

TeleCompass: Analysis of Telecommunication Service Usage Patterns in Bhutan

Abstract

This report examines telecommunication service usage in Bhutan, focusing on how people use mobile data and Wi-Fi for daily activities such as communication, social media, learning, and work. Data were collected from 137 respondents from both rural and urban areas through online and in-person surveys. The study compares usage patterns by occupation, age group, and settlement area to understand service preference and user satisfaction. Previous studies indicate that network coverage, service quality, and affordability significantly influence telecom service choice, especially in developing and geographically challenging regions (Wagle, 2025). Bhutan, with high mobile and internet penetration rates, represents a highly connected environment where users increasingly evaluate services based on quality rather than access alone (Kemp, Digital 2025: Bhutan, 2025). The findings show that students and young adults are the most active users of telecommunication services, with social media and messaging being the most common purposes of internet use. Although internet access is widely available, many users reported problems related to network reliability, data costs, and service quality. Most respondents showed moderate satisfaction, indicating that telecom services still need improvement. The report suggests improving network performance, offering clearer and more affordable data plans, and providing service options that match different user needs.

Introduction

The rapid digitalization in Bhutan, along with the introduction of 5G services, has significantly changed how residents use telecommunication services. Traditionally, talk time vouchers were the primary means of communication, but users have now shifted toward mobile data packages and Wi-Fi services. With these changes, many customers experience variations in service quality, such as exhausted data limits and altered package quantities, which can affect overall satisfaction.

This project focuses on understanding telecommunication service usage among residents of Bhutan, with a particular emphasis on mobile data and Wi-Fi. By comparing usage patterns across different areas, the study aims to determine which services are preferred for specific purposes and how satisfaction levels vary among users from different occupations, including students, farmers, employed, and unemployed individuals.

The purpose of the survey is to provide insights that help users make informed decisions when selecting telecommunication services, based on their location, occupation, and intended use. Understanding these patterns not only highlights the current trends in service usage but also helps address customer satisfaction concerns, enabling users to choose services that best meet their needs.

Background / Problem Statement

Access to reliable telecommunication services is essential for both personal and professional activities in Bhutan, yet patterns of data plan and Wi-Fi usage vary significantly between rural and urban areas.

Telecommunications in Bhutan have changed a lot over the years, moving from isolation to a modern digital system. Bhutan's mountainous terrain made network construction challenging. The first steps began in 1963 with help from India, gradually linking major towns and connecting Bhutan to the outside world by 1984.

In the 1990s, the government worked on a nationwide plan to improve digital networks, introduce the Internet, and launch national television. In the 2000s, mobile services started with Bhutan Telecom Limited (BTL), followed by competition from Tashi InfoComm Limited (TashiCell).

Bhutan is currently transitioning from 3G to 4G and 5G services, as older 3G technology is being phased out due to maintenance challenges and outdated infrastructure. Today, the telecom sector is managed by the Bhutan InfoComm and Media Authority (BICMA) and plays a key role in Bhutan's economy, education, and overall connectivity. (Dema, 2021)

Literature Review

Globally, communication and internet usage are dominated by two main technologies: Wi-Fi (Wireless LAN) and mobile internet. Wi-Fi is often considered "fixed wireless" because it is limited to specific hotspots, whereas mobile networks provide broader geographic coverage, allowing users to stay connected over wider areas. Price remains a critical factor influencing service adoption and usage. For example, in South Korea, 50% of users reported dissatisfaction with service fees, compared to only 10.3% who were satisfied. High costs can also contribute to a digital divide, as low-income groups in some regions may struggle to use mobile internet frequently due to meter-rate pricing systems (Ahn, Lee, Lee, & Ki, 2006). In emerging markets such as India, mobile networks have grown rapidly, driven by lower call tariffs, the rollout of 4G networks, and the introduction of Value-Added Services (VAS) (Al-Karimi, 2026). The global

telecom market *reached about \$3,048 billion in 2025* and is expected to grow further by 2030, driven by rising adoption of mobile and internet connectivity and advanced technologies like 5G, *IoT, and cloud services* (the Business Research Company, 2026).

Beyond cost, service quality has become a major determinant of user preference. Network coverage, speed, and reliability are now often prioritized over price alone when selecting telecom providers (Competition Commission of India, 2021). This reflects a shift from access-based evaluation to quality-based decision-making.

Bhutan has experienced rapid adoption of digital technologies in recent years, with almost all households in the country (99.6%) having internet access, and the vast majority (96%) using mobile internet, while only a small fraction uses other types of connections such as broadband or leased lines (Bureau, 2022). As of 2025, Bhutan had approximately 795,000 mobile connections and 702,000 internet users, indicating widespread connectivity and multiple subscriptions per individual (Kemp, Digital 2025: Bhutan, 2025). Additionally, 59.2% of the population is active on social media, showing strong digital engagement.

Wi-Fi availability in Bhutan has improved in recent years, especially in urban centers such as Thimphu, Paro, and Punakha, where internet access is common in hotels, restaurants, cafés, and commercial spaces. However, Wi-Fi quality and speed often vary by location and service provider and may not always provide consistent performance. In remote and mountainous areas, limited Wi-Fi availability makes mobile data services the primary means of maintaining digital connectivity. This suggests that access alone may not guarantee consistent service performance, particularly in geographically difficult areas. Although available statistics indicate high digital penetration, they provide limited explanation of actual user experiences with mobile data and Wi-Fi services, particularly across occupations and regions.

Starlink entered the Bhutan market with high-speed satellite internet, offering reported speeds of 200–300 Mbps, but with higher costs compared to local providers. Local telecom providers such as Bhutan Telecom and TashiCell continue to provide more affordable 4G and broadband packages, making them more practical for most users in Bhutan. (Dorji, 2025)

Problem Statement

Despite widespread access to telecommunication services in Bhutan, the quality, affordability, and reliability remain inconsistent across geographic locations and user groups, leading to dissatisfaction.

Methodology

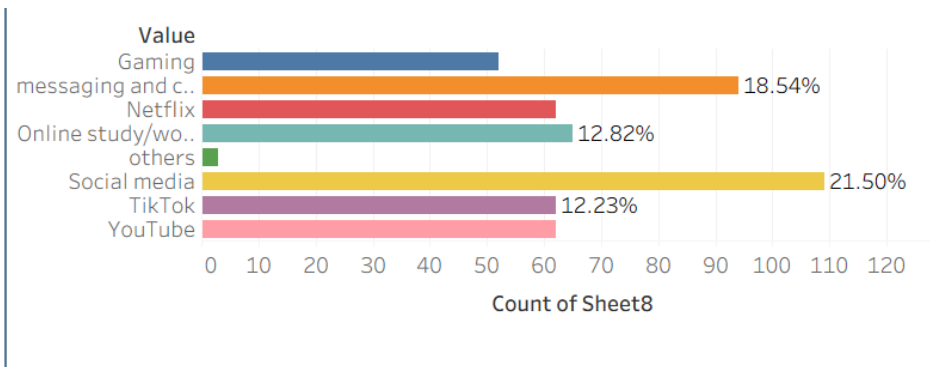
This internship project used a survey method and collected data using structured questionnaires distributed to residents across both rural and urban areas of Bhutan. The survey collected data on usage, purpose, and occupation to understand user behavior. Data were collected from 137 respondents through online and in-person surveys. The analysis focused on comparing rural versus urban usage. The data were organized in Google Sheets and analyzed using charts in Tableau. One limitation of this study is that the sample is dominated by students, so results may not fully represent other populations.

Findings

The finding shows that both rural and urban areas reported problems with the network. Many users are unhappy with internet services due to connectivity issues and mismatches between the data they receive and the amount they pay, including GST charges (Lhazom, 2025). Recent reports also confirm that internet speed and reliability remain concerns across Bhutan. Users frequently experience slow connections, rapid data exhaustion, failed online payments, and difficulties submitting school or college work. Although most people have internet access, these service quality issues make it difficult for them to rely on the internet for education, payments, and daily communication.

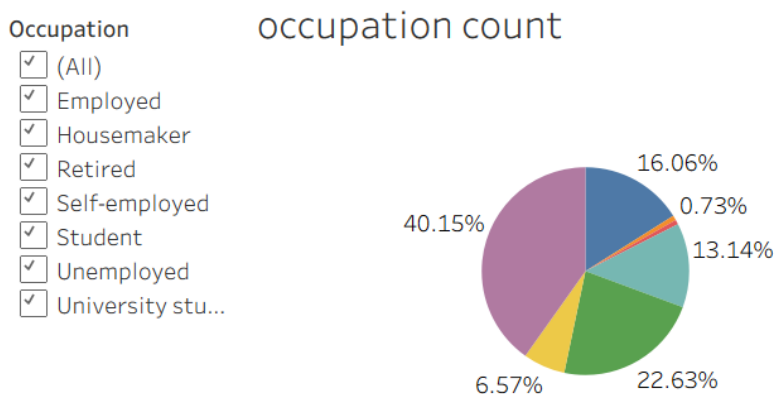
From my survey data, I found that students and professionals mainly use Wi-Fi for online learning, work tasks, and communication, which aligns with earlier reports on service usage. Office workers and business owners tend to prefer stable, high-data plans to support productivity, while farmers and manual laborers use the internet less frequently, mostly relying on basic data for simple communication.

Purpose for Use of Telecommunication Service



This shows the distribution of internet usage across different activities. Among the respondents, social media emerged as the most common activity, with 21.5% of users indicating it as their primary use. This is followed by messaging and communication apps with 18.54%, whereas Gaming was the least common activity. This suggests that the majority of respondents focus on social media, communication, and entertainment.

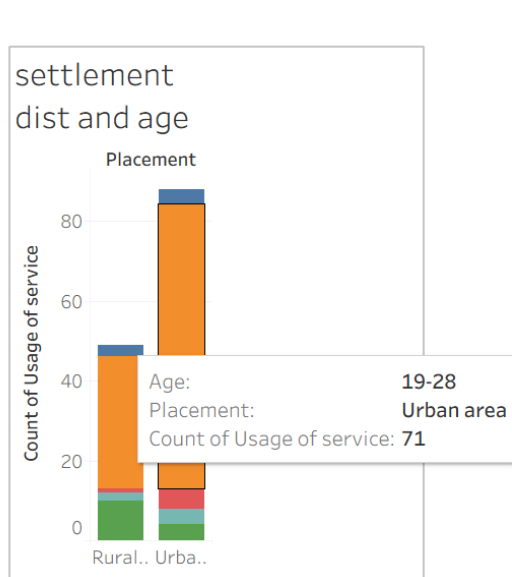
Respondents Based on Occupation



This reflects the distribution of respondents by occupation as a percentage of the total sample. The occupation distribution of respondents shows that university students formed the largest group, accounting for 40.15% of the total respondents. This indicates that a large proportion of participants were from higher education backgrounds, which may influence the overall telecommunication usage pattern, as university students often depend heavily on internet services for academic activities, communication, and entertainment.

Overall, the survey sample was largely dominated by students, suggesting that the findings mainly reflect the telecommunication service usage behavior of younger users, particularly those engaged in education.

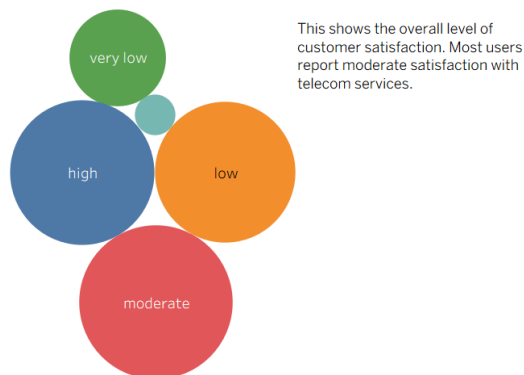
Age Group Distributed by Rural or Urban Settlement



This highlights the respondents by settlement area and age group. Most of the responses came from the 19–28 age group in both rural and urban settlements, with a higher number recorded in urban areas. This indicates that the young adults, particularly those living in urban areas, and who formed the largest respondent group, are likely the most active users of telecommunication services, and their usage patterns strongly influence overall telecommunication demand.

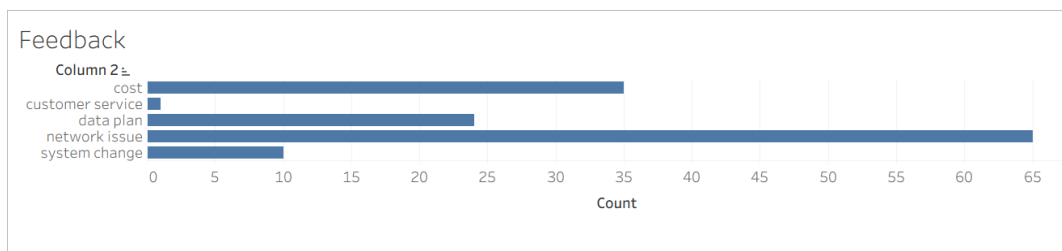
Overall Satisfaction with Telecommunication Service in Bhutan

overall satisfaction



This reflects the analysis of overall customer satisfaction, which shows that most users fall within the moderate satisfaction category. This indicates that while customers are generally content with the telecom services, there is still significant room for improvement. This suggests there is a gap in the market, highlighting that customers are not fully satisfied with telecommunication services, as the services may not effectively meet their diverse needs and usage purposes.

Users' Feedback on Consideration for Internet Choice.



This Figure shows the main problems faced by users. Most respondents reported network issues as the biggest problem, with the highest number of responses. This indicates connectivity and network reliability as the major concerns for users. The second most common issue is cost, followed by data plan problems, suggesting that many users are not satisfied with pricing and the value of data services.

Overall, the findings suggest that users are mainly dissatisfied with network performance and pricing, which affect their overall experience with telecommunication services.

Recommendations

- Improve internet network speed and reliability in both rural and urban areas by upgrading existing infrastructure.
- Provide more transparent and affordable data plans so users clearly understand pricing, data limits, and GST charges.
- Introduce customized data packages based on user needs such as students, professionals, and casual users.
- Encourage users to select mobile data plans based on their location and network strength for better service experience.
- Increase awareness among users about choosing suitable telecom services to avoid overpaying for unused data.
- Telecom providers should regularly collect user feedback to improve service quality and customer satisfaction.

Conclusion

TeleCompass provides an overview of telecommunication usage patterns in Bhutan, showing clear differences in user experience based on location, occupation, and internet usage purpose. The findings highlight issues such as network quality, pricing concerns, and the need for more suitable data plans.

Overall, the study shows that users need more reliable, affordable, and customized telecom services. It also supports the idea that better awareness and improved service planning can help users make more informed choices.

TeleCompass offers useful insights that can help improve telecommunication services and support future development of user-focused solutions in Bhutan.

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