E-Tourism System.

SIGNIFICANCE OF THE STUDY

The Researcher wants to know the tangible customer satisfaction levels with the E-services providing by the TSRTC. And also, the study can see the sights technology adoption process in attracting and retaining customers to TSRTC when compared to private transport companies. Many of the researches were performed only to know the customer satisfactory levels in private transport providers, and this propelled the researcher to make use of the existing literature and conduct only one of its kind researches to know how the Telangana State Road Transport Corporation adopts the ICT and advancing technologies in implementing them to provide their services more easier than the traditional process. The role ICT in tourism especially in TSRTC has become easier to book tickets for making both Inter-State and Intra-State travel plans from one place to another by sitting anywhere, at

anytime. Embracing of E-ticketing services using Mobile applications in Smart Phone has also been implementing by TSRTC which makes a customer far near and to persuade them.

HYPOTHESES OF THE STUDY

H₀₁: There is no significant difference between male and female customer with respect to the factors influencing customer satisfaction and adoption of ICT in TSRTC.

H₀₂: There is no significant difference between the customers of varied age groups with respect to the factors influencing customer satisfaction and adoption of ICT in TSRTC.

RESEARCH METHODOLOGY

In the present study, an exploratory research design has been applied as the problem specific to the role of ICT enabled public transport service providers like TSRTC in attracting and satisfying customers. With this research design, the researcher wants establish few priorities and objectives and test the significance of those objectives by framing suitable hypotheses relevant to the study.

SAMPLING METHODOLOGY

Sampling Procedure: By considering the convenience of the researcher to select the population for conducting an empirical study, Convenient Sampling technique has been selected in consideration of major sources like money and time. With respect to selection of sample from the selected population, quota sampling technique has been applied as the selected population consists of respondents (sample units) from various categories with reference to their socio-economic factors.

Data Collection Techniques:

The data to analyze for a research will always comprises of both primary and secondary data. As all the researchers do, here also the researcher mentioned his own sources for collecting both primary and secondary data.

Primary Data has been collected with the help of well structured questionnaire with a 5-point Liker Scale.

Secondary Data has been collected with the existing and published literature both in printed version and Online mode from various sources like websites, reference books, business magazines, national and international journals, doctoral theses submitted to universities by various scholars.

Sample Size: As the researcher is a resident of Khammam City, Telangana State; considered the entire Khammam City as a targeted population and from this the sample units (respondents) were selected using quota sampling technique by classifying customers from different quotas with respect to their socio-economic factors (quotas). The researcher selected only the customers who travel from Khammam to Hyderabad as to restrict the population size and that helps in selecting the sample size. As the population size a much bigger in number to select the customers who travel and utilize the electronic services providing by TSRTC, the researcher applied this quota sampling technique and classified the customers based on their socio-economic factors (quotas) like gender, age, education, income, occupation to fix the limited sample units from each quota. At last, the sample size was fixed at 1156 (n) excluding all inadequate responses and unfilled response sheets which were circulated among 1350 customers.

DATA ANALYSIS & ELUCIDATION

Socio-Economic Factors		Frequency	Percentage
Gender:			
Male:		787	68.08
Female:		369	31.92
Total:		1156	100.00
Age:			
Below 20 Years		346	29.93
21 - 40 Years		412	35.64
41 - 60 Years		316	27.34
Above 60 Years		82	7.09
Total:		1156	100.00
Marital Status:			
Married:		562	48.62
Un-Married:		469	40.57
Others:		125	10.81
Total:		1156	100.00
Occupation:			
Student:		363	31.40
Business:		403	34.86
Employee (Govt./Private):		166	14.36
Retired:		64	5.54
Self-Employed:		86	7.44
House-Wife:		74	6.40
Total:		1156	100.00
Income Level:			
Less than 1 Lakh:		98	8.48
Less than 2 Lakhs:		412	35.64
Less than 3 Lakhs:		386	33.39
3 Lakhs & More:		260	22.49
Total:		1156	100.00
Usage of TSRTC Online Services:			
Less than 1 Year:		619	53.55
Less than 2 Years:		366	31.66
Less than 3 Years:		145	12.54
More than 3 Years:		26	2.25
Total:		1156	100.00

Source: From the Primary Data through Questionnaire

With the psychoanalysis of Socio-Economic factors, the collected primary data was classified and represented with their occupancy in terms of percentage as mentioned above. From the total sample size of 1156 (n), the percentage of male respondents was 68.02 and remaining 37.82% reflecting the responses of female. The respondents' statistics with respect to their age comprises of 29.93% below 20 years, 35.64% is of 21-40 years, 27.34% from 41-60 years and 7.09% were of above 60 years. 48.62% of the respondents were married, 40.57% were un-married and 10.81% are the respondents who are neither married nor un-married. The Occupation factor of the sample respondents represents that the business people (34.86) and students (31.40) take the maximum share in utilizing the TSRTC Online services either through desktop or through mobile application, next to them private or government employees with 14.36%, self-employed people with 7.44%, Housewives with 6.40% and Retired

employees with 5.54% are utilizing the online services providing by TSRTC. From the total sample size, the respondents with less than 1 Lakh income include 8.48%, less than 2 Lakhs include 35.64%, less than 3 Lakhs include 33.39% and more than 3 Lakhs include 22.49% those who utilize TSRTC online services. The extent of duration that the respondents' usage of online service providing by TSRTC embraces with 53.55% less than one year, 31.66% in less than two years, 12.54% in less than three years, 2.25% more than 3 years.

Test of Significance between factors influencing customer satisfaction and Gender based respondents:

Here, the t-test for two sample means with unequal variances has been applied to test the significant difference between the responses given by male and female respondents with respect to the factors influencing customer satisfaction of online services providing by TSRTC.

Table - 2: To test the significant difference among male and female customers towards the role of ICT and its factors that influence them to get satisfied with the Online TSRTC services

S. No.	Factors	Gender	p-value	Null Hypothesis
1	TSRTC Online help in Trip Planning	Male (787)	0.079	Accepted
		Female (369)		
2	Adoption of ICT by TSRTC in providing online services	Male (787)	0.068	Accepted
		Female (369)		
3	Online Ticket booking Process	Male (787)	0.098	Accepted
		Female (369)		
4	Tariff rates for TSRTC Online services	Male (787)	0.0368	Rejected
		Female (369)		
5	24/7 Online Service	Male (787)	0.098	Accepted
		Female (369)		
6	Attractive and Easy to access the website	Male (787)	0.051	Accepted
		Female (369)		
7	Purchase bus tickets at anytime/anywhere	Male (787)	0.099	Accepted
		Female (369)		
8	Safe Feeling in online transactions	Male (787)	0.465	Rejected
		Female (369)		
9	Time-to-Time information about planned trips about timings & delays	Male (787)	0.033	Rejected
		Female (369)		
		Female (369)		
10	Cancellation Charges and policies	Male (787)	0.075	Accepted
		Female (369)		
11	Festive/Seasonal Discounts	Male (787)	0.01	Rejected
		Female (369)		
12	Passenger Safety	Male (787)	0.045	Rejected
		Female (369)		
13	Identification of buses with service numbers	Male (787)	0.089	Accepted
		Female (369)		
14	Online approach to customers complaints and requests	Male (787)	0.01	Rejected
		Female (369)		
15	Smart booking facility with Smart Phones using TSRTC App	Male (787)	0.099	Accepted
		Female (369)		

INTERPRETATION:

The above analysis delineates that the male and female customers of TSRTC Online opines in a similar way in most of the cases. But, the factors like “safety in online transactions”, “Tariff rates”, “time-to-time information”, “Festival/Discount Discounts”, “Passenger Safety”, “Customer Complaints and requests” brings a close image of disparity among the male and female customers towards their satisfaction. Finally, the results conclude that, there is a significant difference among the male and female customers towards the above said few factors that influence them in their satisfaction.

Test of Significance between factors influencing customer satisfaction and respondents of varied age groups:

Here, the analysis of variance one-way classification (ANOVA ONE WAY) has been applied to test the significant difference between the responses given by respondents' of different age groups with respect to the factors influencing customer satisfaction of online services providing by TSRTC.

Table – 3: To test the significant difference among wide ranging age grouped customers towards the role of ICT and its factors that influence them to get satisfied with the Online TSRTC services

S. No.	Factors	F-Value	Null Hypothesis
1	TSRTC Online help in Trip Planning	3.56	Accepted
2	Adoption of ICT by TSRTC in providing online services	2.59	Accepted
3	Online Ticket booking Process	1.65	Accepted
4	Tariff rates for TSRTC Online services	5.98	Rejected
5	24/7 Online Service	2.59	Accepted
6	Attractive and Easy to access the website	2.31	Accepted
7	Purchase bus tickets at anytime/anywhere	1.98	Accepted
8	Safe Feeling in online transactions	2.01	Accepted
9	Time-to-Time information about planned trips about timings & delays	6.87	Rejected
10	Cancellation Charges and policies	5.36	Rejected
11	Festive/Seasonal Discounts	4.97	Rejected
12	Passenger Safety	2.32	Accepted
13	Identification of buses with service numbers	2.19	Accepted
14	Online approach to customers complaints and requests	8.26	Rejected
15	Smart booking facility with Smart Phones using TSRTC App	1.02	Accepted

Source: Questionnaire F-Table Value: 3.90

INTERPRETATION:

The above analysis mark outs that the various age grouped customers of TSRTC Online orates in a parallel mode in a large amount of the cases. Nevertheless, the factors akin to “Tariff rates”, “time-to-time information”, “Festival/Discount Discounts”, “Cancellation Charges and Policies”, “Passenger Safety”, “Customer Complaints and requests”

brings a close image of disparity among the male and female customers towards their satisfaction. Finally, the results conclude that, there is a significant difference among the customers of different age groups towards the above said few factors that influence them in their satisfaction.

Table – 3: To test the significant difference among wide customers of different income levels towards the role of ICT and its factors that influence them to get satisfied with the Online TSRTC services

S. No.	Factors	F-Value	Null Hypothesis
1	TSRTC Online helps in Trip Planning	1.21	Accepted
2	Adoption of ICT by TSRTC in providing online services	2.32	Accepted
3	Online Ticket booking Process	3.03	Accepted
4	Tariff rates for TSRTC Online services	4.69	Rejected
5	24/7 Online Service	1.03	Accepted
6	Attractive and Easy to access the website	2.33	Accepted
7	Purchase bus tickets at anytime/anywhere	1.69	Accepted
8	Safe Feeling in online transactions	5.63	Rejected
9	Time-to-Time information about planned trips about timings & delays	4.89	Rejected
10	Cancellation Charges and policies	4.65	Rejected
11	Festive/Seasonal Discounts	7.89	Rejected
12	Passenger Safety	2.79	Accepted
13	Identification of buses with service numbers	3.21	Accepted
14	Online approach to customers complaints and requests	5.63	Rejected
15	Smart booking facility with Smart Phones using TSRTC App	2.06	Accepted

Source: Questionnaire F-Table Value: 3.26

INTERPRETATION:

The above examination outlines that the TSRTC Online customers of assorted income levels speak out with a comparable line of attack in a good number of the gears. However, the aspects resembling “Tariff rates”, “safety of money in online transactions”, “time-to-time information”, “Festival/Seasonal Discounts”, “Cancellation Charges and Policies”, “Customer Complaints and requests” brings a close image of disparity among the male and female customers towards their satisfaction. Finally, the results conclude that, there is a significant difference among the customers of different age groups towards the above said few factors that influence them in their satisfaction.

CONCLUSION

Present Study was a plinth on the role of Information and Communication Technology in electronic tourism and

intended to see the sights of electronic tourism process implemented by TSRTC and also to identify various factors affecting customer satisfaction with e-tourism. The study exposed that a small number of factors reminiscent of “tariff rates, safety of money through online transactions, festival/seasonal discounts, cancellation charges and policies, concern about customer complaints towards online transactions and services” affect the customer satisfaction who utilizes the electronic tourism services providing by TSRTC. The findings of the study indicate that the Telangana State Road Transport Corporation has to make necessary safeguards to attract and retain its customers by providing a full length satisfaction of online tourism services.

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