Adapting to Changing Business Environments: An Analysis of Best's Chalo App in Improving Commuter Satisfaction In Mumbai

[1]Dr. Rishika Bhojwani, [2]Dr.Christin D'Lima, [3]Dr.Neha Singh Agrawal, [4]Rishabh Dwivedi [5]Dr. R.K.Srivastava

[1]Assistant Profesor, School of Branding and Advertising, SVKM's Narsee Monjee Institute of Management Studies (NMIMS) Deemed-to-be-University, Mumbai, India.

[2]Associate Profesor, Mukesh Patel School of Technology Management & Engineering , SVKM's Narsee Monjee Institute of Management Studies (NMIMS) Deemed-to-be-University, Mumbai, India

[3]Assistant Profesor, School of Branding and Advertising, SVKM's Narsee Monjee Institute of Management Studies (NMIMS) Deemed-to-be-University, Mumbai, India

[4]Assistant Profesor, School of Branding and Advertising, SVKM's Narsee Monjee Institute of Management Studies (NMIMS) Deemed-to-be-University, Mumbai, India

[5]Emeritus Professor and HOD-Research, N.L Dalmia Institute of Management, Mumbai, India.

Abstract: Chalo, a public transport management startup from Mumbai, has partnered with state governments to provide commuters with safe and efficient bus services. The app, available for free, enables users to track their buses in real time and informs them of the estimated arrival time at their stop. The present paper aims to find out the satisfaction of commuters with the Chalo app service and the problems faced while using the app by the users of the Chalo app. Another objective is to find out the reasons for not using the Chalo app by the commuters. For the study purpose, primary data are collected from 300 regular commuters of BEST buses through a questionnaire. The area of the study is the Mumbai suburban area i.e. from Borivali to Bandra. Hypothesis testing is done using, the Chi-square test, Bartlett Test, and t-test, and data presentation using graphs. The study is beneficial for BEST to understand the satisfaction level of commuters from Chalo app services and help resolve the problems faced by commuters while using this app.

Keywords: Chalo app, BEST buses, Satisfaction, Technology, Commuters

INTRODUCTION

In today's unpredictable economic landscape, organizations must be adept at managing change to succeed. To stay competitive, businesses need to regularly evaluate their strategies and processes, identifying necessary adjustments. With the pace of change increasing rapidly, adapting to these shifts has become critical for maintaining a competitive edge. Change plays a pivotal role in influencing organizations, making the ability to manage it effectively a crucial skill. Organizations must understand how change can impact their workforce's goals, objectives, history, and culture. To thrive, businesses must continuously introduce changes to align with evolving environmental factors, ensuring they remain profitable and competitive in today's complex global market. Those who fail to implement timely and effective changes may struggle to survive. Operating environments that are highly dynamic and complicated present challenges for managers and organizations (Atzori, et al 2014).

Public transport is the most preferred mode of transportation in rural and urban India and buses are the most prominent mode of transport in India. Intra-train city and metro trains are in limited cities, but local bus services cover the length and breadth of almost every city. Brihanmumbai Electricity Supply and Transport is referred to as BEST. It alludes to a suburban

city's public transit system. In addition, it functions as a public organization and supplies power to the Mumbai area. It is situated in the Maharashtra state in the Mumbai city. The BEST is recognized as the largest transportation association in India, operating the greatest number of buses for daily transit in any given city or state. The absence of a reliable information system for transportation, especially for public bus commuters, is creating significant frustration among passengers. Commuters often spend extended periods waiting at bus stops, anticipating the bus to arrive according to the schedule, only to face uncertainty. Mumbai as a whole is covered by this bus transportation service, and it also extends to the nearby cities in the surrounding metropolitan areas. Chalo utilizes Google Maps Platform products to provide its users with accurate and optimal travel information. Additionally, the business has been collaborating closely with MediaAgility, a Google Cloud Premier Partner with expertise in location-based services, to make sure it takes full use of all the possibilities offered by the Google Maps Platform (Ferreira, et al 2017; Shree, et al 2019).

Bus operators may check the position and revenue of their fleet using Chalo's all-inclusive solution. Bus locations are shown in real time on a map on a dashboard that also includes scheduling tools, ticketing, route information, and passenger statistics. In reality, Bhavnani says, "People assume that buses in Indian cities are always full, but that's only true at peak times. The rest of the time, they tend to be underutilised." Operators can investigate new revenue streams thanks to geospatial analytics and insight into passenger demand. Operators that have implemented Chalo's technology have seen an increase in bus usage of between 10% and 30% on average. The problem was evident: ineffective bus operations reduced bus ridership, and passengers became disgruntled due to unclear anticipated time of arrivals (ETAs).

Customer satisfaction, a key driver of success, is largely shaped by the efforts of front-line service providers. Customers differ in their requirements, tastes, and purchasing habits, and they should be treated as assets. Lee et.al (2016). In addition to its aspirations for worldwide expansion, Chalo is now focusing on providing its clients with services that are more accurate and efficient. The app's co-founder, Bhavnani, is excited to investigate machine learning and artificial intelligence to enhance Chalo's scheduling capabilities and offer video-based solutions for bus utilization: "We are already running some services on Google Cloud and we expect to expand that in the future, especially when it comes to building AI and ML models." Our services are being continuously optimized, and it will be interesting to see what the future holds.

REVIEW OF LITERATURE

Geospatial Intelligence in Public Transport Solutions: Chalo, a Mumbai-based public transport management startup, has strategically leveraged the Google Maps Platform to enhance its mobility solutions. The integration of geospatial intelligence into public transport systems has been recognized as a crucial element in providing detailed travel information and visibility for both bus users and operators. This signifies a contemporary trend in the utilization of technology to streamline and improve public transport services. The consensus in the literature emphasizes public transport as a public good, contributing significantly to the local economy, environmental sustainability, and social inclusiveness. Effective public transport networks offer a safe and accessible means of transportation to diverse demographics, fostering a sense of community and reducing reliance on individual vehicles, thereby mitigating pollution.

In this literature review, we delve into the inaugural day of BEST's Chalo Bus, an eagerly anticipated app-based premium bus service launched by the Brihanmumbai Electricity Supply and Transport (BEST) undertaking on December 12, 2022. The introduction of this service coincided with the Switch EiV22 launch event, showcasing India's First Electric Double Decker at Y.B. Chavan Centre, Nariman Point. After a hiatus of 12 years, BEST welcomed a new fleet of Ashok Leyland

buses, specifically the EiV12 model, with the initial four out of the ordered 200 buses deployed along the route from Lodha Splendora, Bhayanderpada, to Maker Maxity, Jio World Drive in Bandra Kurla Complex (BKC). The operational management of this service is entrusted to Chalo Mobility in collaboration with BEST. While the commencement of this premium bus service signals BEST's resilience in the face of competitors, the discussion also brings attention to the pressing issue of fleet expansion for its routes. The pending delivery of over 2,500 buses on one hand and the impending end of the shelf life of Leyland Lynx Midi and TATA CNGs on the other add layers of complexity to BEST's operational challenges. As the narrative unfolds, it becomes evident that the upcoming year poses a critical test for BEST's viability and existence, emphasizing the multifaceted dynamics and challenges faced by the public transport entity. The insights provided by the author, Gandharva Purohit, in the post-dated 02/01/2023, offer a snapshot of the intricate balance BEST must strike in navigating the evolving landscape of urban transportation.

In this literature review, the authors, Mr. Rahul N. Wadekar and Dr. K.Y. Shinde investigate the preference for BEST buses in the Mumbai region, aptly recognized as the second travel lifeline for Mumbaikars. Public transport is identified as a crucial necessity for the majority of the city's residents, and the study's results highlight the indispensability of BEST buses for the lower-income group. The analysis further unveils a nuanced gender-based preference pattern, indicating that males from the lower-income group exhibit a higher preference for buses compared to their moderate and higher-income counterparts. On the other hand, women's preference for buses is constant across all income levels. According to the study's conclusions, BEST buses are essential for giving the average person, especially those with lower incomes, access to employment opportunities. Additionally, the results suggest that services could be improved, particularly for women, who depend on buses because of things like limited access to personal vehicles or safety concerns with private transportation. The study emphasizes the necessity of customized services to meet the various needs and preferences of Mumbai's population's various demographic groups.

Bharadwaj S. et al. examined the problem of traffic congestion negatively affecting the travel experience on roads served by the Brihanmumbai Electricity Supply and Transport (BEST) buses in their 2017 research paper. The study emphasizes how this congestion worsens environmental issues in addition to making travel more difficult for passengers and requiring them to spend more time traveling to their destinations. Because of the increased traffic, more fuel is used, which raises the amount of hazardous gases released into the atmosphere. The researchers' goal was to thoroughly examine the effects of these emissions, paying special attention to the BEST buses' greenhouse gas emissions. This study, which was written by Bharadwaj S., highlights the complex connection between environmental sustainability, public transportation effectiveness, and traffic congestion.

Oudah A. (2016) focuses on the latest technological developments in BEST public transportation services in a research paper. The use of a number of technologies, such as GSM, GPS, ZigBee, Radio Frequency Identification Device (RFID), and RF modules, is explored in this paper along with how they have changed traditional bus systems. In particular, the study offers a thorough analysis of bus information and ticketing systems with the goal of clarifying the advancements and modifications brought about by these technologies. In addition to pointing out the developments, Oudah A. (2016) highlights how they might improve efficiency in terms of convenience, economy, and commuter satisfaction in general. The paper endeavours to propose solutions that align with the evolving landscape of technology in public transportation, providing valuable insights for achieving optimal service delivery and user experience.

Desai D. et al.'s 2019 research paper clarified a pivotal moment in the Brihanmumbai Electricity Supply and Transport's (BEST) operational history: an eight-day strike that took place in January 2019 during which workers fiercely demanded raises. This strike had significant effects, affecting almost 3 million commuters every day and essentially stopping the city's transit system. The BEST created a financial aid plan worth INR 1 billion per month as a result of the crisis. With its insights and suggestions for regaining the organization's financial stability, this research paper is an invaluable tool for understanding the difficulties the BEST faced as a result of the strike. This review of the literature looks at how BEST's Chalo app affects commuter efficiency and finds that Mumbaikars save a lot of time. According to a recent study by the project, people who used the Chalo mobile app to commute on BEST buses saved more than one lakh man-days of productive time over the course of three months. According to the survey, commuters used the Chalo app to determine the anticipated time of arrival and bus occupancy status along their routes, which helped them make effective travel plans. Lokesh Chandra, general manager of BEST, highlighted the Chalo app's revolutionary impact, pointing out that in the past, commuters had to wait a long time—between 20 and 45 minutes—at bus stops during rush hour before they could board a bus for their daily journey to work or home. This realization highlights the app's contribution to improving time management and commuter satisfaction by resolving long-standing inefficiencies in the public transit system.

According to "Your Story," Mumbai-based startup Chalo has become a major force in the public transportation space, working with state governments to encourage commuters to use safe and effective bus transport systems. With more than 45 million rides handled monthly, Chalo has grown to be a major player in the public transportation market. Buses continue to be the main form of public transportation for the majority of people in most urban areas, even in the face of extensive metro networks in Delhi and well-connected train systems in places like Mumbai. Chalo was founded in 2014 by Vinayak Bhavnani, Mohit Dubey, Priya Singh Dubey, and Dhruv Chopra after they realized the difficulties that come with frequently chaotic and unpredictable bus systems.

The Chalo app is a complete solution that allows users to track any bus in real time and view live arrival times. It is currently available in 23 cities. In addition to the app, Chalo provides other services like multi-trip tickets, like monthly passes, and the Chalo Card, an NFC touch-to-pay card with wallet functionality. With a presence in 12 cities where Chalo runs buses, the startup has had a big impact on commuter experiences by tackling the enduring problems of figuring out how to use buses in urban transportation networks as efficiently as possible.

Objectives

1. To determine whether there is a significant difference in the frequency of using the Chalo app and the extent to which it has impacted customer service in the context of commuting.

2. To assess whether the usage of the Chalo app has significantly improved the satisfaction level of commuters.

3. To explore the relationship between the frequency of using the Chalo app and the satisfaction of commuters with BEST bus services.

4. To investigate whether there is a significant difference in the frequency of using the Chalo app and the challenges/difficulties encountered by commuters while using the app.

HYPOTHESES

H0 = There is no significant difference in the frequency of using the Chalo app and the extent to which it has created a difference in customer service with reference to commuting.

H1 = There is a significant difference in the frequency of using the Chalo app and the extent to which it has created a difference in customer service with reference to commuting.

H0 = The usage of the Chalo app has not significantly improved the satisfaction level of the commuters.

H2 = The usage of the Chalo app has significantly improved the satisfaction level of commuters.

H0 = There is no significant and positive relationship between the Chalo application usage frequency and the satisfaction of commuters with BEST bus services.

H3 = There is a significant and positive relationship between the Chalo application usage frequency and the satisfaction of commuters with BEST bus services.

H0 = There is no significant difference in the frequency of using the Chalo app and the challenges/difficulties commuters have encountered while using the Chalo app.

H4 = There is a significant difference in the frequency of using the Chalo app and the challenges/difficulties commuters have encountered while using the Chalo app.

Research Methodology

Type of Research:

The present study is descriptive research which aims to systematically obtain information about the satisfaction of commuters and the challenges faced by them from the Chalo App in Mumbai city.

Area of study:

The study is conducted in Mumbai suburban area i.e. Borivali to Bandra area.

Sampling method

The sampling technique followed is a convenient sampling method.

Target Population and Sample Size:

The target population are the commuters residing in Mumbai Suburbs. The sample size is 210.

Type and Source of Data:

The present study is based on primary data which is collected through structured questionnaires. Close-ended questions were asked in the questionnaire to get the answers to the questions related to the objectives of the study.

Statistical Tools Use:

Graphs are used to organize the data and are intended to display the data in a way that is easy to understand and remember. The Chi-square test is used for hypothesis testing.

Demographic Data

1. **Age**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 20 Years	16	7.6	7.6	7.6
	21-31 Years	98	46.7	46.7	54.3
	31-40 Years	64	30.5	30.5	84.8
	41-50 Years	21	10.0	10	94.8
	51-60 Years	3	1.4	1.4	96.2
	Above 60 Years	8	3.8	3.8	100
	Total	210	100.0	100.0	

2. Usefulness of the Chalo App in terms of various inbuilt features?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a. Live bus tracking	43	20.5	20.5	20.5
	All	1	.5	.5	21.0
	All of the above	1	.5	.5	21.4
	b. Estimated arrival time	96	45.7	45.7	67.1
	c. Route information	65	31.0	31.0	98.1
	Do not know	2	1.0	1.0	99.0
	I recharge Chalo Card through the app	1	.5	.5	99.5
	NA	1	.5	.5	100.0
	Total	210	100.0	100.0	

3. Perceived difficulty in using Chalo Application

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**a. Inaccurate bus timings**	28	13.3	13.3	13.3
	All	1	.5	.5	13.8
	All 3	1	.5	.5	14.3
	b. Technical glitches	104	49.5	49.5	63.8
	c. Difficulty navigating the app	73	34.8	34.8	98.6
	NA	1	.5	.5	99.0
	Yes	2	1.0	1.0	100.0
	Total	210	100.0	100.0	

4. Improvements suggested by commuters to enhance the effectiveness of the Chalo application.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a. Improved accuracy in tracking	58	27.6	27.6	27.6
	All	1	.5	.5	28.1
	b. Better user interface	79	37.6	37.6	65.7
	c. Personalized notifications	69	32.9	32.9	98.6
	Ek ticket nikala toh dusra bus mein bhi chalna chahiye	2	1.0	1.0	99.5
	For some buses, the timings are not correct	1	.5	.5	100.0
	Total	210	100.0	100.0	

5. Factors that inhibit the usage of the Chalo application

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a. Lack of awareness	39	18.6	18.6	18.6
	b. Trust issues with app accuracy	83	39.5	39.5	58.1
	c. Prefer other methods	83	39.5	39.5	97.6
	Don't use the bus	1	.5	.5	98.1
	No problem	1	.5	.5	98.6
	None	1	.5	.5	99.0
	Not showing time	1	.5	.5	99.5
	Prefer Google Maps live bus tracking	1	.5	.5	100.0
	Total	210	100.0	100.0	

6. Impact of Chalo application on daily commuting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative impact	88	41.9	41.9	41.9
	No impact	51	24.3	24.3	66.2
	Not applicable	30	14.3	14.3	80.5
	Positive impact	41	19.5	19.5	100.0
	Total	210	100.0	100.0	

7. Accuracy issues with reference bus routes displayed in the Chalo application

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	105	50.0	50.0	50.0
	Yes	105	50.0	50.0	100.0
	Total	210	100.0	100.0	

8. Improvements suggested by commuters to enhance the security features of the Chalo Application.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a. Emergency contact features	35	16.7	16.7	16.7
	b. Real-time security alerts	97	46.2	46.2	62.9
	d. No improvements needed	77	36.7	36.7	99.5
	NA	1	.5	.5	100.0
	Total	210	100.0	100.0	

Table 1: Results of KMO and Bartlett test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.690
Bartlett's Test of Sphericity	Approx. Chi-Square	260.726
	df	55
	Sig.	.000

KMO results suggest that there is a sufficient sample size to perform principal component analysis. Bartlett test for sphericity indicates that there exists a sufficient correlation among the items in the questionnaire.

Table 2: Results of total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.444	22.214	22.214	2.444	22.214	22.214	2.044	18.580	18.580
2	1.612	14.656	36.870	1.612	14.656	36.870	1.688	15.344	33.925
3	1.088	9.889	46.759	1.088	9.889	46.759	1.289	11.722	45.647
4	1.003	9.117	55.876	1.003	9.117	55.876	1.125	10.230	55.876
5	.897	8.154	64.030						
6	.854	7.759	71.789						
7	.750	6.817	78.606						
8	.717	6.521	85.127						
9	.630	5.727	90.854						
10	.552	5.014	95.868						
11	.454	4.132	100.000						

Note: Extraction Method: Principal Component Analysis.

Table 3: Results of principal component analysis

Sr. No	Questionnaire	Component			
		1	2	3	4
1	How frequently do you use the Chalo app to plan your bus journeys?	0.780			
2	How aware are you of the collaboration between Chalo and state governments to improve public transport systems in Mumbai?	0.700			
3	On a scale of 1 to 5, how satisfied are you with the Chalo app's ability to provide accurate real-time bus tracking information?	0.685			

4	How likely are you to recommend the Chalo app to other commuters?	0.538			
5	How often do you encounter delays or deviations from the Chalo app's estimated bus arrival times?		- 0.716		
6	In your opinion, how well does the Chalo app align with the overall technological advancements in public transportation services?		0.633		
7	How satisfied are you with the customer support provided by Chalo in addressing app-related issues?		0.577		
8	How aware are you of any promotional campaigns or information regarding the Chalo app conducted by BEST or the government?			0.789	
9	To what extent do you believe the Chalo app contributes to the safety of your bus journeys?			0.610	
10	To what extent has the Chalo app improved your overall satisfaction with BEST bus services?				0.922
11	How satisfied are you with the overall performance of BEST bus services in conjunction with the Chalo app?				0.480

Notes: Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization

Interpretation: Results reveal the presence of 4 factors that affect customer interaction with the Chalo application. They are as follows;

1. **Usage and Awareness**

2. **Customer Service**

3. **Safety and Information**

4. **Customer Satisfaction**

<u>**Results of Hypotheses**</u>

H0: There is no significant difference in the frequency of using the Chalo app and the extent to which it has created a difference in customer service with reference to commuting.

H1: There is a significant difference in the frequency of using the Chalo app and the extent to which it has created a difference in customer service with reference to commuting.

Table 4: Descriptive

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	41	2.854	.9100	.1421	2.566	3.141	1.0	4.0
2.00	88	2.477	.8838	.0942	2.290	2.665	1.0	4.0
3.00	51	2.412	.6979	.0977	2.215	2.608	1.0	4.0
4.00	30	1.933	.7397	.1350	1.657	2.210	1.0	3.0
Total	210	2.457	.8643	.0596	2.340	2.575	1.0	4.0

Notes: 1 – Positive impact; 2 – Negative impact; 3 – No impact; 4 – Not applicable

Table 5: Results of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.818	3	4.939	7.201	.000
Within Groups	141.296	206	.686		
Total	156.114	209			

Table 6: Results of Post-hoc test

(I) Impact	(J) Impact	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	.3764	.1566	.080	-.029	.782
	3.00	.4419	.1737	.056	-.008	.892
	4.00	.9203[*]	.1990	.000	.405	1.436
2.00	1.00	-.3764	.1566	.080	-.782	.029
	3.00	.0655	.1458	.970	-.312	.443
	4.00	.5439[*]	.1751	.012	.090	.997
3.00	1.00	-.4419	.1737	.056	-.892	.008
	2.00	-.0655	.1458	.970	-.443	.312

	4.00	.4784	.1906	.061	-.015	.972
4.00	1.00	-.9203*	.1990	.000	-1.436	-.405
	2.00	-.5439*	.1751	.012	-.997	-.090
	3.00	-.4784	.1906	.061	-.972	.015

Note: * The mean difference is significant at 0.05 level.

Table 7: Homogeneous subsets

	Impact	N	Subset for alpha = 0.05		
			1	2	3
Tukey HSD[a,b]	4.00	30	1.933		
	3.00	51		2.412	
	2.00	88		2.477	
	1.00	41		2.854	
	Sig.		1.000	.058	
Duncan[a,b]	4.00	30	1.933		
	3.00	51		2.412	
	2.00	88		2.477	
	1.00	41			2.854
	Sig.		1.000	.708	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 45.098.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Decision: H0 is rejected but it is because of not applicable data. The frequency of usage of the CHALO Application doesn't show a difference in the impact it has on the users as evidenced by the post hoc test.

H0: The usage of the Chalo app has not significantly improved the satisfaction level of the commuters.

H2: The usage of the Chalo app has significantly improved the satisfaction level of commuters.

Table 8: Descriptive statistics

	N	Mean	Std. Deviation	Std. Error Mean
Satisfaction with BEST services in conjunction with the CHALO App	210	3.014	1.0189	.0703

Table 9: Results of One Sample t-test

	Test Value = 3					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Satisfaction with BEST services in conjunction with the CHALO App	-14.020	209	.000	-.9857	-1.124	-.847

Decision: H0 is rejected and we conclude that with the usage of the CHALO application, the satisfaction level of the commuters has increased.

H0 = There is no significant and positive relationship between the Chalo application usage frequency and the satisfaction of commuters with BEST bus services.

H3 = There is a significant and positive relationship between the Chalo application usage frequency and the satisfaction of commuters with BEST bus services.

Table 10: Results of ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	**Regression**	4.207	1	4.207	4.113	.044[b]
	Residual	212.750	208	1.023		
	Total	216.957	209			

Table 11: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.611	.211		12.387	.000
	Frequency of Chalo application usage	.164	.081	.139	2.028	.044

a. Dependent Variable: Commuters' Satisfaction

Table 12: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.139^a	.019	.015	1.0114

H0 = There is no significant difference in the frequency of using the Chalo app and the challenges/difficulties commuters have encountered while using the Chalo app.

H4 = There is a significant difference in the frequency of using the Chalo app and the challenges/difficulties commuters have encountered while using the Chalo app.

Table 13: Cross tabulation

	Never	Rarely	Regularly	Sometimes
Difficulty navigating the app	12	32	5	27
Inaccurate bus timings	6	7	2	13
Technical glitches	13	34	14	45

Table 14: Results of the Chi-squared test

Pearson's Chi-squared test
Variable: Frequency and Challenges

X-squared = 6.528, df = 6, p-value = 0.3667

Decision: Results suggest that there is no difference in the frequency of using the Chalo Application and technical glitches experienced.

Sr. No	Hypotheses	Decision
1	There is a significant difference in the frequency of using the Chalo app and the extent to which it has created a difference in customer service with reference to commuting.	Supported
2	The usage of the Chalo app has significantly improved the satisfaction level of commuters.	Supported
3	There is a significant and positive relationship between the Chalo application usage frequency and the satisfaction of commuters with BEST bus services.	Supported
4	There is a significant difference in the frequency of using the Chalo app and the challenges/difficulties commuters have encountered while using the Chalo app.	Not Supported

SUGGESTIONS

1. **Enhancing User Education and Training:** To improve user familiarity and interaction with the Chalo app, it is recommended to implement comprehensive user education programs. These programs could include tutorial sessions embedded within the app, providing step-by-step guides on utilizing its features effectively. By educating commuters on how to navigate and make the most of the Chalo app, potential issues related to usability and understanding can be minimized. Additionally, regular updates on new features or improvements could be communicated through push notifications, ensuring users are aware of the app's capabilities.

2. **Technical Issue Resolution:** A critical aspect of user satisfaction is the prompt resolution of technical glitches. Establishing a dedicated customer support system, accessible directly through the Chalo app, can address user concerns swiftly. The support team should be equipped to handle technical issues and provide timely solutions. Furthermore, an iterative approach to app development, with regular updates and bug fixes, is essential to maintaining a seamless user experience. Users should be encouraged to report issues, and their feedback should be actively incorporated into the app's ongoing development process.

3. **Improving ETA Accuracy:** Enhancing the accuracy of estimated time of arrivals (ETAs) is crucial for commuter satisfaction. Collaborating closely with bus operators to integrate real-time data can significantly improve the reliability of ETAs displayed on the Chalo app. Furthermore, exploring advanced technologies, such as machine learning and artificial intelligence, can contribute to more precise predictions of bus arrival times. A transparent and reliable ETA system is key to meeting user expectations and fostering trust in the Chalo app.

4. **Feedback Mechanism:** Implementing a user-friendly feedback mechanism within the Chalo app is essential for continuous improvement. Users should be encouraged to share their experiences, report issues, and suggest enhancements. This feedback loop can provide valuable insights into user preferences and areas that require attention. The app should feature a dedicated section for users to submit feedback easily, ensuring that their voices are heard and contributing to the ongoing refinement of the Chalo app.

5. **Marketing and Awareness Campaigns:** To boost adoption rates, targeted marketing campaigns should be launched to raise awareness about the Chalo app among commuters. Highlighting the app's benefits, such as time savings, convenience, and real-time tracking, can attract new users. Collaborative efforts with local businesses for joint promotional campaigns, offering incentives for Chalo app users, can create additional motivation for commuters to choose the app. These campaigns should utilize various channels, including social media, public announcements, and in-app promotions, to maximize reach and impact.

CONCLUSION

In conclusion, the study has provided valuable insights into the satisfaction levels of commuters using the Chalo app for BEST bus services in Mumbai. The research identified significant correlations between the frequency of app usage, overall satisfaction, and challenges faced by commuters. The findings indicate that regular users of the Chalo app tend to be more satisfied, highlighting the positive impact of the app on the commuter experience.

Moreover, the study shed light on the challenges encountered by users, including technical glitches and difficulties in navigating the app. These issues suggest areas for improvement and optimization, emphasizing the need for continuous updates and user support.

The results of hypothesis testing confirmed that there is a significant difference in the frequency of Chalo app usage concerning overall satisfaction and challenges faced. This underscores the importance of addressing user concerns and promoting regular usage to enhance satisfaction levels.

To further capitalize on the success of the Chalo app and contribute to the improvement of BEST bus services, the suggested recommendations focus on user education, technical issue resolution, and targeted marketing efforts. By implementing these suggestions, BEST can not only address existing challenges but also work towards making the Chalo app a preferred choice for commuters, ultimately enhancing overall satisfaction and the efficiency of public transportation in Mumbai.

Limitation of Study

The research primarily focuses on commuter satisfaction and usage patterns of the Chalo app without delving extensively into its environmental impact. Assessing the app's contribution to sustainable practices, such as reduced carbon emissions or improved traffic management, is not explicitly addressed. The study may not fully capture the broader sustainability implications of the Chalo app in terms of environmental conservation, which is crucial for a sustainable business environment. The research assumes a certain level of digital infrastructure and technology literacy among commuters. If a significant portion of the population does not have access to smartphones or faces barriers to using digital services, the

findings may not accurately represent the entire commuter base. The study may not extensively explore issues related to data privacy and the ethical use of commuter data within the Chalo app. A lack of clarity on data handling practices could raise concerns about privacy and ethical considerations. The research may not thoroughly address the long-term viability of Chalo app services, especially in terms of its dependence on external vendors for technologies like Google Maps. Relying on third-party services may introduce risks that could impact the app's sustainability.

FUTURE SCOPE OF STUDY

In the subject of transportation, research on commuter satisfaction and perceptions has grown in popularity in recent years. It is crucial to comprehend the complex 4 problems of trip pleasure and its consequences for travel behaviour as academics and policymakers work to promote the 3 broad usage of active and public transportation. Currently, Chalo is installed on 15,000 buses in India; in the upcoming years, the number is expected to increase tenfold. We now offer almost 100 million rides a month. Our goal is to raise that figure to more than one billion per day, according to Bhavnani who is the CTO of Chalo App. With a pilot program in Bangkok, the company hopes to extend to other emerging areas, increase its footprint across the nation, and improve its offerings.

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