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A DIAGNOSTIC STUDY OF THE CAB AGGREGATION INDUSTRY USING THE SERVIQUAL GAP MODEL

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ABSTRACT

The taxi space in India is a fast-growing business and has been seeing a phenomenal growth in the past 9-10 years. Over $400 Mn (INR 2400 crores) of VC money has been pumped into these companies in the past 6 years itself. The Indian radio taxi market alone is estimated to be between $6-$9 billion dollars by different estimates, and is forecasted to grow at 17-20% annually. With the kind of Taxi booking and mobility solutions, which companies like Uber, Ola first made popular, cab aggregation industry has undergone a major change. The impact of the cab aggregators can be seen from advertisement on television, articles in newspapers, blogs that appear almost daily and the reason for this is that they noticed the gap between demand for taxi service and supply of taxi service. It not only fills the gap between demand & supply but also improved the quality of taxi service. This paper concentrates on finding the difference between the perception and the expectation of the customers towards app-based cab services using the SERVIQUAL GAP MODEL. Through the analysis, an attempt has been made to suggest measures to improve the services to meet expectations, in cases where the expectations exceed the perception. In areas where the perception or the service provided exceeds the expectations, suggestions are given to tone down the service provided, thereby reducing cost and efforts

Key Words: Cab aggregatorIndustry, SERVIQUAL Gap Model, Perceptions Vs Expectations.

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INTRODUCTION

Present scenario: The growth of Cab Aggregators

Taxi aggregator is the technological innovation in taxi market. Taxi aggregator are companies which creates their technological platform in the form of App like Ola app, Uber app by which they connect drivers and passengers. The impact of the cab aggregator can be seen from advertisement on television, articles in newspapers, blogs that appear almost daily the reason for this is that they noticed the gap between demand for taxi service and supply of taxi service.

In this modern world, Cab Industry plays a vital role in our society. The most important factors for people who live in the cities especially people who do not have a car or often use public transportation. Cabs are one of the most convenient transportation options available. People choose cab to make their life more convenient, faster and easier to reach their destination.

The increased use of smart phones and internet service has made it possible for the aggregator to reach the masses. Another predominant reason for increased use of App based taxi service is increase in income and also the growth of Telecommunication facilities.

Uber, and Ola are perceived to be the two main competitors aiming to capture this market in India, backed by venture capital funds, and the plans of rapid expansion.

Ola settled on the current app-only model after testing their services as a radio cab. Uber entered the India market with their global model of cashless payments, and adopted cash payments at a later stage. Uber, though a global firm, entered late into the India market, thereby giving Ola the first mover advantage. But Uber has the advantage of having a higher spending power, and a global market to fund their operations if required. Both firms currently use their revenues to rapidly expand their fleet of vehicles, and to expand geographically across the country. This puts both the companies at a position where they currently make little to no profits. Cash as a payment mechanism also had an impact on their operations. Uber was forced to introduce cash payments in India as it was the easiest mode of payment for the majority of population, and also due to the competitor already having this payment mechanism.

Ola has considerably higher revenue, but their net profit is negative compared to Uber's slightly positive one. Consumer preferences inferred from app downloads and usage statistics suggest Ola to be the widely used application. But highly informed consumers from metros slowly seem to be shifting loyalties towards Uber owing to lower rates, and quality of the rides.

Along with the customer, the driver is the other important person that these companies need to keep satisfied. Both Ola and Uber have launched various incentive plans for their drivers. Incentive plans based on number of rides, and hours clocked during peak hours help put the drivers on the road during times of high demand. Another important objective has been to tie the drivers to a single taxi aggregator, when drivers prefer to be part of both of Ola and Uber to make maximum revenue.

CHALLENGES FACED BY THE CAB AGGREGATOR INDUSTRY:

The cab industry is exposed to various challenges which include more competition, globalization, rapid changes in customer preference, changes in technology with new innovations . These challenges need to be overcome by the Cab Aggregators to establish and maintain loyal customer base by providing them with a satisfied riding experience. To achieve this, one should understand the customer's specific requirements so as to improve the quality of the existing service.

THE REVENUE MODEL:

The online cab aggregators generated revenue through a pay for performance model. In terms of capital investment, online cab aggregator startups like Uber and Ola required little capital investment to set up the business. As they did not need to buy and maintain a fleet of cars, online cab aggregators partnered with private cab/taxi owners and provided them with modern technology like GPS devices and an internet calling device that facilitated cab booking, etc.

In return, to provide access to the technology platform, aggregators levied a small token sum on the taxi owners. These aggregators charged the cab owners/drivers a fixed commission for the revenue they generated. Private taxi owners also found it a win-win game as they get benefitted by being able to get access to aggregated consumer demand across the city. The demand for cab

booking usually included services like local pickup and drops, outstation travel, and full day/half day rentals.

BENEFITS PASSED ON TO THE CUSTOMERS:

The advantages of cab booking mobile applications are that the driver does not get to refuse the passengers; passengers can check driver's profile and leave feedback for another user after using the service. They can check their lost items from application, and for the payment method they can choose between various options of cash, card, online payment, etc. Plus, the cab applications offer discount and promotion that normal cab never offers to passengers.

The Mobile App shows the availability of cabs nearby and allots a cab, which is closest to the customer and provides with navigation to reach the customer without having to call for directions. Customers can also book a cab later by setting the date and time. Cab aggregators use Location Based Tracking Technology.

GPS enabled on the taxi helps in getting the latest co-ordinates of the taxi for accurate and better scheduling. The customers are also provided with an interface to track the location of the taxi by means of an application either through web interface or mobile so that the customers can get the actual position of the car.

Not only in train and flights, even in cabs advance booking can be done. It makes travel easy and convenient. Customers get to select the pickup point and drop location through the app. Customers mention pick up time from their origin, cost of the trip will be given according to their destination. Waiting charge will be added in their bill if so happen. Charge for advance booking is also imposed.

Cabs provide service not only in cities but they extend their service to rural areas also. Customers select the cab for out station according to the number of members, luggage, facilities of cabs, etc. During long travel, toll charges, parking charges etc will not be included in the customer's bill. The cost for the trip will be estimated according to the place, number of days and nights, type of car, kilometers etc.

The fare for the trip can be paid in different mode (eg : OLA accepts the payment for the trip in cash, OLA money, OLA credit, paying in credit and debit card etc. In case of uber, payment can be made through cash, credit or debit card, paytm etc). In most of the cab the fare will be estimate according to the distance.

Some cab aggregators has given option to the customer to rate their driver according to their performance. If the driver gets less rating he has to be trained well, if the driver's rating was good he will be rewarded for his performance. Some cab aggregators provide benefits to their drivers to motivate them. Some cab aggregators provide offers/discount to their customers to ensure repeat rides.. Most of the cabs provide offers at initial stage, for frequent usage of cab, referrals etc.

NEED FOR THE STUDY:

The cab aggregator business is a booming and fast-growing industry with a lot of potential. The entire face of the taxi industry has been changed with the advent of app-based cab services. An increasing number of people have started preferring these services over other modes of travelling. Despite this, many of these businesses are showing losses. This paper aims to find the areas where the service providers lack, so that they may improve their services, retain their customer base and be profitable.

The study is undertaken in order to find the difference between the perception and the expectation of the customers towards app-based cab services. Through this analysis, an attempt is made to suggest measures to improve the services to meet expectations, in cases where the expectations exceed the perception. In areas where the perception or the service provided exceeds the expectations, suggestions are given to tone down the service provided, thereby reducing cost and efforts.

REVIEW OF LITERATURE:

SaiKalyan Kumar Sarvepalli and Dr. N. R. Mohan Prakash studied the cab aggregation industry in India the aim of which is to present the overview of cab aggregation in India, current scenario, issues and finally look at the possibilities of consolidation referring the recent developments

happening in the industry. The study found that innovation in cab business using mobile application is the result of technology progress making the transportation easier, especially in metro cities and it is used by all categories of people. Ola and Uber are found to be the most popular in India, the companies' primary aim being to connect driver and customer and gaining some commission out of the transaction. This paper used RIDE Model for the research; R – Research, I – Innovate, D – Deploy, E – Execute. The purpose of this model is to identify why continuous research is needed to understand the customer and how the gap in the expectations can be innovatively fulfilled using technology. They said companies that align themselves as quickly as possible to the changing trend are the ones that will sustain their position in the market.

"A study on the factors Influencing the Consumer while Selecting Cab Service" by Dr. P. Kishore Kumar and Dr.N.Ramesh Kumar analyses the relationship between dependent variable coupon redemption behaviour and independent variables- innovativeness and price consciousness.This paper tells that the customers are interested in selecting the cab which offers them more benefits. These three factors are important for the customer while selecting cab services. Especially price and coupons are very important for the customer to sustain in the same cab service. They concluded that even brand image plays a vital role to retain in the service.

"Factors Affecting Customer Satisfaction in the Taxi Service Market in India" by Abdul Wahid Khan, AmbikaJangid, Ankit Bansal, VinayTyagi, Maruthappan S speaks the importance of cab industry in today's world. The cab industry has seen a very significant growth in recent time and there are many players operating here. It is focused on customer satisfaction towards cab service. The significant testing is carried out by SEM (Structural Equation modeling) which brought out the factors which significantly led to customer satisfaction. It was found out that driver professionalism and convenience of booking significantly impacts overall satisfaction.

The paper titled, "Measuring the Performance of Taxi Aggregator Service Supply Chain" by G. Venkatesh and George Easaw studies the technique by which performance of the aggregator service can be measured. This paper has identified the criteria and measured the performance to improve taxi aggregator service to satisfy their customer and quality of servicing. It also

suggested the possible way in which these services can use an innovation strategy to drive the business agenda. Here the Spoke Model is used to find the data analysis. They concluded by telling the importance of technology for cabs like Ola and Uber. Responsiveness, flexibility, reliability, tangibles, profitability, cost and resource utilization are given as the performance metrics

Dr. RuchiShukla, Dr. Ashish Chandra and Ms. Himanshi Jain published a paper titled "OLA vs UBER: The Battle of Dominance"in 2017. This paper compared the two cab aggregators Ola and Uber using SWOT analysis. The motive of the service providers is to increase market share and to achieve economies of scale and also providing customer satisfaction. The study analyzed the pricing strategies, investments and special offers of Ola and Uber. The conclusion of the research was that India's market size and increasing purchasing power are attractive to the cab aggregation industry. Indian consumers are found to be very smart, demanding and price-sensitive with no brand loyalty. This makes the operation difficult for Ola and Uber in this environment.

A study was conducted by Rao and Alexander (2017) to examine the competitive advantage of taxi aggregation model over fleet ownership model and hybrid model using the Michael Porter's five forces model. The factors studied were threats of new entrants, barriers to entry, the power of suppliers, the power of buyers and the threat from substitutes. The authors concluded that taxi aggregation model is viable to the Indian customers. The model has technology and innovation but faces threat in the form of Government regulations and traditional players.

A study on App-based cab services by Roy (2017) seeks to investigate the intrinsic motivations, perception and adoption mechanism of users on the basis of Technology Acceptance Model (TAM). Data related to customers' perceived usefulness, perceived ease of use, subjective norm and attitude towards usage of the taxi-hailing app are collected and analysed. The findings suggest that Cabs fulfil the demand for urban communication, appeals to largely younger, educated users. PEU, PU, SN and ATU are found to be the key factors affecting user adoption towards taxi-hailing apps.

When the characteristics of regular taxi service are compared with those of Uber, it is found that Uber operates with the same dynamics as the taxicab, but it makes its users feel like they have a personal driver in the safety of their own vehicle. Roy uses the T-test for the purpose of analysis to see the difference between the populations who have tried Uber and those who have not tried Uber. The survey concludes that Uber has better services than taxicab and has an edge in safety through effective information dissemination, convenience through technological advancements in booking and GPS and comfort through newer cars and performance conscious drivers.

The existing body of knowledge in this topic shows the booming nature of the cab aggregation industry. The gaps in the researches are identified and a study is undertaken to find the difference between the expectation and perception of the customers towards cab services and relevant corrective measures are suggested.

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OBJECTIVES OF THE STUDY:

- To study the expectations and perceptions of customers towards app-based cab services and to find the reasons for differences thereof.
- To suggest measures to meet the expectations of the customers.

RESEARCH METHODOLOGY

Sample Size:

Convenience sampling was used for collecting the responses from the people who use the services of the Cab Aggregators. A total of 104 passengers was the sample size to represent the population. Online administration of the questionnaire was done.

Structure of questionnaire:

All the respondents have provided data relating to both their perception and expectation towards app-based cab services. In this research paper, SERVQUAL gap model is used for data analysis. There are five dimension factors in this study; viz Tangibles, Reliability, Responsiveness, Assurance and Empathy. The statements indicating the level of expectation and perception The questionnaire used was structured to ensure uniformity of responses and contained both open-

ended and closed-ended questions. Five-point Likert scales with ends starting from strongly disagree to strongly agree was used to collect responses from the public

SERVQUAL MODEL:

SERVQUAL Model is a multi-dimensional research instrument, designed to capture consumer expectations and perceptions of a service along the five dimensions that are believed to represent service quality. SERVQUAL Model is built on the expectancy-disconfirmation paradigm, which in simple terms means that service quality is understood as the extent to which consumers' pre-consumption expectations of quality are confirmed or disconfirmed by their actual perceptions of the service experience.

There are five SERVQUAL Model dimensions:

Tangibles: It refers to physical facilities, equipment, and appearance of a service firm's employees. The job of the tangible and physical evidence of a service is multifunctional. Tangibles provide the customer proof of the quality of service.

Reliability: This dimension is shown to have the highest influence on the customer perception of quality. It is the ability to perform the promised service dependably and accurately. When service delivery fails the first time, a service provider may get a second chance to provide the same service in the phase called "Recovery". The expectations of the customer are usually higher during the recovery phase than before because of the initial failure. Thus, the service provider is likely to come under greater scrutiny, thereby increasing the possibility of customer dissatisfaction. The reliability dimension, which ensures timely delivery time after time, helps the service provider to meet the customer expectations fully at the lowest level of service expectation.

Responsiveness: It is the willingness of the service firm's staff to help customers and to provide them with prompt service. The customers may have queries, special requests, complaints, etc. In fact, each customer may have problems of his or her own. While the front-end employee may have been trained or equipped to deliver standardized services, the customers want them to go beyond this limit. It is the willingness to help the customer or willingness to go that extra

distance that is responsiveness. The second aspect of responsiveness is speedy response to a customer request.

Assurance: It defined as the ability of the company to inspire trust and confidence in the service delivery. It refers to knowledge and courtesy of the service firm's employees and their ability to inspire trust and confidence in the customer toward the company. This dimension is considered vital for services that involve high risk as customers may not be able to evaluate all the uncertainties involved in the process by them.

Empathy: It refers to the caring, individualized attention the service firm provides each customer. When service provider puts himself in the shoes of the customers, he may see the customer's view point better. When customers feel that the provider is making his best effort to see their view point, it may be good enough for most.

The SERVQUAL Model questionnaire has been described as "the most popular standardized questionnaire to measure service quality." It is widely used by service firms, most often in conjunction with other measures of service quality and customer satisfaction. The SERVQUAL Model instrument was developed as part of a broader conceptualization of how customers understand service quality. This conceptualization is known as the model of service quality or more popularly as the gaps model. Thus, service quality can be conceptualized as a simple equation:

$$\mathbf{SQ = P- E}$$

Where;

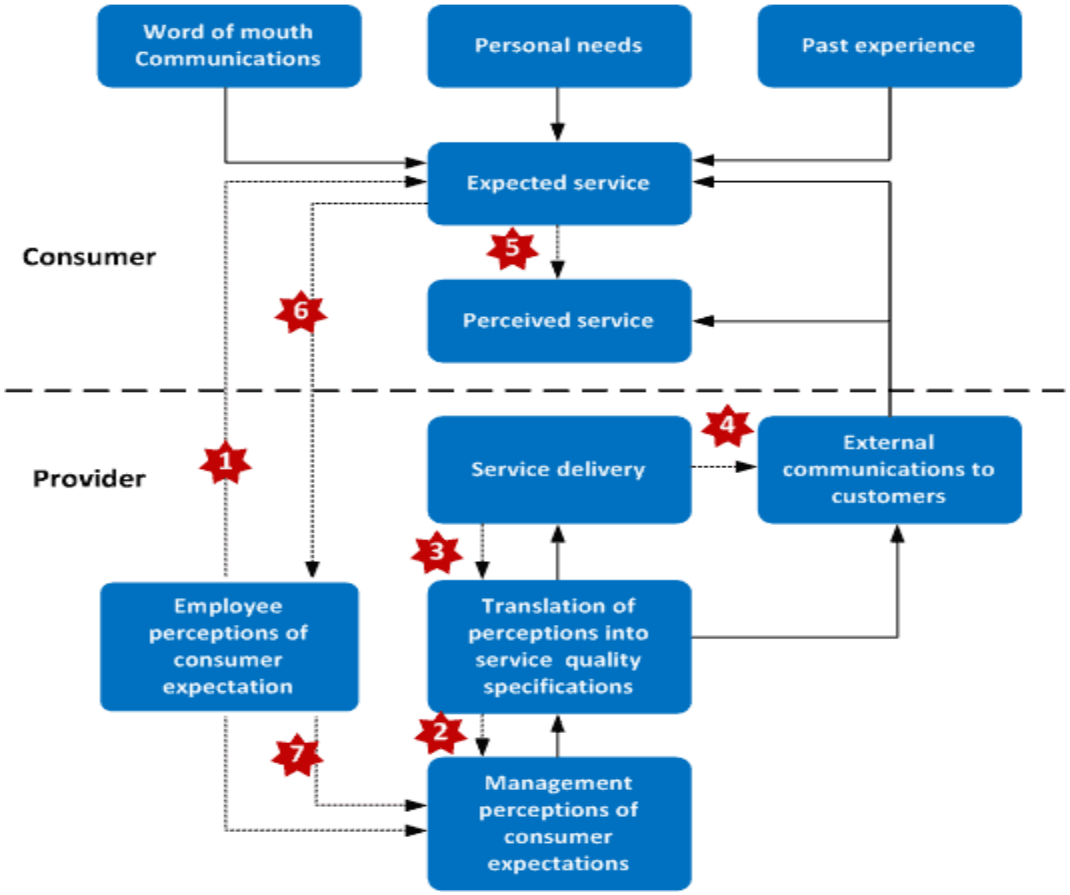
SQ is service quality

P is the individual's perceptions of given service delivery

E is the individual's expectations of a given service delivery

When customer expectations are greater than their perceptions of received delivery, service quality is deemed low. When perceptions exceed expectations then service quality is high.

SERVQUAL Gap Model:



The model of service quality identifies seven gaps that may cause customers to experience poor service quality. In this model, gap 5 is the service quality gap and is the only gap that can be directly measured. In other words, the SERVQUAL Gap Model instrument was specifically designed to capture gap 5. In contrast, Gaps 1-4 and 6-7 cannot be measured but have diagnostic value. Focusing on gap 5 the questionnaire has been prepared.

Gap 1 - Customer's Expectations VS Management Perceptions.

Gap 2 - Management Perceptions VS Service Specifications.

Gap 3 - Service Specifications VS Service Delivery.

Gap 4 - Service Delivery VS External Communication.

Gap 5 - The discrepancy between customer expectations and their perceptions of the service delivered.

The key difference between customer expectation and customer perception lies in the customer aspirations and mindset; Customer expectation is an assumption in deciding the purchase whereas customer perception is an interpretation of collective information after purchase. Both concepts are important in delivering a superior offering to the customer and to making them satisfied. The variables in confirming the customer satisfaction are expectation and performance.

Gap 6 - The discrepancy between customer expectations and employees' perceptions.

Gap 7 - The discrepancy between employees' perceptions and management perceptions.

DATA ANALYSIS AND INTERPRETATION

Paired T Test

It compares the means of two variables/ measurements for a single group; or the means from two matched groups; within-subject design; repeated measures; or paired samples. The Paired Samples T Test compares two means that are from the same individual, object, or related units. The two means typically represent two different times (e.g., pre-test and post-test with an intervention between the two time points) or two different but related conditions or units (e.g., left and right ears, twins). The purpose of the test is to determine whether there is statistical evidence that the mean difference between paired observations on a particular outcome is significantly different from zero. The Paired Samples t Test is a parametric test.

Here, the paired t-test is used to find the significance of difference between the expectation and perception of the customers. The hypotheses assumed are:

Null Hypothesis (H_0): There is no significant difference between the expectations and perceptions of the customers towards app-based cab services.

Alternate Hypothesis (H_1): There is a significant difference between the expectations and perceptions of the customers towards app-based cab services

Table 1: Demographic profile of respondents

Factors	**Frequency**	**Percent**
Gender		
Male	28	27
Female	76	73

Total	**104**	**100**
Age		
Below 20	10	9.6
20-25	47	45.2
25-30	35	33.7
30-35	7	6.7
Above 35	5	4.8
Total	**104**	**100**
Employment Status		
Student	56	53.8
Self Employed	3	2.9
Salaried Employment	34	32.7
Professional	6	5.8
Others	5	4.8
Total	**104**	**100**
Purpose of your Travel		
To attend special events like parties, weddings etc	61	58.7
To go to the Hospital	7	6.7
Shopping	10	9.6
Official meetings	2	1.9
To reach the work place	17	16.4
To reach College	7	6.7
Total	**104**	**100**
Average waiting time		
1-3mins	4	3.8
3-5mins	29	27.9
5-7mins	31	29.8
7-10mins	26	25
More than 10mins	14	13.5
Total	**104**	**100**

Rationale forAnalysis:

Apart from the SERVQUAL Gap Model, the following criteria is also used

The score ranging from 1.00-1.80 denotes lowest expectation/perception

The score ranging from 1.81-2.61 denotes low expectation/perception

The score ranging from 2.62-3.41 denotes average expectation/perception

The score ranging from 3.42-4.21 denotes high expectation/perception

The score ranging from 4.22-5.00 denotes highest expectation/perception

Table 2: Customers' Expectation & Perception towards Tangibles Dimension

Tangibles	Level of Expectation		Level of Perception		Mean Quality Gap Score
	Mean	Level	Mean	Level	
Cleanliness of the cab	4.60	Highest	4.10	High	-0.50
Provision of First aid Kit	4.67	Highest	2.83	Average	-1.84
Crushing of app during peak hours	4.60	Highest	3.17	Average	-1.43
Drivers knowledge in Road skills	4.73	Highest	3.62	High	-1.11
Driver obeying traffic rules	4.63	Highest	3.71	High	-0.92
Driver's target and incentive makes customer restless	4.46	Highest	3.46	High	-1.00
Driver's behavior in professional manner	4.40	Highest	3.65	High	-0.75
Driver have to be in pleasing manner	4.29	Highest	3.73	High	-0.56
Usage of GPS by driver	4.50	Highest	3.87	High	-0.63
Different types of car	4.21	High	3.96	High	-0.25
Technology need to be	4.40	Highest	3.37	Average	-1.03

suitable for visually challenged people					
App should connect with all range of data	4.23	Highest	3.31	Average	-0.92
Providing Wi-Fi facility in all cabs	3.92	High	2.90	Average	-1.02
Making payment through cash	4.35	Highest	4.11	High	-0.24
Making payment through Credit Card	3.90	High	2.71	Average	-1.19
Making payment through Mobile Wallet	4.15	High	2.85	Average	-1.30
Convenient facilities for pre-booking	4.17	High	3.44	High	-0.73
Difficulty for Non smartphone users	4.31	Highest	3.75	High	-0.56
Overall Mean Score	**4.36**	**Highest**	**3.47**	**High**	**-0.89**

Table 2 shows that for all the parameters under "Tangibles" dimension customer expectation are at highest level but perception is comparatively low. Overall expectation of customers' concerning "Tangibles" dimension is highest (4.36) & perception towards this dimension is at high level (3.47).

This suggests that the Tangibles provided by the cab service providers does not meet the expectation of the customers. The inefficiency of the app based cab service provider in providing tangibles are revealed by this.

Table 3: Customers' Expectation & Perception towards Reliability Dimension

Reliability	**Level of Expectation**		**Level of Perception**		**Mean Quality Gap Score**
	Mean	**Level**	**Mean**	**Level**	
Booking and confirmation need to be quick	4.25	Highest	4.04	High	-0.21
Faced surge price during peak hours	4.06	High	4.38	Highest	0.32

Customer accept surge pricing during peak hour	3.75	High	3.46	High	-0.29
Avoiding the problem of parking	4.15	High	3.40	Average	-0.75
Share/pool riding consumes longer route	4.08	High	3.90	High	-0.18
Consumes more time in share/pool riding	3.92	High	4.00	High	0.08
Share/pool riding is cost effective	3.94	High	3.87	High	-0.07
Ready to use cabs in emergency despite high prices	4.21	High	4.06	High	-0.15
Accepting average waiting time after confirmation	4.06	High	3.77	High	-0.29
To drop the customer in the exact destination	4.42	Highest	4.00	High	-0.42
Cancelling the ride in case of delay arrival	4.37	Highest	3.87	High	-0.50
Cancellation charge is high being fault on driver	4.27	Highest	4.21	High	-0.06
Driver should not reject the trip in last minute	4.48	Highest	4.06	High	-0.42
On rebooking same diver should not be assigned	4.06	High	3.27	Average	-0.79
Accepting the trip during rainy days	4.17	High	3.79	High	-0.38
Avoiding cell phone while driving	4.33	Highest	3.60	High	-0.73
Pre booked cabs should reach on time	4.42	Highest	3.71	High	-0.71
Overall Mean Score	**4.17**	**High**	**3.85**	**High**	**-0.32**

Table 3 shows that for all the parameters under "Reliability" dimension customers' expectation are at high level excluding two dimensions, where perception exceeds the expectation . Overall expectation of customers' concerning "Reliability" is high (4.17) & perception towards this dimension is also at high level (3.85) and their difference mean is (-0.32) where, in most of the cases the expectation exceeds the perception of the customer.

The customers' response towards facing surge pricing and taking longer time in pooled/ shared rides showed that their perception exceeds their expectation. This means that

while customers expect surge pricing to be very high and shared rides to consume more time, actually the factors are cheaper and less time consuming, respectively, than expected.

Table 4: Customers' Expectation & Perception towards Responsiveness Dimension

Responsiveness	**Level of Expectation**		**Level of Perception**		**Mean Quality Gap Score**
	Mean	**Level**	**Mean**	**Level**	
Providing A/c facility	4.19	High	3.94	High	-0.25
Creating awareness about their service through advertisements	4.10	High	3.85	High	-0.25
Providing offers and discounts based on referrals and reviews	4.25	Highest	3.77	High	-0.48
Avoiding artificial demand	4.12	High	3.63	High	-0.49
Aware of Toll charges before the ride	4.29	Highest	3.58	High	-0.71
Overall Mean Score	**4.19**	**High**	**3.75**	**High**	**-0.44**

From the above table 4 it is evident that for three parameters under "Responsiveness" dimension, the customers' expectation are at high level while highest for two parameters. In case of customer perception it indicates a high level. For all parameters. Overall expectation & perception of customers' concerning this dimension is high i.e. 4.19 & 3.75 respectively.

This suggests that the responsiveness provided by the cab service providers does not meet the expectation of the customers. Therefore the cab aggregator must improve the dimensions of responsiveness in order to satisfy the customers.

Table 5: Customers' Expectation & Perception towards Assurance Dimension

Assurance	**Level of Expectation**		**Level of Perception**		**Mean Quality Gap Score**
	Mean	**Level**	**Mean**	**Level**	
Customer expects refund for cancellation charge in case of	4.46	Highest	3.63	High	-0.83

driver's mistake					
Details of cab and driver after confirmation	4.31	Highest	4.10	High	-0.21
Sharing the trip details with parents makes secure	3.87	High	3.75	High	-0.12
Should not cancel the trip in case of cashless transaction	4.31	Highest	3.35	Average	-0.96
Providing camera in cabs	4.08	High	3.63	High	-0.45
Sustainable business model	4.21	High	3.77	High	-0.44
Providing adequate training to their drivers	4.27	Highest	3.46	High	-0.81
Providing benefits to their drivers	4.31	Highest	3.46	High	-0.85
Recommendation to acquaintances	4.38	Highest	3.94	High	-0.44
Regulations for cab aggregators	4.25	Highest	4.00	High	-0.25
Overall Mean Score	**4.24**	**Highest**	**3.71**	**High**	**-0.53**

Above table 5 shows that level of expectation for most of the parameters concerning "Assurance" dimension are at highest level whencompared to perception because all the parameters of perception are at high level while one parameter is at average level. Overall mean score of perception is at high level (3.71) but expectations are at highest level (4.24).

This suggests that assurance provided by the service provider does not meet the expectation of the customers. The cab aggregators need to focus on customer satisfaction which makes the customer to retain in the preferred cab service.

Table 6: Customers' Expectation & Perception towards Empathy Dimension

Empathy	**Level of Expectation**		**Level of Perception**		**Mean Quality Gap Score**
	Mean	**Level**	**Mean**	**Level**	
Demanding for tips	4.40	Highest	3.92	High	-0.48
Returning the balance change after the ride	4.40	Highest	3.90	High	-0.50

Benefit of dual rating system	4.31	Highest	3.81	High	-0.50
Because of luggage there should not be any fuse	4.44	Highest	3.73	High	-0.71
Suitable for Physically challenged people	4.50	Highest	3.69	High	-0.81
Auto service are cost effective	4.42	Highest	4.12	High	-0.30
Free travel during initial stage	4.35	Highest	3.67	High	-0.68
Providing discount coupons to retain in the same cab	4.35	Highest	3.67	High	-0.68
Being loyal even in case of discomfort	4.19	High	3.83	High	-0.36
Rating the driver after the ride	4.35	Highest	4.17	High	-0.18
Aggregator providing incentives based on their performance	4.33	Highest	3.81	High	-0.52
Overall Mean Score	**4.37**	**Highest**	**3.85**	**High**	**-0.52**

Above table 6 shows the level of expectation has majority parameter are at highest level but in case of perception all the parameters are at high level. Overall mean score for expectation is at highest (4.37) in case of perception it is at high level (3.85).

This shows that there is a lot to be improved in the Empathy dimension of the service providers and the drivers. The cab aggregators must be more empathetic towards the needs of the travellers.

CLASSIFICATION OF RESULTS WITH REGARD TO THE SIGNIFICANCE OF DIFFERENCE BETWEEN EXPECTATION AND PERCEPTION:

In this section, the results of the Paired t-test are classified into the following categories:

1. Expectation is more than the perception and it is significant
2. Expectation is more than the perception and it is not significant
3. Perception is more than the expectation and it is significant
4. Perception is more than the expectation and it is not significant

S.NO	Factors	Expectation mean	Perception mean	T value	P Value	Significance	Results
Tangibles							
1.1	Cleanliness	4.5962	4.0962	3.194	0.002	Significant	Reject H_0
1.2	Frist aid kit	4.6731	2.8269	10.712	0.001	Significant	Reject H_0
1.3	Cab crashing issue	4.5962	3.1731	8.368	0.001	Significant	Reject H_0
1.4	Driver's Knowledge	4.7308	3.6154	9.162	0.001	Significant	Reject H_0
1.5	Obeying traffic rules	4.6346	3.7115	5.694	0.001	Significant	Reject H_0
1.6	Driver's targets and incentives	4.4615	3.4615	6.540	0.001	Significant	Reject H_0
1.7	Professional manner	4.4038	3.6538	4.837	0.001	Significant	Reject H_0
1.8	Driver's behavior	4.2885	3.7308	3.951	0.001	Significant	Reject H_0
1.9	GPS knowledge	4.5000	3.8654	4.083	0.001	Significant	Reject H_0
1.10	Types of car	4.2115	3.9615	1.460	0.150	Not significant	Accept H_0
1.11	Technology	4.4038	3.3654	5.578	0.001	Significant	Reject H_0
1.12	Data connectivity	4.2308	3.3077	4.539	0.001	Significant	Reject H_0
1.13	Wi-Fi facilities	3.9231	2.9038	4.216	0.001	Significant	Reject H_0
1.14	Cash payment	4.3462	4.1154	1.352	0.182	Not significant	Accept H_0
1.15	Credit card payment	3.9038	2.7115	5.468	0.001	Significant	Reject H_0
1.16	Mobile Wallet payment	4.1538	2.8462	5.710	0.001	Significant	Reject H_0
1.17	Pre-booking of cab	4.1731	3.4423	3.248	0.002	Significant	Reject H_0
1.18	Non smartphone users	4.3077	3.7500	2.657	0.010	Significant	Reject H_0
Reliability							
2.1	Less time between booking and Confirmation	4.2500	4.0385	1.473	0.147	Not significant	Accept H_0
2.2	Surge pricing	4.0577	4.3846	-2.020	0.049	Significant	Reject H_0
2.3	Surge pricing during peak hours	3.7500	3.4615	1.244	0.219	Not significant	Accept H_0
2.4	Parking problems	4.1538	3.4038	3.792	0.001	Significant	Reject H_0
2.5	Share/pool riding consumes more	4.0769	3.9038	1.026	0.310	Not significant	Accept H_0

	Time						
2.6	**Waiting time is longer in hare/pool Riding**	**3.9231**	**4.0000**	**-0.449**	0.655	**Not significant**	Accept H_0
2.7	Share/pool riding is cost effective	3.9423	3.8654	0.496	0.622	Not significant	Accept H_0
2.8	Usage of cab in emergency	4.2115	4.0577	0.916	0.364	Not significant	Accept H_0
2.9	Waiting time for conformation	4.0577	3.7692	2.223	0.031	Significant	Reject H_0
2.10	Exact destination	4.4231	4.0000	2.752	0.008	Significant	Reject H_0
2.11	Cancellation of Trip	4.3654	3.8654	2.670	0.010	significant	Reject H_0
2.12	Cancellation Charges	4.2692	4.2115	0.308	0.759	Not significant	Accept H_0
2.13	No rejection at last minute by ivers	4.4808	4.0577	2.456	0.017	Significant	Reject H_0
2.14	Rebooking	4.0577	3.2692	4.130	0.001	Significant	Reject H_0
2.15	Rainy days	4.1731	3.7885	2.210	0.032	Significant	Reject H_0
2.16	Avoiding cell phones while driving	4.3269	3.5962	4.624	0.001	Significant	Reject H_0
2.17	Pre-booked cab should reach on ne	4.4231	3.7115	4.556	0.001	Significant	Reject H_0
Responsiveness							
3.1	A/C facility	4.1923	3.9423	1.499	0.140	Not significant	Accept H_0
3.2	Advertising their service	4.0962	3.8462	1.499	0.140	Not significant	Accept H_0
3.3	Discounts for referrals and reviews	4.2500	3.7692	2.350	0.023	Significant	Reject H_0
3.4	Artificial demand	4.1154	3.6346	2.822	0.007	Significant	Reject H_0
3.5	Toll free charges	4.2885	3.5769	3.616	0.001	Significant	Reject H_0
Assurance							
.4.1	Refund on cancellation charge	4.4615	3.6346	5.185	0.001	Significant	Reject H_0
4.2	Details of cab and driver after Confirmation	4.3077	4.0962	1.296	0.201	Not significant	Accept H_0
4.3	Sharing the trip details	3.8654	3.7500	0.579	0.565	Not significant	Accept H_0
4.4	Should not cancel due to cashless	4.3077	3.3462	4.811	0.001	Significant	Reject H_0

	Transaction						
4.5	Camera facility in cabs	4.0769	3.6346	2.566	0.013	Significant	Reject H_0
4.6	Sustainability of cab industry	4.2115	3.7692	2.786	0.007	Significant	Reject H_0
4.7	Training driver by cab industry	4.2692	3.4615	5.458	0.001	Significant	Reject H_0
4.8	Providing benefits to the driver	4.3077	3.4615	5.108	0.001	Significant	Reject H_0
4.9	Recommending friends/relatives to use the cab	4.3846	3.9423	3.195	0.002	Significant	Reject H_0
4.10	Rules and regulation for cab dustry	4.2500	4.0000	1.542	0.129	Not significant	Accept H_0
Empathy							
5.1	Demanding for tips	4.4038	3.9231	2.464	0.017	Significant	Reject H_0
5.2	Balance change from cash payment	4.4038	3.9038	3.244	0.002	Significant	Reject H_0
5.3	Dual rating system	4.3077	3.8077	2.897	0.006	Significant	Reject H_0
5.4	Luggage for space	4.4423	3.7308	4.359	0.001	Significant	Reject H_0
5.5	Suitable for physically challenged People	4.5000	3.6923	4.707	0.001	Significant	Reject H_0
5.6	Auto service is cost effective	4.4231	4.1154	1.935	0.059	Not significant	Accept H_0
5.7	Free travel offers during initial age	4.3462	3.6731	3.313	0.002	Significant	Reject H_0
5.8	Discounts coupon codes	4.3462	3.6731	3.408	0.001	Significant	Reject H_0
5.9	Being loyal even after small Discomfort happens	4.1923	3.8269	1.881	0.066	Not significant	Accept H_0
5.10	Rating the driver after the trip	4.3462	4.1731	0.964	0.339	Not significant	Accept H_0
5.11	Awarding star performer to drivers	4.3269	3.8077	2.935	0.005	Significant	Reject H_0

FINDINGS

The following are findings that have been derived on basis of the analysis:

- Cleanliness was observed to be a factor where the expectation is more than the perception.
- There is expectation amongst the customers for a availability of first aid kit. There is a significant difference between the expectation and perception.
- The maintenance of the apps by the providers relatively needs improvement.
- Drivers are not aware of the GPS usage and facilities and most often end up calling the customer itself. This is one area where the expectation differs from the perception.
- There is no specific provision for the non-smart phone users to book cabs.
- The time taken between booking a cab and confirmation is relatively high according to the users.
- The surge pricing does not act as an issue for the cab operators as the customers are willing to use the services in case of emergencies.
- The preference for own vehicle is still high even when posed with the problem of parking.
- Car share services are preferred by the customers for the purpose of travel because of cost effectiveness.
- The perception is low when compared to the expectation with regard to acceptance of rides by the drivers during rainy days.
- The usage of personal phones by drivers is very commonly seen.
- Customers feel that there is creation of artificial demand by the cab aggregators themselves to induce surge pricing.
- The cab aggregators do not refund the cancellation money even when the mistake is on part of the drivers.
- The referral scheme of the cab aggregators is not very popular amongst the users.
- The demand for extra money over and above the actual charges is still prevalent.
- The auto services also provided by the cab aggregators are cost effective and are preferred by the users.

SUGGESTIONS

- Proper car fresheners must be made available in the cabs to prevent bad odours and steps must be taken to ensure that the cabs are serviced regularly.

- The cabs or auto drivers must mandatorily have a first aid kit in their vehicle for the safety of the people. Proper provision has to be provided by the cab aggregators for the same.
- Technical issues must be handled and dealt with by the cab aggregators immediately. In case of any issue, the aggregators have to ensure minimum time is required to address the same.
- Proper training must be given to the drivers to use the GPS software.
- Since there is no specific provision or a way for the non-smart phone users to book a cab, steps can be taken by the cab aggregators to introduce new means to reach out to the entire mass.
- The cab aggregators need to focus on giving confirmation to their customer after booking is done. If the confirmation gets delay the customer can shift to other cab service provider.
- Some customers are ready to use surge price during peak hours, which is benefited for the aggregators.
- People prefer to use their own vehicles even when they might face the problem of parking. This might be due to reasons like no proper response from the cab drivers, lack of good service, timely availability etc. The cab aggregators must ensure that the best service is provided to the customers to ensure loyalty from their side.
- The cabs are most often preferred by the customers for their cost effectiveness. The cab aggregators must ensure that the prices must not be increased and never take undue advantage of the rider.
- The availability of cabs during rainy days is very less, when it is required the most. The cab aggregators must frame policies that motivate the cab drivers to take up rides on rainy days as well.
- Most often the drivers are seen to be using their personal phones while on a ride. This must be strictly dealt with by the cab aggregators. Strict rules must be framed to penalize when found to be using a phone while driving
- The cab aggregators must make sure the problem of artificial demand is avoided. Resorting to artificial demand to induce surge pricing might decrease the loyalty of the customers and might end up at a non-beneficial stage for the aggregators.

- The cancellation money should be refunded if the mistake is on part of the drivers. Charging the customers will lead to a decrease in further usage by the customers and also lead to loss in demand.
- The aggregators must look out for new ways of promoting their service. Even though they have introduced referral schemes, it is not very popular amongst the users.
- The drivers are most often found to be seen demanding for extra charges over the normal rate from the customers. Provision must be made to report this and strict action must be taken against those asking for such extra charges.
- The auto services provided along with the cab services are most often preferred by the users. The aggregators must make sure that the service is provided at its best quality and introduce any other measures that will improve the demand for such service.

CONCLUSION:

The major problem faced by all developing cities is traffic. With the growing population, traffic cannot be avoided. It is not possible for all the people to rely on the public modes of transport like buses and trains. The next alternate solution that can be opted is the app-based Cab services. With the advent of smart phones and developments in information technology, the share of people with access to these services has increased.

But despite this tremendous growth and development, a number of cab aggregators are facing losses. To avoid this, the service providers have to improve some of their services to meet the expectations of the customers and tone down their efforts in certain services since the perception is more than the expectation.

Ola and Uber are found to be the most widely used app-based cab services. They provide benefits to their customers by giving offers, convenience, low cost, etc. Cabs are most beneficial as people can avoid traffic woes, parking issues and don't need to wait for public transport etc. Customers expect better quality of service from the service provider in areas of Cleanliness, GPS usage awareness, facility for non-smart phone users, connectivity issues, surge pricing, booking confirmation etc,. The cab aggregators need to improve their services on the above mention criteria, which ultimately is the key to customer retention. The perception is more in area of share pooling, where the customers are ready to use share pool even if it might take longer time because of the reduction in the amount the customers have to pay. The cab aggregators can therefore device a much shorter route to the destination, which will still earn the loyalty of the customers and also prove cost effective. This paper hence

throws light on areas which need sprucing up with respect to the services of the cab aggregators so that they can focus on their Key Result Areas for better results.

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