INFRASTRUCTURE AND COMPETITIVENESS IN TRAVEL AND TOURISM INDUSTRY

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ABSTRACT

The purpose of this paper is to look at the Travel and tourism (T&T) competitiveness in India. The infrastructure is found to be a significant predictor of T&T competitiveness. The paper begins with an overview of the problem highlighted in the literature and then moves on to what has already been done to solve the problem in Indian T&T sector. For data analysis methods such as Partial Least Squares, correlation matrix, composite reliabilities and average variance extracted (AVE) are applied. Research shows that the country's supply of transport, ICT, and energy infrastructure remains largely insufficient and ill-adapted to the needs of the T&T competitiveness.

Key Words:- Competitiveness, travel and tourism, Service sector, Infrastructure, ICT, emerging economies, Air transport, Ground transport.

1. Introduction

Concepts of competitiveness:

The competitiveness of industry and firms has been one of the most important themes of research in the fields of economics and business studies. Although the concept of competitiveness of nations was initially proposed by economists (Porter, 1990), the term has also gained importance as a subject of study among management scholars during the last decade. Competitiveness is a multidimensional concept. It can be looked at from three different levels: country, industry and firm. Competitiveness originated from the Latin word, *'competer'*, which means involvement in a business rivalry for markets. It has become common to describe economic strength of an entity with respect to its competitors in the global market economy in which goods, services, people, skills and ideas move freely across geographical borders (Murths, 1998).Organisation for Economic Co-operation and

Development (OECD) defined competitiveness as, ‘‘the degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the longer term’’ (1992). Adding a time dimension to the definition of the national competitiveness, Boltho (1996) distinguished between the short- and long-run competitiveness of nations. He viewed the short-run international competitiveness as the level of the real exchange rate that ensured internal and external balance with appropriate domestic policies; the longer-run international competitiveness, on the other hand, could be associated with the highest possible growth of productivity that was compatible with external equilibrium. In terms of the driving factors that determine national competitiveness, Porter (1998) argued that ‘‘it is firms, not nations, which compete in international markets’’. According to Ambastha A. and Momaya K. (2004), "a firm's competitiveness depends on its ability to provide goods and service to the market place more efficiently than others in the market. This further depends upon company's ability to exploit ideas and resources in a timely, cost- effective manner to accomplish the desired goals and objectives and to create product and service for its customer that meet or exceed their demands and satisfaction". The Asset- Process-Performance (APP) framework (Momaya 2001) can be used to capture importance of different factors of competitiveness in an organization. Clark and Guy (1998) believed that competitiveness ultimately depends upon the firms in the country competing both in domestic and international markets. Sancharan Roy (2011) discussed the main related factors of competitiveness in Hotel Industry.The competitiveness of a country derives from the performance of its enterprises (Barros, 2005), which certainly include the hotel industry. While a community’s growth stimulates hotel performances, in turn hotels contribute to the community’s economic, social, and cultural development (Go et al, 1994). The tourism cluster, presents a more positive potential than other clusters in contributing to India's growth (Sancharan Roy and Dr. Sheelan Misra, 2012).

2. The Research objectives pursued refer to:

Work from previous studies can be grouped into four broad themes of infrastructure indicators which are important for travel and tourism competitiveness:

1. To identify and study the T&T competitiveness in India.

2. Assess the existing T&T infrastructure.
3. To assess the interventions for improving the quantity and quality of basic and tourism infrastructure.
4. Infrastructure facilities will be strengthened and developed in T&T sector in India.

2.1 The Research Issues

The main problem is: There is a general lack of competitiveness in T&T. Growth forecasts for 2012, although lower than anticipated a year ago, are at 2.8% in terms of the industry's contribution to GDP. To achieve the overall result, this paper addresses two research issues as follows:

***Research issue 1*:** The images of India as a tourism destination for travellers.

***Research issue 2*:** The country's supply of transport, ICT, and energy infrastructure remains largely insufficient and ill-adapted to the needs of the economy.

3. Tourism in India

Growth forecasts for 2012, although lower than anticipated a year ago, are still positive at 2.8% in terms of the industry's contribution to GDP. Longer-term prospects are even more positive with annual growth forecast to be 4.2% over the ten years to 2022. The WTTC has projected India as:

- To be one of the world's foremost tourist growth centers in the coming decade.
- To record a high rate of growth in the travel and tourism sector at about 10% per annum in the coming years.
- To achieve the fastest rate of growth in the economic activity likely to be generated by travel and tourism in the coming years.

Tourism development in towns and cities will affect the existing infrastructure including roads, car parking, electricity, information and communication technology, waste disposal, buildings and water supply. This is due to the demand from tourism for secondary elements which support the tourism industry. The provision of new infrastructure, the upgrading of existing infrastructure and the adaptation of areas for use by tourists are among the impacts that may occur.

3.1 Provision of Accommodation

The growth of tourism can also be measured in terms of the availability of hotel rooms, one of the most important infrastructure facility needed for the industry, in the country. The number of approved hotels and their rooms, in the country, increased from 3186 and 67,085 in 2005 to 8707 and 132,885 respectively in 2010.

There is an imperative need for further improving the country's tourism infrastructure including accommodation, transport, information and communication facilities.

Table 1: Number of hotels and restaurants in India

Hotel category	No. of Hotels	No. of Rooms
5 star deluxe/ 5 star	165	43, 965
4 star	134	20,770
3 star	505	30,100
2 star	495	22,950
1 star	260	10,900
Heritage	70	4,200
Uncategorised	7,078	-
Total	8,707	1,32,885
Restaurants	12,750	

Source: Saraiya and Paul (2010).

To address fast changing tourist consumer preferences, India is also in the race for creating and re-creating diverse tourist attraction portfolios but that understandably should position around its core competence of cultural endowments. The continental characteristics as being manifested in the diverse geography, culture, people and way of living would enable India‘s endeavours much easier to position it as one of the most vibrant tourism destinations globally.

3.2 Travel and Tourism Competitiveness Index (TTCI) framework

Although the T&T sector provides many benefits, numerous obstacles at the national level hinder its growth. The Travel & Tourism Competitiveness Index, developed by the World Economic Forum in collaboration with experts in the sector, measures the many different regulatory and business-related

issues that have been identified as levers for improving T&T competitiveness in countries around the world. Through analysis of each dimension of the Index, businesses and governments can address country-level challenges. Such analysis can also inform policies at the regional level. The TTCI is a comprehensive index that aims to measure the factors and policies that make it attractive to develop the T&T sector in different countries.

3.3 T&T business environment and infrastructure

This sub index of TTCI captures elements of the business environment and the "hard" infrastructure of a country. The infrastructure of T&T Industry is the following:

1. **Air transport infrastructure**: Quality air transport infrastructure provides ease of access to and from countries, as well as movement to destinations within countries. This pillar measures both the quantity of air transport, as measured by the available seat kilometres, the number of departures, airport density, and the number of operating airlines, and the quality of the air transport infrastructure both for domestic and international flights.

2. **Ground transport infrastructure**: Vital for ease of movement within a country is the extensiveness and quality of its ground transport infrastructure. This takes into account the quality of roads, railroads, and ports, as well as the extent to which the national transport network as a whole offers efficient, accessible transportation to key business centers and tourist attractions.

3. Tourism infrastructure: I have also included a pillar that captures a number of aspects of the general tourism infrastructure in each country, as distinct from the general transport infrastructure. This takes into account the accommodation infrastructure (the number of hotel rooms, see table 1) and the presence of major car rental companies in the country, as well as a measure of its financial infrastructure for tourists (the availability of automatic teller machines, or ATMs).

4. ICT (Information & Communication Technology) infrastructure: Given the increasing importance of the online environment for the modern T&T industry in planning itineraries and purchasing travel and accommodations, I also capture the quality of the ICT infrastructure in each economy. Here I measure ICT penetration rates (Internet, telephone lines, mobile telephony, and broadband), which provide a sense of the access by business and individuals to the online services

that are essential for operating in the modern T&T industry. I also include a specific measure of the extent to which the Internet is used by businesses in carrying out transactions with other business and consumers, to get a sense of the extent to which these tools are in fact being used for business (including T&T) transactions in the economy.

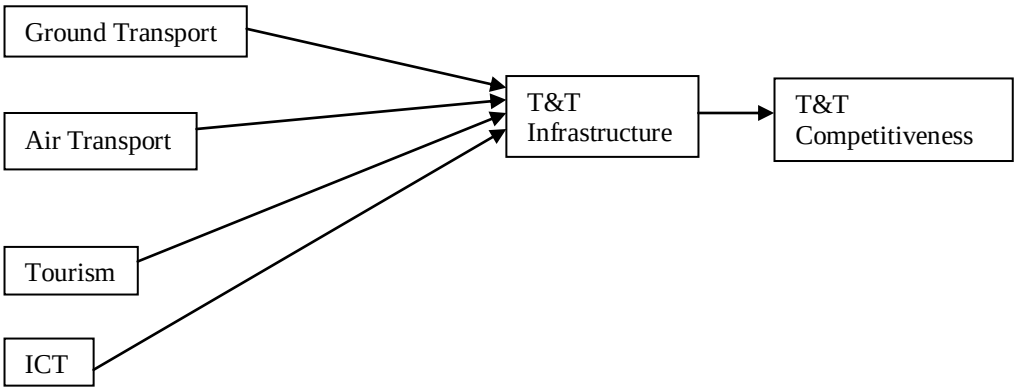

Figure 1: T&T Infrastructure model framework

4. Research methodology

The quantitative approach is adopted as the research methodology. The methodology adopted in this research is quantitative because all factual information and knowledge collected is numerical. A quantitative survey is considered to be the most feasible and adequate research strategy for this research as it is beneficial to deal with the questions of 'what' the important competitiveness factors are, and 'how much' strength these factors have (Yin, 1994). To increase the sample size of the survey, two approaches are adopted. First, an invitation letter and e-mail are sent to directors and senior executive managers of various major Travel and Tourism Industry in Bangalore, Delhi, Mumbai, Kolkata, Chennai, Goa, Pondicherry, Ooty, and Mysore in India. Questionnaire surveys are then distributed by e-mail or post to those directors or managers accepting the survey invitation. The respondents are invited to distribute the questionnaires to their industry partners or practitioners that they know to have rich experiences in Travel and Tourism development in India. A total of 180 questionnaires are despatched via both e-mail and post, and 58 returns are usable for the analysis—giving a net usable response rate of 32%. The questionnaire consists of two sections. The first section serves to introduce the objectives and scope of the survey. This section is also used to collect

demographic data regarding the respondents' previous experience and general knowledge in the area. In the second section, participants are invited to provide their opinions on the importance of proposed factors that influence competitiveness in T&T in India on a five-point Likert scale (1'Not important at all' to 5'Most important'). A total of 22 proposed factors are generated from the review of T&T Competitiveness Framework.

Mean importance rating and statistical t-tests of the means are carried out by the SPSS software package. Those elements found to be statistically important are used to identify the important factors. All proposed factors are first calculated, ranked and compared according to their mean score ratings. The mean importance rating is calculated using the following formula (Holt, 1997):

$$\text{Mean} = \frac{1(n1) + 2(n2) + 3(n3) + 4(n4) + 5(n5)}{n1 + n2 + n3 + n4 + n5} \quad ..(1)$$

where n1, n2, n3, n4, n5 represent the total number of responses as 1 to 5 respectively.

The t-test analysis is also employed to determine the importance level of each proposed factor. The test is to assess the statistical significance between two sample means for a single dependent variable. The null hypothesis ($\mu_1 < \mu_0$) against the alternative hypothesis ($\mu_{1>}\mu_0$) is tested, where μ_1 represents the population mean, and μ_0 represents the critical rating above which an attribute is considered most important. The value of μ_0 was fixed at '3' as it represents the 'important', 'more important' and 'most important' of an attribute according to the scale. The decision rule was to reject the null hypothesis when the calculation of the observed t-values (t_O) (Equation 2) was greater than the critical t-value (t_C) (Equation 3) as shown in Equation 4. This implies that, for research rigour, only those factors with mean ratings above or equal to '3' ('important') were included for consideration.

$$t_O = \frac{X - \mu_0}{S_D / \sqrt{n}} \quad \ldots(2)$$

$$t_C = t_{(n-1,\,\alpha)} \quad \ldots\ldots.(3)$$

$$t_O > t_C \quad \ldots\ldots\ldots(4)$$

where X is the sample mean, $S_D / \sqrt{n}$ is the estimated standard error of the mean of different scores (i.e. S_D is the sampled standard deviation of difference scores in the population), n is

the sample size (58), n-1 represents degree of freedom, and α the level of statistical significance. The level of statistical significance (α) is the degree of risk that researchers are willing to take in rejecting a null hypothesis when it is true (i.e. Type 1 error) in reporting results of statistical tests. The level of significance set at 0.05 represents a 5% chance of making a Type 1 error on any one test of the null hypothesis. The proposed competitive factors are tested using Equation 4. If the observed t-value is larger than the critical t-value ($t_O > t_C$), $t_{(57, 0.05)} = 1.672$ at 95% confidence interval, then the null hypothesis (H_O) that the attributes were 'unimportant' and 'not important at all' is rejected and only the alternative hypothesis (H_1) is accepted. If the observed t-value of the mean ratings weighted by the respondents is less than the critical t-values ($t_O < t_C$), only the null hypothesis is accepted.

5. Findings and discussions: Summary of the survey results

Table 2 summarizes the results of the total of 22 proposed competitiveness factors considered by the respondents. Interestingly, the survey results reveal that the top-ranked attribute is 'Airline seat kms/ week, domestic, millions' (M=4.75, SD=0.818). After all, the results of the perceptions of important competitiveness factors in infrastructure that influence the T&T Industry in India are summarised in Table 2.

Sl. No	Competitiveness Factors	Mean(t value, SD)	Rank	Factor loading
1st Pillar	**Air transport infrastructure**			
1.1	Quality of air transport infrastructure	4.22 (3.62, 0.892)	10	0.954
1.2	Airline seat kms/week, dom., millions	4.75 (4.43, 0.818)	1	0.956
1.3	Airline seat kms/week, int'l, millions	4.70 (4.35, 0.879)	2	0.958
1.4	Departures/1,000 population	3.67 (3.45, 1.02)	17	0.963
1.5	Airport density/million pop.	3.33 (3.31, 0.753)	22	0.940
1.6	No. of operating airlines	4.66 (4.27, 0.897)	3	0.936
1.7	International air transport network	4.42 (3.95, 0.833)	7	0.906
2nd pillar	**Ground Transport infrastructure**			
2.1	Quality of roads	3.81 (3.47, 0.781)	13	0.965
2.2	Quality of railroad infrastructure	4.62 (4.22, 0.820)	4	0.962
2.3	Quality of port infrastructure	3.87 (3.49, 0.912)	12	0.975
2.4	Quality of ground transport network	4.50 (4.09, 0.845)	6	0.956
2.5	Road density/million pop.	4.60 (4.19, 0.861)	5	0.962

3rd pillar	**Tourism infrastructure**			
3.1	Hotel rooms/100 pop.	3.46 (3.41, 0.573)	21	0.921
3.2	Presence of major car rental co.	4.25 (3.63, 0.892)	9	0.941
3.3	ATMs accepting Visa cards/million pop.	3.78 (3.46, 0.748)	14	0.953
4th pillar	**ICT infrastructure**			
4.1	ICT use for B2B transactions	4.36 (3.69, 0.830)	8	0.934
4.2	ICT use for B2C transactions	3.92 (3.51, 1.25)	11	0.948
4.3	Individuals using the Internet	3.55 (3.42, 0.847)	20	0.937
4.4	Fixed telephone lines/100 pop.	3.60 (3.44, 0.802)	19	0.931
4.5	Broadband Internet subscribers/100 pop.	3.76 (3.47, 0.901)	15	0.958
4.6	Mobile telephone subscriptions/100 pop.	3.64 (3.46, 0.827)	18	0.891
4.7	Mobile broadband subscriptions/100 pop.	3.72 (3.46, 0.877)	16	0.942

Table 2: Perceptions of important competitiveness factors that influence the T&T Industry in India

Individual item reliability is assessed by looking at the loadings of each item with their construct. The minimum level threshold for item loadings is 0.7 (Krafft et al., 2005; Henseler et al., 2009). As seen in Table 2, all items in our analysis are well above the 0.7 threshold with the lowest item loading at 0.891, thus providing results for individual reliability.

Partial least squares (PLS) method is used to analyze the T&T conceptual infrastructure model framework (Figure 1) employing SmartPLS (Version 2.0, Ringle et al., 2006). The use of PLS is decided for a couple of reasons. First, when models contain formative construct components, it is suggested that PLS is used over component based structural equation modeling (SEM) (Petter et al., 2007). Moreover, given our small sample size, PLS is a preferable method, because estimates of path coefficients tend to be more conservative than in covariance-based techniques (Bagozzi & Yi, 1994; Chin, 1998; Hulland, 1999).

	Composite reliability	**AVE**
Air transport infrastructure	0.9827	0.9045
Ground transport Infra	0.9841	0.9115
Tourism Infra	0.9899	0.8669
ICT Infra	0.9884	0.8770

Table 3: Composite reliabilities and AVE

	Air transport Infra	Ground transport Infra	Tourism Infra	ICT Infra
Air transport infrastructure	0.951			
Ground transport Infra	0.767	0.955		
Tourism Infra	0.785	0.827	0.931	
ICT Infra	0.853	0.860	0.893	0.937

Table 4: correlation matrix: (Note: The square root of the AVE is provided in the diagonal of the matrix)

Convergent validity suggests that a number of items represent one and only one underlying construct (Henseler et al., 2009). To assess convergent validity, each of the composite reliabilities is assessed for each construct all of which has a minimum value of 0.7 (Krafft et al., 2005; Henseler et al., 2009). Then the average variance extracted (AVE) is assessed for each construct. All AVE's above a threshold of 0.5 indicate the construct is able to explain more than half of the variance of its items (Fornell & Larcker, 1981; Henseler et al., 2009; Götz et al., 2010). All of the AVE values for assessed are well above the threshold of 0.5 providing support for convergent validity. Discriminant validity is the extent to which items from one construct differ from those of other constructs (Hulland, 1999). Discriminant validity is examined using the Fornell-Larcker criterion and cross-loadings (Henseler et al., 2009). To ensure discriminant validity, the square root of the AVE should be higher than the correlations with other constructs in the model (Hulland, 1999). As seen in Table 5 and 6, all square roots of the AVE's are larger than the correlations for each construct, thus providing support for discriminant validity. To further assess discriminant validity, the cross loadings is examined. Henseler et al. (2009) suggests that if an item has a higher loading with another construct than its respective construct, discriminant validity may be an issue. All items in this study have their highest loadings on their respective constructs, thus providing support for discriminant validity.

6. Conclusions and future work

India is well assessed for its natural resources and cultural resources, with many natural and cultural World Heritage sites, rich fauna, many fairs and exhibitions, and strong creative industries. India also has quite good air transport, particularly given the country's stage of development, and reasonable ground transport infrastructure, although the qualities of roads and of ports require further improvement. In addition, India remains a relatively price competitive

destination, even in the regional context. However, some aspects of its tourism infrastructure remain somewhat underdeveloped, with very few hotel rooms per capita by international comparison and low ATM penetration. ICT infrastructure also remains somewhat underdeveloped and underexploited. Other area requiring concern is Tourism Infrastructure. The results offers empirical support that collaboration between Air transport, Ground transport, Tourism and ICT infrastructure positively impacts the organisation in need to obtain T&T competitiveness. Although ICT infrastructure is widely being adopted by various T&T organizations, a conceptual infrastructure model is provided which is both theoretically and empirically supported by the use partial least squares analysis. The finding only reflects respondents from a few organisations located in a few large cities in India. A larger sample size should be allowed in further studies to ensure that the results can be better generalized. In addition, the research adopted a quantitative approach, and the use of a questionnaire (with a limited number of interviews) on competitiveness research may have led to a desirable rather than realistic answer. A quantitative–qualitative approach such as the analytic hierarchy process (AHP) and the analytic network process (ANP) should be considered for inclusion in the research method in any future studies. AHP considers both qualitative and quantitative aspects of research and combines them into a single empirical inquiry (Cheng, 2001). The AHP is able to adopt a qualitative way in building the decision hierarchy and also uses a quantitative approach in data collection and analysis to test the attributes of the models by using a self-completed questionnaire. ANP can further consider quantitative steps to solve a network decision problem, and thus it is appropriate when the interdependencies between two factors are investigated. Another limitation is this that study only reflected the factors influencing the firm's competitiveness in the past and this does not mean these factors are applicable to make the firm competitive in the future. Therefore, it is suggested that the measured results need to be further validated or evaluated in the further study. New factors would be considered. More empirical studies on T&T competitiveness must be initiated in the future.

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