

ENHANCING URBAN MOBILITY : A COMPREHENSIVE STUDY ON THE BRIHANMUMBAI ELECTRIC SUPPLY AND TRANSPORT (BEST) BUS SERVICE IN MUMBAI

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Abstract

As urbanization continues to accelerate, efficient and sustainable urban mobility solutions are imperative to address the growing transportation challenges in metropolitan areas. This comprehensive study focuses on enhancing urban mobility through an in-depth analysis of bus services, aiming to identify and promote the best practices for a more effective and passenger-friendly transit system.

The study employs a multidimensional approach, encompassing factors such as accessibility, affordability, reliability, safety, and environmental sustainability. By leveraging data analytics, surveys, and case studies from diverse urban settings, the research aims to provide insights into the key elements that contribute to the success of a bus service.

Our cities are choking under the weight of increasing congestion, pollution, and unsustainable transportation choices. In this context, effective bus services emerge as a critical solution for enhancing urban mobility. This study delves deep into the intricacies of designing and implementing the BEST bus service, providing a comprehensive roadmap for cities striving for efficient, equitable, and sustainable transportation systems.

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Introduction:

In the bustling metropolis of Mumbai, where the pulse of the city beats to the rhythm of its diverse and dynamic population, the Brihanmumbai Electric Supply and Transport (BEST) bus service stands as a lifeline, navigating the complexities of urban mobility. As Mumbai continues to evolve as a global economic hub, the role of public transportation, particularly the BEST bus service, becomes increasingly crucial in shaping the city's sustainable future.

This comprehensive study is dedicated to dissecting and analyzing the facets that contribute to the

excellence of the BEST bus service. The sprawling cityscape, with its unique challenges and opportunities, warrants a focused examination of the intricacies of this iconic public transportation system. By undertaking a thorough investigation into the operational, infrastructural, and socio-economic dimensions of the BEST bus service, this research aims to unveil insights that can serve as a model for urban mobility solutions. Mumbai's relentless energy and vibrant diversity place a premium on an effective and reliable public transportation network. The BEST bus service, with its extensive route network and historical significance,

epitomizes the backbone of Mumbai's public transit. Understanding the dynamics of this service is not only crucial for the city's residents but also holds implications for urban planners, policymakers, and public transport authorities grappling with the challenges of modern urbanization.

Objectives of study:

1. To Evaluate Accessibility and Inclusivity
2. To contribute to academic discussions and knowledge
3. To Assess Affordability and Fare Structure

Review of Literature:

Badami S. (2005) surveyed in the research paper about the Bus Rapid Transit System (BRTS) for the region of Mumbai which would cover three routes of the east-west trunk and about five north-south routes as the most economic method to alleviate the issue of regular congestion as well as of the massive overcrowding.

Urban mobility in the context of cities of the Global South has been studied quite widely. Most of the literature have highlighted the immense pressure on transport infrastructure due to the growing population and a steep rise in the number of vehicles (Runji, 2015; V. Rathi et al., 2020), and how they adversely affect the cities' economic vitality and quality of life. These studies often recommend that urban transport planning systems and promoting more sustainable urban transport can help build healthy cities (Poiani & Stead, 2018; Thondoo et al., 2020; Venter et al., 2019). It has also been emphasised that a citizen-centred approach provides a unique opportunity to reshape and re-orient policies on urban transport planning for more healthy and equitable cities (Thondoo et al., 2020)

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a citizen-centred approach provides a unique opportunity to reshape and re-orient policies on urban transport planning for more healthy and equitable cities (Thondoo et al., 2020).

Oudah A. (2016) pointed out in their research paper about the recently made advancements in the different technologies that are being used for in the BEST public transportation services. The research paper highlights about the advanced technology such as GSM, Radio Frequency Identification Device, ZigBee, GPS & the RF modules that would acquire highlight about the changes made in the conventional bus systems. The paper discusses the review regarding the bus information and ticketing ways in detail. The paper tries in bringing about the solutions that would help in acquiring efficiency in terms of convenience, cost, satisfaction of the commuters.

Bhatia G. et al (2019) mentioned in the research study about proposing a new system which would enable the travellers to travel with ease and devising a system that would communicate with them in the native language. The system would work on the mechanism of the novel rule-based algorithm that would help in extracting the frequently used words in the sentences by performing preprocessing by applying Natural Language Processing (NLP) as well as displaying the responses to the queries which would be asked by the users. The research study enables their focus over using a language friendly process for making it easy for the travellers.

In December 2005, the Government of India launched the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) under the Common Minimum Program, which aimed to rejuvenate the urban milieu through implementation of a number of projects with active private sector participation. Cities with million-plus population, state capitals, and cities of cultural and tourist importance were to be included under the Mission.

Litman T, (2008), Introduction of the concept of sustainability in transport provision has led to a paradigm shift from the existing transport planning practices. Although less, there have been a few initiatives by city planners to plan for equitable, efficient and environment-friendly transport systems. City planners have now started viewing transport beyond the traditional concept of just physical mobility to a broader concept of accessibility i.e. people's ability to obtain desired goods and services.

Research Problem: To examine several issues that hinder the optimal functioning of the BEST Bus Service, impacting the overall urban mobility experience in Mumbai.

Research Gap:

Limited Focus on Accessibility and Inclusivity:

According to what I discovered, accessibility and inclusivity are critical aspects of a successful public transportation system, particularly in a diverse and densely populated city like Mumbai. Previous research has not extensively explored the specific measures needed to improve accessibility and inclusivity within the BEST Bus Service.

Research Methodology:

The primary data was collected through survey method among the group of 15-65 years of Age group to understand their perception regarding enhancing the BEST Bus Service. For this questionnaire, was developed as a tool and was filled by 35 respondents which were picked up randomly.

The secondary data was collected from online websites, journal, publication, etc.

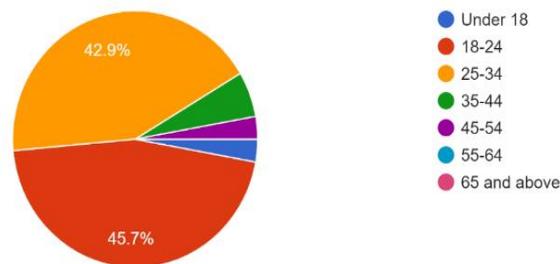
- Journal such as BES&T house Mumbai Journals.
- Publication such as BES&T.
- BEST annual reports.

Results:

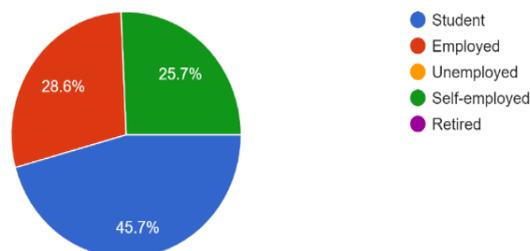
Data collected from 35 respondents has been collected below. Results can be summarised in terms of answers to the following question.

Data Analysis :

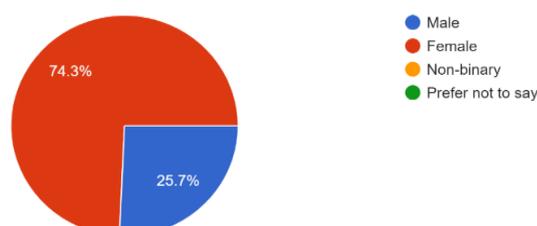
- ✓ 45.7% respondents are from age group 18-24 years.
- ✓ 42.9% respondents are from age group 25-34 years.
- ✓ Green, Purple and Blue belong to the other age groups.

 Age
35 responses
**Data Analysis :**

- ✓ 45.7% respondents are students
- ✓ 28.6% respondents are employed
- ✓ 25.7% respondents are Self-employed.

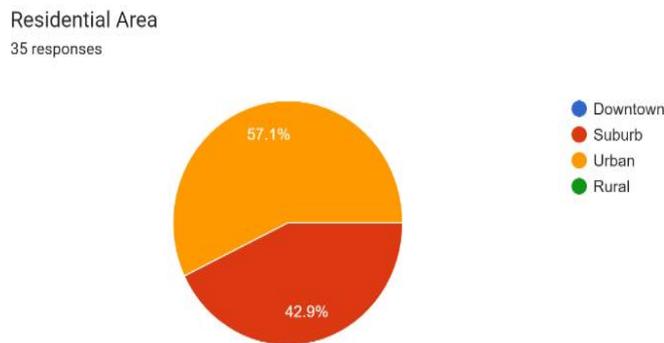
 Occupation
35 responses
**Data Analysis :**

- ✓ From the chart below, more than 70% respondents are Females and rest are the males.

 Gender
35 responses


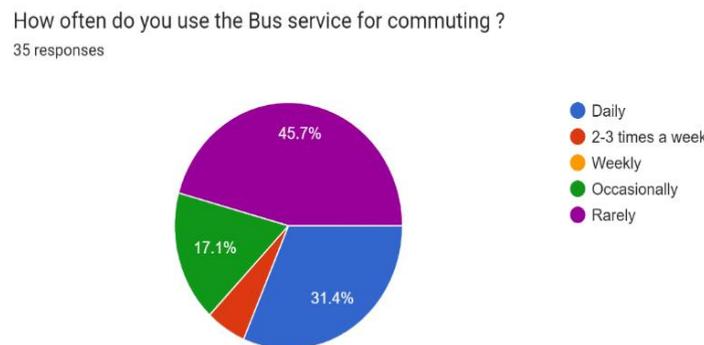
Data Analysis :

✓ More than 50% respondents residential area is Urban and the rest are of Suburbs.



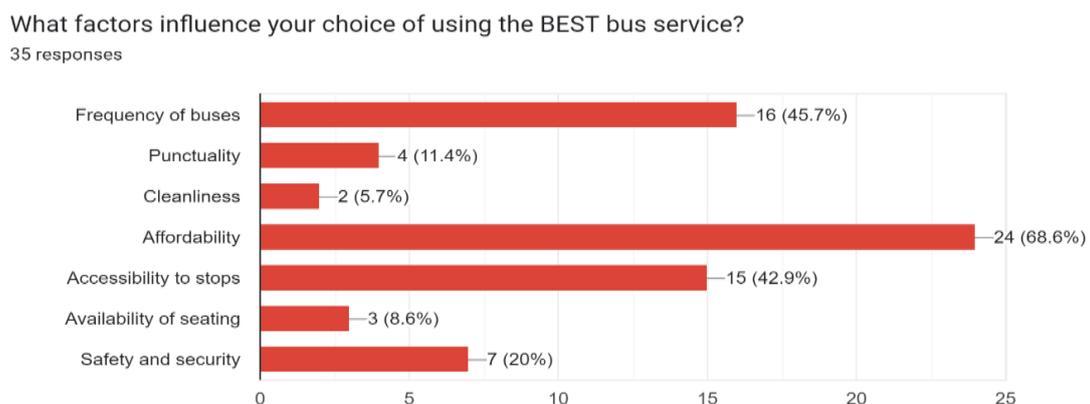
Data Analysis :

✓ From this chart, we can see 45.7 % respondents uses Bus on rarely basis and 31.4% respondents use it on daily basis.



Data Analysis :

✓ From this equation below, we can make out that most of the respondents are using BEST bus service due to affordability, frequency of buses, and due to accessibility to stops.

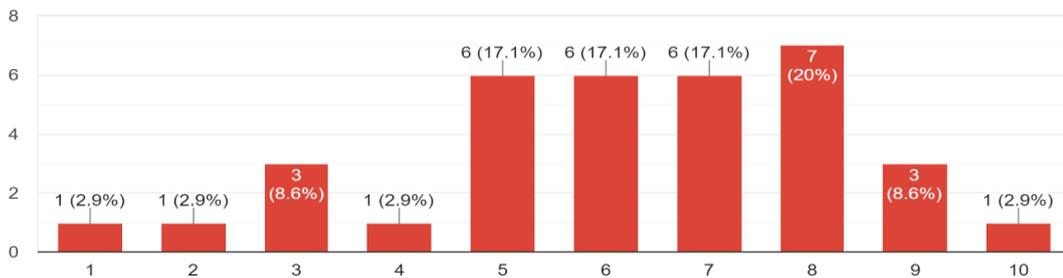


Data Analysis :

- ✓ From the scale below it is evident that, most of the respondents are extremely satisfied with the current bus service.

On a scale of 1 to 10, how satisfied are you with the current bus service? (1 being extremely dissatisfied, 10 being extremely satisfied)

35 responses

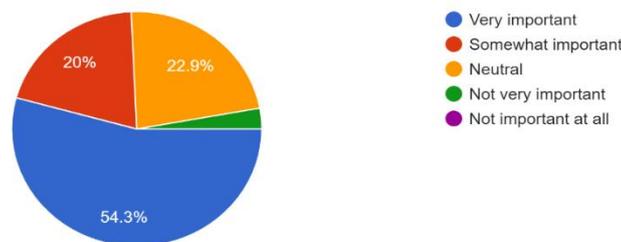


Data Analysis :

- ✓ The below chart states that, more than 50% respondents find integration of technology in BEST bus as an very important aspect.

How important is the integration of technology in the BEST bus service for you ?

35 responses

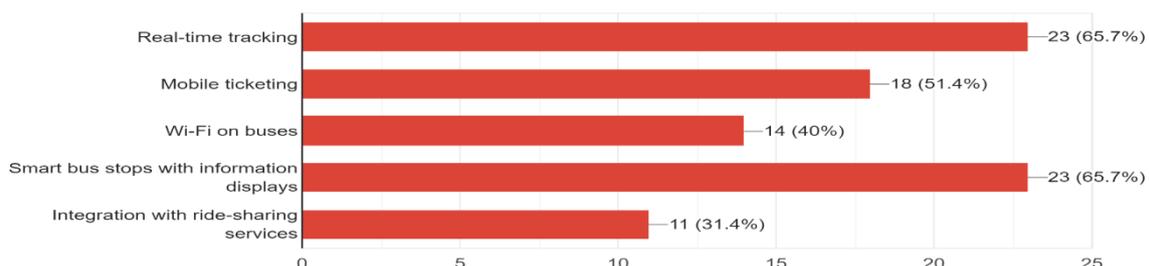


Data Analysis :

- ✓ From this diagram below, it is showing that if the technological features like Real -Time tracking system and Smart bus stops with information displays get more equipped the more people it would attract.

Which technological features do you think would enhance the bus service?

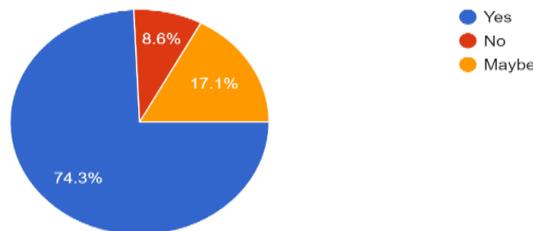
35 responses



Data Analysis :

✓ From the pie diagram below, it is very cleared that, if the Bus service would be more environment friendly the more people would use the bus service.

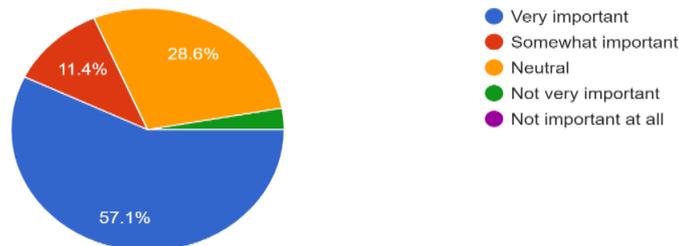
Would you be more likely to use the bus service if it were more environmentally friendly (e.g., electric buses, reduced emissions)?
35 responses



Data Analysis :

✓ This chart shows that, according to the respondents it is very important to have environmental impact.

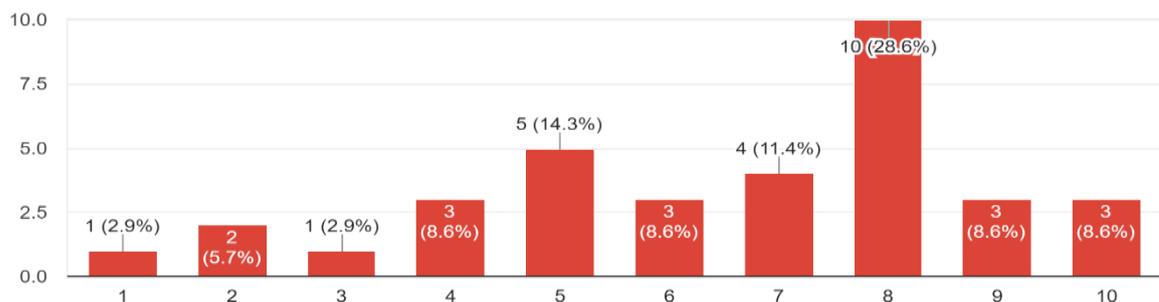
How important is the environmental impact of the bus service to you?
35 responses



Data Analysis :

✓ From this chart, we can notice that the recommendation percentage is only 28.6% out of the total respondents.

On a scale of 1 to 10, how likely do you recommend the current bus service to others? (1 being extremely unlikely, 10 being extremely likely)
35 responses



Limitations of the Study:

1. Commuters differ significantly in their fare price, occupation, cultures, and issues, which may make, universal findings or recommendations.
2. Responses received from 35 people only.
3. A smaller sample size within some industries might prevent a thorough grasp of industry-specific characteristics and views.
4. Biasness of the respondents could be the limitation as well.
5. Some segments of the population may face challenges accessing or participating in the survey, leading to underrepresentation of certain groups, such as those with limited internet access or mobility issues.

Findings of the Study:

From the above survey which was done to find out perceptions of commuters towards the BEST Bus services, gave slight insights into current beliefs and experiences. I had circulated the questionnaire in approx. people but out of that I only received a response from 35 people.

1. Increased bus service frequency is positively correlated with higher user satisfaction levels.
2. Users who experience technology-integrated services are more satisfied with the BEST bus service
3. Improved accessibility features positively correlate with higher user satisfaction levels.
4. Users who perceive the BEST bus service as more affordable are more likely to express higher satisfaction levels.

Conclusion of the Study:

In this comprehensive study on the Brihanmumbai

Electric Supply and Transport (BEST) Bus Service, several critical insights have emerged, shedding light on the challenges and opportunities for enhancing urban mobility in the vibrant city of Mumbai.

In conclusion, the findings of this comprehensive study underscore the need for a holistic approach to enhance the Brihanmumbai Electric Supply and Transport (BEST) Bus Service. By addressing traffic congestion, optimizing routes, improving fleet management, upgrading infrastructure, and embracing technology, the BEST bus service can become a more efficient, reliable, and passenger-friendly mode of urban transportation. The successful implementation of these recommendations is integral to fostering a sustainable and accessible urban mobility ecosystem in Mumbai.

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