ISSN – 0975 – 7104
Regn. No.: DELENG/2006/20585

TECNIA Journal of Management Studies

Vol. 5, No. 2, October 2010 – March 2011

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Tecnia Journal of Management Studies

Vol. 5. No. 2, October 2010-March 2011

Editorial Office & Administrative Address

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Tecnia Institute of Advanced Studies
3 PSP Institutional Area
Madhuban Chowk, Rohini,
Delhi-110085.
Tel: 011-27555121-124,
Fax: 011-27555120

E-mail: journal.tecniaindia@gmail.com
Website: http://www.tecniaindia.org

Published & Printed by Dr. Nirmal Singh, on Behalf of Tecnia Institute of Advanced Studies. Printed at Rakmo Press Pvt. Ltd., C-59, Okhla Industrial Area, Phase-I, New Delhi-110020. Published from Tecnia Institute of Advanced Studies, 3 PSP, Institutional Area, Madhuban Chowk, Rohini, Delhi-85.

From The Editor's Desk

I take this opportunity to thank all contributors and readers for making ***Tecnia Journal of Management Studies*** an astounding success. The interest of authors in sending their research-based articles for publication and overwhelming response received from the readers is duly acknowledged. I owe my heartfelt gratitude to all the management institutes for sending us their journals on mutual exchange basis, and their support to serve you better.

We are happy to launch the Tenth issue of our academic journal. The present issue incorporates the following articles:

- Assessing Service Quality Within Airport Industry
- An Analysis of Consumer Perceptions and Behaviour with Special Reference to the Car Owners in Tamilnadu
- A Study on Deflated Average Cost of Four Products of Durgapur Steel Plant to Find Out the Optimum State of Operation
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My thanks to the authors Hafedh Ibrahim, R. Ganapathi, S. Subadra, S. Anbu Malar, Dr. Dilip Roy, Paroma Mitra, Dr. Lakshmi Jagannathan Dr. Prateek Sharma, Dr. Babita Agarwal, Prof Monika Maheshwari, Dr. K.C.Mittal, Anupama Prashar, Mritunjay Kumar Pandey, Manoj Kumar Choubey, Debomalya Ghose, Dr. B. Sudhir, K.Tharaka Rami Reddy, Dr B.K.Tripathi, K Shama Ganjiwale who have sent their manuscripts in time and extended their co-operation particularly in following the American Psychological Association (APA) Style Manual in the references.

I extend my sincere thanks to our Chairman Sh. R. K. Gupta, who has always been a guiding light and prime inspiration to publish this journal. I am grateful to Dr. A.K. Rathore, Director, for his continuous support and encouragement to bring out the Journal in a proper form. I also appreciate Editorial Committee Members for their assistance help, advice and suggestion in shaping up the Journal. My sincere thanks to our distinguished reviewers and all team members of Tecnia family for their untiring efforts and support in bringing out this bi-annual Journal.,

I am sure the issue will generate immense interest among corporate practitioners, policy-makers, academicians and students.

Dr. Nirmal Singh

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General Information

- Tecnia Journal of Management Studies is published half-yearly. All editorial and administrative correspondence for publication should be addressed to the Editor, Tecnia Institute of Advanced Studies, 3 PSP, Institutional Area, Madhuban Chowk, Rohini, Delhi-110085.

- The received articles for publication are screened by the Evaluation Board for approval and only the selected articles are published. Further information on the same is available in the "Guidelines for Contributors".

- Annual subscription details with the format for obtaining the journal are given separately and the interested persons may avail the same accordingly.

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- Registration Number : DELENG/2006/20585

- ISSN No.: 0975-7104

- Printed & Published by : Dr. Nirmal Singh
  Tecnia Institute of Advanced Studies,
  Madhuban Chowk,
  Rohini,
  Delhi-110085.

- Printed at : Rakmo Press Pvt.Ltd.
  C-59, Okhla Industrial Area, Phase-I,
  New Delhi-110020.

ASSESSING SERVICE QUALITY WITHIN AIRPORT INDUSTRY

Hafedh Ibrahim*

Abstract: *The aim of this study is to develop and empirically validate an instrument which measures the service quality in airport industry. This research employed multistage steps for investigation; both qualitative and quantitative approaches were used to develop the scale. Through a rigorous instrument development process, the author proposes a multidimensional model of service quality. The results demonstrate that air passengers' perceptions of service quality comprise four dimensions: personal interaction, physical environment, design, and output. The model has significant implications for the measurement of service quality in this specific industry and for the development of valid measures of service quality in this context.*

Keywords: *Airport industry; Service quality; Measurement scale.*

Introduction

Airports in Tunisia (North Africa) are presently facing a quickly changing environment where significant renovations are bound to take place. Therefore, the implementation of innovative tactics and strategies is crucial in order to gain competitive advantage. Showing high service quality is ever more renowned as a decisive factor in the success of organizations (Parasuraman et al., 1990). Airports need to evaluate their service quality in order to discern the key drivers for service quality enhancements. Generally, the studies that assess service quality employ the SERVQUAL model. Nevertheless, this model has been largely criticized on methodological and psychometric grounds by many researchers (Llosa et al., 1998, McDougal and Levesque, 1992, Carman, 1990). Furthermore, SERVQUAL, as universal tool, is insufficient to help out airport managers in making accurate service related decisions since the conceptualization of service quality is dependent on the type of service offered (Olorunniwo et al., 2006). Rather than employing a standard approach anchored in SERVQUAL, we develop an instrument tailored to airports requests. Some authors assert that the look for general conceptualization of the service quality construct may be ineffective (Caro and Garcia, 2007) and arguments have been advanced to affirm that service quality is either industry or setting specific (Babakus and Boller, 1992). Accordingly, to be of pragmatic value, a service quality construct should not only be non-global, but also context specific. Lapierre's (1996) work proposes an alternative set of operational measures to those offered by SERVQUAL. This is a more inclusive approach in that it associates the conceptual definition and practical variables of the service quality construct. The premises steering this approach based on Lapierre's (1996) comments are: (1) service quality research is significantly dependent on the quality of the operational measures; (2) given the type of service, the research for general conceptualization of service quality may be useless; and (3) the construct measurements are as crucial as the assessment of substantive relations.

Purpose of present Study

The purpose of the present study is to develop a comprehensive model to measure service quality in

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airports. The contribution of this article is twofold. First of all, we detect the key manifestations of service quality from the air passengers' perspective. Secondly, we scrutinize some managerial implications for employing this model for assessing perceived service quality in applied research.

Conceptualization of service quality

Several researchers argued that there is no agreement on how to measure or conceptualize service quality (Cronin and Taylor, 1992; Rust and Oliver, 1994). Two different views have been assumed concerning this topic. The first approach suggests that perceived service quality is founded on the disconfirmation paradigm. In other words, service quality is a comparison between individuals' expectations and their perceptions of the service they received. In line with this perspective, Grönroos (1984) proposed the Nordic model with two components of service quality. The first component was "technical quality" that denotes the outcome of the service performance; the second component was "functional quality" that designates the subjective perception of how the service is offered. Afterwards, Rust and Oliver (1994) developed the Tri-dimensional model of service quality and inserted a third component called "physical environment". Furthermore, based on the disconfirmation paradigm Parasuraman et al. (1988) developed the SERVQUAL model, where service quality is considered as the outcome of a comparison between expectations and perceptions of performance. Parasuraman et al. (1988) affirmed that, irrespective of the nature of service, individuals assess service quality employing similar criteria, which can be synthesized into five factors: "reliability", "tangibles", "responsiveness", "empathy", and "assurance". In spite of SERVQUAL having been used across a large range of service settings, it has been largely criticized, particularly concerning its expectation component and its dimensionality (Cronin and Taylor, 1992; Teas, 1993; Llosa et al., 1998, McDougal and Levesque, 1992, Carman, 1990, Buttle, 1996). In fact, several studies conducted on different service activities prove that the five factors of SERVQUAL do not replicate (Llosa et al., 1998, McDougal and Levesque, 1992, Carman, 1990). In additional empirical investigations, Parasuraman et al. (1994) restored SERVQUAL's structure to denote not only the comparison between perceived service and desired service, but also the difference between perceived service and adequate service. However, in spite of the adjustment of the SERVQUAL model, other models appeared so as to question the measurement and conceptualization of service quality developed by Parasuraman et al. (1988). Hence, Teas (1993) proposed the evaluated performance model which measures the difference between perceived performance and the perfect characteristics rather than the individual's expectations. Teas (1993) affirmed that this conceptualization could overcome some of the limitations related to the perceptions minus expectations gap conceptualization of service quality. On the other hand, the second alternative approach asserts that service quality should be assessed taking into account only individual perceptions rather than expectations minus perceptions. McDougall and Levesque (1994) consider that counting expectation scores on a service quality tool may be ineffective as well as futile. This is because of the fact that individuals tend to point out frequently high expectation ratings and their perception scores hardly ever surpass their expectations (Babakus and Boller, 1992). This explanation stimulated the development of an alternative scale of SERVQUAL, for instance the Hierarchical and Multidimensional Model (Brady and Cronin, 2001), the Retail Service Quality Scale (Dabholkar et al., 1996) or the SERVPERF scale (Cronin and Taylor, 1992).

To summarize, the existing models have not been successfully adapted to and validated for the airport industry, thus we suggest that the dimensionality of service quality in this specific setting may not be similar to that of service quality in pure service industries. So, we consider it is of great interest to develop and empirically validate an instrument which measures the service quality in airport industry.

Methodology

The literature review has not identified any research that measures the perception of the quality in air transport service and, as a result, there was no prior validated scale that we could employ. It was therefore deemed valuable to develop a measurement instrument, consistent with the method for scale development advocated by Anderson and Gerbing (1988) and Churchill (1979).

Step 1: Generation of items from literature

A list of items was generated by adapting the items of existing generic scales (Ko and Pastore, 2005;

Terblanche and Boshoff, 2001; Brady and Cronin, 2001; Dabholkar et al., 1996; Parasuraman et al., 1988).

Step 2: Qualitative research

The nature as well as the number of service quality components is largely related to the service under investigation (Chumpitaz and Swaen, 2002). To achieve this aim, qualitative research was performed to recognize the dimensions which determine the service quality perceptions of airport users. We used in-depth interviews of airport employees and air passengers. In order to collect data from the airport agents' perspective, two managers were interviewed concerning many service quality topics: (1) what difficulty they faced in offering high quality services; (2) what they think to be service quality from the air passenger's point of view; and (3) what tasks they take to control or enhance service quality. Regarding the air passengers' perspective, we interviewed twenty persons who had used the services of one or more airports during the past year. They were solicited to list all aspects that affected their perception throughout their experience. In line with Dabholkar et al. (1996), prices were removed from the decision set since they are not component of a commonly accepted understanding of service quality in the literature.

In order to enhance the reliability of our study, a tape recorder was employed during the interviews. This technique offered us the possibility to double check the answers and confirmed that we did not overlook any significant information. In addition, in order to analyse the qualitative data thus collected, a content analytic approach was used.

On the basis of the step 1 and step 2, we gathered 55 items (the whole list of items is presented in the Appendix).

Step 3: Relevancy of items to airports

The aim of the third step is to evaluate the content and face validity through a panel of experts and a field test (Ibrahim and Najjar, 2008). The experts were three managers of three international airports and two academicians. Some items were dropped and others were reworded to avoid confusion. This process eliminated 31 items, leaving 24 items.

Data collection

Two samples (S1 = 352 air passengers; and S2 = 1672 air passengers) were collected from users of airports in a different geographic sites: Tabarka (northern region of Tunisia), Tunis (the capital) and Djerba (a south-eastern region of Tunisia), during the first four months of 2009. The procedure to collect the data was a personal interview with the respondents and a self-administered questionnaire. We trained students from a higher institute of management for this purpose.

Results

Exploratory assessment of the measures (First Sample S1, N = 352 air passengers)

An exploratory factor analysis was carried out to determine the underlying dimensionality of service quality (Churchill, 1979) by analyzing patterns of correlations among 24 items. A range of cut off criteria were used to determine the number of dimensions derived, such as eigenvalues, scree plot, percentage of variance, item communalities, and factor loadings (Hair et al., 1998). Items with loadings lower than 0.4 and with loading higher than 0.4 on more than one factor were removed. A four factor solution with 15 items being retained. Notably, all of the Cronbach alphas were above the widely recognized rule of thumb of 0.7 (Nunnally, 1978), which denotes a satisfactory internal consistency among items within each identified factor. Results are reported in table 1.

The first component we find is ''personal interaction'' (Cronbach alpha = 0.95, Eigenvalues = 4.869). It denotes the air passengers' subjective perception of how the service is offered during their experiences. Many authors have pointed out the significance of this dimension in the service delivery and it is considered as having the most considerable influence on service quality perceptions (Dabholkar et al., 1996, Grönroos, 1982). Furthermore, the conclusion from the qualitative research revealed that air passengers value the personal interaction more than the managers who had been interviewed.

The second component is ''physical environment'' (Cronbach alpha = 0.88, Eigenvalues = 2.686). It denotes the built environment in which service delivery takes place. Several researchers stress the crucial role of this component in customer service assessments (Brady and Cronin, 2001, Spangenberg et al., 1996). Furthermore, previous studies prove that individuals employ any physical evidence of the service outcome as a proxy for evaluating

Table 1: Factor loadings for the underlying dimensions of service quality in airport industry on the first sample (N = 352)

Items		F1 Personal interaction	F2 Physical environment	F3 Output	F4 Design
PI1:	employees seek the best for the air passengers.	0.921			
PI2:	the attitude of employees denotes their readiness to help.	0.921			
PI3:	the employees have knowledge enough about different services to respond to air passenger's needs.	0.794			
PI4:	when an air passenger has a problem, this airport shows a sincere interest in solving it.	0.818			
PI5:	the employees are able to handle air passenger complaints efficiently.	0.843			
PE1:	the equipment at this airport is in good condition.		-0.625		
PE2:	the employees have a neat and professional appearance.		-0.67		
PE3:	the airport's ambiance (clean, temperature…) is appropriate.		-0.642		
PE4:	the airport is safe and comfortable.		-0.698		
OUT1:	this airport shows its interest in accelerating the service.			0.737	
OUT2:	when I leave this airport, I always feel that I got what I wanted.			0.714	
OUT3:	I would evaluate the output of this airport favourably.			0.725	
D1:	this airport offers a large range of shipment				0.754
D2:	the variety of shipment services offered by this airport fit my needs.				0.726
D3:	the types of shipment offered by this airport are attractive to me.				0.744
Eigenvalue		4.869	2.686	2.233	1.985
Cumulative % variance		32.46	50.364	65.248	78.479
Cronbach alpha		0.95	0,89	0.84	0.81

performance (Johns et al., 2004; Ryan and Cliff, 1997; Lam and Zhang, 1999). According to our qualitative study physical evidence is a dimension that air passengers consider when developing quality perceptions.

The third component of service quality is ''output'' (Cronbach alpha = 0.84, Eigenvalues = 2.233). It means what the air passenger gets from the service. In other words, what the air passenger is left with when the experience is accomplished. There is

a consensus in the literature that the output of the service encounter significantly influences individual perceptions of service quality (Carman 2000; Rust and Oliver, 1994; McDougall and Levesque, 1994).

The last component of service quality in airports is ''design'' (Cronbach alpha = 0.81, Eigenvalues = 1.985). This component incorporates all factors linked to the arrangement and organization of the service. The results of the qualitative research showed that is fundamental to add this factor.

A first-order Confirmatory Factor Analysis (Second Sample S2, N = 1672 air passengers)

In order to correctly evaluate the dimensionality of the newly-developed service quality scale, the confirmatory factor analysis was performed on a different sample "S2" (N = 1672 air passengers) since this practice offers a more robust elucidation of dimensionality than is offered by the exploratory factor analysis (Anderson and Gerbing, 1988). One additional benefit of using another sample is to minimize the probability of capitalizing the dimensions on chance characteristics of the same sample, which may produce a scale that will not effectively generalize to other samples (MacCallum et al., 1992). Furthermore, a second exploratory factor analysis was performed to determine the underlying dimensionality of service quality on the second sample (N = 1672). Results are reported in table 2.

After that a confirmatory model was carried out on the remaining 15 items. The measurement model (see Figure 1) identifies four dimensions and exposes the relationships between the items and their related components. Examination of the fit statistics (χ^2 (84) = 420.450, p = 0.000; GFI = 0.970; AGFI = 0.957; CFI = 0.985; RMR = 0.052; RMSEA = .049) and the

Table 2: Factor loadings for the underlying dimensions of service quality in airport industry on the second sample (N = 1672)

Items	F1 Personal interaction	F2 Physical environment	F3 Output	F4 Design
PI1	0.931			
PI2	0.935			
PI3	0.802			
PI4	0.891			
PI5	0.896			
PE1		0.799		
PE2		0.794		
PE3		0.809		
PE4		0.820		
OUT1			0.863	
OUT2			0.810	
OUT3			0.831	
D1				0.739
D2				0.687
D3				0.709
Eigenvalue	4.978	2.845	2.145	1.832
Cumulative % variance	33.188	52.156	66.456	78.671
Cronbach alpha	0.96	0,88	0.83	0.80

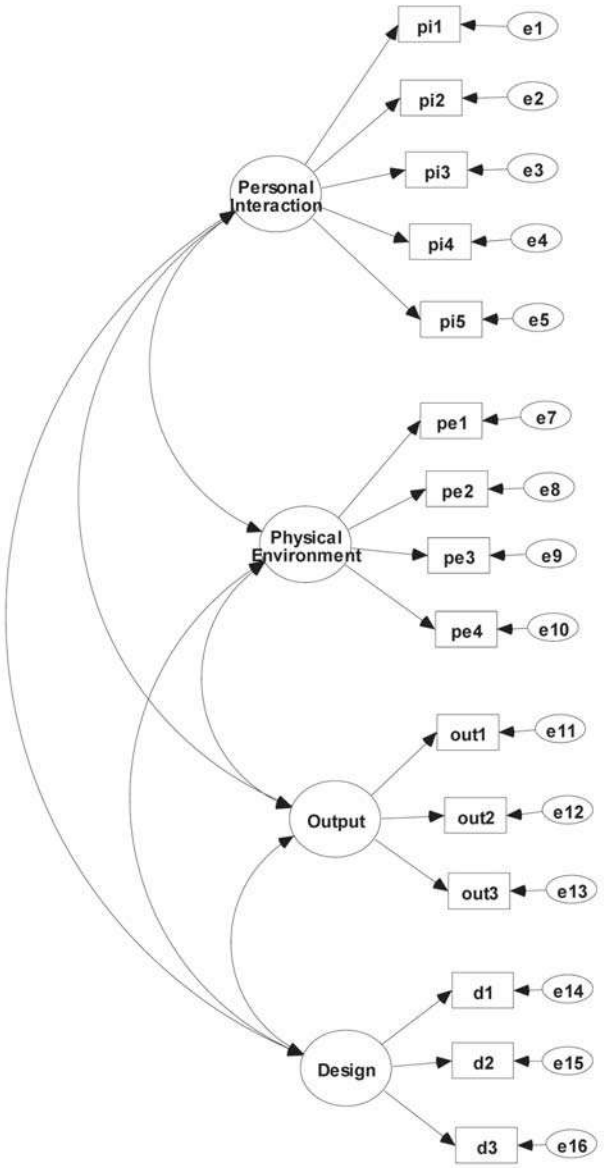

Figure 1: The measurement model

modification indices reveals that our measurement model is acceptable.

Unidimensionality and reliability

Given these findings, we have proof that the measures are unidimensionnel, with each indicator reflecting one and only one underlying construct (Gerbing and Anderson, 1988). As showed in table 1, coefficient alpha ranging from 0.80 to 0.96 and the composite reliability ranging from 0.70 to 0.93, are considered acceptable (Fornell and Larcker, 1981; Nunnally and Bernstein, 1994).

4.4. Convergent and discriminant validity

Convergent validity can be assessed from the measurement model by verifying whether each indicator's estimated maximum likelihood loading on the corresponding construct is significant (Peter, 1981). As illustrated in table 3, all confirmatory factor loadings exceed 0.84, and all are significant with t-values ranging from a low of 25.673 to a high of 248.141. Thus, we have indication of convergent validity of our measures. We further evaluated discriminant validity in the measurement model by examining a confirmatory factor analysis model, which incorporated the four components: "personal interaction", "physical environment", "output", and "design". The procedure recommended by Anderson and Gerbing (1988) was employed. First, this base model, where all paths between the constructs were freely estimated. Then, each correlation parameters was constrained to "1" separately, and the correspondent models were estimated. The $\Delta\chi^2$ values between the constrained models and the

Table 3: Properties of the Confirmatory Factor Analysis for Service quality

Items	Loading	*t*-statistics	Composite reliability
Personal interaction (F1)			0.93
PI1	1		
PI2	1.007	248.141	
PI3	0.840	47.276	
PI4	0.981	94.788	
PI5	0.961	92.232	
Physical environment (F2)			0.80
PE1	1		
PE2	1.017	35.410	
PE3	0.992	34.381	
PE4	1.016	36.539	
Output (F3)			0.74
OUT1	1		
OUT2	0.859	29.386	
OUT3	0.947	31.837	
Design (F4)			0.70
D1	1		
D2	0.872	25.673	
D3	0.907	26.248	

Note: analysis is performed on sample 2.

unconstrained model indicate that the fit measure of each of the constrained models was significantly worse (at a p = 0.05 level) than the fit measure of the base model. Accordingly, a strong evidence of discriminant validity was present in the measurement model, since the probability that all combinations of the variables adequately represent the same construct is less than 5%.

A second-order Confirmatory Factor Analysis (the second Sample, N = 1672 air passengers)

In order to achieve strong reliability and validity, a second-order confirmatory factor analysis was performed (Marsh and Hocevar, 1985). The fit indices and the factor loading are presented in Figure 2.

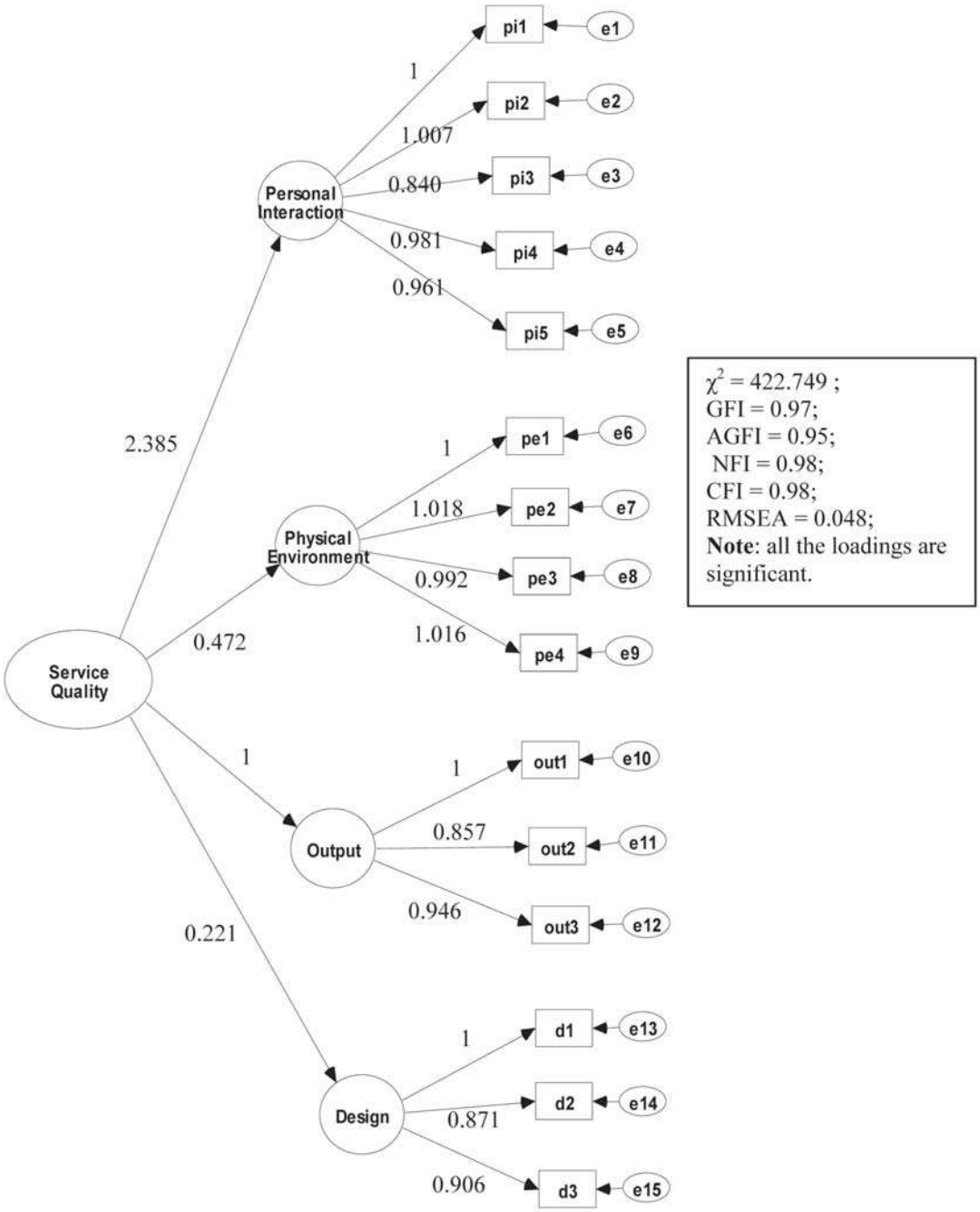

Figure 2: Second-order Confirmatory Factor Analysis

All dimensions of the service quality have a significant and positive relationship with the second-order construct. These findings offer additional proof that service quality, in airport industry, has four components "Personal interaction", "Physical environment", "Output", and "Design".

Nomological validity

The evidence of nomological validity is confirmed by a construct's possession of different drivers, consequential effects, or modified conditions, and quantitative differences in the degree to which a construct is connected to antecedents or consequences or varies across conditions in showing consequential effects (Iacobuci et al., 1995). So, the four service quality constructs were investigated within a nomological network including satisfaction.

Several researchers support the significant relationship between service quality and satisfaction. One group of researchers maintains that satisfaction is a key driver to service quality. In contrast, according to another group of researchers, a positive service quality perception can lead to satisfaction. A third view upholds that there is a non-recursive bond among service quality and satisfaction (Taylor and Cronin, 1994). In essence, this perspective affirms that neither of the two constructs is an antecedent or super ordinate of the other. Interestingly, Dabholkar (1995) asserts that the antecedent role of satisfaction and service quality is situation specific and that if an individual is cognitive oriented, he will perceive the relationship as service quality causing satisfaction, whereas if an individual is affective oriented he will perceive the relationship as satisfaction causing service quality. In the present study in line with Brady and Robertson (2001), we suppose that service quality positively affects satisfaction (See figure 3).

To measure satisfaction we used two items (5-point format ranging from "strongly disagree" to "strongly agree") employed in previous research (Spreng and Mackoy, 1996). The labels were: worse than my expectations/better than my expectations, and completely dissatisfied/completely satisfied (Cronbach alpha = 0.61).

The structural model fit the data well and figure 3 illustrates the detailed results. The path between service quality and satisfaction is positive and significant (loading = 1.341, t-value = 11.071). It is worthy to note that this finding gives support to the nomological validity of service quality constructs.

Conclusion

A fundamental principle of quality management is that to enhance quality it should primary be measured. The present study proposes a multidimensional model of service quality. The perceived service quality concept is a complex construct that has generated a large discussion in the academic literature concerning its assessment, conceptualization, and definition. The current study reveals that airports' service quality is a higher-order factor. This vision concerning measurement concurs with the entity pragmatism of latent variable hypothesis and the ontological concept of validity, as opposed to instrumentalism as well as the formative frameworks. We conceptualize airports' service quality equivalent to an attitude (Parasuraman et al., 1988), and we estimate the functioning of measures about attitudes more reliable with the reflective analysis.

Our findings prove that air passengers formulate their judgments of service quality on the basis of a number of aspects that are particular to the assessed service. Therefore, air passengers found their assessment of the service quality dimensions on the evaluation of the corresponding variables. The grouping of several factors represents an air passenger's global perception of service quality. Hence, perceived service quality in airport has a second-order factor structure (personal interaction, physical environment, design and output), which are fashioned by 15 indicators. Airports can establish priorities in the decisions related to service enhancement, taking into consideration the overall appraisal in each key factor, and regulating their tactics to distinguish their service on the basis of major precursor of air passenger quality perceptions. The empirical evidence maintains the psychometrical properties of the measurement scale, its reliability, convergent, discriminant, and nomological validity. The paths in the structural model are all established which shows that each dimension is suitably considered as a facet of airport service quality. It is worth noting that the use of two different samples for the exploratory factor analysis and the confirmatory factor analysis makes the investigation more rigorous. According to our results, the four factors are not drivers of service quality but rather manifestations of the complexity of the construct. Airports' service quality is a higher-order factor underlying the dimensions. Thus, variations in the perceived service quality engendered by the

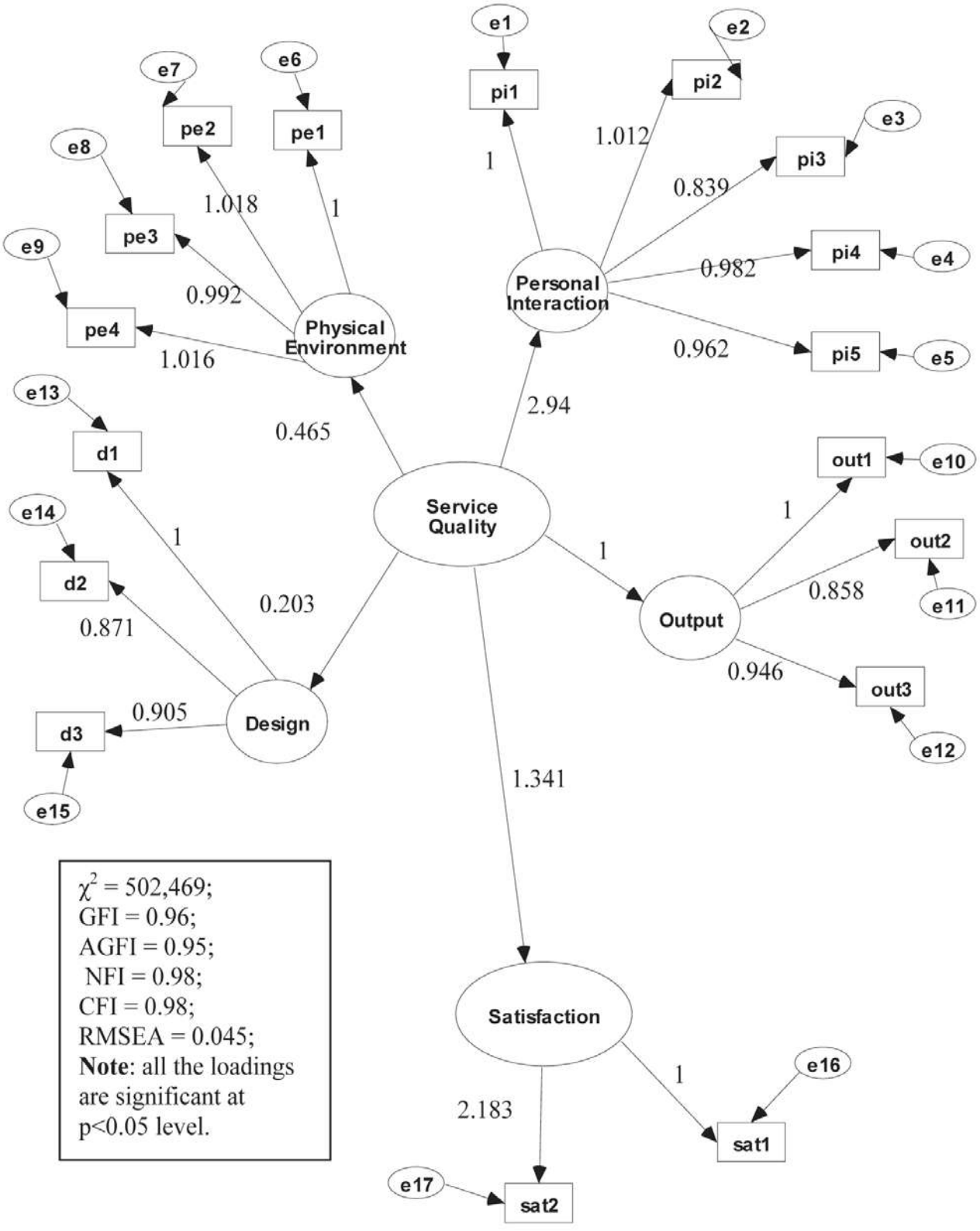

Figure 3: The effect of service quality on air passenger's satisfaction

modification in the perception of one dimension will influence the perception of the rest of factors due to the connection between them.

The current work contributes towards filling a gap existing in air transport management research by suggesting an integrated framework of service quality in the airport industry. The proposed multidimensional service quality model is an important strategic instrument to discern the weakness and strength of their performance. This scale could be a diagnostic means that will assist airport managers to identify service areas that are feeble and require a specific attention. The results show that airport service quality is a significant driver of air passenger satisfaction. As firms could raise returns by 100% by retaining just 5% more of their customers (Reichheld and Sasser, 1990), it is essential for airport managers to appreciate the main service quality aspects in their setting that could strengthen the air passenger satisfaction. Airport managers need to build up a regular evaluation program in order to check service quality and air passenger satisfaction over time. Employees should be kept informed of achievements and be encouraged to participate in figuring out a relevant resolution strategy. Only when a service quality culture is implemented, can the airport industry management warrant the proficient delivery of services most wanted by air passengers. On the other hand, air passengers should be informed of what the airport management staff is doing to offer an enjoyable experience.

Service quality is related to numerous crucial organizational outcomes, for instance loyalty (Zeithaml et al., 1996), market share (Buzzell and Gale, 1987), profitability (Kearns and Nadler, 1992), and corporate image (Gronroos, 1984). Thus, the study of service quality can offer airports a robust tool for achieving their tactical as well as strategic objectives. We expect other researchers to replicate our measurement scale in other cultures in order to generalize findings. The model is empirically tested on a developing economy and there is a likelihood of a cultural bias playing a role in the results of the study as expectations of people in a developing economy may be dissimilar from those of a developed economy. Although, some items are edited according to past literature and the actual situation, there is no way of guaranteeing that other dimensions were not omitted.

Finally, we emphasis the regular deployment of service quality questionnaires by airports in order to get a dynamic depiction of assessments and air passenger behavioral intentions over time, with the objective of enriching the dynamic analysis of air passenger attitudes towards airports. Additional investigations should take into account different factors in the examination of service quality assessments. For example, the effect of air passenger expectations as well as the role of information and airport pricing on quality perception. These aspects also have to be considered in order to gain a more complete view of service quality; consequently, perception of service quality weakness or excellence should be deduced with vigilance since it could have been affected by various aspects that are not a particular element of service quality.

Appendix: the whole list of items

- The airport is conveniently located.
- The employees give us special attention.
- Outside appearance is attractive.
- The employees are neat-appearing.
- The lobby area is comfortable.
- The employees are courteous.
- Our requests are handled promptly.
- The parking space is adequate
- The airport adapts services to our needs.
- The employees adapt well to handle peak customer traffic.
- The employees search for what is in the best interests of the clients.
- Interior design is attractive.
- The employees' knowledge of airports procedures makes me feel comfortable.
- Services are accessible to disabled persons.
- The employees provide adequate information about the airports.
- The airport is clean.
- Express checkout is available for air passengers.
- The time it took to check in/check out is not too long.
- The employees are easily accessible when needed.
- The employees are knowledgeable about airport equipment.
- Smoking is conscious of how important that the resolution of the complaints is for me.
- The employees provide error-free records (e.g. recepts).
- The front desk employee accurately verifies the reservation requests.
- I can count on employees taking actions to

address my needs.
- The places are treated to accommodate non-smoking guests if needed.
- I can count on the employees being friendly.
- The employees are never too busy to respond to consumer's requests.
- The attitude of employees demonstrates their willingness to help me.
- The variety of shipment services offered by this airport fit my needs.
- When a customer has a problem, this airport shows a sincere interest in solving it.
- The employees show their interest in accelerating the shipment.
- The operating hours of this airport are convenient.
- The airport has a fair system for handling of complaints.
- The airport has employees who give me individual attention.
- The employees quickly apologize when service mistakes are made.
- Employees are able to answer my questions quickly.
- It is quick and easy to contact the company.
- The employees inform punctually and sincerely about all the conditions of service.
- This airport offers a wide range of shipment.
- The employees understand that I rely on their knowledge to meet my needs.
- The behavior of the employees gives me trust.
- The employees understand persons' specific needs.
- The types of shipment offered by this company are attractive to me.
- The employees are able to handle customer complaints directly and immediately.
- The employees are competent.
- The airport gives information on all the services that it offers.
- The shipment hours are convenient to my needs.
- I believe this airport knows the types of experience its customers want.
- When the service finishes, I usually feel that I have had a good experience.
- This company has operating hours convenient to all its customers.
- The equipment at this airport is visually appealing.
- The service has modern-looking electronic equipment.
- Employees have a neat and professional appearance.
- I believe this airport tries to give me a good experience.
- When I leave this airport, I always feel that I got what I wanted.

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An Analysis of Consumer Perceptions and Behaviour with Special Reference to the Car Owners in Tamilnadu

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Abstract: *In the modern world in the field of business the consumer is the king. The era of liberalization, privatization and globalization has to a great extent modified and metamorphosised the minds of consumers regarding the perceptions and behaviour. Hence a crystal clear knowledge and idea about the perceptions and behaviour of the consumers would be of great help and beneficial to the manufacturers and producers of various commodities. In this aspect an urban area Namakkal district is chosen by the researchers to study the perceptions and behaviour of the consumers with regard to purchase of cars. Namakkal district is one of the fast developing cities in Tamil Nadu State and is an ideal and potential area for such studies. The word consumer used in the study in a broad sense refers to the buyer of any commodity. Here it refers to on who buys a car. The word "behaviour" here refers to the decisions, evaluations on purchase decisions of the buyers of cars. In order to evaluate the objectives of the study and draw inferences scientifically the researchers have adopted various statistical techniques and tools like ANOVA, KMO and Bartlett's Test, Factor Analysis, Correlation Analysis and the like. Based on the various findings constructive and complementary suggestions are given by the researchers which could offer a clear idea about the perceptions and behaviour of the consumers to the selling agents and manufacturers of different brands of cars thus directly resulting in the boosting up the business and indirectly resulting in elevating the life standard and style of the consumers.*

Introduction

Human beings, in general, are complex creatures who often do not seem even to know their own minds. It is seldom easy, and sometimes impossible, to generalize about human behaviour. Each individual is a unique product of heredity, environment and experience. Predicting such a strange behaviour of people is a difficult and complicated task, filled with uncertainties, risks, and surprises. Accurate predictions can yield vast fortunes and inaccurate predictions can result in the loss of millions of rupees. Today, business around the world recognizes that 'the consumer is the king'. Knowing why and how people consume products helps marketers understand how to improve existing products, what types of products are needed in the market place, or how to attract consumers to buy their products. The era of liberalization, privatization and globalization has brought changes in the society and the lifestyles of people.

Marketers can justify their existence only when they are able to understand consumers' wants and

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satisfy them. The modern marketing concept for successful management of a firm requires marketers to consider the consumer as the focal point of their business activity. Although it is important for the firm to understand the buyer and accordingly evolve its marketing strategy, the buyer or consumer continues to be an enigma - sometimes responding the way the marketer wants and on other occasions just refusing to buy the product from the same marketer. For this reason, the buyer's mind has been termed as a black box, which should be opened by the seller who wishes to be a successful marketer.

The study of consumer behaviour focuses on how individuals make decisions to spend their available resources (time, money, effort) on consumption related items. That includes what, why, when, where, how often they buy it, how they evaluate it after the purchase and the impact of such evaluation on future purchase. More than ever before, the need to understand consumers and consumer behaviour has become a hot topic around the globe, from boardroom and executive suites to universities and hospitals. The study of consumer behaviour also includes an analysis of factors that influence purchase decisions and product use.

Understanding how consumers make purchase decisions can help marketing managers in several ways. For example, if a manager knows through research that fuel mileage is the most important attribute for a certain target market, the manufacturer can redesign the product to meet that criterion. If the firm cannot change the design in the short run, it can use promotion in an effort to change consumers' decision making criteria. For example, an automobile manufacturer can advertise the maintenance-free features of a car while downplaying the fuel mileage.

A product can exist in market only if consumers perceive that it will satisfy their wants. Moreover, a given product is perceived quite differently, by different consumers. A child perceives a colour television set as a source of pleasurable entertainment. A mother may view it as a baby sitter and a teacher as a source of information for students. A father may view it, as an over priced luxury that prevents him from buying new durables. For many other consumers this simply does not exist. That is, it has never entered their field of selective perception.

Consumer satisfaction is a psychological feeling or belief that the perceived performance exceeds the consumer's expectations about a product. Some products offer more satisfaction than the others. For example, a house and a car provide more satisfaction than a toothbrush. A car satisfies the need of owners for a means of transportation. They also obtain psychological satisfaction from the possession of products like car. For the purpose of this study, the personal variables like age, income, education, occupation and the like have been selected and the influence of these personal variables on the consumers' perception, their buying behaviour and the decision process have been analyzed.

Statement of the Problem

Due to the emergence of globalization and liberalization there is a stiff competition among the variety of car industries which are focusing attention in capturing the Indian markets. Cars though considered as luxury once, now occupies a part of day-to-day life and has become a necessity. Namakkal, which is selected for the study, is one of the main growing markets for car manufacturers. People who were not ready to spend their money on luxuries have now changed their attitude that 'yesterday's luxuries are today's necessities.' At present, people have no reservation in spending money on the purchase of cars for enjoying the benefits already stated. To be a successful marketer it is absolutely essential to read the minds and perceptions of the prospective buyers of cars. In addition to the above, the due weightage which is given by the government for the growth of passenger car industry and the involvement of the consumers in the selection of a particular brand of car have also made the researchers to undertake a study on the passenger car industry with special reference to the perceptions, behaviour and satisfaction of owners of cars.

Review of Literature

Mandeep Kaur and Sandhu H.S. (2004) attempted to find out the important features which a customer considers while going for the purchase of a new car. The study covers the owners of passenger cars living in the major cities of the State of Punjab and the Union Territory of Chandigarh. The respondents perceive that safety and comfort are the most important features of the passenger car followed by luxuriousness. So the manufacturers must design the product giving maximum weightage to these factors.

Chidambaram K. et al (2004) postulate that there are certain factors which influence the brand preferences of the customers while they take decision to buy passenger cars. Within this framework, the study reveals that customers give more importance to fuel efficiency than the other factors. They believe that the brand name tells them something about product quality, utility, technology and the like. They prefer to purchase the passenger cars which offer high fuel efficiency, good quality, technology, durability and reasonable price.

Satya Sundaram I. (2005) analyzed how competition makes the automobile manufacturer to launch at least one new model or a variant of the model every year. This survey also pointed out that diesel cars are becoming popular in India and the announcement of reductions in excise duties by the government has helped to some extent boost the demand.

Clement Sudhakar J. and Venkatapathy R. (2005) studied the influence of the peer group in the purchase of car with reference to Coimbatore District and their study identified friends as the most influencing peer in the purchase of passenger cars. It was also found that the influence of friends is higher for the purchase of the small sized and the mid sized cars.

Brown et al (2007) analyzed the consumers' attitude towards European, Japanese and the US cars. The country of origin plays a significant role in the consumers' behaviour. The brand name, lower price and the distributor's reputation completely have a significant impact on the sale of passenger cars.

Gaedebe (2007) identified the important factors leading to determine the consumers' behaviour in the car market, especially in developing countries they are fuel economy, acceleration, reliability, safety, workmanship, styling and expensiveness.

Guiles (2008) identified that fuel economy and lower maintenance cost have their impact on the consumers' behaviour towards the passenger car.

Baumgartner and Jolibert (2008) revealed that the cars produced in West Germany received the highest rating on firm attitudes namely acceleration, safety, styling and workmanship among the Americans. At the same time, the Japanese car ranked highest on fuel economy and reliability.

Dornoff et al (2008) identified that the market segment is the primary determinant of the consumer behaviour in the passenger car market. The level of expectation and perception on the various attributes of car differ from consumers in one segment to another.

However, the present study differs from the above, in that, the buyer behaviour in Namakkal in Tamil Nadu is sought to be analyzed here. The scope and the area of the study are unique in nature.

Objectives of the Study

The purpose of this research is to study the behaviour of consumers, their importance in the aspects of life style, perception of product attributes and level of satisfaction. Hence the study is aimed at the following objectives:

1. To present the historical perspective of the Indian Passenger Car Industry.
2. To evaluate car owners' perception and behaviour pertaining to the purchase and use of cars.
3. To identify and analyze the factors influencing the purchase of cars.
4. To analyze the level of satisfaction among the respondents and to identify the switch over brand option, if any and
5. To make suggestions in the light of the findings of the study.

Scope of the Study

Nowadays, car has become a necessity and forms a part of life of even the middle class people. Therefore, there is a significant scope to examine the perception and purchase behaviour of the consumers of cars. The study is restricted to Namakkal District of Tamil Nadu, which is economically the richest district and famous both for lorry body building and poultry farming. Due to their increasing purchasing power, the people of this district have started to buy cars for business or personal use or for prestige and for the maintenance of social status. Namakkal District with a population of 14,95,661 is a potential market for all the products and services, because people of various religions, languages, cultural backgrounds, and demographic and psycho-graphic characteristics live in this area. Consumers have more power than ever before. A knowledge of the buying

behaviour of different market segments helps a seller to select their target segment and evolve marketing strategies to increase the sales. Advertisers and marketers have been trying to discover why consumers buy and what they buy. This study tries to analyze the influence of perception in the consumers' mind and how this information can be used successfully by marketers to gain entry into the minds of the consumers. This study also highlights the problems faced by the car owners and offers suggestions to increase the overall satisfaction of the car owners. The scope of this research has a very good future.

Methodology

Before beginning to carry out the present study, the researchers initially conducted a pilot study in order to find out the feasibility and the relevance of the present study. For this purpose, the researchers contacted several marketing experts from the academic fields and car owners for assessing the significance and validity of carrying out the present research work. Since the researchers got favourable results from the pilot study, the present study has been undertaken. The present study is based on the perceptions, behaviour and satisfaction of the consumers for passenger cars. Sources of the primary and the secondary data are discussed.

The researchers has used interview schedule for the purpose of collecting primary data from the car owners for the study. The researchers personally visited the respondents at their convenience. The responses were recorded by the researchers in most of the cases. In some cases the respondents themselves recorded the responses under the guidance of the researchers. It took six months for the researchers to complete the process of collection of data.

As the universe of the study is large, the researchers decided to select sample respondents by adopting Simple Random Sampling Technique. However, care had been taken to include respondents from different locations of Namakkal District. The secondary data have also been extensively used in this study. The secondary data have been collected from the bulletins of the company, annual reports and websites. Further, the researchers have used national and international journals in the field of management, as well as marketing, business magazines, business dailies, referred text books in marketing management as well as consumer behaviour and academic studies conducted in the related areas for the purpose of building a strong conceptual background including the review of literature for the study.

Pre-Testing

Pre-testing helps in enriching the design of the Interview schedule and assists in testing the validity and reliability of the statistical techniques to be adopted. An Interview schedule was developed and administered to a convenient sample of twenty five car owners. After analyzing the responses of the pre-testing, the necessary modifications had been brought about some items were dropped and new items were added. Revisions were made in the wording of certain items. After the data collection, tabulation was done objectively.

Sampling Design

This study was conducted among the car owners residing at Namakkal District, Tamil Nadu. A Simple Random Sampling Technique was adopted in the study to select the sample respondents. As the size of the universe is restricted, the study has been conducted on the respondents who are the owners of all the segments of passenger cars. A total of 350 Interview schedules were prepared and out of this, only 327 interview schedules were filled up and collected. A scrutiny of these schedules led to the rejection of 27 interview schedules on account of incomplete responses. Thus 300 completed interview schedules were used for the present study. Data were collected through an Interview Schedule regarding perception of the respondents on the usage of cars. The following tools were used in testing the hypotheses and in the analysis of the data. Descriptive statistical tools such as Percentage, Mean, Median and Standard deviation have been used to describe the profiles of consumers, preferred product attributes and level of satisfaction. ANOVA, t-Test and F-Test have been used to test the significant differences between the groups of respondents in their perception and satisfaction for selected independent variables like age, sex and income. Chi-Square test has been used to test the association between the consumer demographic characteristics and preferred product attributes and satisfaction. Multiple regression analysis has been used to study the influence of income and lifestyle on overall satisfaction level of the respondents. Correlation analysis has been used

to establish the relationship between 'the factors which influenced the purchase' and 'the factors which favoured the level of satisfaction'. Factor analysis is employed to identify the key factors responsible for the consumers' purchase of cars and the level of satisfaction after purchase. Cluster analysis has been used to identify the consumers with similar tastes and preferences with respect to the purchase of car.

Analysis and interpretation of Data

The results of the analysis of the collected data are presented below:

Every consumer is highly unique and a complex human, yet there are many things consumers have in common when it comes to buying. Many factors are involved in their buying decisions, any one or more can become their deciding factor. While selecting a car, the consumer will consider many factors which are exhibited in Table 1 and are explained below:

- **Price:** In countries like India often evaluation is done on price consideration which one can afford. In case of a car, consumers decide first the price range which is in their reach or affordability or

Table 1: Factors Influencing Purchase of Car

Product Attributes		Minor Influences	Fair Influences	Moderate Influences	More Influences	Major Influences	Total
Price	No.	14	51	114	71	50	**300**
	%	4.7	17.0	38.0	23.7	16.7	**100.0**
Fuel Economy	No.	8	54	103	90	45	**300**
	%	2.7	18.0	34.3	30.0	15.0	**100.0**
Driving Comfort	No.	11	47	80	90	72	**300**
	%	3.7	15.7	26.7	30.0	24.0	**100.0**
Maintenance Cost	No.	20	67	118	73	22	**300**
	%	6.7	22.3	39.3	24.3	7.3	**100.0**
Attractive Model	No.	28	60	79	64	69	**300**
	%	9.3	20.0	26.3	21.3	23.0	**100.0**
Status Symbol	No.	44	75	71	59	51	**300**
	%	14.7	25.0	23.7	19.7	17.0	**100.0**
Resale Value	No.	71	93	91	32	13	**300**
	%	23.7	31.0	30.3	10.7	4.3	**100.0**
Latest Technology	No.	49	67	83	64	37	**300**
	%	16.3	22.3	27.7	21.3	12.3	**100.0**
Brand Image	No.	23	79	75	69	54	**300**
	%	7.7	26.3	25.0	23.0	18.0	**100.0**
Pick Up	No.	10	48	110	105	27	**300**
	%	3.3	16.0	36.7	35.0	9.0	**100.0**

Source: Primary Data

their willingness to spend upon a product. Then they examine those brands within their budget. From the table 1, it is clearly known that 38% of the respondents viewed that price has played moderate influence followed by more influence with 23.7% and only 4.7% expressed that they were minor influenced by price.

- **Fuel Economy:** The amount which is spent by the consumer for fuel will also be the most important influential factor to select a particular brand. The above table explains that 34.3% of the respondents felt that fuel economy has moderate influence on their purchase and only 2.7% said that it has minor influence.

- **Driving Comfort:** The usage of a product is a very important determinant in final selection. In case of cars very heavy weightage is given to driving comfort. It is clearly understood from the above table, that 30% of the respondents opined that driving comfort is the more influencing factor for their selection of a particular brand of car.

- **Maintenance Cost:** The automobiles run either on petrol, diesel or gas and one has to make comparison of relative cost per kilometer including maintenance cost. 39.3% of the respondents expressed that Maintenance cost was the moderate influence factor on their decision to buy a car and 6.7% viewed it was a minor influence.

- **Attractive Model:** 26.3% of the respondents felt that attractive model is the moderate influential factor and 9.3% expressed that attractive model is the minor influential factor in their decision to purchase a car.

- **Status Symbol:** A car buyer may be more concerned with its social status than any other criteria. 25% of the respondents expressed that it has fair influence on their purchase decision and 14.7% consider it as a minor influence.

- **Resale value:** 31% of the respondents expressed that the expected resale value of their cars has fair influence to buy their brand of car. This shows that most of the car buyers may not give much consideration for the resale value while deciding to buy a car.

- **Latest Technology:** It is observed from Table 1 revealed that 27.7% of the respondents were moderately influenced by latest technology to select a car and 12.3% suggested that it has a major influence on their purchase decision.

- **Brand Image:** In most of the markets for each product a number of brands are available including automobiles. The consumers give due weightage to this aspect and feel that a product which has higher market share than others is rated high in a consumer's choice. 26.3% of the respondents were fairly influenced towards a particular brand and brand image had a minor influence on 7.7%.

After buying a product, the consumer compares it with his or her expectations and is either satisfied or dissatisfied. If the consumer is dissatisfied, marketers must decide whether the product was deficient or consumer expectations were too high. Product deficiency may require a design change. If expectations are too high, perhaps the company's advertising or salesperson had oversold the product's features. The study has considered fourteen factors as the satisfaction criteria viz., Price, Fuel economy, Driving comfort, Maintenance cost, Attractive model, Status symbol, Resale value, Latest technology, Brand image, Pick up, Road grip, Internal space, After sales service, and Availability of spare parts.

Table 2 reveals that 62%, 60%, 56.7%, 56.3%, 43.3% and 44.3% of the respondents were not satisfied with the factors like price, fuel economy, driving comfort, maintenance cost, attractive model and status symbol respectively. And only .3%, .3%, .7%, 2%, 1.7% and 2% were highly satisfied with the above mentioned factors. It is seen that 42.3% of the respondents were neither satisfied nor dissatisfied with resale value and 3.3% were not at all satisfied with the resale value of their cars.

It is described that 36.3%, 51.7%, 60.3%, 59.3%, 46.7% and 50.7% of the respondents were not satisfied with factors like technology, brand image, pick up, road grip, internal space and after sales service and 6.7%, 2.3%, 1%, 1%, 2.3% and 2.3% were highly satisfied with the above factors. It is stated that 54.3% of the respondents were not satisfied and 2.3% were satisfied with the availability of spare parts of their brand.

Table 2: Satisfaction Level After Purchase of Car

Product Attributes		Highly Satisfied	Satisfied	Neither Satisfied Nor Dissatisfied	Not Satisfied	Not At All Satisfied	Total
Price	No.	1	9	60	186	44	**300**
	%	.3	3.0	20.0	62.0	14.7	**100.0**
Fuel Economy	No.	1	14	60	180	45	**300**
	%	3	4.7	20.0	60.0	15.0	**100.0**
Driving Comfort	No.	2	6	51	170	71	**300**
	%	7	2.0	17.0	56.7	23.7	**100.0**
Maintenance Cost	No.	6	24	81	169	20	**300**
	%	2.0	8.0	27.0	56.3	6.7	**100.0**
Attractive Model	No.	5	31	81	130	53	**300**
	%	1.7	10.3	27.0	43.3	17.7	**100.0**
Status Symbol	No.	6	39	82	133	40	**300**
	%	2.0	13.0	27.3	44.3	13.3	**100.0**
Resale Value	No.	20	72	127	71	10	**300**
	%	6.7	24.0	42.3	23.7	3.3	**100.0**
Latest Technology	No.	20	49	88	109	34	**300**
	%	6.7	16.3	29.3	36.3	11.3	**100.0**
Brand Image	No.	7	16	65	155	57	**300**
	%	2.3	5.3	21.7	51.7	19.0	**100.0**
Pick Up	No.	3	15	63	181	38	**300**
	%	1.0	5.0	21.0	60.3	12.7	**100.0**
Road Grip	No.	3	21	61	178	37	**300**
	%	1.0	7.0	20.3	59.3	12.3	**100.0**
Internal Space	No.	7	26	80	140	47	**300**
	%	2.3	8.7	26.7	46.7	15.7	**100.0**
After Sales Service	No.	7	22	80	152	39	**300**
	%	2.3	7.3	26.7	50.7	13.0	**100.0**
Availability of Spare Parts	No.	9	7	61	163	60	**300**
	%	3.0	2.3	20.3	54.3	20.0	**100.0**

Source: Primary Data

Gender and Brand of Car possessed by the Respondents

Gender plays an important role in the selection of a particular brand of car. In order to know the relationship between the gender and the brand of car possessed by the respondents, the following hypothesis has been framed:

Table 3: Relationship Between the Brand of Car and the Gender Among the Respondents

Brand	Gender		Total
	Female	Male	
Hyundai	9 (18.0)	33 (13.2)	**42 (14.0)**
Maruti Udyog	24 (48.0)	84 (33.6)	**108 (36.0)**
Fiat	3 (6.0)	19 (7.6)	**22 (7.3)**
Tata	5 (10.0)	44 (17.6)	**49 (16.3)**
Hindustan Motors	3 (6.0)	41 (16.4)	**44 (14.7)**
Others	6 (12.0)	29 (11.6)	**35 (11.7)**
Total	**50 (16.7)**	**250 (83.3)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Null hypothesis (H_0): There is no significant relationship between the brand of car and the Gender among the respondents.

The chi-square test indicates that the value of χ^2 statistic computed from the data is 7.783. This computed value of chi-square statistic is compared with the table value of χ^2 for 5 degrees of freedom at 5% level of significance 11.07. Since the calculated value is less than the table value, the null hypothesis is accepted. It is concluded that the brand of car possessed by the respondents is not determined by the gender of the respondents. Alternatively, it can be interpreted that the proportion of respondents possessing the brand is the same for both the Genders.

Age and purpose of possession of Car

Age is an important factor in determining the purpose for which the car is owned. In the present study an effort has been made to know the relationship between age and purpose of possession of car.

Null hypothesis (H_0): There is no significant relationship between the purpose of possession of car and the age group among the respondents.

The Chi-square test of independence is used to study the extent of influence of the age group on the purpose of possession of car by the respondents. The above table indicates the calculated chi-square value is 7.185, which is less than the table value of 15.507 for 8 degrees of freedom at 5% level of significance. So the null hypothesis is accepted. It is concluded

Table 4: Relationship Between the Purpose of Possession of Car and the Age Group Among the Respondents

Purpose of Possession	Age Group					Total
	<25	25-35	36-45	46-55	>55	
Personal use	21 (67.7)	43 (68.3)	56 (54.4)	32 (49.2)	22 (57.9)	**174 (58)**
Business use	5 (16.1)	9 (14.3)	19 (18.4)	15 (23.1)	8 (21.1)	**56 (18.7)**
Social status	5 (16.1)	11 (17.5)	28 (27.2)	18 (27.7)	8 (21.1)	**70 (23.3)**
Total	**31 (10.3)**	**63 (21.0)**	**103 (34.3)**	**65 (21.7)**	**38 (12.7)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

that the purpose of possessing a car is not influenced by the age group of the respondents.

Educational qualification and Place of Purchase

Education is one of the main inputs for the buyer behaviour. It also determines the place of purchase of car. To know the relationship between the educational qualification and place of purchase the following hypothesis has been framed:

Null hypothesis (H_0): There is no significant relationship between the place of purchase and the educational qualification among the respondents.

The Chi-square test of independence is used to find the association between the place of purchase and educational qualification of the respondents. The null hypothesis is that the place of purchase is independent of educational qualification. The value of χ^2 statistic computed from the data is given in the above table. This computed value of chi-square statistic is compared with χ^2 table value for 12 degrees of freedom 21.068. Since value of chi-square calculated exceeds χ^2 table value at 5% level of significance, the null hypothesis of independence is rejected. Hence, it is to be concluded that the place of purchase depends on the Educational qualification of the respondents.

Marital Status and mode of Purchase

The marital status is a major determinant of the consumer behaviour. A nuclear family with or without dependent children faces social and economic problems quite different from those of a joint family. Young married couples without children devote large share of their income to clothing, automobiles and recreation. So the researcher tried to find out the relationship between the marital status and the mode of purchase with the following hypothesis:

Null hypothesis (H_0): There is no significant relationship between the mode of purchase and the marital status among the respondents.

The above table shows that for 4 degrees of freedom at 5% level of significance, the calculated value of χ^2 is 5.206, which is less than the table value of 9.488. So the null hypothesis can be accepted. Therefore it is concluded that no relationship exists between the mode of purchase and the marital status of the respondents.

Family Income and Mode of Purchase

A household's income level determines its purchasing power. While many car purchases are made on credit, one's ability to buy on credit is ultimately determined by a household income. To

Table 5: Relationship Between Place of Purchase and Educational Qualification Among the Respondents

Place of Purchase	Educational Qualification					Total
	No formal Education	School Level	Graduate Level	PG Level	Professional Qualification	
Dealers	19 (79.2)	39 (65.0)	97 (83.6)	32 (69.6)	44 (81.5)	**231 (77.0)**
Sub-dealers	1 (4.2)	4 (6.7)	6 (5.2)	4 (8.7)	3 (5.6)	**18 (6.0)**
Mechanics	3 (12.5)	6 (10.0)	3 (2.6)	1 (2.2)	-	**13 (4.3)**
Friends/Relatives	1 (4.2)	11 (18.3)	10 (8.6)	9 (19.6)	7 (13.0)	**38 (12.7)**
TOTAL	**24 (8.0)**	**60 (20.0)**	**116 (38.7)**	**46 (15.3)**	**54 (18.0)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Table 6: Relationship Between the Mode of Purchase and the Marital Status Among the Respondents

Mode of Purchase	Marital Status		Total
	Married	Unmarried	
Cash	71 (28.4)	21 (42.0)	**92 (30.7)**
Bank Finance	95 (38.0)	13 (26.0)	**108 (36.0)**
Private finance	47 (18.8)	10 (20.0)	**57 (19.0)**
Cash & Bank Finance	20 (8.0)	2 (4.0)	**22 (7.3)**
Cash & private Finance	17 (6.8)	4 (8.0)	**21 (7.0)**
TOTAL	**250 (83.3)**	**50 (16.7)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

find out the effective relationship between family income and mode of purchase, the below mentioned hypothesis has been made:

Null hypothesis (H_0): There is no significant relationship between the mode of purchase and the family income among the respondents.

The calculated value is 35.595 and the table value is 32.0 for 16 degrees of freedom. As the calculated value of Chi-square is greater than the table value, the null hypothesis is rejected. It is concluded that there is a highly significant relationship between the mode of purchase and the monthly family income. It can be interpreted that the high income group prefers bank finance.

Family Income and Place of Purchase

The income level of a family also influences the place of purchase of a car. As income rises, luxury car purchases also increase. The following chi-square table is prepared to analyse the relationship between family income and the place of purchase:

Null hypothesis (H_0): There is no significant relationship between the place of purchase of a car and the family income among the respondents.

Table 7: Relationship Between the Mode of Purchase and the Family Income of the Respondents

Mode of Purchase	Family Income					Total
	Less than Rs.10000	Rs.10000-15000	Rs.15001-20000	Rs.20001-25000	Above Rs.25000	
Cash	8 (38.1)	21 (38.2)	23 (38.3)	20 (31.7)	20 (19.8)	**92 (30.7)**
Bank Finance	4 (19.0)	16 (29.1)	16 (26.7)	20 (31.7)	52 (51.5)	**108 (36.0)**
Private Finance	3 (14.3)	7 (12.7)	12 (20.0)	18 (28.6)	17 (16.8)	**57 (19.0)**
Cash & Bank Finance	1 (4.8)	5 (9.1)	6 (10.0)	3 (4.8)	7 (6.9)	**22 (7.3)**
Cash & Private Finance	5 (23.8)	6 (10.9)	3 (5.0)	2 (3.2)	5 (5.0)	**21 (7.0)**
TOTAL	**21 (7.0)**	**55 (18.3)**	**60 (20.0)**	**63 (21.0)**	**101 (33.7)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Table 8: Relationship Between the Place of Purchase of a Car and the Family Income of the Respondents

Place of Purchase	Family Income					Total
	Less than Rs.10000	Rs.10000-15000	Rs.15001-20000	Rs.20001-25000	Above Rs.25000	
Dealers	15(71.4)	31(56.4)	44(73.3)	50(79.4)	91(90.1)	**231(77.0)**
Sub-dealers	2(9.5)	9(16.4)	1(1.7)	1(1.6)	5(5.0)	**18(6.0)**
Mechanics	2(9.5)	2(3.6)	3(5.0)	6(9.5)	-	**13(4.3)**
Friends	2(9.5)	11(20.0)	12(20.0)	6(9.5)	5(5.0)	**36(12.0)**
Others	-	2(3.6)	-	-	-	**2(0.7)**
TOTAL	**21(7.0)**	**55(18.3)**	**60(20.0)**	**63(21.0)**	**101(33.7)**	**300(100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

The above table indicates that the Chi-square value is 49.292 which is more than the table value of 32.096 for 16 degrees of freedom So the null hypothesis is rejected at 1% level of significance. Hence, it is inferred that there is a highly significant relationship between the place of purchase of a car and the family income of the respondents. As per the results, it is interpreted that irrespective of the income level, majority of the respondents purchased their car through dealers.

Occupational Status and Purpose of Possession

The number of professional workers such as engineers, doctors and lawyers has grown rapidly over the past few years. Likewise, managerial, marketing, sales and health care have also seen rapid growth. The purpose for which the car is possessed is strongly influenced by the occupational status. This statement is analyzed with the following hypothesis:

Table 9: Relationship Between the Purposes of Possession of Car and the Occupational Status of the Respondents

Purpose	Occupational Status							Total
	Agriculture	Business	Government Service	Private Service	Pro-fessional	House Wife	Others	
Personal use	10 (76.9)	83 (52.2)	24 (70.6)	37 (78.7)	8 (33.3)	11 (68.8)	1 (14.3)	**174 (58.0)**
Business use	-	42 (26.4)	2 (5.9)	2 (4.3)	9 (37.5)	-	1 (14.3)	**56 (18.7)**
Social status	3 (23.1)	34 (21.4)	8 (23.5)	8 (17.0)	7 (29.2)	5 (31.3)	5 (71.4)	**70 (23.3)**
TOTAL	**13 (4.3)**	**159 (53.0)**	**34 (11.3)**	**47 (15.7)**	**24 (8.0)**	**16 (5.3)**	**7 (2.3)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Null hypothesis (H_0): There is no significant relationship between the purpose for which the car is possessed by the respondents and the occupational status among the respondents.

Out of 300 respondents, 58% use car for personal use, 18.7% for business purpose and 23.3% for social status. The above table highlights that the table value of chi-square is 26.217, which is less than the calculated value of 43.424 for 12 degrees of freedom. So the null hypothesis is rejected at 1% level of significance. Hence it is concluded that there is a highly significant relationship between the purpose of owning the car and the occupational status of the respondents.

Family Income and Fuel Used

Fuel efficiency is the main criteria for the decision to purchase a particular brand of car, irrespective of the level of income of the people. In order to find out the relationship between the family income and the fuel used the following hypothesis has been framed and tested.

Null hypothesis (H_0): There is no significant relationship between the fuel used and the family income of the respondents.

Chi-square test is applied to find the significant relationship between fuel used and the family income among the respondents. The result of the chi-square test is given in the above table. It indicates the computed value of $\div^2$ statistic is 6.761. This computed value of chi-square statistic is compared with $\div^2$ table value for 4 degrees of freedom at 5% level of significance 9.488. Since this value is less than $\div^2$ table value at 4 degrees of freedom the null hypothesis is accepted. It is concluded that the fuel used is not related with the family income of the respondents. This implies that the respondents of a particular income group do not have any specific usage of fuel.

Age Group and Resale Value

Old age group spends more than younger consumers on health services, medical services and housing. They bother about the resale value of their cars while they decide to purchase a specific brand. The relationship between the age and the resale value is tested with the following hypothesis:

Null hypothesis (H_0): There is no significant relationship between the opinion on the resale value and the age group among the respondents.

The above table highlights that the table value of chi-square is 20.090, which is less than the calculated value of 25.212 for 8 degrees of freedom. So the null hypothesis is rejected at 1% level of significance. Hence it is concluded that there is a highly significant relationship between the opinion on resale value and the age group among the respondents.

Educational Qualification and Frequency of Service

Education influences how one thinks, makes decisions, and relates to others. Those with a limited education are generally at a disadvantage not only in earning money but also in spending it wisely. The

Table 10: Relationship Between the Fuel Used and the Family Income Among the Respondents

Fuel Used	Family Income					Total
	Less than Rs.10,000	Rs.10000 - Rs.15000	Rs.15,001 - Rs.20,000	Rs.20,001 - Rs.25,000	Above Rs.25,000	
Petrol	12 (57.1)	41 (74.5)	38 (63.3)	33 (52.4)	59 (58.4)	**183 (61.0)**
Diesel	9 (42.9)	14 (25.5)	22 (36.7)	30 (47.6)	42 (41.6)	**117 (39.0)**
TOTAL	**21 (7.0)**	**55 (18.3)**	**60 (20.0)**	**63 (21.0)**	**101 (33.7)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Table 11: Relationship Between the Opinion About Resale Value and Age Group Among the Respondents

Opinion About Resale Value	Age Group					Total
	Less than 25 years	25-35 years	36-45 years	46-55 years	Above 55 years	
Very Good	6 (19.4)	2 (3.2)	2 (1.9)	1 (1.5)	2 (5.3)	13 (4.3)
Moderate	19 (61.3)	49 (77.8)	76 (73.8)	41 (63.1)	24 (63.2)	209 (69.7)
Very Poor	6 (19.4)	12 (19.0)	25 (24.3)	23 (35.4)	12 (31.6)	78 (26.0)
TOTAL	**31 (10.3)**	**63 (21.0)**	**103 (34.3)**	**65 (21.7)**	**38 (12.7)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

frequency of servicing a car is also influenced by educational qualification of the respondents. The validity of this statement is tested by framing the following hypothesis:

Null hypothesis (H_0): There is no significant relationship between the frequency of servicing a car and the educational qualification among the respondents.

The null hypothesis is that the frequency of servicing a car and the educational qualification of the respondents are independent. The value of χ^2 statistic computed from the data is given in the above Table. The computed value of chi-square statistic 27.655 is compared with χ^2 table value at 8 degrees of freedom 20.090. Since value of chi-square calculated exceeds χ^2 table value, the null hypothesis of independence is rejected at 1% level of significance. Hence, it is to be concluded that frequency of servicing a car highly depends on the educational qualification of the respondents.

Table 12: Relationship Between Frequencies of Servicing a Car and Educational Qualification Among the Respondents

Frequency of Service	Educational Qualification					Total
	No formal Education	School Level	UG Level	PG Level	Professional Qualification	
Once in 6 months	4 (16.7)	22(36.7)	50(43.1)	28(60.9)	19(35.2)	**123(41.0)**
Once in a year	2 (8.3)	3(5.0)	13(11.2)	8(17.4)	11(20.4)	**37(12.3)**
Based on running	18 (75.0)	35(58.3)	53(45.7)	10(21.7)	24(44.4)	**140(46.7)**
Total	**24 (8.0)**	**60(20.0)**	**116(38.7)**	**46(15.3)**	**54(18.0)**	**300(100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Occupational Status and Place of Service

A persons' occupational status is also an important factor in determining the place where they service their cars. In order to know the association between the occupational status and the place of service, the following hypothesis has been framed:

Null hypothesis (H_0): There is no significant relationship between the place of service and the occupational status among the respondents.

The above table indicates that the table value of chi-square for 12 degrees of freedom at 5% level of significance is 21.026 which is higher than the calculated value of 11.096. So the null hypothesis is accepted. Hence it is derived that there is no significant relationship between the place of service and the occupational status among the respondents. It can be interpreted that 43.4% of the businessmen service their cars at dealers, 69.2% of the agriculturists service their cars at authorized service centres and 15.7% of the businessmen prefer local mechanics.

Family Income and Frequency of changing the Car

Income of a person certainly influences his spending pattern. Families in the higher income group normally can afford to buy latest model with latest technology car whenever it is introduced in the market. So it automatically reduces the possession of a car for a long period and changing the car may be quite often. Thus the relationship between family income and frequency of changing the car is analyzed in the following table:

Null hypothesis (H_0): There is no significant relationship between the frequency of changing the car and the family income among the respondents.

From the analysis, it is found that the table value of chi-square is 21.026 which is less than the computed value of 21.287. Therefore, the null hypothesis is rejected at 5% level of significance. Hence it is concluded that there is a significant difference between the frequency of changing the car and the family income. It is found that 51.5% of the higher income group changes their cars within 5 years and 19% of the lower income groups have no intention to change their present car.

Brand and Maintenance Cost

The following hypothesis has been tested to find out the relationship between brand and maintenance cost:

Null hypothesis (H_0): There is no significant relationship between the brand and the maintenance cost among the respondents.

Table 13: Relationship Between the Place of Service and the Occupational Status Among the Respondents

Place of Service	Occupational Status							Total
	Agriculture	Business	Government Service	Private Service	Pro-fessional	House Wife	Others	
Dealers	3 (23.1)	69 (43.4)	11 (32.4)	17 (36.2)	9 (37.5)	5 (31.3)	3 (42.9)	**117 (39.0)**
Authorized service centers	9 (69.2)	65 (40.9)	18 (52.9)	27 (57.4)	13 (54.2)	9 (56.3)	4 (57.1)	**145 (48.3)**
Others	1 (7.7)	25 (15.7)	5 (14.7)	3 (6.4)	2 (8.3)	2 (12.5)	—	**38 (12.7)**
Total	**13 (4.3)**	**159 (53.0)**	**34 (11.3)**	**47 (15.7)**	**24 (8.0)**	**16 (5.3)**	**7 (2.3)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Table 14: Relationship Between the Frequency of Changing the Car and the Family Income Among the Respondents

Frequency of changing	Family Income					Total
	Less than Rs.10,000	Rs.10,000 - Rs.15,000	Rs.15,001 - Rs.20,000	Rs.20,001 - Rs.25,000	Above Rs.25,000	
Below 5 years	8 (38.10)	21(38.2)	16(26.7)	25(39.7)	52(51.5)	**122(40.7)**
5-10 years	7 (33.3)	14(25.5)	30(50.0)	21(33.3)	31(30.7)	**103(34.3)**
Above 10 years	2 (9.5)	5(9.1)	4(6.7)	9(14.3)	7(6.9)	**27(9.0)**
No intention	4 (19.0)	15(27.3)	10(16.7)	8(12.7)	11(10.9)	**48(16.0)**
Total	**21 (7.0)**	**55(18.3)**	**60(20.0)**	**63(21.0)**	**101(33.7)**	**300(100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Table 15: Relationship Between the Brand and the Maintenance Cost Among the Respondents

Maintenance Cost	Brand						Total
	Hyundai	Maruti	Fiat	Tata	Hindustan Motors	Others	
Upto Rs.5000	16 (38.1)	46 (42.6)	3 (13.6)	12 (24.5)	6 (13.6)	4 (11.4)	**87 (29.0)**
Rs. 5000-10000	18 (42.9)	45 (41.7)	13 (59.1)	18 (36.7)	19 (43.2)	14 (40.0)	**127 (42.3)**
Rs. 10001-15000	6 (14.3)	11 (10.2)	5 (22.7)	14 (28.6)	10 (22.7)	13 (37.1)	**59 (19.7)**
Above Rs.15000	2 (4.8)	6 (5.6)	1 (4.5)	5 (10.2)	9 (20.5)	4 (11.4)	**27 (9.0)**
Total	**42 (14.0)**	**108 (36.0)**	**22 (7.3)**	**49 (16.3)**	**44 (14.7)**	**35 (11.7)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

The hypothesis framed in this study is that there is no difference between the brand and the maintenance cost. This hypothesis is tested by applying chi-square test. The chi-square test result is shown in the above table. From the table, it is clearly established that there is a strong association between the brand and the maintenance cost. It is derived by comparing the calculated chi-square value of 42.160 with the table value of 30.578 for 15 degrees of freedom. Since the calculated value is higher than

the table value, the null hypothesis is rejected at 1% level of significance. It can be interpreted that Maruti brand tops first with lowest maintenance cost and Hindustan Motors occupies the first position with highest maintenance cost.

Brand and Opinion on Resale Value

According to this study, out of 300 respondents majority of 40.7% respondents change their cars within 5 years of usage. In order to test the relationship between the brand and opinion on resale value, the following hypothesis has been framed:

Null hypothesis (H_0): There is no significant association between the brand and the opinion on resale value among the respondents.

The above table indicates that the table value is 18.307, which is more than the calculated value of 8.475 for 10 degrees of freedom. So the null hypothesis is accepted at 5% level of significance. Hence it is concluded that there is no significant relationship between the brand and the opinion about resale value among the respondents. As per the results, majority of 6.1% of Tata Brand owners have expressed their opinion that the resale value is very good and 45.5% of Fiat Brand owners have opined that the resale value is very poor.

In the factor 'Driving Comfort' the obtained mean was found to be 3.55. It indicates that most of the respondents have given their responses in the category of 'Moderate influence' and 'More influence'. The factors of fuel economy, availability of spare parts, price, pick up, attractive model, road grip, brand image, internal space, after sales service and maintenance cost with their obtained mean values indicate that most of them have favoured for 'Moderate influence'. The obtained mean values of 2.9933, 2.9100 and 2.4100 for the factors status symbol, latest technology and resale value, which are close to the scale value of 'Moderate influence' indicating that these factors moderately influenced the respondents in their purchase decision.

Existing and Switch Over Brand

In order to find out the relationship between the existing brand and future brand the following hypothesis has been framed.

Null hypothesis (H_0): There is no significant relationship between the existing brand and switch over brand.

Since the calculated value of chi-square is more than the table value for 30 degrees of freedom at 5% level of significance, the above stated null hypothesis is rejected. Hence it is concluded that most of the respondents prefer to change their existing brand in their future purchase. It is inferred from the table 18 that 21.3% of the Maruti Car owners will switch over to Hyundai, 37.5% of the Hyundai Car owners will switch over to other brands like Skoda, Honda, Ford

Table 16: Relationship Between the Brand and the Opinion on Resale Value Among the Respondents

Opinionon Resale Value	Brand						Total
	Hyundai	Maruti	Fiat	Tata	Hindustan Motors	Others	
Very Good	2 (4.8)	5 (4.6)	1 (4.5)	3 (6.1)	1 (2.3)	1 (2.9)	**13 (4.3)**
Moderate	32 (76.2)	73 (67.6)	11 (50.0)	37 (75.5)	30 (68.2)	26 (74.3)	**209 (69.7)**
Very Poor	8 (19.0)	30 (27.8)	10 (45.5)	9 (18.4)	13 (29.5)	8 (22.9)	**78 (26.0)**
Total	**42 (14.0)**	**108 (36.0)**	**22 (7.3)**	**49 (16.3)**	**44 (14.7)**	**35 (11.7)**	**300 (100)**

Source: Primary Data

(Figures in parentheses represent Percentages)

Table 17: Average Ratings for the Influencing Factors

Sl. No.	Factors	Mean	Standard Deviation	Median	Rank
1.	Driving Comfort	3.5500	1.1247	4.0000	1
2.	Fuel Economy	3.3667	1.0275	3.0000	2
3.	Availability of Spare Parts	3.3167	1.1078	3.0000	3
4.	Price	3.3067	1.0816	3.0000	4
5.	Pick Up	3.3033	0.9562	3.0000	5
6.	Attractive Model	3.2867	1.2767	3.0000	6
7.	Road Grip	3.2733	1.0076	3.0000	7
8.	Brand Image	3.1733	1.2227	3.0000	8
9.	Internal Space	3.1033	1.1476	3.0000	9
10.	After Sales Service	3.0533	1.0492	3.0000	10
11.	Maintenance Cost	3.0333	1.0144	3.0000	11
12.	Status Symbol	2.9933	1.3111	3.0000	12
13.	Latest Technology	2.9100	1.2572	3.0000	13
14.	Resale Value	2.4100	1.0920	2.0000	14

Source: Primary Data

Table 18: Relationship Between the Existing Brand and Switch Over Brand

Switch Over Brand	Existing brand												Total	
	Hyundai		Maruti Udyog		Fiat		Tata		Hindustan Motors		Others			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
GM	5	15.6	10	13.3	3	14.3	6	15.4	4	10.8	4	12.9	**32**	**13.6**
Hyundai	-	-	16	21.3	5	23.8	4	10.3	6	16.2	4	12.9	**35**	**14.9**
Maruti	6	18.8	1	1.3	7	33.3	-	-	2	5.4	3	9.7	**19**	**8.1**
Tata	4	12.5	15	20.0	2	9.5	-	-	5	13.5	3	9.7	**29**	**12.3**
Toyota	5	15.6	15	20.0	1	4.8	18	46.2	8	21.6	4	12.9	**51**	**21.7**
Not Decided	-	-	6	8.0	1	4.8	6	15.4	5	13.5	6	19.4	**24**	**10.2**
Others	12	37.5	12	16.0	2	9.5	5	12.8	7	18.9	7	22.6	**45**	**19.1**
Total	**32**	**100.0**	**75**	**100.0**	**21**	**100.0**	**39**	**100.0**	**37**	**100.0**	**31**	**100.0**	**235**	**100.0**

Source: Primary Data

etc., 33.3% of the Fiat Car owners will switch over to Maruti brand, 46.2% of Tata Car owners will switch over to Toyota brand and 21.6% of Hindustan Motors Car owners will switch over to Toyota for their future purchase of car. It is concluded that most of the respondents (21.7%) will switch over to Toyota for their future purchase.

Suggestions

1. To ensure that a product finds a place in the minds of consumers, the manufacturers should position their products through sales promotional activities such as advertisement through the media.
2. Indian youth/consumers are very strongly influenced by testimonials of sports personalities, film stars and celebrities. For positioning the consumer durables like cars, the manufacturers can utilize the endorsement of these celebrities.
3. They should confirm whether or not the perception sought to be created by them has really been created or not. They should have a research and development department devoted to marketing that conducts periodical surveys about their products.
4. Majority of the respondents reported that they formed their expectations through the statements made by friends and relatives and therefore it would be beneficial if the extent of the influence of such groups is studied. It may be found through closely studying the social interactions of the consumers.
5. Experts believe that the main driver of the Indian car market is the availability of car finance on easy installments and reasonable interest rates. Most of the respondents also reported that due to the easy availability of finance they buy cars. So the car dealers should have tie-up arrangements with the authorized financial institutions to boost sales.
6. The demand for the small car segment is increasing because of the growing number of the nuclear families as well as the parking problems. Hence the manufacturers should find out the needs, wants, tastes and preferences of the consumers in order to design the products.
7. The respondents perceive that driving comfort and fuel economy are the most important features of the passenger car followed by the availability of spare parts and the price of the car, and so the manufacturers should design the product giving maximum weightage to these factors.
8. A large component of the cost of a passenger car is taxes such as excise duties, central and state sales taxes which push up the ex-factory price of a car by around 50%. The governments, both the central and the state should come forward to reduce these tax levels to enhance the demand for cars in the country.
9. The study reveals that the middle class population is rising to 13 per cent of the total population. Hence the brand image and brand loyalty could be boosted by selling quality cars at a reasonable price to suit the needs of the middle income group.
10. India is witnessing significant changes in the economic and social status of women. Many women are now getting educated and they pose challenge in employments which were once reserved for men. According to the observations made, it is stated by most of the female respondents that the automobile manufacturers should study the behaviour of women and should produce a car exclusively for women as the two wheeler manufacturers are doing.
11. Car owners feel that the hospitality shown by the dealers is more during their visits to the places of dealers before and immediately after the purchase. But after some time they face a problem with their dealers regarding after sales service. Therefore, it is suggested that the services rendered or to be rendered should be properly explained, friendly approach and reliability in service are to be further improved.
12. Most of the respondents expressed that they have technical problems in their existing car and some of them opined that they switch over to another brand because they would like to buy a new technology car. Hence the government should announce a National Award for the automobile companies which adopt Research and Development measures so that Indian cars can really become world class quality.
13. In view of large availability of natural gas, government may consider the possibility of incentives for the use of CNG in the passenger cars. Such use would reduce petrol consumption

and also save foreign exchange.

14. With the competition for space, cars with compact bodies which occupy lesser parking space could be given priority. The government can promote car parking lots either on its own or as a joint venture with the private sector in the major cities as in the foreign countries.

15. Due to steady increase of petrol / diesel prices, the fuel efficiency needs to be improved. Constant improvement and technical up gradation for better fuel efficiency alone will attract more customers.

16. The advantages of cost, convenience, ease of filling, driving range, low emissions and safety have made Auto LPG popular worldwide. The Government of India should take steps to establish a number of Auto LPG pumps in all the urban and the rural areas which are now available only in Chennai and Erode in Tamil Nadu.

Conclusion

Consumer Behaviour consists of all human behaviour that goes in making purchase decisions. An understanding of the consumer behaviour enables a marketer to take marketing decisions which are compatible with its consumer needs. There are four major classes of consumer behaviour determinants and expectations, namely, cultural, socio-economic, personal and psychological. The socio-economic determinants of consumer behaviour consist of age, marital status, occupation, education, income, family size and the like. Realizing the importance of the passenger car industry in the present economic situation, the researcher has analyzed the perceptions, and behaviour of the consumers related to this product. It is rightly said yesterday's luxuries are today's necessities. Hence in this digital world, car is no longer a luxury.

From the discussions made in the previous chapters, there are certain product attributes which are identified in the study as influencing the purchase decision and satisfying the consumers. Manufacturers should concentrate on these features as they may be the choice of few more prospective buyers. The growth in the population of India and the increasing number of middle class consumers has attracted the attention of the car manufacturers and the marketers. The manufacturers and the marketers who study the behaviour of consumers and cater to their needs will be successful. It may be concluded that the consumer behaviour has a greater role to play in the LPG era of economic activities for which a necessary survey and research should be conducted in an efficient manner.

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A Study on Deflated Average Cost of Products of Durgapur Steel Plant to Find Out the Optimum State of Operation

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Abstract: *The present work aims at examining the effects of turnaround strategy undertaken in Durgapur Steel Plant during 2001-02. For this purpose four important products have been selected for each of which average cost of production, deflated by whole sale price index number to neutralize the effect of price change, has been studied over years (1994-95 to 2007-08). Keeping in mind the theoretical form of the cost curve, quadratic trend equation has been fitted to arrive at the ideal point of operation. For all the four cases we have observed a nearly similar trend. The points of minima of the deflated cost curve for all these cases are also nearly comparable.*

Key Words: *Cost optimization, average cost, deflated average cost and turnaround strategy*

Introduction

Focus of attention of the developed world had been steel industry for more than a century. This focus now shifted to the developing nations. In the west it is referred as "sunset" industry. For the east "the sun is still rising" and for the rest "it is only a dawn".

Obviously, the steel industry is an important industry for India. The country is potentially ready to face the challenges that confront this industry in this age of globalization. It is considered to be a good location to serve growing markets for steel in the Far East. In India the cost of transportation of steel from India is quite low, mainly for the east facing countries. Hence, the government will probably continue to seek ways to boost its profitability. The National Vision of transforming India into a developed economy by 2020 through reform, restructuring and globalisation, was announced in 2005 National Steel Policy of India. The NSP provides with a broad roadmap that predict a strong and dynamic steel industry to serve as an infrastructural base in India. The policy clarify the targeted value of production, consumption, export, import and others which should be achieved by steel industry within 2020. Investment wise, there is a positive attitude of the government. But more attention is needed to overcome the problem. But the performance of the public sector enterprises is not satisfactory.

According to World Steel Association, the Steel Authority of India Limited (SAIL) is the leading steelmaking company in India. It is a fully integrated iron and steelmaker, producing both basic and special steels for domestic construction, engineering, power, railway, automotive and defense industries and for sale in export markets. This company is strongly competing in the world market for the last 56 years. The company launched its battle of survival and

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hinges its hopes on by improving the performance of Durgapur Steel Plant (DSP). For cost cutting techniques DSP modernized its plant in the year 1995. Then in 2007-08 they launched Bloom Cluster and other technologies. For cutting cost, optimization technique is also very popular.

Cost optimization, which focuses on customer value rather than just on cost reduction, has emerged as a viable alternative. It is not a one - time effort but a focused effort that brings about sustainable cost benefits. Kurt Potter (30th March 2009, Gartner Research, Key issues for cost optimization) says that "cost optimization aims to reduce the baseline cost of the business while maintaining acceptable service levels". It must be done in such a way that it does not undermine the organization's efforts to capitalize on future growth opportunity.

Cost optimization helps to

- Allocate scarce goods or efforts with best suited technology in best time to and in the best place to.
- Evaluate the effect of policy instrument(i.e. taxes, subsidies)
- Calculate for each factor input, the cost of an extra unit of reduction, i.e. Marginal Cost (MC)
- Help to understand the interaction between different factors related technologies.

In this paper, we have selected four products produced by DSP for thirteen years 1994-95 to 2007-08. Then we try to analyse the situation where the average cost curve gets minimizes.

Related Works

T.-R. Lin (2002) in his paper used an optimization technique based on the Taguchi method with multiple performance characteristics for face milling stainless steel. He has study, not only the multiple performance characteristics improvement, but also the optimal cutting parameters and the weighting factor that significantly affect the multiple performance characteristics. Mitra, Mazumdar and Ghosal (2003) in their article have suggested a two-step strategy for survival in the initial stage and growth strategy in the latter stage. Banerjee (2004a) identified reasons for India's slower rate of growth of steel consumption as compared to China. Banerjee (2004b) in another study has pointed out the optimism in global steel is based on a higher assessment of global output, particularly brighter GDP prospects in USA, EU and some of the Asian steel producing countries. Goutam Dutta & Robert Fourer (2001) in their study they surveyed different mathematical programming techniques applied in steel industry as early as 1958 and many application of optimization in steel production.

Related to the types for cost optimization some literatures are as follows:

National Steel-Planning Models

Tsao and Day (1971) develop a process analysis model of production by comparing the linear programming model's solution with available industry statistics for each year from 1955–1968. Later Nelson (1971) reported that the above model had an error in the treatment of coking coal production. He presented a correlated matrix for this stage of production.

Product-Mix Optimization Models

The work of Fabian (1967) is a cost-minimization linear programming model in an integrated steel plant. The model has a master model connected to four sub-models: iron making model, steel making model, shop loading for rolling operations model and finishing operations model. A single-cost model was constructed by Lawrence and Flowerdew (1963) containing input and output variables, cost of variables and operations, relationships between and restrictions on the variables, technical relationships, and flow restrictions. A simplex tableau was then constructed for a simplified model to compute the optimal solution. An Linear programming model of cost-minimization with all the technological and financial constraints was proposed by Bandyopadhyay (1969) that allocates different capacities between two processes for production planning, namely the basic oxygen furnace and the open hearth furnace. The model can also predict the required operation level of blast furnaces and lime-burning plants at different levels of total steel production. Bielfield et al. (1986) had developed a linear programming with multiple objectives model for a set of accounting matrices for budget planning. Dutta, Sinha and Roy (1990), Dutta et al. (1994), and Sinha et al. (1995) deal with the development and implementation of a mathematical model for optimal allocation of electrical energy in a plant of Tata Steel. Although a number of studies (Hunneault and

Galiana 1991, McCutcheon 1988) have reported the optimal use of power plants, such studies have addressed the issue with a cost-minimization modeling approach for power-generating and distributing plants. Others have studied the most profitable use of an integrated steel plant (Fabian 1958, Bielfield Walter and Wartman 1986, Baker et al. 1987) where the problem has been addressed as a cost-minimization or profit-maximization linear programming model. Sharma and Sinha (1991) describe an optimization model for determining the optimal product mix for the integrated steel plants of SAIL. Some planned applications of the model are also discussed.

Blending Models

The blending of different ores or input charge materials in the blast furnace of a steel plant is known as a ''blast furnace burdening problem.'' The results obtained from Fabian (1967) enable a producer to determine: Blending of least-cost raw materials, optimal furnace scheduling, long-term production planning, optimal raw materials inventory levels, optimal purchasing policies, optimal maintenance planning. Metzger and Schwarzreck (1961) described an application of linear programming for the determination of least-cost cupola charging in an iron foundry. Their paper gives a numerical example with actual data, describes the evolution of the solution, discusses the difficulties overcome in developing the final version of the model, and summarizes cost savings. Beale, Coen and Flowerdew (1965) proposed a model in which the variables were usages, in a given time period, of ore and other materials, output of pig iron, and levels of certain factors that depend on the of mix of materials. Representing each nonlinear function of a single variable as a piece wise linear approximation based on a finite number of points, the problem can be solved by a slightly modified linear programming procedure. Westerberg, Bjorklund and Hultman (1977) proposed a traditional blending model in a stainless steel company. With the help of linear programming model cost was minimized with given constraints like: weight restrictions and metallurgical composition restrictions. The implementation of the model has decreased the cost of raw material by 5%, which was equivalent to $200,000 per year. In a Romanian steel plant, Muteanu and Rado (1960) solve a blending problem that deals with the raw material loading of an iron-smelting furnace in such a way as to obtain an optimal production plan at minimum net cost of pig iron, taking into account definite prescribed production.

Proposed Work

There are several techniques in mathematics to optimize the objective of a decision making problem. Since we are dealing with nondeterministic set up in this paper we have selected a statistical model to optimize the average cost of production. For an empirical study, we have selected four products produced by DSP. The products we have selected are Angle, TMT Bar Fe 415, TMT Bar Fe 500 and Bloom. The above products are selected because they continue their production in the chosen period of our study as well as they are very important products of DSP. The period covered is from 1994-95 to 2007-08. However, during this period cost structure has under gone huge changes. To rid off the effect of price change on cost curve, we propose to deflate the average cost(s) of the product(s) by the wholesale price index numbers (WPI). Deflated Average Cost curve (DAC) is supposed to be U-Shaped as suggested in the theory. So, we have chosen a quadratic model for describing DAC. This curve will help us to get the optimum point of operation. The proposed quadratic equation is:

$$C_{(t)} = \alpha t^2 + \beta t + \gamma + \varepsilon_t$$

where α, β, γ are the parameters of the model, t represents time variable, ε_t is the error term and $C_{(t)}$ represents DAC with respect to time. With the help of SPSS, statistical software, we have analyzed the data. We got the estimated values of α, β, γ, which are to be denoted by $\hat{\alpha}$, $\hat{\beta}$, $\hat{\gamma}$. Then, by hypothesis testing we have examined the goodness of fit of the quadratic equation to DAC over time. H_o, the null hypothesis, indicates the quadratic curve is not a good fit against the alternative hypothesis H_a, that the same is a good fit. Using F statistic we have carried out the above test and drawn conclusion according to the significance of the tail probability. In case the fit is a good one, we have determined the point of minima of the DAC with respect to time. For optimization we have differentiated the DAC function with respect to time (t). The necessary condition for optimizations is given by $\frac{dDAC}{dt} = 0$. If t_0 is the solution of $\frac{dAC}{dt} = 0$, then we need to verify whether the

sufficient condition $\frac{d^2\ DAC}{dt^2} > 0$ at t_0 holds or not. In case the sufficient condition is satisfied, t_0 is viewed as the point of minima of the DAC.

Emperical Study

ANGEL

We shall start from the data set available from the time series data of production, average cost (AC) of Angel in Table 1. From this table we have derived a new set of data, where we have deflated the average cost because the cost of production gone through sea changes during the last thirteen years. Table 2 presents additional two columns - wholesale price index numbers (WPI) and deflated average cost (DAC) of Angel for the period 1994-95 to 2007-08.

We can observe the DAC of Angel in DSP for the said period and can have a rough idea regarding its trend. The average cost started rising from 1994-95 and this rising trend continuous upto 1998. The year 1998-99, we can observe a maximum point. Thereafter it is sharing a decreasing trend with a slight rise in 2002-03. It had a point of minimum in the year2005-06. We have plotted the same against time.

Table 1: Average cost of Angle

Year	Production	AC
1994-95	34914	11481
1995-96	23786	13397
1996-97	36274	14815
1997-98	35483	17051
1998-99	22631	18063
1999-00	16846	16520
2000-01	12034	15425
2001-02	21359	15050
2002-03	19317	15793
2003-04	21267	15521
2004-05	50048	18843
2005-06	46023	19460
2006-07	45950	20427
2007-08	49426	22570

Source: Financial Year Book Published by DSP

Table 2: Deflated Average cost of Angle

Year	Production	AC	WPI	DAC
1994-95	34914	11481	100	114.81
1995-96	23786	13397	121.8	109.9918
1996-97	36274	14815	130.2	113.7865
1997-98	35483	17051	137.7	123.8272
1998-99	22631	18063	136.9	131.943
1999-00	16846	16520	137.2	120.4082
2000-01	12034	15425	142.5	108.2456
2001-02	21359	15050	146	103.0822
2002-03	19317	15793	148.9	106.0645
2003-04	21267	15521	184.8	83.9881
2004-05	50048	18843	253.7	74.27276
2005-06	46023	19460	285	68.2807
2006-07	45950	20427	280.8	72.74573
2007-08	49426	22570	297	75.99327

Source: Central Statistical Organization for WPI value

To objectively examine the nature of the curve let us first fit the quadratic curve to $C_{An1\ (t)}$ which is DAC of Angel against time for the period 1994-95 to 2000-01. From visual examination, we can see that DAC value of the year 1994-95 is slightly higher than next period. So, we are not taking that year into consideration and considering 2001-02 in addition. By fitting the quadratic curve to DAC of Angel against time for the period 1995-96 to 2001-02, we obtain the following relationship:

$$C_{An1(t)} = -2.3(t)^2 + 17.32(t) + 93.06 + \varepsilon_t \qquad (1)$$

where $C_{An1(t)}$ is the DAC of Angel for the year 1995-06 to 2001-02, t is the time variable and $\mathbf{å}_t$ is the error term. The corresponding analysis of variance table provides with the value of F ratio as 9.45 for which the upper tail probability is .03, which is less than .05, the level of significance. Thus, the proposed quadratic curve is a good fit to the given data. The DAC is concave in nature as the coefficient of t^2 is negative. This implies that there is a point of maxima. From the table, that maxima point lies between 1997-98 to1998-99. In those years the efficiency was at the lowest point.

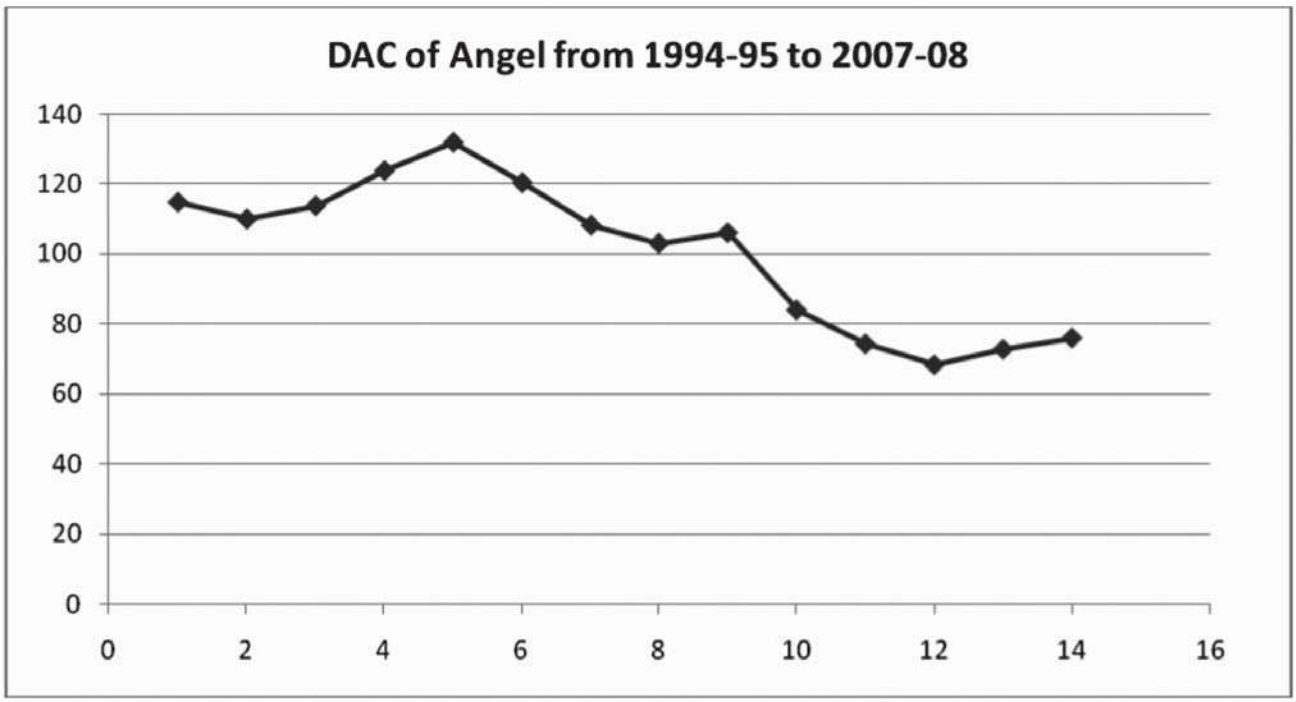

Figure 1: DAC of Angel from 1994-95 to 2007-08

So, let us fit a quadratic curve to DAC of Angle for the time for the subsequent period i.e. from 2001-02 to 2007-08

$$C_{An2(t)} = 1.68(t)^2 - 19.32(t) + 127.07 + \varepsilon_t \qquad (2)$$

where $C_{An2(t)}$ is the DAC of Angle for the period 2001-02 to 2007-08, t is the time variable and $å_t$ is the error term. The corresponding analysis of variance table provides with F ratio as 12.75 for which the upper tail probability is .02, which is less than .05, level of significance, thus the proposed quadratic curve is a good fit to the given data. We can therefore conclude that this part of the DAC is convex in nature because coefficient of t^2 is positive. This implies that there is be a point of minima. For minimization of DAC the necessary condition applied is $\frac{dC_{An2(t)}}{dt} = 0$ and for verification of the sufficient condition at the same point of solution we need to verify whether $\frac{d^2C_{An2(t)}}{dt^2} > 0$. Therefore, differentiating $C_{An2(t)}$ with respect to time, we get the value of t is 5.75 for which sufficient condition holds the same. The point of minima is in the years 2005-06 when the efficiency was at the highest point. Putting the value of t in equation (2) we get, the value of $C_{An2(t)}$ as 71.53.

General Implication

We can conclude that DAC of Angel product in DSP was initially increasing and there after decreasing. It reached the point of minima in the year 2005-06. Again it started increasing thereafter. This conclusion drawn from trend analysis matches with the fact that during period 1991-92 to 2000-01 there was drop in efficiency in the production system and overall management activity. DSP adopted turnaround strategy in the year 2001 which is getting reflected in the DAC of Angel product, in the later period.

TMT BAR FE 415

Starting from the data series, we have selected the years, production, AC of TMT Bar Fe 415 and is given in Table 3. In Table 4 we have added two extra columns - WPI and DAC of TMT Bar Fe 415

We can note the DAC of TMT Bar Fe 415 in DSP for the period 1994-95 to 2007-08 from Table 4. From 1994-95 the curve was decreasing. It had a minimum point in the year 1996-97. From 1997 it started rising and had a maximum point in the year 1998-99. Thereafter it is again showing a decreasing trend. Now, let us plot the same in a graph.

Table 3: Average cost of TMT Bar Fe 415

Year	Production	AC
1994-95	119499	10723
1995-96	130025	11307
1996-97	137515	12019
1997-98	162178	13080
1998-99	143878	13962
1999-00	157441	12793
2000-01	192245	11767
2001-02	185838	11456
2002-03	230041	12037
2003-04	224458	12095
2004-05	213967	15169
2005-06	221818	15908
2006-07	205242	16527
2007-08	25377	18257

Source: Financial Year Book Published by DSP

Table 4: Deflated Average cost of TMT Bar Fe 415

Year	Production	AC	WPI	DAC
1994-95	119499	10723	100	107.23
1995-96	130025	11307	116.5	97.05579
1996-97	137515	12019	124.1	96.84932
1997-98	162178	13080	126.4	103.481
1998-99	143878	13962	122.3	114.1619
1999-00	157441	12793	124.7	102.5902
2000-01	192245	11767	128.6	91.50078
2001-02	185838	11456	131.6	87.05167
2002-03	230041	12037	136.2	88.37739
2003-04	224458	12095	159.8	75.68836
2004-05	213967	15169	205	73.99512
2005-06	221818	15908	205.4	77.44888
2006-07	205242	16527	209.1	79.03874
2007-08	25377	18257	249.7	73.11574

Source: Central Statistical Organization for WPI value

From visual analysis we have decided to fit the quadratic curve to DAC TMT Bar Fe 415 against time for the period 1998-99 to 2007-08. We have obtained the following relationship:

$$C_{T1(t)} = .68(t)^2 - 11.42(t) + 123.06 + \varepsilon_t \quad (3)$$

where $C_{T1(t)}$ is the DAC of TMT Bar Fe 415 during the period 1998-99 to 2007-08, t is the time variable

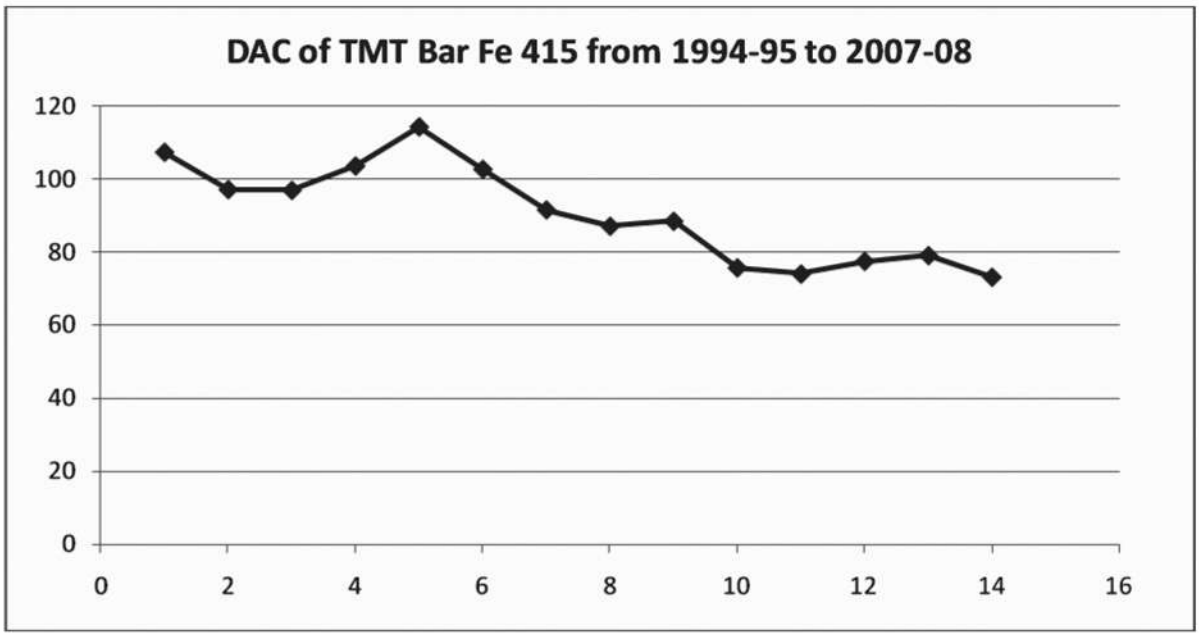

Figure 2: DAC of TMT Bar Fe415 from 1994-95 to 2007-08

and ε_t is the error term. The corresponding analysis of variance table provides with the value of F ratio as 56.82 for which the upper tail probability is .00, which is less than .05, the level of significance. Thus, the proposed quadratic curve is a good fit to the given data. We can therefore conclude that this part of the DAC is convex in nature as the coefficient of t^2 is positive. This implies that there will be a point of minima. By differentiating $C_{T1(t)}$ with respect to time, we get the point of minima i.e. the value of t as 8.4, for which the sufficient condition holds. In the year 2005-06 there lies the point of minima. Putting the value of t in equation (3) we get the value of $C_{T1(t)}$ as 72.29.

General implication

DSP has the distinction of being the first plant in the country to roll out extra high strength thermo mechanically treated (TMT) bar. DSP has initiated branding of TMT bars. We can conclude that the DAC of TMT Bar Fe 415 product in DSP was convex to the origin from 1998-99. The curve reached its point of minima in the year 2005-06**.** It again starts increasing from that point. Before 2000 there was inefficiency in management. They adopted turnaround strategy in the period 2001 resulting in increase in efficiency. The product was covered by ISO: 9002 quality assurance certification. This fact is getting reflected in the AC curve of TMT BAR FE 415 product, specially for the later period.

TMT BAR FE 500

In Table 5, we have presented year wise production, AC of TMT BAR Fe 500. Table 6 presents additional two columns - WPI and DAC of TMT BAR Fe 500.

We observe the DAC of TMT Bar Fe 500 for DSP from the period 1994-95 to 2007-08. The data was fluctuating over the years. From 1994-95 the curve was decreasing. It had a minimum point in the year 1996-97. From then again it started increasing and had a maximum point in the year 1998-99. From that point the trend was negative. Now, let us plot the same in a graph.

Let us divide the years into two parts, one from 1994-95 to 2001-02. We reject 1994-95 because from visual analysis of the data set we can say that DAC of that year an outlier. The other data set is from 1998-99 to 2007-08.

Table 5: Average cost of TMT Bar Fe 500

Year	Production	AC
1994-95	28209	10803
1995-96	39871	11628
1996-97	48450	12624
1997-98	44574	13463
1998-99	63187	14374
1999-00	65289	13096
2000-01	61037	12026
2001-02	88007	11629
2002-03	61746	12253
2003-04	76707	12263
2004-05	99441	15264
2005-06	90192	16076
2006-07	120837	16697
2007-08	296917	18447

Source: Financial Year Book Published by DSP

Table 6: Deflated Average cost of TMT Bar Fe 500

Year	Production	AC	WPI	DAC
1994-95	28209	10803	100	108.03
1995-96	39871	11628	116.5	99.81116
1996-97	48450	12624	124.1	101.7244
1997-98	44574	13463	126.4	106.5111
1998-99	63187	14374	122.3	117.5307
1999-00	65289	13096	124.7	105.02
2000-01	61037	12026	128.6	93.51477
2001-02	88007	11629	131.6	88.36626
2002-03	61746	12253	136.2	89.96329
2003-04	76707	12263	159.8	76.73967
2004-05	99441	15264	205	74.45854
2005-06	90192	16076	205.4	78.2668
2006-07	120837	16697	209.1	79.85175
2007-08	296917	18447	249.7	73.87665

Source: Central Statistical Organization for WPI value

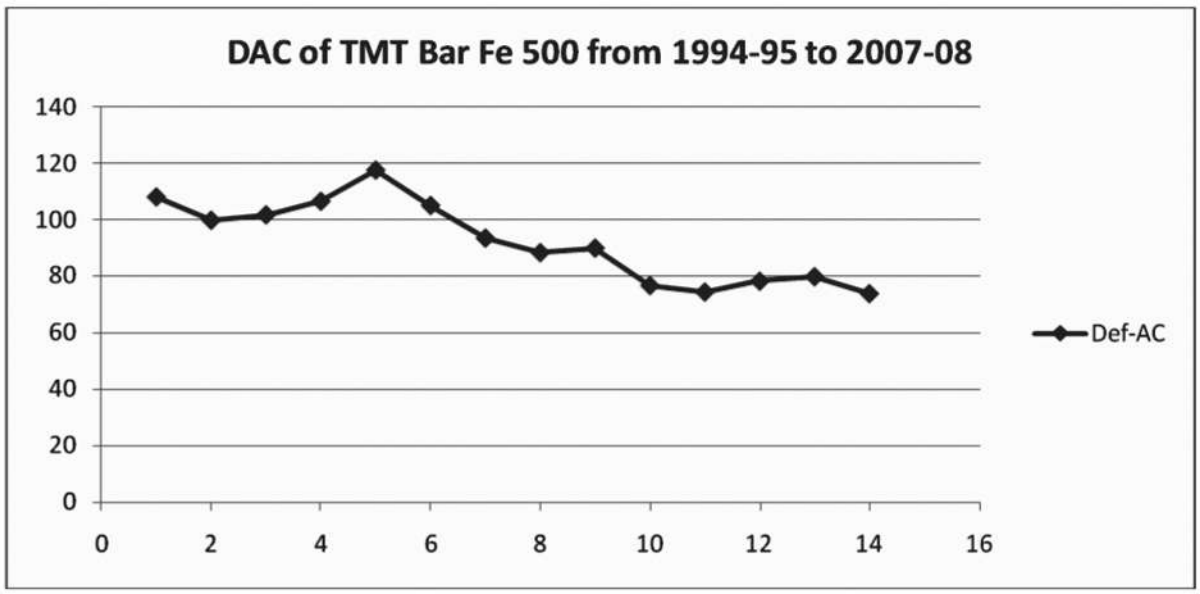

Figure 3: DAC of TMT Bar Fe 500 from 1994-95 to 2007-08

Let us fit one quadratic curve to DAC TMT Bar Fe 500 against time for the period 1995-96 to 2001-02. We obtain the following relationship:

$$C_{TB1(t)} = -1.95\ (t)^2 + 13.74(t) + 85.84 + \varepsilon_t \qquad (4)$$

where $C_{TB1(t)}$ is the DAC of TMT Bar Fe 500 during the period 1995-96 to 2001-02, t is the time variable, and ε_t is the error term. The corresponding analysis of variance table provides with F ratio as 7.18 for which the upper tail probability is .05, which is equal to5% level of significance. Thus, the proposed quadratic curve is a good fit to the given data. We can therefore conclude that DAC is concave as the coefficient of t^2 is negative. This implies that there is a point of maxima. According to graph that point of maxima lies between the years 1997-98 and 1998-99.

To objectively examine the nature of the curve, let us fit the quadratic curve to DAC of TMT Bar Fe 500 against time for the period 1998-99 to 2007-08, we obtain the following relationship:

$$C_{TB2(t)} = .72(t)^2 - 12.21(t) + 127.03 + \varepsilon_t \qquad (5)$$

where $C_{TB2(t)}$ is the DAC of TMT Bar Fe 500 during the period 1998-99 to 2007-08, t is the time variable and ε_t is the error term. The corresponding analysis of variance table provides with F ratio as 59.49 for which the upper tail probability is .00, which is less than .05, level of significance. Thus, the proposed quadratic curve is a good fit to the given data. We can conclude that as the coefficient of t^2 is positive, there is a point of minima. By differentiating $C_{TB2(t)}$ with respect to time, we get the point of minima i.e. the value of t is 8.48. From the graph itself it can be noted that in the year 2005-06 the DAC minimizes. Putting the value of t in equation (5) we get, the value of $C_{TB2(t)}$ is 75.35.

General implication

The DAC started declining indicating the positive impact of the technological change. It reached its point of minima in the year 2005-06. However, over the years some other forces might have acted upon the same reducing thereby the operational efficiency. This may happen due to fatigue that followed after initial hard work.

BLOOM

In Table 7, we have described the year-wise production and AC of Bloom. Table 8 is the derived table from Table 7 where two columns are added- WPI and DAC of Bloom.

From Table 8, it appears that the average cost figures from 1994-95 to 2007-08 follows a decreasing trend. Now, let us plot the same in a graph. From the graph it can be observed that, from 1994-95 the trend was negative. It reached the point of minima

Table 7: Average cost of Bloom

Year	Production	AC
1994-95	712104	9416
1995-96	609015	10597
1996-97	619834	11848
1997-98	636986	13478
1998-99	669791	13600
1999-00	663435	12918
2000-01	619154	12234
2001-02	591520	12205
2002-03	607729	12672
2003-04	612237	12481
2004-05	637079	15768
2005-06	632759	16038
2006-07	610298	16745
2007-08	398690	19122

Source: Financial Year Book Published by DSP

Table 8: Deflated Average cost of Bloom

Year	Production	AC	WPI	DAC
1994-95	712104	9416	100	94.16
1995-96	609015	10597	126.6	83.70
1996-97	619834	11848	137.2	86.36
1997-98	636986	13478	149	90.46
1998-99	669791	13600	151.4	89.83
1999-00	663435	12918	150.1	86.06
2000-01	619154	12234	151	81.02
2001-02	591520	12205	151.6	80.51
2002-03	607729	12672	159	79.70
2003-04	612237	12481	202.9	61.51
2004-05	637079	15768	267.4	58.97
2005-06	632759	16038	300	53.46
2006-07	610298	16745	299.4	55.93
2007-08	398690	19122	324.4	58.95

Source: Central Statistical Organization for WPI value

in the year 1995-96. Then again started rising onwards and reached the point of maxima in the year 1998-99. From that point again the trend was negative and reached the minimum point in the year 2005-06. The later part of the curve had a positive trend.

Let us divide the years into two parts, one from 1994-95 to 2000-01and another from 2001-02 to 2007-08. Let us fit one quadratic curve to DAC of Bloom against time for the period 1995-96 to 2000-01. We obtain the following relationship:

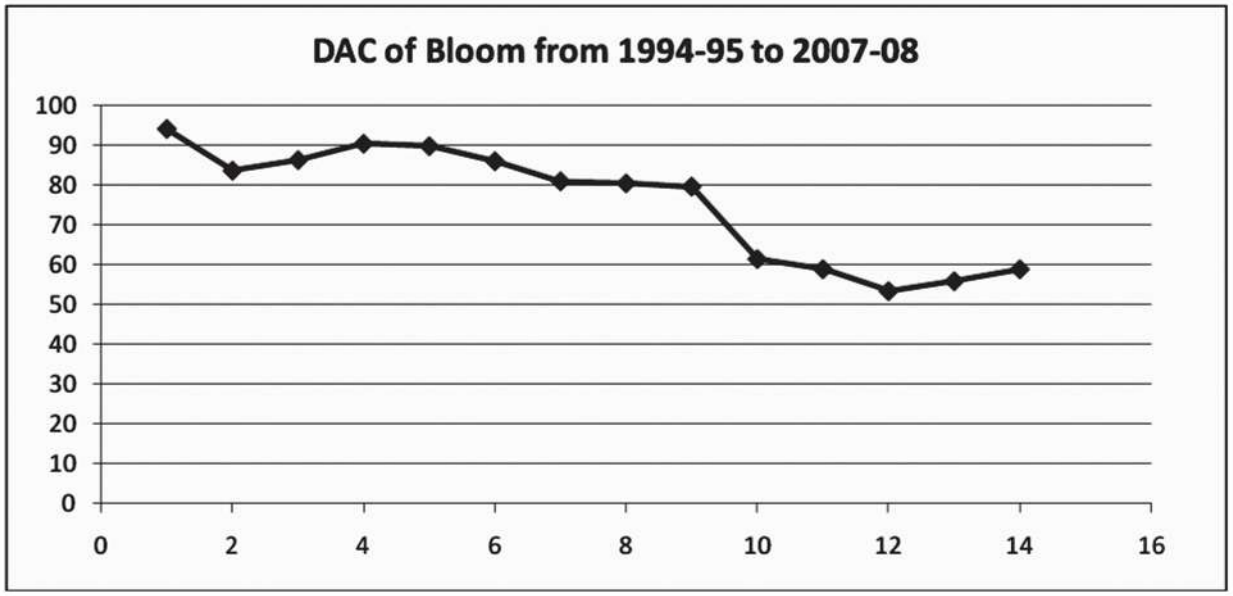

Figure 4: DAC of Bloom from 1994-95 to 2007-08

$$C_{B1(t)} = -1.25(t)^2 + 8.32(t) + 76.08 + \varepsilon_t, \quad (6)$$

where, $C_{B1(t)}$ is the deflated average cost of Bloom, t is the time variable and ε_t is the error term. The corresponding analysis of variance table provides with F ratio as 31.04 for which the upper tail probability is .0099, which is less than .05, level of significance. Thus, the proposed quadratic curve is a good fit to the given data. We can therefore conclude that DAC is concave and the coefficient of t^2 is negative and thus it is inverted U-shaped in nature. This implies that there is a point of maxima. That point of maxima is 1994-95 according to Figure 4. Then from that point it starts declining.

To objectively examine the nature of the curve, let us fit the quadratic curve to DAC of Bloom against time for the period 2001-02 to 2007-08. We obtain the following relationship:

$$C_{B2(t)} = 1.387(t)^2 - 15.389(t) + 97.97 + \varepsilon_t, \quad (7)$$

where $C_{B2(t)}$ is the DAC of Bloom during the period 2001-02 to 2007-08, t is the time variable and ε_t is the error term. The corresponding analysis of variance table provides with F ratio as 18.355 for which the upper tail probability is .00097, which is less than .05, level of significance. Thus, the proposed quadratic curve is a good fit to the given data. We can therefore conclude that this part of the DAC is convex due to the coefficient of t^2 is positive and it is U-shaped in nature. This implies that there will be a point of minima. By differentiating $C_{B2(t)}$ with respect to time, we get the point of minima i.e. the value of t is 5.6. From the graph itself it can be noted that in the year 2005-06 the DAC minimizes. Putting the value of t in equation (7) we get, the value of $C_{B2(t)}$ is 55.28.

General implication

DSP has configured the logistics and improved the converter availability. Use of multi–tapered mould, improvement in withdrawal system, addition of 125 meter billets and installation of electro-magnetic stirrer (EMS) were some of the initiatives that lifted the performance of CCP. These helped DSP to maximize crude steel production through cost effective continuous casting route in the year 2002. This affected the DAC curve, as the curve reached the minimum point in the year 2005-06.

5. Conclusion

We can conclude that DACs of four product's (Angel, TMT Bar Fe 415, TMT Bar Fe 500 and Bloom) touched the point of minima in between the year 2005-06 and 2006-07. One major reason for such an observation is the implementation of turnaround strategy in DSP in the year 2001. The internal factors responsible for the turnaround of DSP are changes in the mindset of people, better understanding of the competition, well defined strategies, supported by action plans and intensive communication. All these have resulted in collective ownership, improvement its product-mix from including of more value-added products, increase in production volume, technological improvement, increasing cost consciousness amongst the employees, minimization of inventory and better techno-economics leading to lower cost of production. DSP's finance team charted out a strategy that pivoted around three main areas. They are repaying liabilities or debts having interest implications, pro-actively facilitating supplies/ contractual jobs by availing best financial packages in current market scenario, and adopting dynamic pricing to achieve maximum benefits from plant's sales. Other than these, the external factors responsible for turnaround of DSP are boom in the steel market, changing of customer's perception, rise in steel consumption in the country and good market in Northern and Eastern region. This has been instrumental in achieving good results. But, after the year 2006-07 the DAC started increasing due to many factors. One such factor is formation of new wage board where the wage got increased and which increased the DAC. But after 2007-08 it again started decreasing due to implementation of new bloom caster which maximized the crude steel production through cost effective continuous casting route.

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CRITICAL SUCCESS FACTORS OF TQM IN AUTO COMPONENT INDUSTRY

Lakshmi Jagannathan*

Abstract: *The global marketplace and domestic and international competition have made organizations around the world realize that their survival depends on high quality. Quality management (TQM) has spread its wings in every sphere of the global corporate world and Indian companies are no exception. Research results claim that TQM has a positive effect on financial performance, Samson and Terziovski (1999) Reed et.al (2000), Allen and Kilmann (2001). Post-globalization, top Indian firms especially in the manufacturing sector, started adopting strategies to not only be competitive globally but also reduce their defect rates dramatically. The impact of this quality drive was also on the auto component industry due to the influx of global auto players such as Ford, Hyundai and Chrysler. Implementation of TQM tools and techniques became imperative for auto component players to become part of the global value chain. Quality Assurance certification such as QS 9000 and TS 16949, which were automotive industry specific were adopted so that it could enable them to supply to the original equipment manufacturers (OEMs) and the Tier 1 suppliers. This research paper focuses on the factors that are critical for TQM implementation among QS9000 / TS 16949 certified companies.*

Introduction

The automotive industry boom started towards the middle of last decade, with global vehicle production rising by nearly 7 million units between 1990 and 1997, much of this growth concentrated in the developing countries. Today, the size of the global auto component industry is approximately $1trillion and is expected to touch $2.3 trillion in 2010.The Indian automotive industry has also witnessed rapid growth in recent years, with a cumulative Average Growth Rate (CAGR) of 14 %. The Indian auto component industry also has had a phenomenal growth of 19% (CAGR) owing to the derived demand for the automotive industry , rapidly growing replacement market and influx of global OEMs into the Indian market. The Indian auto component manufacturers had to gear up to deliver to the requirements of the auto manufacturers.

Quality is one of the important critical success factors to achieve competitiveness in organizations (Khanna et al., 2003). One of the major reasons for the dismal performance of the Indian automobile sector in world markets was the lack of effective quality management systems (Khanna et al., 2002). The success of the Japanese automobile industry in the late eighties is owed largely to the adoption of quality improvement methodologies, including TQM. Since then, TQM has played a major role in transforming manufacturing and service organizations world over and Indian companies have followed suit.

Automotive companies start off their quality journey with a quality assurance system such as QS 9000 or TS 16949. QS 9000 is the automotive standard developed by the global auto giants DaimlerChrysler, Ford and General Motors. ISO / TS 16949 harmonized

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different automotive standards around the world, including QS 9000 and it is based on the elements in ISO 9000. The basic objective and focus of the QS 9000 standard is system analysis, continuous improvement, production part approval process, failure mode and effect analysis and use of cross functional teams.

Critical Success Factors of TQM

Critical Success Factors (CSFs) of TQM are latent variables, which cannot be measured directly (Ahire et al., 1996) .The idea of identifying CSFs as a basis for determining the information needs of managers was popularised by Rockart (1979).

The background for this study has been previous survey-based TQM studies by various researchers. A number of studies have been done by many researchers on identifying TQM critical success factors across a myriad of industries. Saraph et al. (1989) developed measures of each critical factor and overall organizational quality management. There is a strong relationship between quality improvement approach and performance quality, as well as operating and financial performance (Anderson et al. (1994).

Empirical validation of TQM Critical Success Factors

After reviewing the above quoted literature on TQM critical success factors and brainstorming with quality experts in the auto industry, ten critical success factors were identified for the auto component industry. The critical success factors that were chosen to be validated for this study on TQM in auto component industry wereTop Management Leadership & Commitment, Strategic Planning, Quality Measurement, Benchmarking, Training, HR Focus, Process Management, Supplier Quality Management, Customer Focus and Product Design.

The critical success factors of TQM for auto component manufacturing companies was empirically validated by collecting data and subjecting it to statistical analysis. The primary objective of this study was to validate the critical success factors of TQM in auto component industry and to sort them in their order of importance. The data and analysis for this study was pertaining to only QS 9000 / TS 16949 certified auto component manufacturing companies.

Research Design

This study on TQM implementation in Indian auto component industries was focused on auto component manufacturing companies in and around Chennai, Tamilnadu. Chennai was chosen as the area of study as it contributes to 35 per cent of India's auto component production.

The research instrument was a structured questionnaire with all the identified 10 critical success factors as constructs. In order to identify the sampling frame, a list of QS 9000 / TS 16949 certified in and around Chennai was obtained from quality certifications bodies BVQI, DNV and TUV. Totally there were 383 companies certified. After deliberations with TQM experts in the industry, it was decided that companies with more than one year of certification should only be chosen for the study as they would be able to assess any impact of the quality certification on TQM in their organizations. The population size was thus reduced to 295. Primary data were collected from the quality managers and executives of QS 9000 / TS 16949 certified auto Component-manufacturing companies in Chennai.

Questionnaires were sent out to the 295 QS 9000/ TS 16949 companies and 153 replies returned, a rate of about 40%. 18 were rejected as data was incomplete and could not be processed .Fieldwork basically refers to data collection period; primary data collection was started on 1st of January 2009 and ended on 15th May 2009.

Reliability & Validity

With regard to this study, the instrument proposed was based on an intensive review made form literature regarding total quality management. The instrument is therefore able to elicit elements and factors relating to the auto component sector. Moreover, interview was conducted with quality experts and practitioners to verify its content. Also from the results of the pilot survey, it is strongly believed that the factors in the instrument have content validity as it is well received.

Validity of an instrument is defined to which any instrument measures what it is intended to measure (Joseph et al , 1999). There are three popular methods to evaluate the validity of scales. These are content validity, criterion-related validity, and construct validity (Joseph et al, 1999). The face and

content validity of the instrument used in this study have been assesses by group of experts namely academicians, TQM practitioners and quality management consultants who gave their expert opinion prior to the study. In order to establish discriminant validity, there must be absence of correlation between scales that measure unrelated constructs (De Vellis, 1991). The construct of top management commitment and leadership was chosen for this purpose and the result of bi-variate correlation between them reveal no correlation between the two, which indicates that the divergent validity is established. Criterion validity was proved using the variable of strategic planning. Multiple regression was done to test if the criterion of strategic planning is predicted using sources of data.

Internal consistency is measured by calculating a statistic known as Cronbach's coefficient alpha (Nunnally, 1967; Cronbach, 1951). In this study, almost all the values of alpha are above 0.7 and it shows that the data is reliable.

Analysis and Discussion

Since the critical success factors for the study have been identified prior to the study, the study only tests the fact that a relationship exists between the observed and the latent variables. As TQM is at an advanced stage of research and in view of increasing acceptance of the CFA approach in both marketing and organizational behavior literatures, the present work chose to adopt the factor analysis in a confirmatory fashion.

In order to check for the goodness of the overall model fit, the following hypothesis has been formulated:

H1 : TQM is a 10 dimension structure consisting of the above identified 10 dimensions.

Unidimensionality Analysis

A measurement model was designed for each construct and confirmatory factor analysis was performed for all the constructs. Individual items in the model were investigated to see how closely they represented the same construct (Ahire et al., 1996). A comparative fir index (CFI) of 0.90 or above implied that there is no proof of lack of unidimensionality (Byrne, 1994). The CFI for all the constructs present in the developed instrument is shown in table I. All the CFI indices are above 0.90, denotes strong unidimensionality for the scales.

Table I: Summary of Confirmatory Factor Analysis*

Sl. No.	Variable	Number[a] of Items	Cronbach alpha a[b]	Comparative Fit Index (CFI)[c]	Bonnet Fit Index (BFI)[d]
1	Top Management	11	0.956	0.967	0.756
2	Strategic Planning	3	0.972	0.984	0.972
3	Quality Measurement	16	0.822	0.935	0.722
4	Benchmarking	4	0.888	0.904	0.888
5	Training	4	0.960	0.963	0.960
6	HR Focus	8	0.944	0.957	0.944
7	Process Management	11	0.880	0.887	0.780
8	Supplier Quality Management	9	0.883	0.890	0.883
9	Customer Focus	8	0.852	0.957	0.852
10	Product Design	11	0.865	0.874	0.865

* EQS software was used to conduct the confirmatory factor analysis
a – number of items in the research instrument to measure the construct.
b – CFI value of 0.90 and above testifies strong scale unidimensionality
c – a value of 0.70 and above testifies strong scale reliability
d- A Bonnet Fit Index (BFI) Value of 0.90 and above testifies strong fit among constructs.

To sum up, all the 10 dimensions have exhibited strong unidimensionality, reliability and validity. The collected CFI and the BFI for the overall model have also found to meet the minimum requirement. Therefore hypothesis H1 is accepted implying that TQM can be conceptualized as a 10 dimension structure of the above identified 10 constructs.

In order to understand how the importance of the critical success factors were perceived among the auto component manufacturers, the descriptive mean and standard deviation of the mean and were analysed as shown in table II.

Table II: Descriptive – Mean and Standard Deviation
Sample Size (N=135)

Sl. No.	Variables	Mean	Standard Deviation
1	Top Management Leadership & Commitment	3.73	0.27
2	Strategic Planning	2.71	0.47
3	Quality Measurement	3.52	0.19
4	Benchmarking	3.12	0.34
5	Training	3.53	0.25
6	HR Focus	3.83	0.21
7	Process Management	4.10	0.23
8	Supplier Quality Management	4.14	0.18
9	Customer Focus	3.98	0.23
10	Product Design	4.01	0.20

The most important critical success factor for TQM implementation in QS 9000 / TS 16949 certified auto component manufacturers is Supplier Quality Management , where as the least important is strategic planning. Also it can be inferred from table I, that though Supplier Quality Management was perceived as the most important critical success factor, it was closely followed by Process Management and Product Design. This finding is in line with eth QS 9000 standard which emphasizes more on supplier relationship and development.

This characteristic forces organisations to transform their cultures towards total quality management (TQM) (Tom Bramorkski et al (2000). The manufacturers no longer compete based entirely on their own strengths. OEM manufacturers competed based on the strengths of the value chain including themselves and their suppliers.

Conclusion

Auto component manufacturing companies who have started off their quality journey with QS 9000 certification certainly see an improved level of TQM activities in their organisation. Specifically supplier management, product design and process control are of greater importance in certified companies. The purpose of QS 9000 is to encourage automotive manufacturers and suppliers to build quality systems that focus on continuous improvement of processes and thereby product. Companies should integrate quality initiatives into their business strategy and this should be reflected in their entire supply chain. They should encourage use of teams to resolve quality issues, focus on preventive instead of reactive measures and reward / recognize employees for their efforts. QS 9000 is a technical standard and has an impact on the deliverables such as quality and delivery PPMs (parts per million). To make the quality initiative more holistic, companies can integrate an Excellence model such as the Malcolm Baldridge Award Criteria in to the strategic planning process. This comprehensive approach to business will prove to be a better indicator of long term business success.

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A Study of the Impact of Knowledge Management on Organizational Performance

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Abstract: *Knowledge management (KM) and organizational performance are believed to be essential of the success in business. The different results in literatures which declare Knowledge Management (KM) affects organizational performance positively. Information is becoming ever more important in our economy now, and most business take that knowledge can confer competitive advantage. But most business has been flooded with information, and most of us have more of it than we can handle. Knowledge management (KM) tries to resolve the troublesome paradox for us (Anthes, 1998). In Darroch (2005) research, the results support some KM process positively affects performance. The knowledge – intensive sectors are selected because of having large amount of knowledge input, short product life cycles, high demand for customized products, and great quantity of production value (Liao et al. 2007). Thus, the results of surveys involving Indore knowledge intensive firms provide a rich data set of information regarding Knowledge Management behaviors in unstable business environments. With effective and efficient KM process, most companies claims it will be helpful to organizational performance. Accordingly, KM is taken for granted an important antecedent of organization performance or innovation. The present study is based on a sample of Indore knowledge intensive firms engaged in manufacturing sectors, data are collected using a structured questionnaire.*

Keywords: *Knowledge Management, Organizational performance, Competitive advantage*

Introduction

According to the resource – based view (RBV), firms gain and sustain competitive advantage by deploying valuable resources (Barney, 1991; Grant, 1996). Undoubtedly, resources accumulation is crucial in influencing business success. However, the straightforward application of RBV in predicting firm success is too simplistic. In Knowledge economy, KM is an important element as well as land, labor, and entrepreneurship. Knowledge management capabilities (i.e., knowledge acquisition, knowledge conversion, and knowledge application) are rooted in the operation of a firm and are derived from configurations of organizational structure and culture (Grant 1996; Moorman 1995). Knowledge management (KM) and organizational performance are essential of the success in business. The different results in literature which declare KM affects organizational performance positively. In Darroch (2005) research, the results support some KM process positively affects performance. As Tippins and

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Ravipreet (2003) has mentioned the relationship between IT competency and firm performance is mediated by organizational learning.

The Knowledge – intensive sectors are selected because of having large amount of knowledge input, short product life cycles, high demand for customized products, and great quantity of production value (Liao et al., 2007). Thus, the results of surveys involving Indore knowledge – intensive firms provide a rich data set of information regarding KM behaviors in unstable business environments. The resource and the knowledge based views of the firm have prompted strategy researches to focus on value creation, as opposed to value appropriation (Conner and Prahalad, 1996; Kogut and Zander, 1996; Nahapiet and Ghosal, 1998). By highlighting the important links of knowledge management, trust and organizational performance in manufacturing firms, this research will contribute a further convergence between the domains of knowledge management and entrepreneurship research. Knowledge lies in human minds and exists only if there is a human mind to do the knowing (Widen-Wulff and Suomi,2007). Knowledge can be created by intentional and resource- consuming efforts (Du et al, 2007). The neglect of tacit Knowledge, based on people and ideas, has undoubtedly reduced the corporate market place's capability for true innovation and sustainable competitiveness (Gamble and Blackwell, 2001). According to Alavi and Leidner (2001), knowledge management is largely regarded as a process involving various activities and a minimum of four basic processes must exist –creating, storing/ retrieving, transferring and applying knowledge. Knowledge management is about managing the knowledge that an individual possesses.

Review of Literature

Dimensions of Knowledge Management

In a commercial environment, knowledge must be put to work in three primary areas; customer needs, concern processes and body of knowledge (Gamble and Blackwell, 2000). Every member of an organization must understand how his or her work contributes to fulfilling customer needs and how the products and services of the enterprise provide the customer value. The members of the organization must understand how his or her work relates to the work of others. The last part of the process is the flow of the knowledge that, to varying degrees, every person must understand something about the subject matter with which members of the organization deal. This requires a deeper knowledge of relationships and meanings, both within the enterprise and the outside world. Therefore a business idea is considered successful when it delivers value and profit. Knowledge must be continuously flowing in the organization. As long as there is stock of knowledge, during any period of time, a flow of knowledge should take place (Stewart, 2000). Making knowledge available to others and capturing new knowledge as well has been described by Nonaka (1991) as the spiral of knowledge. Nonaka and Takeuchi (1995) examine the concept in terms of a knowledge spiral encompassing four basic patterns of interaction between tacit and explicit knowledge: socialization, externalization, combination and internalization. The flow of knowledge from an individual to another resulted in collective effort in completing their projects, enhances organizational performance. This knowledge spiral consists of knowledge acquisition, conversion, application, storage, dissemination and protection. The manufacturing firms have two challenges in managing their knowledge: the changing nature of knowledge and information services required by their clients and the changing nature of knowledge and information required to satisfy their knowledge employees (Taylor et al, 2001). Knowledge intensive firms that depends on knowledge capital consider knowledge management to be core capability for achieving competitive advantage (chard, 1997; Pasternack and viscio, 1998).

Gold, Malhotra, and Segars (2001) examine that the issue of effective knowledge management from the perspective of organizational capabilities. This perspective suggests that a knowledge infrastructure consisting of technology, structure, and culture along with a knowledge process architecture of acquisition, conversion, application, and protection are essential organizational capabilities or 'preconditions' for effective knowledge management. The results provide a basis for understanding the competitive predisposition of a firm as it enters a program of knowledge management.

Trust and Organizational performance

From a traditional perspective, organizational performance is commonly referred to as financial performance where considerations of budgets, assets, operations, products, services, markets and human resources are crucial in influencing the over -all

bottom-line of an organization (Dixon, 1999; Thurbin, 1994 ; Smith, 1999).As, such, the financial benefits of organizational performance are often associated with organizational success (Thurbin,1994).However, the notion of performance embraces a far wider dimension of interpretations. With the focus on organizational learning, the performance outcomes associated with it need to be more carefully dealt with. The importance of performance measurement system is manifold. Not only does it demonstrate how an organization does, how well it does it and how much progress it makes over time in archiving its goals, most importantly, it helps to manage organizational change (Yeo, 2003). Hence, qualitative measures are more appropriate in investigating these key objectives that dominate and direct decision – making and action – taking levels (Thurbin 1994; Herges, 1998).

In Darroch (2005) research, she uses comparative and internally reflective performance measures, for example" Compared with the industry average, our company is more profitable" and internally reflective performance measures, for example, "We are more profitable than we were five years ago". These performance measures capture both financial measures and non- financial measures (e.g. market share and sale growth).

However, similar to any organizational resource, effective knowledge management through the development of capabilities should contribute to key aspects of organizational performance (Andrew 2001), Also, when firms develop greater knowledge management capabilities, they can more effectively develop marketing offerings to meet customer needs (Hunt 2000). With greater knowledge management capabilities, firms can obtain and use knowledge more effectively and efficiently, which results in above-normal performance.

Levin and Cross (2004) discovered that trust has a strong moderating effect in the relationship of tie strength and knowledge usage. Without trust, the tie strength would be weak ties to knowledge usage. Developing trust among employees is crucial in ensuring organizational knowledge development, which is crucial for continuous innovation (Chowdhury, 2005).

- Trust must be visible. The members of the organization must see people get credit for knowledge sharing. There is a direct evidence of trust.
- Trust must be ubiquitous. The internal knowledge market must be trustworthy or else the market will be less efficient.
- Trustworthiness must start at the top. Trust tends to flow downward through organizations. Trust value in the organization is identified through signals, signs and symbols. (Davenport and Prusak 1998).

Objectives of the Study

- To evaluate the effects of Knowledge Management on organizational performance.
- To determine the role of Trust in facilitating the Knowledge Management.
- Knowledge management positively affects organizational performance.
- To explore the ability of organization to acquire, converse and apply their knowledge.
- To create a competitive advantage through Knowledge Management.

Research Methodology

Hypothesis

H_1: Knowledge management positively affects organizational performance.

$H_{2:}$ Trust affects Knowledge Management Positively.

Method

The aim of this study is to evaluate the effects of knowledge management on organizational performance. Knowledge management was measured using items from Gold et al (2003), Chang et al (2005), Darroch (2004) and Egbu et al (2005). Trust was measured using items from Yli- Renko et al (2001), Nahapiet and Ghosal (1998) and Lee and Choi (2003). Organizational performance was measured using items from Gold et al (2003) and Cameron and Quinn (1999). All items were measured on a seven point Likert-type scale where 1 = strongly disagree and 7 = strongly agree. The sample was drawn from manufacturing firms in Indore. A total of 200 questionnaires were distributed. Only 132 questionnaires were useable indicating a 66% response rate, which is considered an effective response rate.

Measures

We define knowledge management as the process of knowledge acquisition, knowledge conversion, and knowledge application. Knowledge acquisition is defined as the process to seek and acquire new knowledge, or create new knowledge out of existing knowledge through collaboration between individuals and business partners. Knowledge conversion is defined as the ability to make knowledge useful. Knowledge application is defined as the process oriented toward the use of knowledge. We adapted the scale for knowledge management from Gold, Malhotra, and Segars (2001)

Result and Discussion

The result reveals strong correlations in all knowledge management factors and organizational performance. The correlation data is shown in Table 1. It has been found that the Knowledge management process capability of knowledge acquisition, conversion, application, protection has a strong magnitude towards each other.

Hypothesis H1 examines the effects of knowledge management on organizational performance. There is a positive relationship between knowledge management and organizational performance. The proposed model is significant (F = 71.469; p<0.00); it explains 64% of variance in organizational performance. The knowledge acquisition, dissemination and protection are found to be essential for organizational performance, especially knowledge dissemination, which has a significant positive influence on organizational performance (β= 0.428, t value = 4.801, p<0.00). The strong relationship between knowledge management and organizational performance is supported by Gold et al (2001), Lee and Sukoco (2007) and Lee and Choi (2003). This finding is also supported by Darroch (2005) who found that knowledge acquisition, knowledge application and responsiveness to knowledge positively affect firm performance and innovation. Therefore H1 is supported.

Table 1: Correlation of Knowledge Management Dimensions and Organizational Performance

		Organizational Performance
Pearson Correlation	Knowledge Conversion	0.574
	Knowledge Acquisition	0.675
	Knowledge Strong	0.697
	Knowledge Application	0.650
	Knowledge Protection	0.681
	Knowledge Dissemination	0.742

Table 2: Relationship between Trust, Organizational Performance and Trust

H_1: KM and Organizational Performance	F = 71.469	P<0.00
H_2: KM and Trust	F = 70.643	P<0.00

Hypothesis H2 investigates the role of trust as our moderating variable; regression analysis showed that with trust, the model is significant as a whole (F =70.643; p<0.00); it explains 68% of variance in organizational performance, which is better than the first model. Therefore, trust improves the relationship of knowledge management and organizational performance. Hence, the H2 hypothesis, that trust improves the relationship of organizational performance is supported.

Relationship between knowledge management and organizational performance: Knowledge management is positively related to organizational performance, meaning that business with more knowledge management show higher capability in enhancing organizational performance.

When knowledge is considered an asset for individuals, trust plays a major role in knowledge management activities. " The greater the level of trust with in a company, the greater the likelihood of cooperation. And cooperation itself breeds trusts"(Putnam, 1993, p.171).According to De Tienne et al (2004), transformation of knowledge occurs when individuals communicate and interact in order to synthesize their individual knowledge, then distribution occurs when agreed- upon knowledge

and competencies are used repeatedly and subsequently embodied in the organization's norms and values or culture. Finally integration occurs when the organization successfully captures external knowledge and successfully integrates it with internal knowledge (De Tienne, 2004). According to Snowden (2000) trust is the most critical prerequisite for knowledge exchange. This is supported by Davenport and Prusak (1998) who posit that without trust, Knowledge initiates will fail, regardless of how thoroughly they are supported by technology or rhetoric. For a knowledge market to operate in an organization, trust must be established in the following three ways:

Conclusion

The Positive relationship between knowledge application, knowledge dissemination and knowledge protection is supported by the findings of Gold et al (2003), on large manufacturing firms with sales profits. This result is also supported by Darroch (2004) who found a positive relationship between knowledge management and organizational performance, particularly knowledge dissemination. Knowledge management requires a major shift and commitment of every one in the organization in adopting each factor of knowledge management to make it work (Gupta et al, 2000). Working together as a team on various projects develops a good culture and commitment among, manufacturers which encourages knowledge application and dissemination. Knowledge is a stock of expertise (Baunmard, 2002), therefore, it needs to be disseminated in the organization to make it valuable for the organization. Trust is important in network relationships for firms to create and disseminate knowledge (Gold et al, 2001). In this study, trust moderates the effect of knowledge management flow with in an organization (Yli- Renko et al, 2007). This is definitely true in manufacturing firms where all knowledge and information is considered confidential and classified. Trust makes the knowledge management process more efficient (Hoffman et al, 2005). This study has given some insights into knowledge management practice in manufacturing firms, especially in Indore. The positive outcome of this study shows that owners realize the importance of knowledge management and this will definitely create a new opportunity for manufacturing firms to develop their own knowledge management system in order to be competitive in the long run.

For managers, firstly, since KM is an important antecedent, organizations should implement KM thoroughly. In practices, KM implementation almost means the construction KM system. This study suggests that knowledge management implementation is the ability of organization to acquire, converse, and apply their knowledge. After all, system implementation won't equal to the ability to implement. So, managers should consider does one firm set up systems only? Or does one firm have the capability to set up and exercise it well?

Limitations of the Study

Utilizing a cross sectional design with questionnaires is also one of the limitations of this study. A future research strategy that may overcome this limitation is one that involves longitudinal studies in which flow of knowledge and performance can be followed over time. In addition, using objective measures, archival data for some variables, such as organizational performance, may give results that are more objective.

In addition to the nature of data, the generalizability of sampling is another limitation of this study. The study conducts in a specific national context. It is important to note that readers should be cautious when generalizing the results to different cultural contexts. Further, the sample size is relatively small, requiring the increased sample size.

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A Field Study on Opportunities and Challenges Faced by Organized Retailers in Tri-City

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Abstract: *Retailing involves understanding customers, their needs and expectations. Satisfying customer's expectations while maintaining wafer-thin margins is heroic task for most of the retailers. Indian retail is still in the infancy stage, with the retail revolution and there are a number of challenge factors which need to be overcome and a number of opportunity factors which need to be leveraged upon, if organized retailing is to flourish the way it ideally should*

According to Knight Frank research report, Tri-city is an emerging market for organised retail. Good connectivity at domestic and global level, lower operational cost and easy availability of skilled labor, higher disposable incomes and lavish lifestyle has put organised retail on an upswing in the region .However; with little scope left for further development within the region, skyrocketing property prices and diluted peripheral control act place on the outskirts, there are numerous challenges in the development or organised retail.

This field study is done for identifying the opportunities and challenges faced by organized retailers in the tri-city (Chandigarh – Panchkula – Mohali) region. It was found that organized retailers see competition from the unorganized sector as their biggest challenge, followed by competition between organized retailers and the inefficiency of distribution channels, internal logistical problem and retail shrinkage, while unorganized retailers see organized retailing as their major challenge, followed by cost of operation, logistical problem, competition between other kirana retailers and inefficient distribution channels. It was also found that organized retailers see growing middle class as their greatest opportunity followed by large number of earning youth customers. The tri- city region has people from all over India, proportionate increase in spending with earnings and India's booming economy. Thus, the study found that the major challenges as well as opportunities of organized and unorganized retail are almost the same. This means that mitigating the challenges and leveraging on the opportunities could benefit both sectors.

Introduction

With retail realty players looking to tap the potentials of tier II and III cities in India by coming up with new commercial and retail properties. A survey conducted by global management consultancy AT Kearney, has identified 50 Indian cities which have the potential of being a part of organised retail boom.

- Maturing– Delhi, NCR, Mumbai belong in this and these markets are seeing saturation. However there is a demand for large one-stop malls with retail, entertainment, food and hospitality, along

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with hypermarkets.

- Transitional– Cities such as Bengaluru, Kolkata, Hyderabad, Pune and Chennai. Large corporate sector, high level of economic activity, above-average income and large middle-class make them ideal.
- High-Growth– The boom is now moving to destinations such as Chandigarh, Mohali, Jaipur, Ludhiana, Lucknow, Kochi, Surat and Vadodara.
- Emerging– Tourist oriented cities with infrastructure for IT companies such as Nagpur, Indore, Nasik, Bhubaneshwar, Vizag, Coimbatore, Mangalore, Mysore, Thiruvananthapuram, Amritsar, Agra and Goa.
- Nascent– These offer the first-mover advantage as the income levels and corporate activities are limited. The cities are Patna, Bhopal, Meerut, Asansol, Varanasi, Kolhapur and Sonepat[1].

The Tri-city region is amongst the high-growth and emerging market for organised retail. Chandigarh is the capital of the two most prosperous states Punjab & Haryana, India designed by French architect Le Corbusier. With high quality of life and high disposable income this area along with adjoining areas in Punjab (Mohali) & Haryana(Panchkula). Collectively this region is called Chandigarh tri-city region lot of projects are coming up in retail and real estate sectors[2].

Organized retail real estate across Tri-city

The organized retail real estate scenario across tri-city is as follows:

Chandigarh

Chandigarh is a sate capital of two states- Punjab and Haryana.The government offices mainly dominate the property market in the city. It has a well developed market. It primarily houses all the government offices of both Punjab and Haryana. Apart from government offices, the city has branches of all banks, fashion stores, eating joints and many more. Chandigarh, the City is Beautiful and is the emerging destination in India for the Knowledge Industry or ITES / BPO companies. With its population of 9, 00,000 and location the confluence point of three prosperous states of Northern India, it boost of a large qualified pool of workforce. It stands first in the country in terms of Human Development Index and Literacy rate of 82 percent. A strong presence of research and educational institutes, a number of engineering colleges and universities offers attractive catchments for retail business.

The main commercial areas sectors are 8, 9 and 34. Other sectors that have commercial spaces are sector 22, 35 and Manimajra. The study shows that the major occupancy levels are in sector 22 and 35, the reason being the well – developed retail in these markets. In case of Chandigarh, the average commercial space price range from Rs 5000-15,000 per sq. ft.

Mohali

Mohali can be termed as the planned extension of Chandigarh and residents of this town are used to shopping from Chandigarh markets. The shops here are mixed with private offices and banks while space designated for offices at upper floor of SCOs(shop cum commercial office) are largely vacant. The main markets of Mohali have been developed at sector markets and are located on straight road from sector 58 to 65.

The main markets are in sector 65, 64.63.62, 61, 60 and 59. PUDA is developing the sector 70 market to attract the residents for shopping. Mohali has grabbed the attention of major national and international level developers. They have started occupying land parcels in the area for development of there projects, Quark City is developing in a 51 acre special economic zone (SEZ) in the Mohali Industrial area. This will accommodate retail space along with large commercial and residential space.

The Government of Punjab has given the green signal to a few projects under the mega project policy for the development of shopping and multiplex arenas. Developers like DLF, Unitech, TDI, MGF, Janta Prtomotors, Renaissance and Country Colonizers have acquired large land parcels for various developments in Mohali.

[1]AT Kearney 2000
[2]Report on "Chandigarh, Mohali & Panchkula Tricity region projects"

Panchkula

Panchkula houses major government offices. Apart from that there are branches of various banks. The prime real estate developments in sector 7 and 11 commercial spaces in sector 7 market shows the good signs of demand as compared to markets in other sectors.

Since Panchkula is still not a commercial destination, the rentals of spaces here are not very lucrative. The capital value of these spaces varies from Rs 1,000- 6,000 per sq-ft. almost all the retail space in different markets is occupied by both local and branded retailers. This has made the spaces dearer and rates showing upward trend.

Manimajra is also a major commercial area, which is a notified area of Chandigarh. Abutting sector 7 of Panchkula, this is a major region for shopping and entertainment. This market also offer[3] discount formats shops like Factory outlets of brands like Nike and Woodlands. The lone mall-cum-multiplex of the region, the Fun Republic, is located in Manimajra[4].

Literature review

- Forecasting demand is one of the main challenges for organized retailers. Retailers face several challenges when it comes to forecasting like scale of the problem (large number of stores and items to forecast), Intermittent demand (slow and erratic sales for many items at the store level), Instability of assortments (frequent new-item introductions and seasonal assortment changes), pricing and promotional activity. Available studies abroad consistently show out-of-stock rates to be higher for promoted items (Corsten & Gruen, 2003; Taylor & Fawcett, 2001), and the differences between promoted and non-promoted items in most cases are substantial. Out-of-stock items mean dead-time, money and energy, but more importantly, stock-outs contribute to consumers switching to other brands or retail stores to fulfill their demands. Consumers facing out-of-stocks behave in a variety of ways - including switching the brand or changing the shopping location.
- Internal logistical problems pose another major challenge for organized retail. In some cases, the manufacturer directly supplies the products at the sales outlets. But in some cases where such an arrangement is not possible, internal logistics takes care of these operations. Here, the goods are supplied by the product manufacturer to one main nodal zone warehouse from where the company employs its own transportation facility or that of a goods transportation contractor to get the goods to the sales outlets. In such a case, the transportation cost is an additional overhead. Also, developing such a system by the company could prove very costly. Contracting the work to a contractor is an easy way out, but then again, the quality of contractors and their dedication is another question which needs to be taken care of.
- Ever-increasing customer demand also poses a major challenge to organized retail. Globalization has brought about a change in the Indian consumerism psyche with the consumer becoming more aware of his/her value of money strength and their economic purchasing power becoming more evident than in the previous generations. The concept of product quality and service delivery which were earlier not very engraved in the consumer psyche are now very much demanded and delivered for in the new age format of organized product retailing in the Indian consumer goods market. People increasingly want more and more for less.
- Another challenge is that of cost of operation. Organized retailers in India cannot concentrate on their core competency alone like in many developed countries. They will need to manage everything from supply chain, logistics, selling, sourcing, stocking, merchandizing, trend analyzing etc. Players in the organized sector have big expenses to meet, and yet have to keep prices low enough to be able to compete with the traditional sector. This is a very huge challenge. High costs for the organized sector arises from: higher labour costs, social security to employees, high quality real estate, rentals, security, maintenance, much bigger premises, comfort facilities such as air-conditioning, back-up power supply, higher electricity tariffs, taxes etc. Organized retailing also has to cope with the middle class psychology that the bigger and

[3]Notified area at Chandigarh
[4]Global Real estate consultant Trammel Crow Meghraj

brighter a sale outlet is, the more expensive it will be.

- Competition from unorganized sector is another challenge facing the organized retail industry in India is competition from the unorganized sector. Traditional retailing has established in India for some centuries. It is a low cost structure, mostly owner-operated, has negligible real estate and labor costs and little or no taxes to pay. Consumer familiarity that runs from generation to generation is one big advantage for the traditional retailing sector. In addition to that, the unorganized sector has transformed itself with the advent of organized retailing. It has become more customers friendly by offering credit, home deliveries, etc. It adds a personal touch to shopping that organized retailers may find impossible to emulate.
- Another challenge is that of losses due to lack of infrastructure (roads, traffic, airport, railways, ports, and so on). Infrastructure in retail refers to proper pliable roads, airports and railway stations capable of handling large consignments on a daily basis, proper warehouses, cold storage systems, roads with less traffic, proper connectivity etc. The infrastructure for easy transportation of goods is not adequate in the country. Also, the fall in agricultural output continues to cast on FMCG sector's prospects in the short term. Right now, there is a tremendous amount of wastage and value loss of agricultural products due to lack of storage, refrigeration, transportation and processing facilities.
- Another challenge is that of understanding customers (in terms of customer behavior and loyalty). A number of factors play a part in influencing the loyalty and the commitment of customers, such as quality and value of core offering, levels of customer satisfaction etc. Profits increase by decreasing the rate at which customers defect. By retaining just 5% more of its customers, it was proved in a report how a company could almost double its profits. Furthermore, in a period of only five years, a firm with a 70% customer retention rate will have lost two to three times as many customers as a firm with a 90% retention rate. It pays to engender loyalty.
- Another challenge facing organized retailing in India is the availability of skilled workforce. The talent base is limited, and with the entry of big giants there is a struggle amongst them to retain this talent. Areas such as technology, supply chain, distribution, logistics, marketing, product development and research are becoming very critical for the success of the organizations. All of these would lead to the recruitment of highly professional people who specialize in these fields. This has resulted in big salary hikes at the level of upper and middle management and thereby eroding the profit margin of the business. Shortage of manpower exists even at the lower levels

Research Methodology

Objective of Study

The broad objectives of the study are:

- To study the trends in growth of retail real estate in the tri-city region
- To study the opportunities faced by organized retail players in the region
- To study the challenges faced by organized retail players in the region

The research methodology adopted for the study is as follows:

Research Sample

The data for the study was collected from a sample of fifty managers of organized retail outlets and fifty unorganized retail outlets in the tri-city (Chandigarh, Panchkula & Mohali). The sample retail outlets were selected by convenience sampling methods.

Research Instrument

The respondents were administered a structured questionnaire in which they were asked to rate the extent to which they were affected by each challenge factor and each opportunity factor on a seven-point Likert scale. The type of study conducted was descriptive as well as exploratory, with emphasis on identification of factors that could possibly affect the growth of retailing, and analyzing the extent of impact of these factors. Primary data was elicited directly from retailers. Interviews were carried out to get further insight into the challenges faced and overcome by the industry. Data was also collected

from retailers to assess the extent of impact of each factor on the different product formats. Secondary data was collected from various sources such as journals, industry reports, magazines, newspapers, and websites.

Data Analysis

The extent to which organized and unorganized retailers perceive the impact of the challenge factors is summarized in Table 1.

Organized retailers see competition from the unorganized sector as their biggest challenge, followed by competition between organized retailers and the inefficiency of distribution channels, internal logistical problem and retail shrinkage. For unorganized retailers, the major challenge they see ahead of them is organized retailing, followed by cost of operation, logistical problem, competition between other kiryana retailers and inefficient distribution channels. Government's opposition to FDI does not seem to affect organized or unorganized sectors. Overall, it was found that the first few rankings are the same for organized and unorganized retailing. So it can be understood that the major challenges faced by organized and unorganized retailers are largely the same. Dealing with these challenges could lead to the benefit of both sides, and the co-existence of both kiryana and organized retailing in the same retail landscape.

The extent to which organized and unorganized retailers perceive different opportunity factors is summarized in Table 2.

Organized retailers see tri-city's growing middle class as their greatest opportunity followed by large number of earning youth customers; tri-city is having people from all over India, proportionate increase in spending with earnings and India's booming economy. The kiryana retailers on the other hand see tri-city having people from all over India as their biggest opportunity followed by tri-city growing middle class, India's booming economy, large number of educational institutions in tri-city and proportionate increase in spending with earnings. Organized retailers as well as unorganized retailers feel that higher bargaining power with suppliers and in-house branding of goods are not a huge

Table 1: Mean Rating of Challenges Factors

Challenge	Organized retailer	Kiryana stores	F-value	p-value
Technology	4.76	3.17	100.778	0.000
Logistics	5.20	5.59	6.116	0.014
Skilled workforce				
Understanding consumer behavior	4.65	4.98	2.503	0.115
Retail shrinkage	5.05	4.91	0.526	0.465
Variable customer demand	4.50	4.20	2.796	0.0965.26
Distribution channels	5.26	5.35	0.254	0.615
Lack of infrastructure	4.55	3.83	22.231	0.000
Power supply	3.40	5.24	220.162	0.000
Rental rules	4.10	5.18	60.852	0.000
Competition	5.89	6.06	1.129	0.289
Cost of operations	4.64	5.60	43.646	0.000
Government legislations	1.00	1.00	3.075	0.000

Source: Survey

Table 2: Mean Rating of Opportunity Factors

Opportunity	Organized retailer	Kiryana stores	F- value	p-value
Booming economy	5.27	5.49	2.387	0.124
Young consumers	5.81	4.27	71.343	0.000
Tourist destination	4.58	5.03	4.782	0.030
Impulse buying	4.71	3.72	32.263	0.000
Number of educational institutes	5.26	5.43	0.823	0.365
Diversity of people	6.00	5.69	316.653	0.000
Major economic hub	4.47	5.01	8.298	0.004
Increase in spending	3.34	1.73	96.064	0.000
High bargaining power with supplier	3.21	3.14	0.092	0.761
Branding of goods	3.35	3.32	0.85	0.000
Fast developing infrastructure	4.64	5.31	16.194	0.000

Source: Survey

opportunity. Comparing between the organized and unorganized sectors of retailing, it was found that even though there are differences in the extent to which organized retail and unorganized retail sector perceives a challenge or opportunity factor, the first few major factors are common for both segments.

The extent to which the challenge and opportunity factors are perceived to affect different product segments is summarized in Tables 3 and 4.

According to the Technopak report on organized retailing in India (2007), the following table shows the share of each product segment in the total retailing scenario in India in 2006, and a projection for the year 2010.Considering the top five challenges and opportunities in case of food & beverage segment, the following results are found.

The study also found some interesting miscellaneous results concerning organized and unorganized retail outlets. Kiryana stores show a higher conversion of footfalls to customers than organized retail outlets. Organized retail outlets are mostly rented out, whereas kiryana shops are mostly owned by the family running the shop. In-house branding of goods are more in organized retail outlets than in unorganized outlets; but on the whole, it is low in both cases. Kiryana shops have in house brands in home décor and furnishing, food and beverage and general merchandise.

Both organized as well as unorganized retail outlets give free home delivery, but organized retail outlets never sell goods on credit (not credit cards). Except home décor and furnishing, all other product format based kiryana shops give credit to their customers. Kiryana shops do not have loyalty programs at all.

Conclusion

Both organized sector and the unorganized sector see each other as their biggest threat. But actually, it was found in the study that their major challenges as well as opportunities are almost the same. This means that mitigating the challenges and leveraging on the opportunities could benefit both sectors. This comes as a pacifier to the much talked about debate about organized retailers making unorganized retailers out of business. It is not possible to deal with all the challenge and opportunity factors all at once. The most popular product segment in the Indian retailing scenario is the food & beverage segment, followed by the fashion clothing, footwear and accessories segment. They together contribute to about 74% of the entire retailing revenue. Therefore dealing with

Table 3: Challenges in Different Product Segments

	Home Décor and Furnishing	Food & grocery	Health, beauty & wellness	Books & music	General merchan-dise	Electronics goods	Fashion
Technology	3.62	3.95	5.08	5.83	5.77	3.00	5.97
Logistics	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Skilled workforce	5.92	5.81	5.17	3.75	6.31	6.00	3.67
Understanding consumer behavior	5.69	4.14	6.08	6.17	2.92	6.36	2.72
Retail shrinkage	2.54	6.14	5.58	4.33	5.85	3.73	5.94
Variable customer demand	5.38	4.76	4.17	5.83	3.92	6.18	5.06
Distribution channels	3.46	4.10	2.58	4.83	6.00	6.18	5.06
Lack of infrastructure	5.77	6.19	5.58	4.58	6.08	5.18	3.05
Power supply	4.54	5.19	4.17	4.50	5.62	4.09	3.61
Rental rules	3.15	4.10	3.00	4.00	3.15	3.18	2.94
Competition	3.69	4.24	3.08	4.92	4.00	3.82	4.61
Cost of operations	5.69	5.48	5.25	5.08	6.31	6.18	6.33
Government legislations	4.00	4.83	4.33	5.83	4.00	4.00	5.61

Source: Survey

Table 4: Opportunity Factors in Different Product Segments

	Home Décor and Furnishing	Food & grocery	Health, beauty & wellness	Books & music	General merchan-dise	Electronics goods	Fashion
Booming economy	5.62	4.86	5.17	4.75	5.38	6.18	5.28
Growing middle class	6.38	6.29	4.08	5.67	6.38	6.27	6.44
Young consumers	6.08	5.71	5.75	6.17	5.08	6.77	5.78
Tourist destination	3.46	5.57	6.33	5.83	3.77	3.64	3.39
Impulse buying	3.08	4.90	3.75	3.17	6.08	5.18	6.06
Number of educational institutes	3.00	5.62	6.17	6.58	4.38	5.27	5.61
Diversity of people	5.92	5.76	6.33	6.00	5.00	4.91	4.50
Major economic hub	6.38	6.29	4.08	5.67	6.38	6.27	6.44
Increase in spending	3.15	6.14	2.75	5.67	5.38	4.64	5.67
High bargaining power with supplier	2.62	3.00	2.50	6.00	5.00	4.91	5.39
Branding of goods	5.92	5.76	6.33	6.00	5.00	4.91	4.50
Fast developing infrastructure	2.62	3.00	2.50	1.92	5.15	3.92	4.72

Source: Survey

Table 5: Ranks of Challenges and Opportunities for the Food and Grocery Segment

Rank	Challenges	Opportunities
1	Inefficient distribution channels	Growing middle class
2	Competition	Economic hub
3	Retail shrinkage	Increase in spending
4	Logistics problem	Diversity of people

Source: Survey

the most critical challenge and opportunity factors of these two segments would definitely give a face lift to the entire organized retailing sector.

Organized retail players must adopt strategies to enhance their growth. Without doubt, they have to make substantial investments in technology to ensure zero wastage of goods, time, and effort and in particular, they have to invest in supply chain infrastructure. On the other hand, the Government can take several steps to help enhance organized retail growth. It can ensure single window clearance for retail chains, and can permit FDI in retail in phases, starting perhaps with food retailing. It can ensure flexibility of labor laws, ensuring availability of a skilled workforce for organized retail. It can ease distribution-infrastructure creation and Octroi. It can ease real estate and rent laws for retail outlets, and enforce zoning laws and city development plans.

Limitations

The present study has some mild limitations. The sample selection was judgmental and convenience-based and this may not be perfectly representative of the retail scenario. Also, the sample size for kiryana retailers was low, and could have given a better representation if a higher sample size was considered.

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Appraisal of NTPC Financial Strength

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Abstract: *Financial health of any organization decides the future of that very organization; here discussions is being made on its working with the help of analyzing ratios-effects relationships, future dimensions can be made. Certain framework is also suggested through this to use these ratios to play a vital role in decision making system. In this paper we have discussed various ratios and understandings of these ratios with its cause and effect relationship. An attempt has also been made to make it comprehensive study with an example of public sector undertaking NTPC in this regard.*

Financial statements of any firm represent the working status of an organization, therefore it is necessary to diagnose the health of the firm. According to the ups and down of market we can see the true picture of the firms financial status and future to scope with new multi dimensional issues. There may be a lot of reasons behind this trend (ups and downs). Through this calculation of financial ratios we can predict the actual picture of the future and take decisions accordingly for minimizing the risk all rounds.

There are many variations in the ratios of respective years. Why these variations are going on and what are the effects of such variations? With these all, we can not identify the real picture of the business concern.

This study is more useful to the stake holders, investors and to the entrepreneur. For making more clearer resultant understanding and conceptualizing these ratios, an attempt has been made in this regard with the help of an example of largest public sector power generating company. In this discussion we have tried to make a useful study of NTPC and its working.

Power sector incorporates the characteristic of most useful industry on the country's development, economy and in the process of industrialization. It is observed that progress of any industry and the relation between the country's development power production play an important role on the development of sub sectors. The importance of the sector originates from providing input to all kind of industries of the nation.

In the present globalized era power sector is the most profitable sector for growth and development of country. Now-a-days NTPC has placed their performance as second position in the NAVRATNA. Therefore it was necessary to appraise its working and financial strength. It is a government sector company which owns 89.5 % stake in the unit. It is not only the pride of India but also for world too being as 411th largest company in the world. It has six subsidiary companies with 11 joint ventures.

This article has been divided into six parts first of this is introductory part of the discussion is followed by brief background of these ratios, importance its applicability and about NTPC, second one is the basic objectives of these ratios, third part is taken into consideration that how these objectives would be achieved, while fifth part is concentrated for the discussion any analysis of such supporting data and the last one is focused on the conclusions and future directions derived from these discussions.

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Objectives of the Study

The present study strives to carry out following important objectives:

1. To check the profitability and efficiency of the firm in near future with the help of ratios.
2. To point out the relationship between ratios and reasons behind it
3. To offer suggestions for better utilization of resources.

Scope and Research Methodology

The study aims at analyzing and summarizing financial practices in NTPC over a period from 2002-03 to 2007-08. The study is based on secondary sources of information. The secondary data have been collected from the published reports, annual statements and departmental records of NTPC and websites. The information collected from secondary sources have been classified, tabulated and subjected to various ratios to know the financial strength of NTPC.

Table-1 depicts Profit Before Tax (PBT) of NTPC during the period 2002-02 to 2007-08. It is clear from the table that PBT has registered an increasing trend and it increased from Rs. 37540 (2002-03) to Rs. 102549 crores (2007-08) registering almost 2.72 times. The percentage growth over previous year has registered a fluctuating trend ranging between -0.92 per cent (2005-06) to 56.89 per cent (2003-04).

The minus contribution in PBT, during the period 2005-06 was due to increased cost of sales, the administration cost and selling & distribution costs. It was highest during 2003-04 due to the fact that the corporation produces more power in comparison to the previous years. Another region is cost of sales and Reserve Bank of India's credit policy for the year has changed.

Trend analysis reveals that PBT has increased throughout the period under review. It increased at the rate of Rs. 9100.82. However, variation of the trend value from the actual PBT indicates that it had been below expectation in most of the years over the study period. It had been above expectation some of the years under review.

PAT during the period 2002-03 to 2007-08 registered an increasing trend ranging from Rs. 36075 crores (2002-03) to Rs. 74148 corers (2007-08) registering more than 2.06 times increase.

An in-depth analysis reveals that the percentage share of growth over previous year shows fluctuating trend from 45.83 per cent in 2003-04 to 0.23 per cent in 2005-06 largely due to the fact tax and dividend paid and large amount of the corporation blocked in its subsidiary companies.

Trend analysis reveals that PAT has increased throughout the period under review. It increased at the rate of Rs. 5229.61. However variation of the trend value from the actual PAT indicates that it had been below expectation in most of the years. It had been

Table-1: Profit Before Tax of NTPC (Rs. in Crores)

Year	PBT	% change over previous year	Index	Trend value	Variation
2002-03	37540	-	100.00	40875.21	-3335.21
2003-04	58897	56.89	156.89	49976.03	8920.97
2004-05	60782	3.20	161.91	59076.85	1705.15
2005-06	60224	-0.92	160.43	77278.49	-17054.5
2006-07	89074	47.90	237.28	86379.31	2694.69
2007-08	102549	15.13	273.17	95480.13	7068.87
				a=68177.67	b=9100.82

Source: Annual Reports of NTPC from 2002-03 to 2007-08

Table-2: Profit After Tax of NTPC

(Rs. in Crores)

Year	PAT	% change over previous year	Index	Trend value	Variation
2002-03	36075	-	100.00	42269.17	-6194.17
2003-04	52608	45.83	145.83	47498.78	5109.22
2004-05	58070	10.38	160.97	52728.39	5341.61
2005-06	58202	0.23	161.34	63187.61	-4985.61
2006-07	68647	17.95	190.29	68417.22	229.78
2007-08	74148	8.01	205.54	73646.83	501.17
				a=57958.33	b=5229.61

Source: Annual Reports of NTPC from 2002-03 to 2007-08

above expectation only in a few of the years under review.

The table depicts the growth in net worth for the period of past six years from 2002-03 to 2007-08. The net worth has shown an upward tendency during the year. The highest growth has been recorded in the year 2004-05. It is increased more than six times from Rs. 315040 crores (2002-03) to Rs. 526386 crores (2007-08) during study period. The increase in the networth during the period under study highlights the good performance of the corporation. Thus it may be concluded that the overall positive growth in the net worth during the period under consideration reveals the sound financial health as well as progressive role of the corporation under study period (2002-03 to 2007-08).

Table-3: Net Worth of NTPC

Year	Net Worth	% change over previous year	Index
2002-03	315040	—	100.00
2003-04	355501	12.84	112.84
2004-05	417763	17.51	132.61
2005-06	449587	7.62	142.71
2006-07	485968	8.09	154.26
2007-08	526386	8.32	167.09

Source: Annual Reports of NTPC from 2002-03 to 2007-08

Debt Equity Ratio

The debt-equity ratio is also known as external-internal equity ratio. It reveals the external equity of a company to its internal equity in order to measure the relative claims of outsiders and owners against the assets of the company. The debt capital consist of term loans, debentures differed payment liabilities and long term debt and the shareholders equity consists of equity share capital, preference share capital, share premium and retained earnings. The debt-equity ratio can be calculated by the following formula

Debt – Equity Ratio = Debt Capital / Shareholder's Equity

The Debt-Equity Ratio of the HDFC over the period of past ten years (1998-99 to 2007-08) has been analyzed in Table 4 below:

The debt equity ratio of NTPC during 2002-03 to 2007-08 is depicted in Table -4. This shows that the debt equity ratio of ranges between 0.41 (2004-05) and 0.52 (2007-08). Although there is no restriction in case of NTPC to borrow, but it has maintained the standard fixed by the RBI in almost all the period of study excepting a few years. The table reflects that outsiders fund which stood at Rs. 132 crores in 2002-03 rose to Rs. 272 crores in 2007-08 which recorded a massive growth of nearly 106 per cent more than

Table-4: Debt Equity Ratio of NTPC (Rs. in Crores)

Year	Debt	Equity	Debt Equity Ratio
2002-03	132	315	0.42
2003-04	155	358	0.43
2004-05	171	418	0.41
2005-06	202	450	0.45
2006-07	245	486	0.50
2007-08	272	526	0.52

Source: Annual Reports of NTPC from 2002-03 to 2007-08

2 times. The share of shareholders contribution in the finances of NTPC increased tremendously. The volume of shareholders fund was Rs. 315 crores in 2002-03 and it got enlarged to Rs. 526 crores in 2007-08, indicating an overall increase of around 68 per cent or 1.68 times more in the same period. It is observed from the table the debt equity ratio ranges between the 0.41 to 0.52 during the study period (2002-03 to 2007-08). This is not showing the sound image of NTPC, both in national and global capital market. It is not a good performance of corporation because they were less than of the normal 1: 1 in all these years. The debt equity ratio of 1: 1 is generally indicative of the fact that the financial position of the firm is satisfactory.

Table-5: Capital Employed by NTPC (Rs. in crores)

Year	Net Fixed Assets	Capital Employed	Growth (%)
2002-03	198650	386343	-
2003-04	212545	458267	18.62
2004-05	223148	500540	9.22
2005-06	230895	523572	4.60
2006-07	256481	564331	7.78
2007-08	260937	588868	4.35

Source: Annual Reports of NTPC from 2002-03 to 2007-08

The capital employed by NTPC during 2002-03 to 2007-08 is depicted in the Table-5. This shows the growth of capital employed by NTPC ranges between 4.35 per cent in 2007-08 to 18.62 per cent in 2003-04. The table shows the values of fund employed and percentage increase and decrease in the value of fund employed over the previous year in different years from 2002-03 to 2007-08. It is evident that capital employed during the period presents a cyclic trend through out the period. Thus the overall analysis clearly indicates that the capital employed in NTPC has multiplied and risen phenomenally during the period under review.

Table-6: Earning Per Share

Year	Earning Per Share (Rs)	% growth over previous year	Index
2002-03	4.62		100.00
2003-04	6.73	45.67	145.67
2004-05	7.26	7.88	157.14
2005-06	7.06	-2.75	152.81
2006-07	8.33	17.99	180.30
2007-08	8.99	7.92	194.59

Table 6 shows the earning per share of NTPC for the period 2002-03 to 2007-08. It is ranging between Rs 4.62 (2002-03) to Rs. 8.99 (2007-08). It increased approximately 2 times during 6 years period. It continues to show the increasing trend.

It is also evident from the Table, that there are substantial fluctuations in percentage change over previous year ranges between -2.75 per cent (2005-06) to 45.67 per cent (2003-04).

In 2003-04, the percentage change over previous year stood at 45.67 per cent, it is highest during study period after that it registered the percentage changes over previous year and 17.65 per cent in 2000-01. In 2001-02 the growth was 7.88 per cent during the year 2004-05. The downward trend in growth continued further in 2005-06, when EPS decreased by -2.75 per cent over previous year, it is lowest during the study period. After that it increased to 17.99 per cent in

2006-07. The growth decrease once again in 2007-08 and registered 7.92 per cent growth.

On the whole it can be concluded that the position regarding earning per share is not good of the corporation. Thus the performance and prospects of the corporation is may be called satisfactory from the point of view of earning per share.

Conclusions and Future Directions

Financial ratios are giving a clear-cut picture of the status of business so it is much relevant and effective in taking future decisions of the firm. By using these ratios in interpretations, it is helpful in sorting problems at crucial time. We should have always kept watching on the ratios trend it would certainly highlight on the SWOT analysis of the firm. On the basis above discussions certain conclusions are drawn in this context. These may be the future direction of firm:

- There is further scope of expansion due to availability of resources and profitability of the firm
- The company is taking technological advantages but it can use more advanced technology for the advancement of the organization.
- It can improve their productivity in more mechanized way
- Company can generate new fund for the expansion through various ways like debentures and new issues.
- The share value of company will certainly rise.

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TRANSPORTATION LOGISTICS IN INDIA: A CRITICAL LOOK

Debomalya Ghose*

Abstract: *In this paper, the role and the significance of transportation as a key process in the integrated logistic management is stressed at first. Changing government policies on taxation and regulation of service providers are going to play an important role in this process. Coordination across various government agencies requires approval from multiple ministries and is a road block for multi modal transport in India. At the firm level, the logistics focus is moving towards reducing cycle times in order to add value to their customers. Consequently, better tools and strategies are being sought by firms in order to enhance their decision making. The problems and issues faced by the policy makers, industries, shippers, suppliers, regulatory agencies and the end-users are highlighted in detail. The present efforts by our government and the possible fallouts are discussed and, towards the end, the strategies for the industries to take advantage of transportation as a powerful tool are discussed.*

Introduction

Logistics is unique: it never stops! Logistics is happening around the globe, twenty four hours of every day, seven days a week during fifty-two weeks a year. Few areas of business operations involve the complexity or span the geography typical of logistics. Logistics is concerned with getting products and services where they are needed when they are desired. Most consumers in highly developed industrial nations take a high level of logistical competency for granted. When they go to the store, they expect products to be available and fresh (Christoper 2007: 15-16). It is difficult to visualize accomplishing any marketing or manufacturing without logistical support.

Logistics involves the integration of information, transportation, inventory, warehousing, material handling, and packaging. All of these areas of work provide a variety of stimulating jobs. The key element in a logistics chain is transportation system, which joints the separated activities. Transportation occupies one-third of the amount in the logistics costs and transportation systems influence the performance of logistics system hugely (Shah 2009: 34-37). Transporting is required in the whole production procedures, from manufacturing to delivery to the final consumers and returns. Only a good coordination between each component would bring the benefits to a maximum.

Importance of Transportation in Logistics

Transportation plays a connective role among the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. It is the planning of all these functions and sub-functions into a system of goods movement in order to minimize cost maximize service to the customers that constitutes the concept of business logistics. The system, once put in place, must be effectively managed. (Fair et al., 1981).

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Traditionally these steps involved separate companies for production, storage, transportation, wholesaling, and retail sale, however basically, production/manufacturing plants, warehousing services, merchandising establishments are all about doing transportation (Dobberstein 2005: 45-47). Production or manufacturing plants required the assembly of materials, components, and supplies, with or without storage, processing and material handling within the plant and plant inventory.

Warehousing services between plants and marketing outlets involved separate transport. Merchandising establishments completed the chain with delivery to the consumers. The manufacturers limited themselves to the production of goods, leaving marketing and distribution to other firms. Warehousing and storage can be considered in terms of services for the production process and for product distribution (Sople 2008: 56-59). There have been major changes in the number and location of facilities with the closure of many single-user warehouses and an expansion of consolidation facilities and distribution centers. These developments reflect factors such as better transport services and pressures to improve logistics performance.

Logistics

Macro Logistics is the logistics activities of social reproduction in general, from the perspective of social reproduction in general and research in logistics activities. Macro is defined as an integrated whole, constitute all of the main body is called microscopic. For example, there is a proverb: see the trees but not the forest. See the forest is called a macro, see the trees called microscopic. Economics, there are macroeconomics and microeconomics. Macroeconomics, from an overall look at the country's economic and micro-economics is from the country's economy enterprises constitute the elements to see the economy.

Logistics, too, at the national, regional and other major holistic manner within the framework of how to operate the logistics problem, called the macroscopic logistics. Therefore, the macro-logistics issues to be discussed is how the Japanese distribution structure, in which the path is what the logistics, and through what kind of transport to transport operations and other logistics centers (Chandra and Sastry 2004: 57-59). On the other hand, micro-logistics issues to be discussed, is the flow of the activities of manufacturers and retailers are the main transport companies is how to operate their own logistics and other issues. Or from the consumer's point of view, how the different commodities are delivered to their different families, which also belong to the micro.

However, such a classification is too difficult, circulation path problem and the various commodities is both a macro problem, but also micro issues, so sometimes "semi-macro" views. Macro focus is national or regional total logistics solutions,

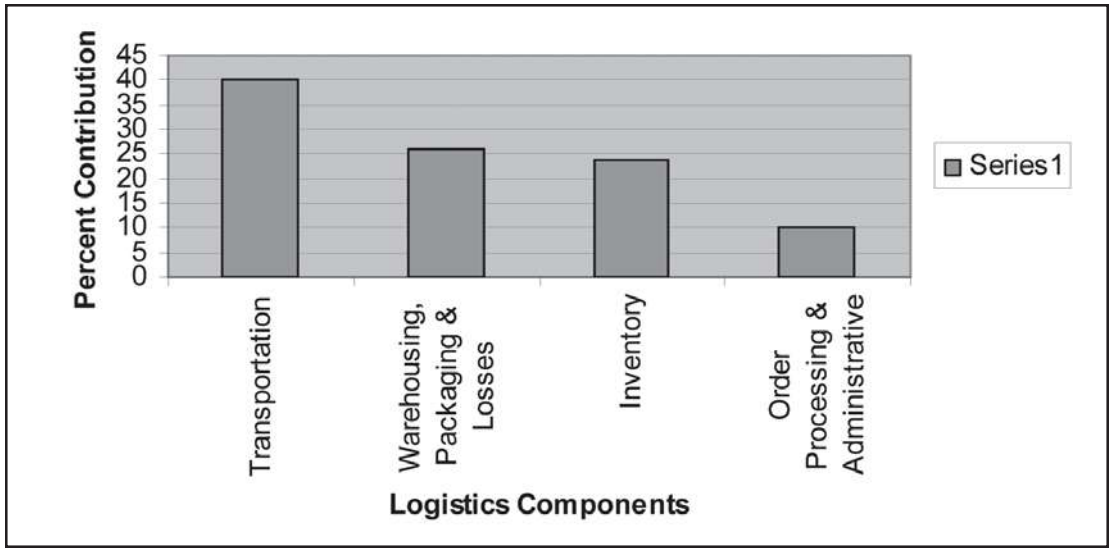

Figure 1: Elements of logistics cost in India *Source: Sanyal (2006a)*

micro-business view from the logistics; semi-macro is a general look at the logistics of goods and commerce. As a result, macro-logistics, to consider is that as the industrial structure and layout of the transport logistics base, as well as logistics and administrative; micro-enterprise logistics management problem is the logistics system network, distribution centers, the content and calculation of logistics costs logistics management; and a half macro-logistics refers to the variety of products from production to consumption, the path between the logistics and logistics costs in the proportion of its commodity price and other issues (Deccan Herald 2006 : 54-57).

Let us take a look at from the perspective of the logistics costs of this view. Macro-logistics is to investigate the logistics costs in the whole country's economy in proportion. In fact, the gross national product to calculate the logistics components, it is impossible, because the amount of industrial production and logistics costs are not all, manufacturers and circulation of the proportion of production costs in the logistics do not know. Semi-macro-logistics, consumer price of the purchase, there are many of them are logistics costs? To the circulation of the latter part of operations, there will be a lot of movement of goods at the same time, therefore, should be deliberately out of a specific commodity logistics cost is very difficult. Micro-logistics, individual enterprise in its own way of calculating the cost of logistics, specific figures can be drawn, but the numbers add up to them each speaker does not mean that the overall logistics costs, therefore, to accurately calculate the cost of logistics, but also very difficult to .

The growth prospects of the logistics sector are closely linked to economic growth and foreign trade. Booming retail trade was expected to provide a fillip to the growth of the logistics industry. While growth of organized retail trade has slowed down, the sector has not lost steam.

India has a vast territory and hence, implementing a smooth supply chain model poses a challenge. Consider the case of food products in India. The Indian supply chain for food products is characterised by extensive wastage and poor handling. The wastage occurs because of multiple points of manual handling, inadequate packaging and cold storage facilities. The physical wastage is one component of the inefficiency in the supply chain. There are other problems as well, in terms of the deterioration in quality and the cost of intermediation in the food chain. To avoid all this, there is need to have appropriate infrastructure for storage and transportation.

Thus, logistics plays an important role in any economy. As per the CII 2007 report, the US$ 90 bn (2007) industry is expected to reach a size of US$ 125 bn by 2010 on account of expanding domestic economy. This translates into a growth of nearly 12% per annum.

Studies revealed that in India the total logistics costs constitute nearly 10% of our GNP and out of which nearly 40% is due to transportation alone. In US the estimates show that the cost is around 6% of the GNP. The major infrastructure required for moving goods from one place to another in India involve the active roles of roads, road freight industry, railways, and ports, all of which are either managed or regulated by the government. The efficient and effective management of these infrastructures to enable the smooth flow of goods constitute the 'Macro Logistics'. The situation in India is that due to unprofessional management of the 'Macro logistics', the industries are not able to derive the best out of their 'Micro logistics' as any improvement in the micro logistics will effective only if macro logistics is effective.

Micro Logistics at the Firms Level

Transportation at the firm's level is the linkage process in logistics that dominated the distribution activity of the firms earlier. The aspects that need to be considered by them could include operational (customer, environmental, product, and company characteristics), the choice of mode (load size, density, value, competitive necessity, and cost structures), and the channel strategy (identification of available channels and the interfaces within each channel). Transportation with facilities creates time and space utility in the supply chains which are important aspect of customer satisfaction. While examining and evaluating alternatives in logistics management, the application on various dimensions like in-bound logistics and out-bound logistics, private ownership and public ownership, single and multiple plants, nature of products, and made-to-stock and made-to-order products, etc., would help firms clarify many issues in their logistics. The mode choice aspect of these decisions is strategic ones. These are closely

linked to the inventory decisions, since the best choice of mode is often found by trading off the cost of using the particular mode transport with the indirect cost of inventory associated with that mode. As air shipments may be fast and reliable, and may warrant lesser safety stocks, they are expensive (Agarwal 2009:224-226). On the other hand shipping by sea or rail may be much cheaper, but they necessitate holding relatively large amounts of inventory to buffer against the inherent uncertainty associated with them. Therefore, customer service levels and geographic location play vital roles in such decisions. Shipment sizes (consolidated bulk shipments versus lot-for-lot) and routing and scheduling of equipment are the key to effective management of a firm's transport strategy.

Use of Operations Research Models in Micro Logistics

Various quantitative models from Operations Research are of immense help in many logistics decisions (Srinivasan 2010: 210-215). Some of the small models are like vehicle operating cost models, composite models, *p*-Median location Models, Travelling salesman problems, Truck allocation problem, Multistage transportation problems etc.

Use of Information Technology in Transportation Logistics

Some of the information technology available to transportation will be:

- *EDI (Electronic Data Interchange)* with the following advantages:
  Minimizing data entry
  Increasing transaction speed
  Maintaining accuracy
  Automated data processing
- *RFID (Radio Frequency Identification)* with the following advantages:
  Tracking
  Identifying
- *GIS (Geographic Information Systems)* with the following advantages:
  Accurate map production
  Ease of planning for routing and scheduling in real time
  Interactive planning
- *MC (Mobile Communication)* with the following advantages:
  Effective data communication
  Transmission of voice or data via radio, cellular and satellite devices
- *GPS (Global Positioning Systems)* with the following advantages:
  Accurate location specifications and references
  Effective tracking system

Components of Macro-logistics

India's transport sector is large and diverse; it caters to the needs of 1.1 billion people. In 2007, the sector contributed about 5.5 percent to the nation's GDP, with road transportation contributing the lion's share. Good physical connectivity in the urban and rural areas is essential for economic growth. Since the early 1990s, India's growing economy has witnessed a rise in demand for transport infrastructure and services. However, the sector has

Table 1: Relative Ranking* of Transportation Mode by Performance Measures

Mode of Transportation	Cost (1=least)	Lot size (1=smallest)	Delivery time (1=fastest)	Delivery time variability+ (1=least)	Loss and Damage (1=least)
Rail	2	3	3	3	4
Road	3	2	2	2	3
Water	1	4	4	4	1
Air	4	1	1	1	2

* 1 is most favorable and 4 is least favorable from the shipper's point of view
+ Delivery time variability in absolute terms

Source: R.H. Ballou, Business Logistics Management (Upper Saddle River, NJ: Prentice Hall, 1999)

not been able to keep pace with rising demand and is proving to be a drag on the economy.

Table 2: India: Transport Sector Key Statistics

	Units	As of 2009
Length of Roads	**Km.**	**3,516,452**
Main Roads	Km.	666,452
Paved Roads	%	47.3
Access to All-Season-Roads	%	61
Road Density	km/1,000 sq. km.	1115
Rail Track Length	***Km.***	***63,327***
No. of Ports		***199***
Turnaround time	Days	3
Airports		***125***
International		11

Source: World Bank Report 2009

Roads

India, having one of the largest road networks of 3.314 million km, consists of National Highways, Expressways, State Highways, Major District Roads, Other District Roads and Village Roads with following length distribution: (Table 3)

Table 3: Length of Distribution

National Highways/Expressways	70,548 km
State Highways	1,28,000 km
Major and other District Roads	4,70,000 km
Village Roads	26,50,000 km

Source: Ministry of Road Transport and Highways, Annual Report 2008-2009

The National Highways have further been classified depending upon the carriageway width of the Highway. Generally, a single lane has a width of 3.75m and 3.5 m per lane in case of multi lane National Highways.

The percentage of National Highways in terms of width is as under: (Table 4)

Table 4: Percentage of Highways

Single Lane/Intermediate lane	20,849 km (30%)
Double lane	37,646 km (53%)
Four Lane/Six lane/Eight Lane	12,053 km (17%)

Source: Ministry of Road Transport and Highways, Annual Report 2008-2009

About 60 per cent of freight and 87.4 per cent passenger traffic is carried by the roads. Although National Highways constitute only about 2 per cent of the road network, it carries 40 per cent of the total road traffic. The number of vehicles has been growing at an average pace of around 10 per cent per annum (2001- 2002 to 2005-06). The share of road traffic in total traffic has grown from 13.8 per cent of freight traffic and 15.4 per cent of passenger traffic in 1950-51 to an estimated 60 per cent of freight traffic and 87.4 per cent of passenger traffic by the end of 2005-06.The rapid expansion and strengthening of the road network, therefore, is imperative, to provide for both present and future traffic and for improved accessibility to the hinterland. In addition, road transport needs to be regulated for better energy efficiency, less pollution and enhanced road safety.

The motor vehicle population has grown from 0.3 million in 1951 to 27.5 million in 1995, marking a 90-fold increase. The road network has expanded from 0.4 million km to 2.95 million km, only a 7-fold increase in terms of length during the same period. It stands at 3.3 million at 1998. However, the upgrading of roads by way of widening of carriage ways, improved surface quality, and strengthening/ reconstruction of old/weak bridges and culverts has not matched with this phenomenal growth. Furthermore, only 20 percent of the surfaced roads are estimated to be in good condition. This compares unfavorably with other countries (Indonesia and Brazil 30 percent, Korea 70 percent, Japan and U.S. more than 85 percent).

National Highways (NHs) are the main arterial roads connecting ports, state capitals, industrial and tourist centers, and neighboring countries. NHs constitutes less than 2 percent of the total road network, but carries nearly 40 percent of the total road traffic. Their growth in quantitative terms has been rather gradual, from 22,255 km in 1951, to 34,608 km in 1997. Out of the total 162,920 km of National and State Highways, only 2 percent of their length is

four-lane, 34 percent two-lane and 64 percent single-lane. As far as NHs are concerned, only 5 percent of their length is four-lane, 80 percent two-lane and 15 percent continues to be single-lane. The deficiencies in the road network are causing huge economic losses because of slow transportation. These deficiencies also contribute to a high rate of road accidents. The delay on the roads and ports also results in high inventory costs for the industry, thus affecting its competitiveness visa-vise international industry operating on JIT(just-in-time) inventory principles. The congestion at the ports and the insufficiently developed air services also affect foreign investment decisions, which often place a great premium on the infrastructure. International trends indicate that with the growth of the highway and aviation technologies, the traffic tends to shift away from the Railways. However, in the continental economies like U.S., China and Russia, the Railways have maintained their dominance. India's size, geography and resource endowments also mandate a dominant role for the Railways, not to mention the environmental considerations, which in recent years have caused a rethinking even in the developed world.

Another imbalance is the rural-urban dichotomy. Much of the network of rail, roads, ports and airports is geared to the needs of the urban economy, while the vast rural hinterland is very poorly served by communications. Of the nearly six lakhs villages, only about three-fifths are known to be connected by all-weather roads at the end of the Eighth Plan.

Distortions in the Inter-modal Mix

The Railways and the Roadways are the two main modes of transport carrying the bulk of freight and passenger traffic. Freight transport by road has risen from 6 billion ton km (BTK) in 1951, to 400 BTK in 1995. Passenger traffic has risen from 23 billion passenger km (BPK) to 1,500 BPK during the same period. Freight and passenger traffic are expected to increase to 800 BTK and 3,000 BPK respectively by the year 2001. Commercial vehicles in India are able to run only 250 km on average per day as compared to 600 km in developed countries. Successive policy statements and the Plan documents have recommended that the Railways should be given the lead role in the transport sector because of their greater energy efficiency, eco-friendliness and relative safety. However, the Railways have continued to yield their dominant position to the road transport. There is a major shift of movement of freight and passengers from rail to road since 1951.

The main reason for this continual slide in the Railways' share has been the inability of the system to cope with the traffic growth of the growing economy and under supply both quantitatively and qualitatively. Faced with capacity constraints, the Railway system chose to concentrate on the movement of bulk materials for the core sector like power, steel and cement. Because of this, the system lost its clientele in the high value non-bulk sectors which often recorded higher growth rates. The skewed tariff policy of subsidizing passenger traffic and an increase in freight rates are driving away even some of the long distance bulk traffic from the Railways to the Roadways. Road traffic, being largely in the private sector, has moved aggressively to exploit this opportunity which was facilitated by a liberal permit and regulatory system for national trucking, cheap finance made available by the banking sector and an energy pricing policy which has subsidized diesel.

Problems, Issues and Strategies

The Indian government, through the Ministry of Surface Transport (MOST), announced incentives and tax holidays in its efforts to invite and encourage private sector in road infrastructure. Because, by nature, private sector responds to short term returns, infrastructure investments having long gestation periods are unattractive to private investors. However, while the private roads that operate on a commercial basis will be confined to high-density corridors, the rural roads will still be the responsibility of the government. If development has to be spread evenly, much greater attention needs to be paid to roads, which are outside national highways. The number of vehicles on our roads is expected to double in another five years. Investments go heavily into production and manufacturing of vehicles, and lack in infrastructure to support this growing demand.

Roads are the lifelines of an economy. The Rakesh Mohan Committee on Infrastructure highlighted several facts and issues. The public sector outlay for road development in the First Plan was 6.7 percent. It dropped down to a mere 3 percent in the Eighth Plan. Investments in NHs went down from 1.4 percent of the total outlay to 0.6 percent in the same period.

While in India the road development doesn't have any strong lobby, the automobile industry has gone for overkill. The present limited road space with an unbalanced growth of vehicles can only be ignored at a great cost to the economy. The backbone of Macro Logistics is the roads. Unless the anticipated growth of vehicles is accompanied by super highways, NHs and SHs, the economy will get a set back as the basic logistics of both Micro and Macro will be at a snail's pace. The Rakesh Mohan Committee estimated that the economic cost of bad roads ranges from Rs.20, 000 crore to Rs.30, 000 crore annually.

In India, hardly 30 to 40 percent of the revenue realized from roads is thrown back into road development. In advanced economies like U.S., Switzerland and Japan, the entire amount is thrown back into road development. These countries realized that the expenditure on roads is an investment leading to accelerated growth in every other sector. The roads in India have become cash cows. It is estimated that the transport sector pays Rs.4500 crore every year to various state governments as taxes. The present practice of taxation in the road transport sector was the practice during British India when the government wanted to protect Railways in which the British had financial interests. There is certainly a need to rethink the entire taxation on the road transport sector if the government wants the road and freight transport infrastructure to support Macro Logistics in India.

Future Plans

The 20-year Road Development Plan (1981 – 2001) envisaged a need for 66,000 km long NHs and 1,45,000 km long SHs network by the year 2001. There is also a need for a 10,000 km long Expressway network by the year 2015. In addition, there is a need to upgrade the road system in the country by widening and strengthening existing highways, reconstruction/widening bridges and provisions of user friendly improvements. Private sector participation in the highway sector is under the build, operate and transfer (BOT) concept. There are already contracts for about 10 BOT road projects involving bridges and by-passes with a total investment of Rs.400 crore.

External assistance is being obtained for the improvement of NHs through international agencies such as the World Bank, Asian Development Bank and Overseas Economic Cooperation of Japan. The Government of India has entrusted the National Highways Authority with the Asian Development Bank Project costing about Rs.800 crores in five states. The government is expecting about Rs.2, 500 crore in the coming years from the private participation in building and developing roads.

Bad roads not only obstruct and delay movement of goods and passengers, but also increase the cost of vehicle maintenance, and endanger safety. It is necessary that the government should strive not only to release adequate funds for road maintenance, but also to follow through with the proper maintenance.

Road Freight Industry

Because of the inadequacy of an interlinked, exhaustive and all penetrating Railway network or inland/coastal water-ways or airways, road transport has assumed a pivotal role in the predominantly agrarian economy in India with heavy rural concentration. The history of road– way transport in India indicates that the industry went through a rapid growth in the second half of the decade, 1980-1990. This growth resulted in a major shift in the movement of goods from Railways to roads. The industry is still coping with an inadequate and poor quality of road network. It suffers from a near absence of technological improvements in the design and manufacture of vehicles.

Profile of the Road Freight Industry

- The industry continues to comprise small operators accounting for as much as 85 percent of the total fleet. The industry generates considerable local employment opportunities. Nearly two– thirds of the drivers are engaged on a full-time basis.
- The total transport function is shared among several actors. For example, operators perform only the haulage function, while the marketing, aggregating, storing and delivery functions are undertaken by agents and brokers.
- The two principal manufacturers of trucks, Tata Motors & Ashok Leyland, account for more or less the entire fleet of heavy vehicles in the country. Owing to their monopoly, technology and price are dictated by the sellers market.
- The industry is strongly agitated over the issue of octroi3, not so much on the basis of its justification, but as over the irksome features

entailed in its collection. The industry also recommends abolition of the permit system, as it does not square up with the present policy of liberalization.

- The industry productivity could be further improved since only one-third of the trucks operate between 300 to 400 km per day and about 12 percent of trips are empty trips without load.
- Truck drivers belong to the age group between 18 and 40 years and are mostly educated up to under-matriculation level. A high percentage of the drivers (88 percent) have learned to drive without attending driver-training schools.
- Operators suffer to a great extent in the absence of proper arrangements for night halts and other wayside amenities.

The Industry also suffers from the problems of structure, proper legislative measures to regulate and control, financing, problems of inter-state barriers, technological up-grade, lack of traffic education and awareness.

Need for a Fresh Look at the Industry's Structure

We should turn our attention to the need for viable units, which could provide garage facilities, ensure proper repair and maintenance, and induct professional skills. Transport cooperatives could be an interim measure. However, if the mobility gaps have to be bridged in keeping with the growth of the economy, it is time the corporate sector entered the industry in a big way with large fleets. This would ensure the standards of operation and quality of employment be raised for the benefit of the entire economy.

Ports

Trends in Port Traffic

The long coastline of India is dotted with 11 major ports that are managed by the Port Trust of India under Central Government jurisdiction. There are also 139 minor operable ports under the jurisdiction of the respective State Governments. The ports are located at Calcutta/Haldia, Mumbai, Jawaharlal Nehru Port at Nhava Sheva, Madras, Cochin, Vishakhapatnam, Kandla, Mormugao, Paradip, New Mangalore and Tuticorin. The major ports handle 90 percent of the all-India port throughput, and thus bear the brunt of sea-borne trade. During 1996-1997, the total cargo handled at major ports was 227.13 million tons, registering a growth of 5.6 percent over 1995-1996. Dry and liquid bulk make up about 80 percent of the port traffic in volume with general cargo, including the containerized cargo, constituting the remaining traffic.

The predominant commodities handled at these ports are POL (42 percent), iron ore (18 percent), coal (15 percent), containers (8 percent), fertilizers (5 percent) others (12 percent). Major increases in traffic were observed in food grains (26.7 percent), other liquids (33.3 percent) and containerized cargo (19.1 percent). The composition of traffic has undergone significant changes in recent years. Berths in India, very often, are occupied 100 percent leaving no time for maintenance. The Indian ports are characterized by the following:

- Ships have to wait long in the channel for berthing, and productivity in loading and unloading is low. The national average turn-around time of vessels for liquid, dry bulk, general cargo and containers is estimated at 3.4 days, 9 days and 3.6 days respectively.
- It is labor intensive and mechanization process is non-existent or slow.
- Night navigation is not available, and ships have to wait for daylight.
- Equipment used is outdated and obsolete.
- Restrictions in navigation channels do not allow bigger vessels to be berthed.
- Handing vessels and feeder vessels in container berths is time consuming.
- The road links to ports are insufficient and badly maintained.
- Lack of coordination between ports and the custom authorities delays quicker dispensation of documentation and goods.

Projections and Investments

In the wake of India's achieving export target of $85-90 billion (1 percent of world trade), the value of two-way trade in 2002 would be in the range of $180 billion. So the total volume of traffic projected would be around 356-360 million tons by 2002 assuming a growth rate of 9 percent in the annual traffic. The additional capacity required is 300 million tons, and

the estimated investment for this purpose will be about Rs.30, 000 crores at Rs.100 crores per million tons of additional capacity. If we assume the conservative 70 percent capacity utilization as essential for efficient operation of ports, then 677 million tons of additional capacity would be required. But, the available capacity after implementing Ninth Plan Schemes will be only around 263 million tons.

According to the World Bank estimates carried out in 1992, the import through port cost for containers in India is higher (U.S.$500-520/TEU) compared to the cost in neighboring ports (in Colombo, Singapore and Bangkok) (US.$330-350). The terminal charges (shore handling, storage, delivery and transport in ports) are the major reasons for this escalation, besides the custom agent charges and the speed money incurred. This is the serious set back in achieving the desired goal of globalization of the Indian Economy.

Strategic Directions

Besides augmenting the capacity in ports, the government should also initiate few policy measures to achieve its goal. Although the government has initiated policy reforms and opened up the ports sector allowing private sector participation, privatization in the port sector has been very slow. What is required now is not peripheral changes, but to move toward "Landlord Port concept." This is where the port authority exercises control over infrastructure and land and leave operations to be run by third party (private sector). This calls for a complete change in the institutional set up and other legal reforms. Strategic direction would be on the following four major dimensions.

Policy Initiatives

Realizing the role of private sector participation, the policies should address:

Table 5: Trend in Railways Traffic during April to March, 2010* Vis-a-Vis April to March, 2009

(*) Tentative (In '000 Tonnes)

Ports	April to March		% Variation Against
	Traffic		Prev. Year Traffic
	2010*	2009	
Kolkata			
Kolkata Dock System	13045	12428	4.96
Haldia Dock Complex	33250	41791	-20.44
Total: Kolkata	46295	54219	-14.61
Paradip	57011	46412	22.84
Visakhapatnam	65501	63908	2.49
Ennore	10703	11500	-6.93
Chennai	61057	57491	6.20
Tuticorin	23787	22011	8.07
Cochin	17429	15228	14.45
New Mangalore	35528	36691	-3.17
Mormugao	48847	41681	17.19
Mumbai	54543	51876	5.14
JNPT	60746	57291	6.03
Kandla	79521	72225	10.10
Total:	**560968**	**530533**	**5.74**

Source: Indian Port Association

- Long-term strategies of the port sector
- Master plan defining the role of public and private sector including relative roles, responsibilities and obligations
- Issues relating to planning and investment, port pricing, environment and safety
- Dock labor deregulation

Legal Initiatives

The following need to be resolved:

- Enabling legislation for private sector participation in port projects
- Legislation governing project implementation, contract disputes and arbitration procedures
- Recourses in case of default by government
- Land acquisition rights and development rights
- Concession arrangements and their loyalty

Commercial Initiatives

The following is required to promote private participation:

- Investor friendly package
- Realistic port throughput guarantees
- Adequate financial incentives
- Removing unnecessary clearances from government authorities for implementation of projects and time consuming procedures

Developmental Initiatives

- Development of additional ICDs for aggregation and movement of traffic
- Improving road and rail links for quicker transportation
- Mechanization of port operations with modem equipment
- Automation and computerization
- Dredging of channels

Railways

Rail transport is a commonly used mode of long-distance transportation in India. Almost all rail operations in India are handled by a state-owned organisation, Indian Railways, Ministry of Railways. The rail network traverses the length and breadth of the country, covering a total length of 63,140 kilometres (39,233 mi).[1] It is said to be the 4th largest railway network in the world,[2] transporting over 6 billion passengers and over 350 million tonnes of freight annually.[1] Its operations cover twenty-eight states and three union territories and also provide limited service to Nepal, Bangladesh and Pakistan. Both passenger and freight traffic has seen steady growth, and as per the 2009 budget presented by the Railway Minister, the Indian Railways carried over 7 billion passengers in 2009.

Indian Railways with 63,221 route kms of network, 1.42 Million employees, 440 BTKms and 615 BPKms of traffic is one of the largest rail networks of the world. It constitutes the lifeline and the mainstay of the country's transport infrastructure.

Operating on three gauges – broad gauge (1676 mm), meter gauge (1000 mm) and narrow gauge (762 and 610 mm), trains in India carry about 12 million passengers and 1.2 million tons of freight every day. Broad gauge, although forming 64.5 percent of the route, generated 95.9 percent of freight output and 90.6 percent of the passenger output during 1995-1996. Almost all the double/multiply track sections and electrified routes lie on broad gauge. Approximately 12,306 route km, constituting over 19.5 percent of the total network and 30 percent of broad gauge network on Indian Railway, is electrified. This carries approx. 41 percent of the passenger traffic and 52 percent of the freight traffic on Indian Railways. The Indian Railway system has developed a capacity to carry 410 million tons of originating revenue-earning traffic, which in turn of transport output is 283 BTKM. During 1995-1996, the revenue earning freight traffic moved by Railways was 390 million tons growing at the rate of 7 percent. The total passenger traffic in the year 1995–1996 was 4018 million.

According to the World Bank's estimate in India, a unit increase in GNP generates an increase of 1.5 times in freight transport demand and 1.9 times in

[1]See,"Salient Features of Indian Railways". Indian Railways.
[2]See, "CIA — The World Factbook — Country Comparison :: Railways". CIA.

Table 6: Railways originating freights & passengers

Year	2003-2004	2004-2005	2005-2006
Originating freight 557.39 602.10 667.00	tonnage (MT) (7.5%) * (8.02%) (10.8%)	Freight revenues (Rs. Crores) 27618 30778 36490	(5.3%) (11.4%) (18.6%)
Originating passengers 5.11 5.38 5.89	(2.8%) (5.3%) (9.5%)	Total earnings including other 42842 47038 54600	coaching and sundries (Rs. Crores) (4.11%) (9.8%) (16.1%)
Operating ratio (%) 92 90.98 83.7	Closing balance of total railway 5228 7784.87 12654.00	funds as on 31st	March (Rs. Crores) (provisional)
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Source : Indian Railways Year Book and the Statistical Directorate, Railway Board.

*Note : Figures in parentheses indicate change in percentage terms vis-à-vis the previous year.

passenger transport demand. Expecting Indian economy to grow at more than 6 percent per year in the near future would imply doubling of freight transport output in about 14 years and passenger transport output in eight years. The increased output of basic industries such as power, steel, cement and fertilizers would necessitate facilities for bulk transport in which the Railways have a comparative advantage. The increasing rate of urbanization would also generate demand for rapid transit system. It is anticipated that within the next decade Indian Railway would have to almost double its transport output.

Financing Railways

The Railway plans are financed through three main sources: (1) internal resources, (2) market borrowing through Indian Railway Finance Corporation (IRFC) and schemes like OYW (Own Your Wagon) and BOLT (Build, Operate, Lease and Transfer), and (3) capital from General Exchequer. The dilemma before the Indian Railways is about the Capital from the Exchequer and the level of market borrowings. The trend shows that the share of General Exchequer has shrunk, and the market borrowing has gone up. The average cost of market borrowings is high, and there is also a repayment obligation. The generation of internal resources is seriously affected by various factors such as staff cost accounting for 56 percent. Besides other strategies to improve efficiency by adopting to few management concepts, tapping of non-traditional sources of funding will have to be at the center stage of Railway financing strategy. Non-traditional funding mechanisms could include attracting external private funding at concessional rates, leveraging right of way of Railways to attract investments in fiber– optic telecommunications network, commercial exploitation of air space above stations, exploiting leasing routes, innovative financing techniques such as 'Deep discount Bonds' with repayments at the end of the term, `Sell and Lease Back' mechanisms to leverage existing as well as mobile assets.

Conclusions

The logistics industry is evolving rapidly and it is the interplay of infrastructure, technology and new types of service providers that will define whether

the industry is able to help its customers reduce their logistics costs and provide effective service. Changing government policies on taxation and regulation of service providers will also play an important role in this process. Coordination across various government agencies require approval from multiple ministries and is a road block for multi modal transport in India (e.g., ports, roads, railways, container freight operations etc. are all managed by different ministries in the Government of India. At the firm level, the logistics focus will have to move towards reducing cycle times in order to add value to their customers. These are few of the issues one need to take account before the logistics industry can boom significantly in India.

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PROMOTION PRACTICES IN SERVICE INDUSTRY

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Abstract: *Promotion is an important part of the marketing mix for many marketers. The key to successful promotion, whether it be advertising or personal selling is 'benefiting' the product. It is very important to define the 'product' in terms of what the customer wants and not in terms of what the marketer makes and sells. Intangible dominant products such as services offer a challenge to the promotion manager. To successfully promote such services, they are often personalized. Personalizing the service around tangible persons is one way of concretizing the intangible nature of service firms and their products. To successfully promote services, they must be made to have a favorable positive image constructed to project attributes of the service. The aim of this paper is to identify the promotional practices of the three selected service sectors in the state of Andhra Pradesh. Respondents opined that Priority is given to the advertisement in healthcare and tourism sector and publicity is given to hotel sector. They are thinking of enhancing the budget to improve the promotional programmes. Television is the major media for advertisement for all the selected service sectors. The study found some lapses in the promotional mix and offered suggestions to make the promotional mix more effective.*

Introduction

Promotion of Healthcare Services

Customers need to be made aware of the existence of the services provided. Promotion includes advertising, sales promotion, personal selling & publicity. Hospitals generally do not undertake aggressive promotion; they rely a lot on a favorable word of mouth. To increase the clientele, a hospital may continuously introduce different health services. Hospitals conduct camps in rural areas to give medical check ups at a reasonable price so that they approach the hospitals in the future. They generally advertise in the health & fitness magazines. As hospitals spend millions of rupees in technology and infrastructure, it becomes necessary, that they attract patients and generate funds. In order, to do the same, the hospitals follow various marketing and brand building exercises.

Promotion of Hotel Services

Promotion mix of hotel industry like any other service encompasses of following communication mix. These are Advertising, Personal Selling, Sales Promotions, and Direct Mail.

Advertising: The media used by medium is:

- Business Publications to attract business class people.
- Tourist Publications to attract tour travelers.
- Directories like Yellow Pages esp. by small hotels.
- Direct mail to tour operators.
- On the other hand, media like T.V., radio, etc. are rarely used by Hotel industry. Many hotels have cars with the hotel name and logo printed on the car, which serves as indirect medium of advertisement.

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Personal Selling: It is rightly said that '*Receptionist is the nerve of the hotel*'. An effective receptionist must possess an impressive personality, should have high degree of knowledge about his hotel - variety of room. Receptionist should also be provided with facility like computer containing up to date information about room availability and other information about hotel so that he can answer any unique query of the customer. Also attractive photograph of different types of rooms available should be displayed at the receptionist desk.

Sales Promotions: These are paid form of marketing communication activity (other than advertisements) to stimulate the customer to come to the hotel.

Public Relations: Hotels keep the data base of their past customer and send them 'good wishes' card on their Birthdays, Anniversary. This creates good image of hotel in the mind of old customers.

Telemarketing: In the hotel industry, the telemarketing can be helpful in promoting the business since the tour operators, transport operators, travel agents and the users develop a number of confusions and misunderstanding about booking, confirmation, cancellation, and availability of package tour, a change in the hotel tariff or so. We are well aware of the fact that hotel is a multi-segment industry in which a number of industries are found involved in the process.

Promotion in Tourism

According to Rowley promotion is one of the key 4Ps in the marketing mix and as such has a key role to play in market success. Promotion is concerned with ensuring that customers are aware of the products that the organisation makes available to those customers. Dibbs et al (2001) point out that in tourism marketing, it is vital that there is more focus on promotion. Whereas the role that is played in product is one of support, influence and encouragement, however, with promotion, a destination seeks to be in control and needs to ensure the development and then communication of the most effective messages to the demand audience taking into consideration segmentation differences of our existing and potential customers.

Review of Literature

Altan Erdem.S (2001), highlighted some of the e-commerce practices in the healthcare marketing arena. He specified that the Internet will provide the platform that will tie together the fragmented healthcare service providers, payers, and patients. The technology made possible by the net has the potential to establish communication channels among all these parties. By using these channels, the efficiency in the marketplace is bound to improve and raise the level of satisfaction of its participants. It is necessary to integrate the health care management practices with new information technologies offered by the Internet. After all, having a successful e-commerce strategy in healthcare marketing requires much more than just going on-line with a website.

Altan Erdem S (2006), stated that there is no doubt that the Internet has proven itself to be the most powerful vehicle for distributing information to millions of individuals. After all, it is interactive, user-controlled, and provides a means for communication detailed information across a vast spectrum of topics. When the topic is healthcare marketing, its popularity becomes even more eminent. There are over 25,000 Internet health sites and this number is climbing rapidly. On the other hand, there are many who are concerned about the healthcare marketing practices on the Internet. One of the basic premises of these concerns is based on the questionable accuracy of the information on the Internet and the crucial impact of this lack of accuracy when the information is about healthcare.

Hossain Jakir (2006), made an attempt to investigate how the use of promotional activities can help to develop the tourism industry by giving a special concentration to the case of Bangladesh. The investigation was conducted from both a theoretical and an empirical point of view. According to his view every destination country is trying to achieve more gain by developing tourism industry. The expansion of the tourism through out the world has increased competition among the tourist destinations, trying to attract more tourists by adopting appropriate marketing techniques and strategies. Failure of doing so by a particular marketer will lead to a less competitive in the world tourism market. As an important element of marketing mix, promotion plays the vital role in marketing any product and service. By using the different tools of promotion, marketers attempt to serve this purpose and try to influence the potential tourists' attitudes.

Rebecca Acosta (2007), highlighted that, consumer research conducted by individual healthcare organizations across the U.S. to determine

the use of marketing messages in influencing consumer's perceptions or preferences of the provider. In his study he found that advertising can positively impact perception than preference in terms of the organization overall.

Tarannum Husain (2007), aimed on "promotional strategies of tourism industry in Uttaranchal state of India" and its problems in general and Uttaranchal in particular. He focused light on the scope of tourism sectors in Uttaranchal and explored the new avenues of the tourism industry, tourist motivators, tourist profile, opportunities with respect to accommodation, accessibility, attractions and amenities, infrastructural facilities and tourism avenues in Uttaranchal. In addition, suggested measures to make tourism economically viable and ecologically sustainable. Also they suggested appropriate and effective promotional strategies for promoting tourism in Uttaranchal. For the purpose of study, the primary data were collected through a pre-structured questionnaire from two respondent groups. Respondent group 1 consisting of 150 foreign tourists and 200 domestic tourists and respondents group 2 consisting of 110 hoteliers and 35 travel agents.

Rajasekhara Mouly Potluri (2008), Stated that, creating effective communication with customers is the most important aspect in hotel services marketing. To date we still have poor understanding of the role of effective communication with customers in attracting and maintaining prospective and present customers. He evaluated the effectiveness of advertising and personal selling practices of Ethiopian Service Sectors especially hotels in communicating with its customers with the aim of finding solutions to improve the existing communication and customer satisfaction. In conclusion, Ethiopian Hotel's advertising and personal selling indicated moderately effective in providing information, creating awareness, and changing attitude and ineffective in building company image and enforcing brand loyalty. He also identified that there is lack of integration between advertising and personal selling.

Methodology

Objectives of the Study

1. To study the Promotion mix practices in Healthcare, Hotel and Tourism sectors.
2. To suggest ways and means, if needed, for strengthening selected service sectors for better Promotion mix Planning.

Hypothesis

H1: There is no significant difference across the selected service sectors as far as the contents of the advertisements preferred for their services are concerned.

Data Sources

This study requires both Primary and Secondary data. The Primary data has been collected from various service firms viz., Healthcare, Hotel and Tourism service sectors located in Andhra Pradesh. Secondary data is collected from journals, publications and other reference books and is also collected from various websites on the internet.

Data collection method

For collecting Primary data, a Questionnaire is used as Research Instrument followed by personal interview.

Sampling

The samples were selected by using, non-probability sampling procedure and in specific, Quota Sampling technique has been adopted to select the sample. To make the sample more representative of the entire state, sample has been selected from all the three regions of Andhra Pradesh namely Coastal region, Telangana region, and Rayalaseema region. The questionnaires were distributed to the target respondent firms and after the scrutiny it was found that the collected filled in questionnaires with the following numbers are found valid.

Healthcare service sectors	: 111
Hotels and Lodges	: 114
Tourism (Tour Operators and Travel Agents)	: 108

Data Analysis

The collected data is coded, tabulated and summarized. One-Way ANOVA, Chi-Square tests and Freidman test have been applied for analyzing the data.

Findings

Hypothesis Testing

H1. There is no significant difference across the selected service sectors as far as the contents of the advertisements preferred for their services are concerned.

One-Way ANOVA test is done across the service sectors to find the difference. The critical value of One-Way ANOVA at 5% level of significance is 3.00. The calculated value is less than the critical value in case of Service firm's image, 'Facilities/ Equipment' and 'Price/Tariff' it can be said that there is no significant difference across the service sectors regarding Service firm's image, Facilities/ Equipment and Price/Tariff is concerned where as incase of 'Staff/experts availability' and 'Products/services' the calculated value is greater than the critical value, hence it can be said that there is a significant difference across the service sectors. As far as the many contents of the advertisement preferred for the promotion of the services is concerned there is no significant difference across the service sectors. Thus Null Hypothesis is accepted and Alternative Hypothesis is rejected. (Table-4)

All hospitals, hotels, tour operators and travel agents agreed that undertaking promotion activities is important and all of them are undertaking promotional activities for the promotion of their services (Table-1&2).

Table-1: Importance of the Promotion Activities

Response	Healthcare		Hotel		Tourism		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Acceptance on Importance of the promotion activities	2.23	.687	2.18	.558	2.04	.956	2.049

5 point scale: 1- Strongly agree ..... 5-strongly disagree

Table-2: Undertaking Promotion Activities

Type of Service Industry	No. of Respondents			
	YES		NO	
	f	%	f	%
Healthcare	111	100	0	0
Hotel	114	100	0	0
Tourism	108	100	0	0

It is found that advertising stands first in the hospital and tourism sector preferences and publicity in the hotel preferences of promotional mix (Table-3).

The contents of the advertisement that they preferred are 'Service firm's image' 'Staff / experts availability', 'Products / services offered', 'Sophisticated facilities / equipment', and 'Price/ Tariff structure' (Table-4).

Table-3: Various Promotion Tools Preferred for Promotion

Promotion tools	Healthcare		Hotel		Tourism		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Advertising	2.05	.928	2.20	1.049	2.16	1.239	.628
Publicity	2.24	.936	2.19	.830	2.17	1.037	.190
Referrals	2.53	1.007	2.62	1.068	2.52	1.106	.322
Public relations	2.22	1.022	2.37	1.007	2.43	1.255	1.073
Personal selling	3.26	1.256	3.12	1.331	2.47	1.156	12.389 *
Sales Promotion	3.92	1.376	3.23	1.269	2.88	1.190	18.733 *

5 point scale: 1-to an extreme extent ….. 5- Not at all
* Significant at 0.05 level

Table-4: Various Contents of the Advertisement Preferred

Contents of the advertisement	Healthcare		Hotel		Tourism		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Service firm's image	1.77	.901	1.90	.798	1.91	.981	.789
Staff/experts availability	2.06	.789	2.54	.864	2.43	1.007	8.617 *
Products/services offered	2.14	.814	2.14	.958	2.49	1.148	4.722 *
Sophisticated facilities/ equipment	2.45	.951	2.61	1.027	2.50	1.172	.636
Price/Tariff structure	2.80	1.220	2.65	1.072	2.57	1.087	1.163

5 point scale: 1-to an extreme extent ….. 5- Not at all
* Significant at 0.05 level

The study identified the television advertising as most preferred media by all hospitals, hotels, tour operators and travel agents. (Table-5)

It is also found that majority of the hospitals, hotels, tour operators and travel agents are sponsoring some programmes in television channels. (Table-6).

Table-5: Various Media of the Advertisement Preferred for Promotion

Media	Healthcare		Hotel		Tourism		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Television	1.76	.886	2.14	1.143	2.33	1.360	7.229 *
Newspapers and magazines	2.07	.839	2.43	1.022	2.42	1.269	4.105 *
Radio	3.16	1.164	3.44	1.022	3.21	1.326	1.768
Internet	3.60	1.397	3.17	1.511	3.27	1.501	2.701
Hoardings	3.15	1.114	3.32	1.050	2.98	1.223	2.429

5 point scale:1-to an extreme extent ….. 5- Not at all
* Significant at 0.05 level

Table-6: Sponsoring Programmes in TV channels

Type of Service Industry	No. of Respondents			
	YES		NO	
	f	%	f	%
Healthcare	61	55.0	50	45.0
Hotel	73	64.0	41	36.0
Tourism	48	44.4	60	55.6

Most of the service sectors are highlighting their firms by specific services offered in the advertisements. (Table-7).

All hospitals, hotels, tour operators and travel agents have Public Relations department and very few of them have marketing department separately for the promotion of their services and image (Table-8 & 9).

All hospitals, hotels, tour operators and travel agents agreed to High level regarding word of mouth/ publicity helps in promotion (Table-10).

Table-7: Highlighting Firm by the Specific Services in Advertisements

Response	No. of Respondents						χ2-value
	Healthcare		Hotel		Tourism		
	f	%	f	%	f	%	
YES	77	69.4	38	33.3	69	63.9	34.359*
NO	34	30.6	76	66.7	39	36.1	

* Significant at 0.05 level

Table-8: Availability of Marketing Department

Response	No. of Respondents						χ2-value
	Healthcare		Hotel		Tourism		
	f	%	f	%	f	%	
YES	17	15.3	49	42.9	47	43.5	25.752*
NO	94	84.7	65	57.1	61	56.5	

* Significant at 0.05 level

Table-9: Availability of Public Relation Department

Response	No. of Respondents						χ2-value
	Healthcare		Hotel		Tourism		
	f	%	f	%	f	%	
YES	111	100	114	100	108	100	—
NO	0		0		0		

Table-10: Word of mouth/Publicity in Promotion

Response	Healthcare		Hotel		Tourism		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Level of Acceptance	2.31	.724	2.03	.710	2.41	1.085	5.978 *

5 point scale: 1- Very High…….. 5- very low
* Significant at 0.05 level

Only 54% of the hospitals, 69.3% of the hotels and 57.4% of the tourism firms are conducting customer exit interviews and taking feedback to rate their services. (Table-11).

Everybody agreed that their perceived level of competition to their service firms is high. All are with medium level satisfaction on promotional activities. They agreed to great extent that promotional activities affects sales growth, majority of them are accepting to improve the promotional programme with current budget. (Table-12, 13, 14 & 15).

Table-11: Conducting Customer Exit Interview/ Taking Feedback

Type of Service Industry	No. of Respondents			
	YES		NO	
	f	%	f	%
Healthcare	60	54.1	51	45.9
Hotel	79	69.3	35	30.7
Tourism	62	57.4	46	42.6

Table-12: Perceived Level of Competition

Response	Healthcare		Hotel		Tourism		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Perceived level of competition	2.34	.654	2.48	.536	2.52	.572	2.756

5 point scale: 1- Very High…….. 5- very low

Table-13: Satisfaction on Promotional Activities

Response	Healthcare		Hotel		Tourism		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Level of satisfaction on Promotional activities	2.58	.859	2.47	.655	2.75	1.078	2.801

5 point scale: 1- Very High…….. 5- very low

It is found that healthcare, hotel and Tourism sectors approach towards the statement 'Marketing helps the organization to build image' is strong. (Table-16).

Suggestions

Suggestions to Healthcare Industry

- **Promotion to increase Occupancy Rate:** The Hospitals need to conduct free medical camps periodically, create awareness in public about the

Table-14: Scope for Improvement of Promotional Programme with Current Budget

Type of Service Industry	No. of Respondents			
	YES		NO	
	f	%	f	%
Healthcare	80	72.1	31	27.9
Hotel	88	77.2	26	22.8
Tourism	83	76.9	25	23.1

Table-15: Influence of Promotional Activities on Sales Growth

Response	Healthcare(N=111)		Hotel (N=114)		Tourism (N=108)		F-Statistics
	Mean	SD	Mean	SD	Mean	SD	
Level of acceptance	2.34	.780	2.12	.718	1.97	.729	6.884 *

5 point scale:1-to an extreme extent ….. 5- Not at all
* Significant at 0.05 level

Table-16: Approach Towards Marketing Practices-Friedman Test

Statement	Friedman Test		
	Healthcare	Hotel	Tourism
Marketing helps the organization to build image	2.57	2.85	2.67
Marketing can increase productivity of organization	3.76	3.44	3.34
Marketing creates awareness about wellness programmes	3.05	3.27	3.68
Marketing helps to generate revenue	3.60	3.77	3.66
Marketing helps customer to select best service organization	3.99	3.82	3.78
Marketing provides scope for organization expansion	4.04	3.85	3.87

facilities through brochures and design advertisements with rich information.

- **Maintaining good Relations with Public:** Hospitals need to release news for press coverage related to hospital events and public interest topics, writing columns for news papers/ magazines, publishing news letters on latest medical topics and sending personal letters to patients regularly about enquiring their health.
- **Organizing Customer Exit Interviews:** The suggestions from customers through exit interviews may be recorded and due consideration may be given to maintain quality while rendering the services.

Suggestions to Hotel Industry

- **Maintaining Public Relations:** It is suggested that hotels may offer benefit packages for individuals and families during week ends. Hotels should sponsor the local events, meetings and special programmes, maintain relationship with business houses and official visitors, mail brochures, offer special benefits to card holders, and distribute pamphlets at various travel points and tourists destinations. This may increase the room occupancy rate during slack periods. They should place large size hoardings at vantage points of town/city and piligrim places to attract customers especially tourists.
- **Establishing Marketing Department:** As few hotels have marketing department separately for the promotion of their services and image, it is suggested that hotels should establish a marketing department with well defined goals to succeed in the competitive markets. Marketing department need to be headed by qualified and experienced marketing professional.
- **Designing Evaluation forms:** It is suggested that hotels should design evaluation forms and distribute to the customers at exit point to get feedback about quality of services.

Suggestions to Tourism Industry

- **Preference of Promotion mix:** Preference should be given for Sales promotion programmes like exhibiting at travel trade shows, distributing

Brochures, display of Posters and banners near elevators and in lobby of hotels, offering coupons, Price-offs, contests and games to tourists should be organized to attract tourists. Public relation programmes like involving with local communities and Industry communities, releasing newsletters, writing articles in News papers and Magazines, publishing good photographs in Print media, maintaining relationship with hotels, sponsoring conferences, ceremonies and events should be organized to generate position results and for effective word-of-mouth communication.

- **Coordination among the different related service sectors:** As tourism is a multifaceted industry, there should have some coordination, formal interaction, understanding and appreciation among the other related tourism and non-tourism business sectors like transportation, Hotels etc., Tourist information centres should be ascertained at important tourist destinations, Piligrim centres, Hotels etc., to avoid misguidance by the touts or other local population and to get right information.
- **Enhancing Local awareness:** The majority of tourists to India are visiting friends or relatives who live here. The local population has an important role to play in ensuring the events, facilities and attractions in the country that are promoted to these tourists. Currently, there is a perception amongst stakeholders that residents lack awareness or have negative perceptions of what is available in the country. One aspect of the tourism marketing campaign should be aimed at enhancing pride, appreciation and awareness of India's cultural offerings, locally, in order to ensure residents participate in promoting Indian attributes to visitors.
- **Follow-ups and Feedbacks for improvement:** Follow-up and feedback should be taken care in the tourism sector and with the growing competition; the customer satisfaction should be given utmost priority. After execution of service, the service providers (tourism industry) should obtain the feedback of the service he has rendered so that any improvement required in the future can be attended too.

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FACULTY RETENTION – A STRATEGIC TOOL FOR WINNING COMPETITIVE EDGE

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Abstract: *Professional Institutions are facing cut throat competition for retaining their faculties as the market is full of attractive offers to these star performers. Effective employee retention means systematic efforts to create and foster an environment that encourages employees to remain employed in the same institution for longer period. Professional Institutions are facing a lot of problems in faculty retention these days. Hiring knowledgeable people for the job is essential for an employer. "Higher education is now seen as an indispensable investment in creating a knowledgeable workforce, producing broad national benefits and increased personal fulfillment for our citizens". (Marchese, 1997, p.1). But retention is even more important than hiring. There is no dearth of opportunities for a talented person. The professional institutions can shed off the retention problem by inculcating certain factors. This study examines the professional institution facing retention problems and simultaneously the factors providing helping hand to confront this tedious job as well to overcome this with innovative ideas and fruitful result.*

Introduction

Talent management is the art of retaining the human assets to maximize the profits in term of skills, knowledge, values and work excellence. It is the effort of whole Institution in order to retain its brand image in the business and social world. Various Institutions are taking essential steps in form of HR practices which are associated with both its profit and faculty interest which can be monetary or non-monetary. Faculty Retention practices is now top priority for Institution in their quest to win the war for talent. The unprecedented demand for talent accompanied by a shrinking pool poses a challenge for Institution. They have to find out ways to incentives the talent available. This requires a look at compensation packages commensurate with the paying capacity, differentiation between performers and non-performers and institution of a reward mechanism.

Talent management requires differentiating the Institution by building business capability through excellent programs to attract, engage and retain the most valued faculty, underlining the importance of talent differentiation, aligning the talent management strategy to the overall business plan and implementing a nuance approach towards the most valued faculty with paradigm shift from uniform service regulations and compensation package structure to a flexible compensation package and service conditions.

Institution should put in place appropriate HR audit could play a vital role in instilling a sense of confidence in the management and HR functions in the Institution.

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There is a manifest need to address the key drivers in attracting and retaining the right talent. Building an ideal work environment, cultivating and retaining talents in these difficult times requires effective management and leadership in maintaining a 'talent friendly' environment and ensuring alignment of talent expectations with core institution strategy. This is a tall order and necessitates periodical revisiting of the dynamics of compensation management, performance measurement, Institution change, faculty relationship management, employer branding, talent development and succession planning.

In the ultimate analysis, faculty rewards and recognition have to move beyond compensation and benefits. In this world of flux and flow, turbulence and volatility, attrition and organizational dynamics, what is required is that employers must offer a holistic package to faculty. Monetary aspects have to be an integral part of this package but the significance of non-monetary incentives cannot be ignored in any objective assessment of the growth and structural transformation of any Institution.

Succession planning is necessary to prevent losses of technical and corporate knowledge. Succession planning requires linking the succession planning model to overall strategic plan of the Institution, driving business growth by retaining valued leaders, adapting the succession plan and leadership programme to demographic changes and harnessing the power of talent management.

This issue of succession planning and talent crunch is particularly important with large number of retirements scheduled from 2008 onwards. This makes it necessary for PSBs to develop their second line of senior faculty. Institution should identify from within and create a special pool of faculty based on their competencies for handling new and emerging Institution opportunities. Institution should structure a position-oriented career path for such personnel and prepare them for immediate senior faculty positions, which would open up in the near future.

Institution must also conduct competency mapping of their human resources and put in place action plans to develop the identified personnel for taking the Institution forward in the next decade.

The role of HRM in propagating ethical and moral values is no less important Retention of talent through monetary and non-monetary strategies is needed to ensure business growth and continuity, Johann Wolfgang Goethe said," treat people as if they were what they ought to be, and you help them become what they are capable of being".

Review of Literature

Employee retention is a strategic tool to ensure competitive and corporate performance. Companies have realized the fact that retaining and training the existing workforce is beneficial rather than recruiting fresh talent. Employee retention is based on strategies providing the employees conducive environment, job security, flexible work design and improved commitment. According to AMA (American Management Association), the cost of replacing one employee is approximately 30 percent of his annual salary and this is an important issue for the companies in today's competitive world. Retention practices start with attracting and retaining star employees. It involves identifying, recruiting and retaining them. HR recruitment and retention strategy revolves around creating a competitive compensation and benefits package, or instituting an employee appreciation and recognition program. These practices are based on satisfying the key human needs that influence performance and loyalty. Human motives are based on needs and these motives are related to work. Every person has different reasons for working. The outcome of this work impacts morale, employee motivation, and the quality of life.

According to Duckling, "It is a complete force starting and keeping a person at work in a organization. It can be termed as a felt need giving rise to wants or goals that cause tensions that is unfulfilled desires giving rise to actions towards achieving goals. This finally results in satisfying actions. To create positive employee motivation psychologists have given various motivational theories.

Faculty satisfaction refers to job satisfaction perceived by faculty in this investigation. Herzberg (1959) theorized that motivators (achievement, recognition, work itself, responsibility, and advancement) increase satisfaction, while hygiene's (the lack of motivators) decrease job satisfaction.

The research about faculty satisfaction and retention has tended to focus on salary satisfaction, teaching load and research commitments, and ability to balance family and work-flexible "tenure clocks (Barnes, Agago, & Coombs, 1998, p.458).Some

research has even looked at a "developmental approach" to maintain faculty vitality-looking at the stages of a faculty member's career and his or her particular needs at given times (Kalivoda, Sorrell, & Simpson, 1994).

Faculty engagement refers to faculty member's perceived sense of connection to the institution at which they work and to the work they do. This connection is illustrated by faculty involvement in their departments and outside of their departments, including involvement with students and colleagues, both academic and non-academic. Faculty publications and research and presentations at national and international conferences are also indicators of faculty engagement (Baldwin, 1990).

Employers have a need to keep employees from leaving and going to work for other companies. This is true because of the great costs associated with hiring and retraining new employees. The best way to retain employees is by providing them with job satisfaction and opportunities for advancement in their careers. The saying, good help is hard to find, is even truer these days than ever before because the job market is becoming increasingly tight (Eskildesen 2000, Hammer 2000).

Eskildsen and Nussler (2000) suggest that employers are fighting to get talented employees in order to maintain a prosperous business.

Ray Hammer (2000) as well as many other researchers/authors agree. Mark Parrott (2000) believes that, there is a straight line between employee satisfaction and customer satisfaction. He believes that today's employees pose a complete new set of challenges, especially when businesses are forced to confront one of the tightest labor markets in decades. Therefore, it is getting more difficult to retain employees, as the pool of talent is becoming more- and more tapped-out. The research below, which focuses primarily on employee retention through job satisfaction, supports this contention.

There is a definite need to analyze the elements of employee retention through job satisfaction, considering the positive effects on the economy that can be derived from satisfied happy employees.

Talented workers want to feel they are being paid comparably to what other companies pay for similar work in the industry. Equity Theory recognizes that individuals are concerned not only with the absolute amount of rewards for their efforts but also with the relationship of this amount to what others receive (Robbins, 2009). They also care about being paid equitably with others in similar positions making comparable contributions.

Faculty role satisfaction is an important dynamic at higher education institutions. Satisfied faculty members provide a source of strength and identity to the college atmosphere. Abraham (1994) found that instructors with high and medium levels of job satisfaction were more effective than those with low job satisfaction. Job satisfaction was independent of length of service and related solely to an individual's attitude towards his or her job. Additionally, satisfied faculty perceived their roles as more instrumental in helping students expand their educational goals.

Caplow and McGee (1958) argue that job satisfaction is critical issues in faculty retention. They contend that the push of academic migration is stronger than the pull of new institution.

Objective of Study

- To develop program and coach management to improve faculty retention through enhancement of the work environment.
- To encourage faculty involvement on institutions practices.
- To attract faculties participation in respect to recognize the financial benefits.

Hypothesis

H1- Faculty retention is related to job satisfaction level.

H2- Faculty loyalty is related to the tenure of service of Faculty.

H3- Faculty retention is related to financial increments and career support.

Research Methodology

These steps will be followed to answer the above questions:

- Review the literature on job satisfaction and Faculty retention.
- Based on the information obtained from the review of literature, a questionnaire was developed to identify Faculty perceptions about job satisfaction and employee retention.

- The sample population of workers came from varying fields of occupations, with the exception of management positions.
- Sample of 40 Faculty was taken from private and government professional institution respectively.
- The information gathered by questionnaire be sorted and analyzed and categorized.
- Recommendation for practice be derived from the analysis of the data collected.

Data Collection Tools: A self filling questionnaire was used to test the faculty retention and Job retention.

Factors: Job Satisfaction, tenure of working, work environment, working hours, job switching and reasons of it, Faculty loyalty and tenure of working, and suggested retention tools.

Compilation and Interpretation

Responses of 40 employees was taken and interpreted by pie diagrams as follows:

Job Satisfaction

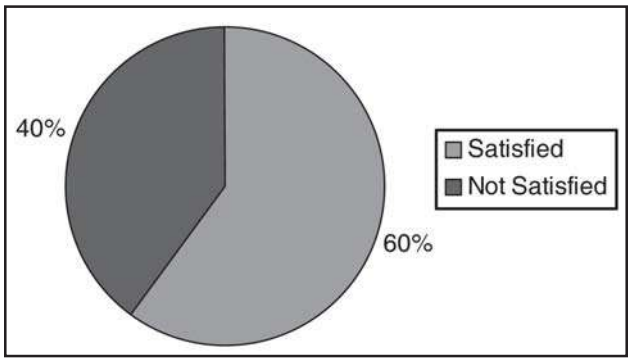

Fig. 1: Job Satisfaction – Private Institution

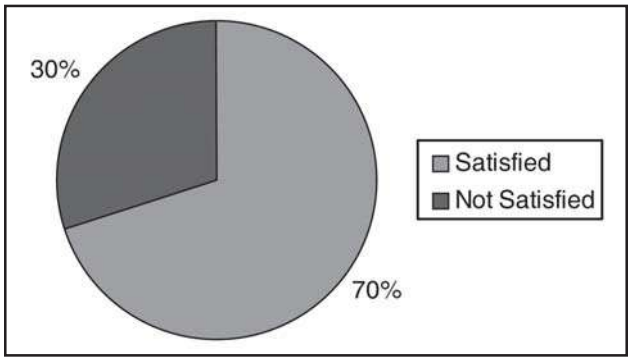

Fig. 2: Job Satisfaction – Government Institution

Job Satisfaction level was 40% in the private institution whereas in the Government institution the satisfaction level was up to 70%, which can be contributed later in terms of job security, other benefits as provident fund, casual leave, medical leave, accommodation etc. However a small % of dissatisfaction was visible in Government institution due to monotonous work, less monetary raise.

Tenure of Working

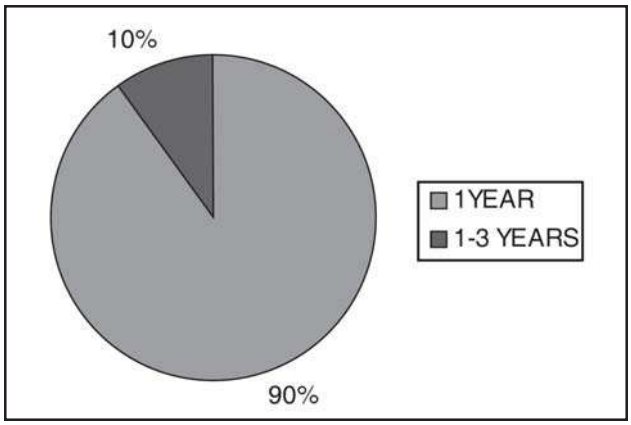

Fig. 3: Working Tenure – Private Institution

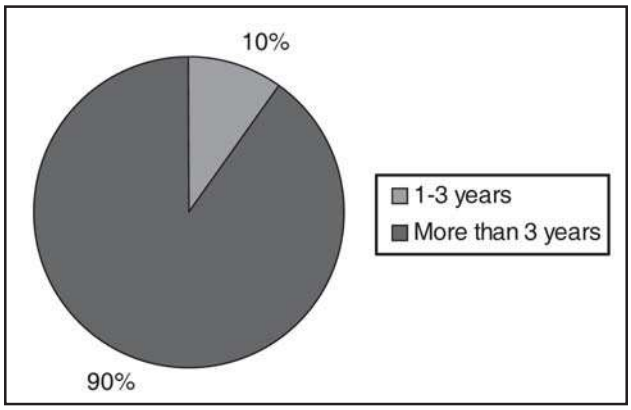

Fig. 4: Working Tenure – Government Institution

Faculty loyalty is related to the term of service they want to continue, but as the faculty are working for 1-3 years to about 10%and 90% in the a1 year term, so it cannot be stated clearly in terms of private institution. While on the other hand there was only a small % of faculty targeting to work for 1-3 years in the Government institution and searching options to switch there jobs, but majority of 90% faculty was going to continue there job till retirement.

Working Environment

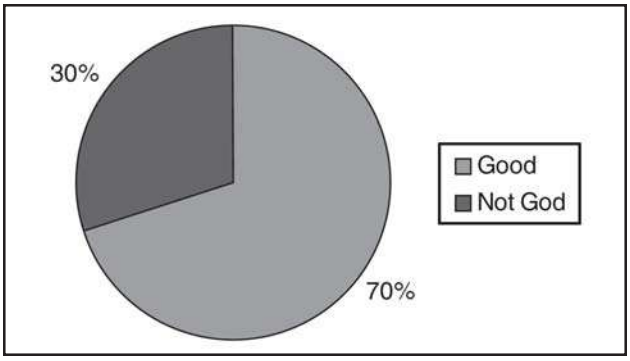

Fig. 5: Work environment - Private Institution

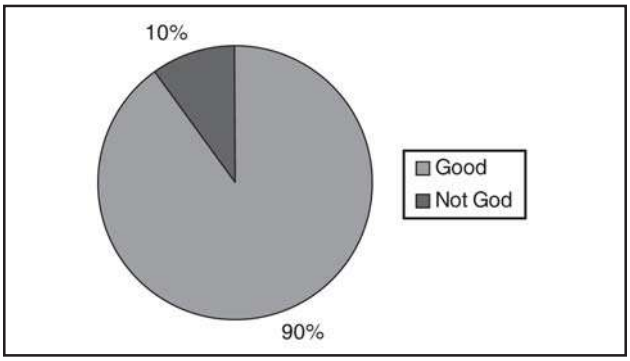

Fig. 6: Work environment - Government Institution

Work environment in the private institution was not good to about 30%, while 70% predicted as good, which can be related to the fear factor of there job. Whereas in the government institution there was majority of chunk to about 90%, who were stating work environment as good as they were working for a long time as well as the superior, subordinate and colleagues were same for a long time of service.

Working Hours:

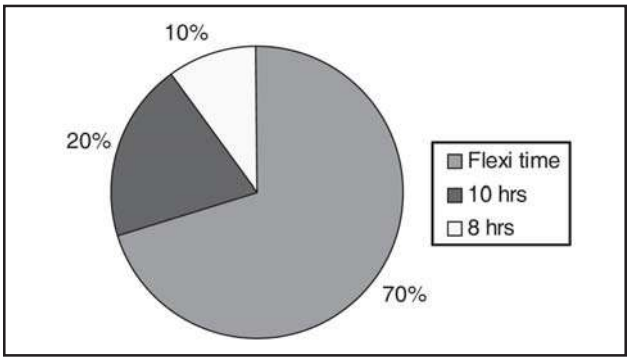

Fig. 7: Working Hours - Private Institution

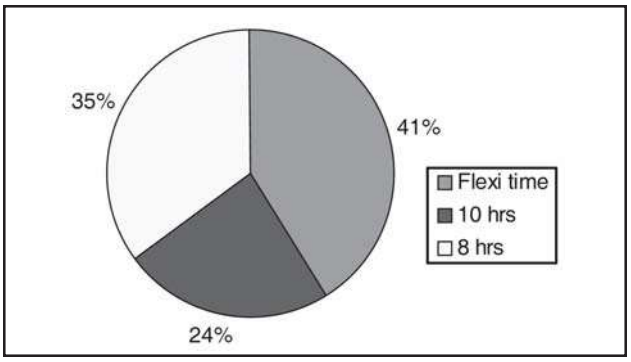

Fig. 8: Working Hours - Government Institution

As the working hours in the private institution is termed as flexi time to about 70% which can be predicted as fluctuating between 10 hrs and more than that, only 20% were working for 10 hrs and 10% for 8 hrs which was creating a difference of working style. Whereas in the government institution majority of faculty to about 60% was working for 8 hrs, and 40% to about 10 hrs, that indicates the job hours are fixed, there is no change, so it can be associated to job security.

Job Switches:

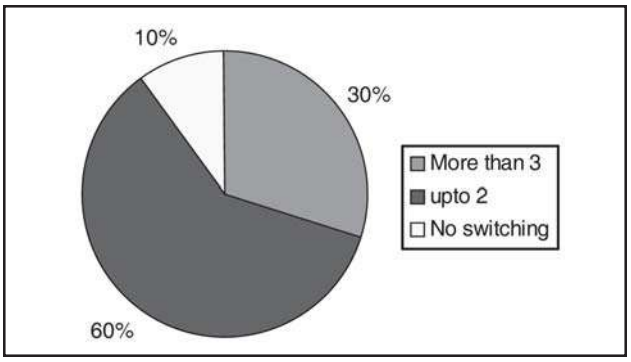

Fig. 9: Job Switches- Private Institution

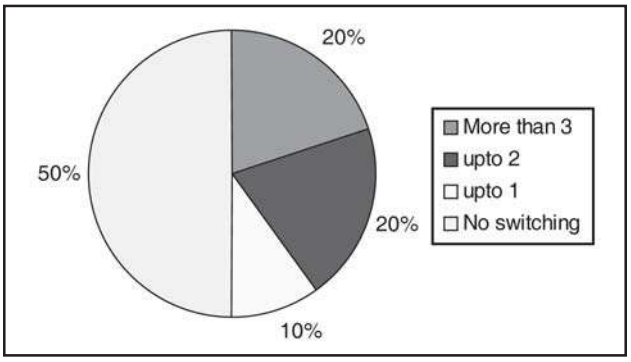

Fig. 10: Job Switch- Government Institution

Job switching is related to faculty loyalty as the faculty who is working for the institution for a longer period, remains loyal and performs well. In the private institution 60 % of employees are switching their jobs for about 2 times, 30% to more than 3 ~d 10% of the faculty stayed to the job. Whereas in the government institution the employees to about 50 % were doing their job since the start of there career and about 20% more than 3, 20% up to 2 and only 10% have switched 1 job and joined the respective job. This clears the image that once the job was assigned to them in government institution they were going to render there services till retirement, while in private institution this index of switching was fluctuating due to less package, fear of job, no career support etc.

Reason of Job Switching:

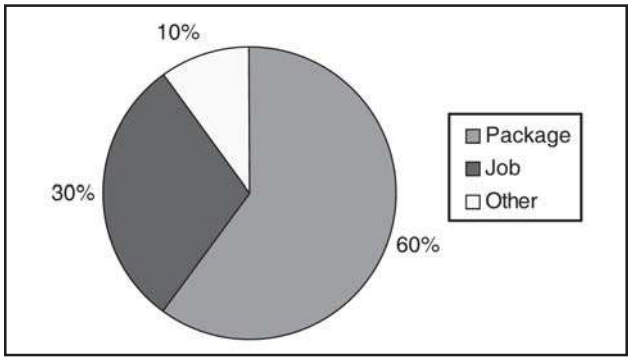

Fig.11: Reason for job switching - Private Institution

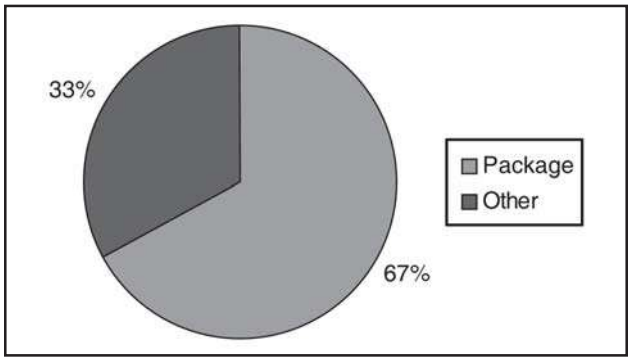

Fig. 12: Reason of Switching - Government Institution

The reason for leaving the job according to the faculty of private institution was related to package to about 60% opinion, job security 30% and 10% other causes as time, culture, pf, medical leave etc. while on the other hand the ratio of switching was quiet low and the reasons some how associated were again the package to about 67% opinion while 33 % contributed it to other reasons of job monotony, less incentive, lack of facility etc.

Faculty Loyalty and Tenure of Service:

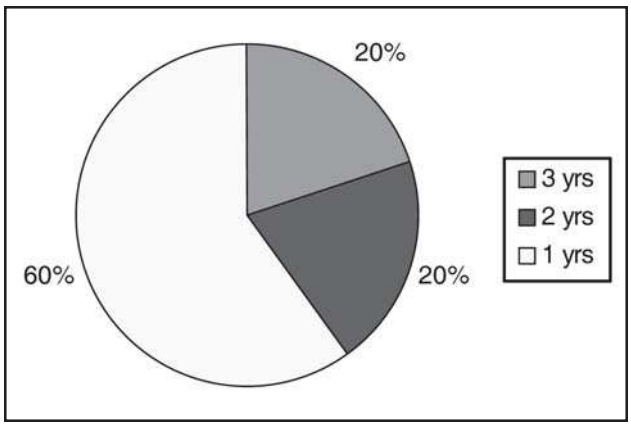

Fig. 13: Faculty loyalty and Tenure- Private Institution

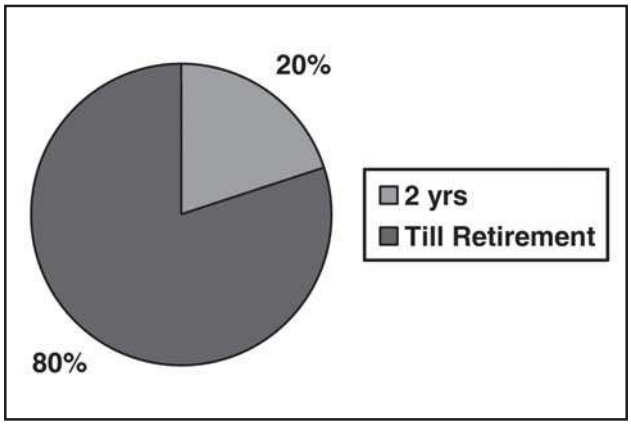

Fig. 14: Employee Loyalty and Tenure in Government Institutions

The faculty working in the private institution was not going to continue the job due to lack of job security and other reasons which was predicted as 60% of them will work for 1 yr, 20% to about 2 yrs and 20% to about 3 yrs. This was contributed to lack of career support and other benefits associated as accommodation, finance etc. while in the government institution 80% of faculty were going to render there services to the institution till retirement and only a small number of faculty to about 20% was looking for switching in the coming 2 years.

Retention Tools:

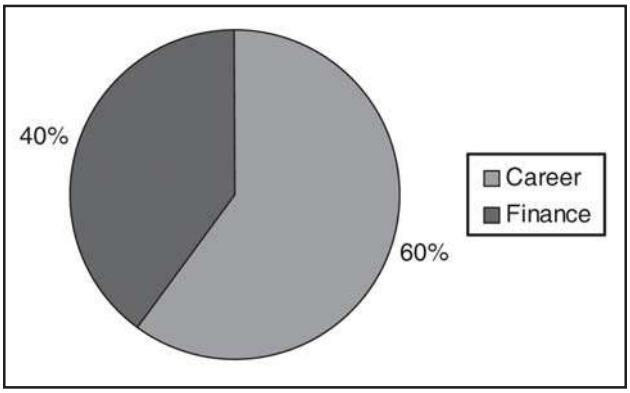

Fig. 15: Retention Tools Suggested - Private Institution

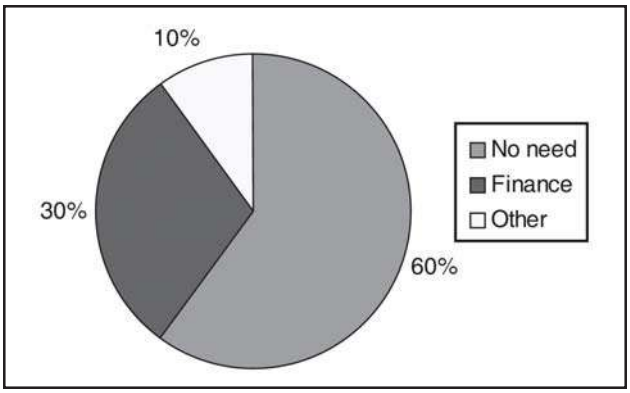

Fig. 16: Retention Tools Suggested - Government Institution

The faculty in the private institution are usually young i.e. have joined work in the last 1-3 years and are more concerned for there career growth and give this suggestion to about 60% for giving this support for there development and 40 % to finance. While 60% of faculty in the government institution stated no need to practice such tools but suggested some improvement to financial aspect to about 30% and other facility to 10%.

Results and Discussion

Results show that the faculties attach most importance to job satisfaction level (mean score 3.9, SD 5.2), (**Table at the end**), followed by loyalty and tenure of services (mean score 2.9, SD 7.2), and financial rewards (mean score 2.2, SD 4.2), They attach relatively less importance to financial rewards (mean score 2.2, SD 4.2), with respect to the fulfillment

Table 1: Job satisfaction levels

Hypothesis	Mean Score	Standard Deviation
H1: Faculty retention and job satisfaction level	3.9	5.2
H2: Faculty Loyalty and the Tenure of services	2.9	7.2
H3: Faculty retention and Financial rewards	2.2	4.2

of employer promises relating each of these inducements, faculties are most positive about the fulfillment of promises to their job content and the social atmosphere. And about financial Rewards are perceived to be least fulfilled.

In general, it appears that retention practices are more focused on the factors which are believed to cause employee turnover rather than on those believed to affect faculty retention.

This focuses on career opportunities and financial inducements. Although compensation matters, faculties are more concerned with the level of fulfillment they get from their jobs. They also feel that working with an understanding head of department in a cooperative and trusting work environment is important. Institution should focus on making sure that the people they hire are a good match for the job and the work culture.

The evaluation of promises about career opportunities appears to be most predictive of employees' intentions to leave and of their job search behaviors and they are also strongly predictive of faculty loyalty. This finding is in line with HR officer views that career development is an important factor affecting both voluntary faculty turnover and retention and it supports their efforts to work out retention policies focusing on career development.

A faculty relationship with his or her head of department and work-life balance are the most important determinants for staying with an Institution. Senior leaders should be encouraged to succession plan which is another tool to motivate faculty to keep developing. Management teams need to be educated in succession planning concepts and can be motivated by having succession planning

included as a performance criterion. Failure to develop successors may prevent them achieving higher career objectives themselves.

Employers need to anticipate what their expectations will be of faculty in the future to ensure that they create a realistic job description .Institution must also focus on faculty engagement to ensure that their workforce is committed to the long-term success of their organization and want to stay with the organization to honor this commitment. Engaged faculty will also act as ambassadors and produce better results.

H1- Faculty retention is related to job satisfaction level.

The overall satisfaction level was high in the government institution which was related to the job satisfaction which later was seen with the responses in terms of job security, work environment, working hours, less job switches. Hence H1 is true.

H2- Faculty loyalty is related to the tenure of service of faculties.

The faculties working in the government institution were not going to continue the job due to lack of job security and other reasons which was related to there less loyal behavior. This was contributed to lack of career support and other benefits associated as accommodation, finance etc. While in the government institution 80% of employees were going to render there services to the institution till retirement and only a small number of faculties to about 20% was looking for switching in the coming 2 years. So faculties loyalty is related to the tenure of service of there faculties.

H3- Faculty retention is related to financial increments and career support.

Retention is an important tool to assess the talent and giving it proper treatment. When the faculty is financially and career growth wise supported there was good response to remain retained while when this index was reducing the loyalty was somehow doubted.

Does faculty engagement make the difference?

It's a common complaint: "Management is so removed. They don't really get what's going on." Unfortunately, there's often truth to this statement. But there is away to better communicating with faculties, to keep a pulse on their stresses and passions, to keep them engaged with your institution. Faculty engagement means having on-going, open communications that is instigated by your staff and management alike. By listening and acting on what you hear, you can earn the long-term loyalty of faculties and create a more energized and productive workplace-and that can lead to a better bottom line. Losing good faculties is costly for all employers. Hiring expenses, training costs, and loss of productivity all contribute to the losses when a faculties leaves. What can an institution do to attract and keep valuable faculties?

Do you know why faculties leave your institution? According to Watson Wyatt Worldwide, 2003, why faculties stay or leave an institution.

Table 2: Reasons Cited for considering leaving current employment

Dissatisfaction with pay	58%
Dissatisfaction with management	48%
Inadequate promotional opportunity	48%
Inadequate opportunity for career-related skill development	44%
Dissatisfaction with benefits	37%
Uncomfortable work environment	24%
Conflict with head /colleagues	23%

Source: Strategic Rewards: Maximizing the Return on Your Reward Investment, Watson Wyatt Worldwide, 2003.

Table 3: What makes faculties Remain Loyal to employers?

Chance to use skills on the job	11%
Trust in Senior leadership	14%
Competitiveness of rewards	14%
Job-security	11%
Quality of institution services	10%
Absence of work-related stress	7%
Honesty and integrity of institution business conduct	7%
All other factors	26%

As an faculty you realize that the information that has been given to you is not 100% correct, your team members and other colleagues in the office don't like you; the work environment is not very cordial; there are some misunderstandings; miscommunication; the promises that were made before the employment... the boss is not willing to keep all promises. But you still like to stay in the relation and want to give your best. Adjustment and compromise is required. Once you are married, keeping the trust and faith is important, proper communication is very crucial, feedback is the backbone and motivation, regular but genuine appreciation is a tonic.

Conclusion

The Retention Programs Coordinator will perform such assignments to improve as:

- Creating announcements, promotional contests, prizes, and publicity.
- Creating reward programs for faculty participation and retention.
- Acting as the system expert for computer programs supporting retention surveys.
- Working with others to redesign existing programs such as orientation to create stronger relationships and enhance loyalty to the Institution.
- Making recommendations to management on new programs and processes.
- Select the right faculty.

The questions were designed to elicit whether faculty find these attributes in their work environment. Through further study, Gallup refined the questions to verify their validity as indicators of faculty satisfaction and to ascertain any correlations between faculty satisfaction, retention rate, and company productivity, profit, or student satisfaction.

The research revealed five factors that determine a faculty attitude toward an Institution:

- Dissatisfaction with pay
- Inadequate opportunity for career-related skill development
- Uncomfortable work environment
- Job-security
- Employee loyalty

To avoid turnover, institution may develop some strategy.

- It has been found that faculty perceived that the most important reason they leave is because their work is unappreciated and not recognized. So, institution can improve in this area.
- Institution should emphasize on career growth, learning and development. Institution need to hire the right people at the right place at the right time and continue to develop their careers. Institution need to have an ongoing career development program, or skills training program. An investment in upgrading the workforce is one of the best investments a company can make when looking at long-term growth. Hiring the people that are a good "fit" with the culture of the Institution - meaning that their values, principles, ethics, and goals (subjective and objective) clearly match those of the company- and then training as necessary will go a long way toward ensuring employee loyalty and retention. Institution should also provide thorough orientation to help employees avoid feeling overwhelmed.
- Faculty also like exciting and challenging work. They also want recognition for work well done. So, organizations should design their work/ assignment in that fashion that faculty feel challenging and get recognition after work done in effective and efficient way.
- Institution should focus on fair pay and benefits. Creativity in compensation and benefits can make quite a difference to the welfare of the faculty. An Institution should assess overall faculty needs when addressing retention issues. Institution should hire faculty from within if possible. Attempt to avoid bringing new faculty on board at a higher rate than current faculty.
- Institution should focus on company policies. It should comply with other organization within the industry. Again it should comply with national and,'0 international standards.
- To increase job satisfaction among faculty and reduce turnover, organization should consider providing a realistic job preview (RJP) which include both good and potentially bad news about the company and position it seeks to fill.

Applicants who have given a RIP are better able to cope with the frustrating elements of the job than are applicants who have given only inflated information. Faculty retention strategies regardless of pay levels. For a company to develop a retention strategy, several steps must be taken. They must assess the current situation and measure the turnover rate in their company. Institution may create positions such as officer of recruiting and retention, rather than only recruitment to emphasize the importance of getting and then keeping high- quality staff. Institution can built a comprehensive retention management program to get accurate information about why people leave. In the absence of such information, wrong conclusion may be drawn about the causes of departure. Institution can do it by exit interviews and Institution surveys.

- Tactful questioning may be needed to determine the real reason for quitting. Institution also designs as written "pre-exit interviews," asking questions about why. A faculty would consider leaving, what parts of their job are most frustrating or disappointing, or, more positively, why they stay.

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