

COMPARATIVE ANALYSIS OF FIBRE-TO-HOME SERVICES OFFERED BY AIRTEL AND RELIANCE JIO

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ABSTRACT

In India, Internet services have evolved over time, from slow dial-up connections to rapid optical-fibre connections. When various telecom operators' services, such as broadband and mobile telephony, were first introduced and customer adoption was high, most retail rivalries focused on gaining new customers and switchers. As these services have matured, recruiting entirely new clients has become less vital unless they discover further benefits in the product or service. This paper investigates the fixed-line Internet service provider market—specifically the optical-fibre offerings of Reliance Jio (“GigaFiber”) and Airtel (“Xstream”)—in terms of product, price, and competition, along with customer satisfaction with the new services, using a questionnaire distributed via social media and other means to assess whether Reliance can repeat its earlier wireless success.

Keywords: *Reliance; Reliance GigaFiber; Airtel; Airtel Xstream/V-Fiber; Internet Service Provider.*

1. Introduction

Reliance's most sought-after and ambitious project, GigaFiber, was launched in 2018, but it is still in its early stages in the market compared to Airtel. Competition has increased, and a significant share in the wireless mobile market has been taken over by Reliance Jio; some companies have merged to counter this competition, such as Vodafone and Idea in the Indian market. Now Reliance is targeting the wired Internet market with high-speed data plans combined with attractive combo benefits.

In terms of market position, Reliance Jio has strong network capture given the relative age of the companies compared to the Airtel and Vodafone networks. Having achieved stability in the wireless market, Reliance Jio is now aiming at wired Internet connections. The following sections analyse the offers made by Reliance Jio and Airtel in the Indian wired Internet market.

1.1 Airtel V-Fiber

Airtel is one of the oldest and most prominent players in telecom, providing Internet services in both wired and wireless categories at good speed. Airtel launched its V-Fiber services in October 2016. Airtel Fiber is available in 100 cities in India with speeds up to 1 Gb/s, and this service was later renamed Airtel Xstream Fiber. Airtel announced that it would roll out V-Fiber technology-based Internet services to 87 cities throughout India, with a top speed of 100 Mbps, launching in Chennai first. New customers also received a three-month free, unlimited trial, with a complete refund offered if they were unhappy after the first month.

According to Airtel, this method does not necessitate additional road digging for cable deployment; instead, “vectorization” is used to deliver last-mile connectivity over existing copper lines. Airtel upgraded its exchanges to accommodate V-Fiber, using last-mile copper with vectorization to supply the full bandwidth at the lowest possible cost.

What is V-Fiber?

V-Fiber is based on vectorization technology, the European fixed-broadband industry's gold standard. It turbocharges the last-mile copper with superior noise-removal technology (much as in audio systems) to offer super-fast data speeds. Fibre is delivered into colonies and neighbourhoods, and exchanges are improved. Airtel broadband customers gained access to unlimited free voice calls to any network in the country, and data is cached at the company's data centres to optimise performance. Vectorization and V-Fiber, according to Airtel, are part of Project Leap, the company's network transformation effort. In the Indian circle, Airtel's 40 Mbps package cost ₹799, and its 100 Mbps “Entertainment” plan cost ₹1,099 per month with a 300 GB data limit (plus 1000 GB bonus data), bundling subscriptions such as Amazon Prime, Netflix, Zee5 Premium, and Airtel TV Premium.

1.2 Reliance Jio GigaFiber

Reliance Jio began commercially offering “Giga” Internet services on 5 September, in the cities with the highest demand for connectivity. This research was conducted in October 2019—not to make firm predictions, but to gain a better understanding of the market, customer switching patterns, and preferences, and the likely future of Reliance GigaFiber in the Indian market. Would Reliance follow its recent success in wireless telecom services and transform the market scenario? Some features are also offered by competitors, so it was time to watch how the market and customers would react to the new GigaFiber services.

Jio's GigaFiber had been signed up by over 15 million individuals, and the company established a strategy to reach 20 million homes and 15 million enterprises. In less than three years after its start, Jio had risen to become the largest operator by revenue and the second largest by customer numbers. The fibre service would support mixed reality (a mix of augmented and virtual reality), allowing immersive retail experiences, high-definition entertainment, and high-quality video calling across India. Reliance also planned to acquire Den Networks Ltd. and Hathway Cable and Datacom Ltd. for ₹5,230 crore, further increasing Jio GigaFiber's presence across India.

2. Optical Fibre Technology

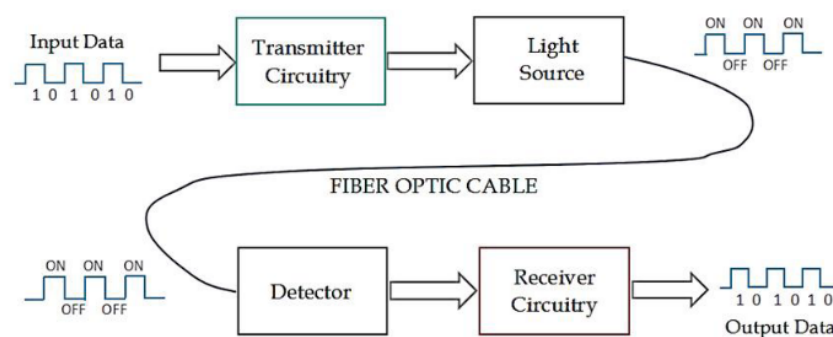


Figure 1. Fibre-Optic Communication System

Source: Adapted from FS.com optical-transmission tutorial.

Three key components make up a fibre-optic communication system: the fibre-optic cable, the optical transmitter, and the optical receiver. The optical transmitter converts electrical impulses into optical signals; these signals are sent through the fibre-optic cable to the optical receiver, which converts them back into electrical signals. Semiconductors such as LEDs (light-emitting diodes) and laser diodes are the most

common optical transmitters, while the photodetector is the most important component of an optical receiver, converting light into electricity via the photodetector effect.

Advantages of Internet over Optical Fibre

Optical-fibre Internet is reliable and consistent, offers faster and symmetrical data transfer, is cost-effective, eliminates latency issues for VoIP consumers (improving voice quality), supports HD video streaming, eases file sharing and cloud access, and provides strong signal strength.

Disadvantages of Fibre-Optic Transmission

Installation is challenging: splicing fibre-optic cable is a difficult process; bending the cable too much breaks it, and it is prone to being cut or damaged during installation. **Fragility:** optical-fibre cables are usually made of glass, making them more fragile than electrical wires, and glass can be harmed by chemicals such as hydrogen gas (a concern with underwater cables). **Higher cost:** fibre-optic cabling installation costs remain higher than copper, even though they fall by as much as 60% each year. **Attenuation and dispersion:** as transmission distances rise, light attenuates and disperses, necessitating additional optical components such as EDFAs.

3. Literature Review

Kumar and Moorthy (2017) studied customer satisfaction with Airtel, focusing on Dharmapuri district, with a sample of 100 Airtel prepaid customers. Airtel provided a decent level of service, though the majority of respondents were dissatisfied with phone features; the study recommended promotional techniques similar to commercial service providers.

Balaji (2012) interviewed 199 post-paid mobile users in a major Indian city, applying the American Customer Satisfaction Index (ACSI) model to investigate causal links between expectations, quality, value, satisfaction, and loyalty. Consumer pleasure was influenced by perceived quality, leading to trust, price tolerance, and loyalty.

Zahoor (2015) questioned 100 Airtel customers to classify satisfaction, finding that while Airtel excelled in tariff plans and brand image, it had room for growth in network coverage and Internet speed.

Leelakulthanit and Hongcharu (2011) interviewed 400 Thai mobile customers, finding that promotional value, store customer-service quality, and business image all play a role in determining consumer satisfaction.

Alom et al. (2010) surveyed 60 university students in India who were mobile and fibre consumers, finding that brand image and perceived call rate had the greatest influence on the choice of mobile service provider.

Jahanzeb et al. (2011) studied customer loyalty in the Pakistani telecommunications business (sample of 146), finding that loyalty is determined mostly by trust, service quality, employee loyalty, and switching costs.

Boohene and Agyapong (2011) studied 460 telecom subscribers in Ghana, finding that service quality is strongly and positively linked to loyalty, though satisfaction does not always lead to loyalty.

Singh (2016) questioned 200 Reliance Jio subscribers in Ghaziabad; 168 were satisfied and 32 dissatisfied, concluding that satisfaction with Reliance Jio was increasing.

Sornapriya and Sathiya (2017) studied customer satisfaction with the Reliance Jio network (sample of 50); 52% were satisfied and 64% recommended improving network coverage, suggesting towers be installed in remote areas to alleviate congestion.

4. Objectives of the Study

1. To compare the Internet home services provided over optical-fibre networks by Airtel “Xstream” and Reliance Jio “GigaFiber.”
2. To determine the current level of consumer satisfaction among Internet service providers.
3. To determine the elements that influence fibre-service consumers' satisfaction.
4. To conduct a comparative study of Airtel and Jio fibre consumers in terms of satisfaction across various criteria.

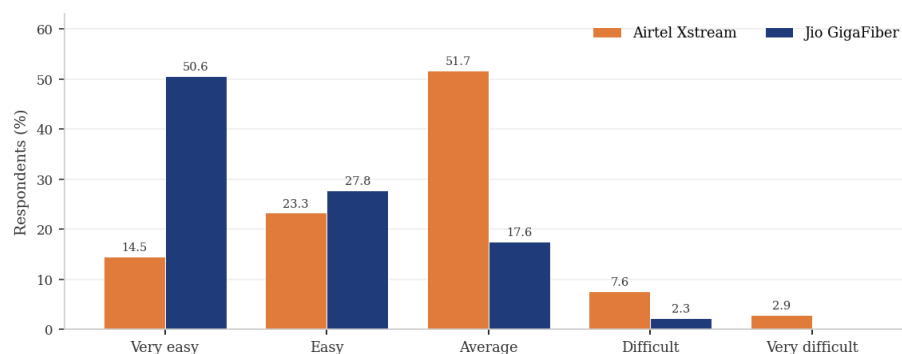
5. Research Methodology

Number of samples: the participants were 200 people, drawn as a random sample of fibre consumers. **Sampling technique:** judgmental sampling. **Area of sampling:** India. **Data gathering:** a Google Form was used to collect data; 200 surveys were delivered at random to home users, students, self-employed and employed people, and others, with confidentiality and anonymity preserved. **Research design:** descriptive. **Statistical software:** SPSS.

6. Analysis and Interpretation

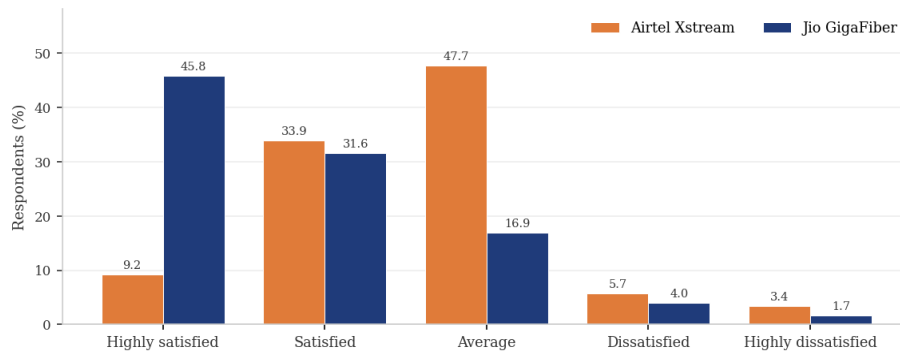
The questionnaire and survey results indicate the attitudes of users of available ISPs providing fixed-line Internet connections. With Reliance's entry into the fixed-line market, customers now have an alternative to their existing connection and can choose to upgrade or move to a new provider. In each figure below, orange bars denote Airtel Xstream and navy bars denote Jio GigaFiber.

Figure 2. Availability of Installation Facility



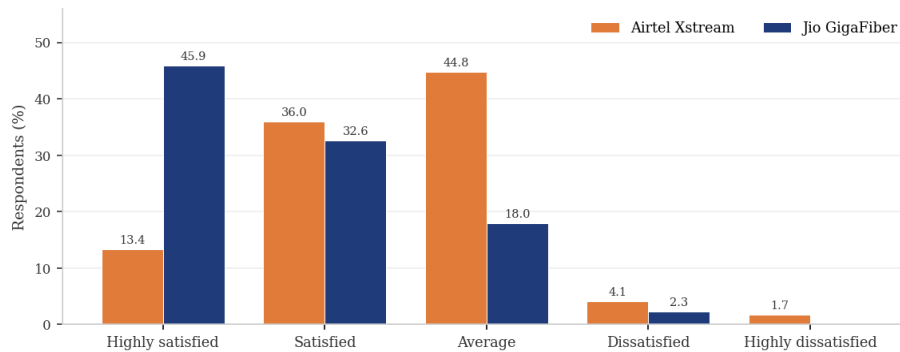
For installation facilities, Airtel respondents chose Average (51.7%), Easy (23.3%), Very easy (14.5%), Difficult (7.6%), and Very difficult (2.9%); Jio respondents chose Very easy (50.6%), Easy (27.8%), Average (17.6%), and Difficult (2.3%). People found Jio Fiber **very easy** in terms of installation.

Figure 3. Satisfaction with Pricing Policy



On pricing, Airtel respondents chose Average (47.7%), Satisfied (33.9%), Highly satisfied (9.2%), Dissatisfied (5.7%), and Highly dissatisfied (3.4%); Jio respondents chose Highly satisfied (45.8%), Satisfied (31.6%), Average (16.9%), Dissatisfied (4.0%), and Highly dissatisfied (1.7%). Most people were **highly satisfied** with the pricing policy of Jio Fiber.

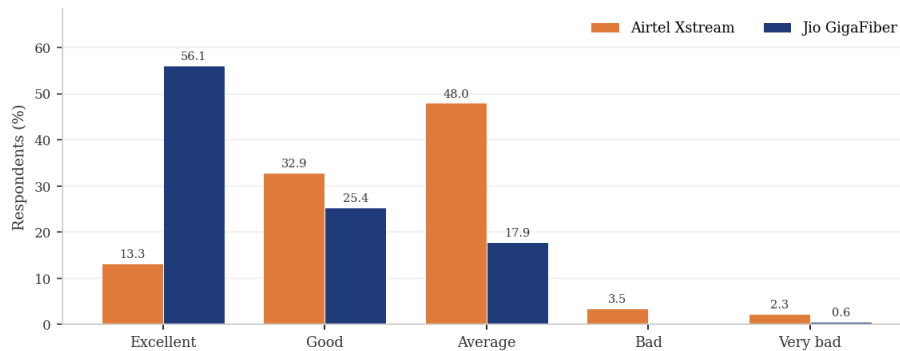
Figure 4. Satisfaction with Service Provided by ISP



On service, Airtel customers were Average (44.8%), Satisfied (36.0%), Highly satisfied (13.4%), Dissatisfied (4.1%), and Highly dissatisfied (1.7%); Jio customers were Highly satisfied (45.9%), Satisfied (32.6%), Average (18.0%), and Dissatisfied (2.3%). Most customers were **highly satisfied** with the service provided by Jio Fiber.

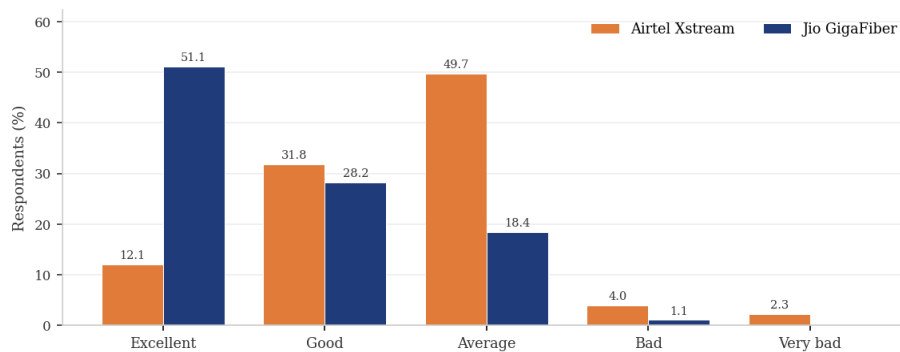
On the ultimate reason for using each service, Airtel customers cited availability (30.6%), fast browsing speed (21.4%), better support services (11.0%), both availability and speed (9.8%), and other reasons; Jio customers cited both availability and fast browsing speed (24.9%), availability (18.3%), fast browsing speed (10.7%), and other combined reasons. Airtel fibre is used for **availability**, and Jio fibre for **availability and fast browsing speed**.

Figure 5. Rating of After-Sales Services



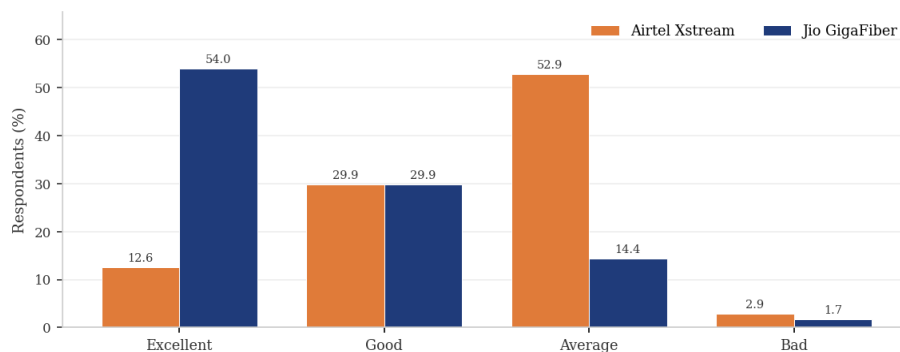
For after-sales services, Airtel customers rated Average (48.0%), Good (32.9%), Excellent (13.3%), Bad (3.5%), and Very bad (2.3%); Jio customers rated Excellent (56.1%), Good (25.4%), Average (17.9%), and Very bad (0.6%). After-sales service is rated **excellent** for Jio fibre and **average** for Airtel fibre.

Figure 6. Satisfaction with Connectivity Issues



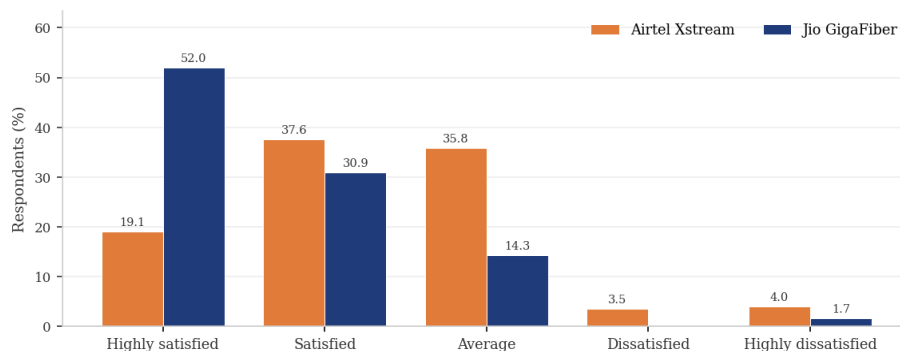
On connectivity, Airtel respondents rated Average (49.7%), Good (31.8%), Excellent (12.1%), Bad (4.0%), and Very bad (2.3%); Jio respondents rated Excellent (51.1%), Good (28.2%), Average (18.4%), and Bad (1.1%). Connectivity is rated **excellent** for Jio fibre and **average** for Airtel fibre.

Figure 7. Satisfaction with Value-Added Services



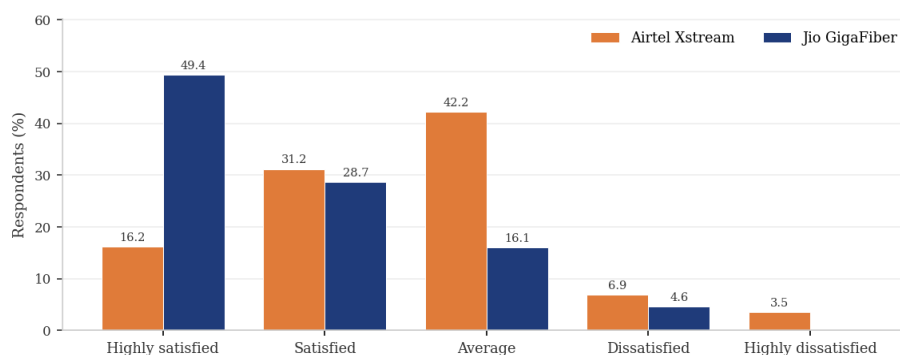
On value-added services, Airtel customers rated Average (52.9%), Good (29.9%), Excellent (12.6%), and Bad (2.9%); Jio customers rated Excellent (54.0%), Good (29.9%), Average (14.4%), and Bad (1.7%). Value-added services are rated **excellent** for Jio fibre and **average** for Airtel fibre.

Figure 8. Overall Performance of Fibre



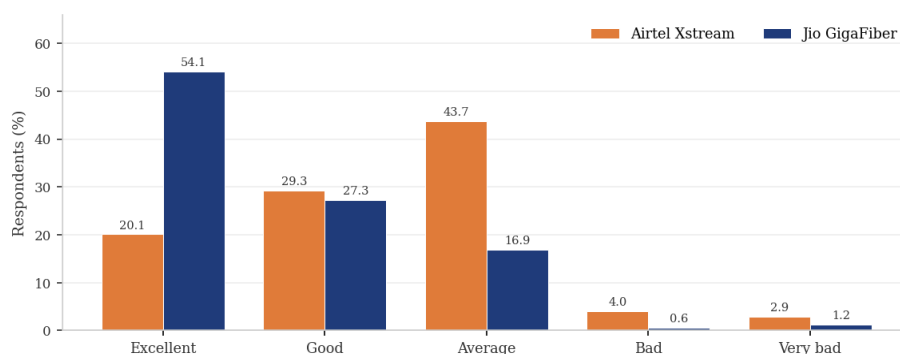
On overall performance, Airtel respondents rated Satisfied (37.6%), Average (35.8%), Highly satisfied (19.1%), Highly dissatisfied (4.0%), and Dissatisfied (3.5%); Jio respondents rated Highly satisfied (52.0%), Satisfied (30.9%), Average (14.3%), and Highly dissatisfied (1.7%). Airtel fibre performance is **satisfied**, whereas Jio fibre is **highly satisfied**.

Figure 9. Getting Ultra-High-Speed Internet up to 1 Gbps



On ultra-high-speed Internet, Airtel respondents rated Average (42.2%), Satisfied (31.2%), Highly satisfied (16.2%), Dissatisfied (6.9%), and Highly dissatisfied (3.5%); Jio respondents rated Highly satisfied (49.4%), Satisfied (28.7%), Average (16.1%), and Dissatisfied (4.6%). Most customers rate Airtel **average** and Jio **highly satisfied**.

Figure 10. Support System via Digital Home Services



On the digital-home-services support system, Airtel customers rated Average (43.7%), Good (29.3%), Excellent (20.1%), Bad (4.0%), and Very bad (2.9%); Jio customers rated Excellent (54.1%), Good (27.3%), Average (16.9%), Very bad (1.2%), and Bad (0.6%). The support system is **average** for Airtel fibre and **excellent** for Jio fibre.

7. Findings

5. The performance of Airtel fibre is rated Satisfied, whereas Jio fibre is rated Highly satisfied.
6. After-sales service is rated Excellent for Jio fibre and Average for Airtel fibre.
7. Most customers rate ultra-high-speed on Airtel fibre as Average and are Highly satisfied with Jio fibre.
8. The digital-home-services support system is Average for Airtel fibre and Excellent for Jio fibre.

7.1 Correlation Analysis

Pearson correlation was computed between selected satisfaction dimensions in SPSS. All reported correlations are significant at the 0.01 level (2-tailed).

Table 1. Selected Pearson Correlations (Significant at the 0.01 Level, 2-Tailed)

Variable Pair	Provider	Pearson r	Sig. (2-tailed)	N
After-sales service × Connectivity issues	Jio Fiber	0.701	< .001	172
Support system × Overall performance	Airtel Fiber	0.747	< .001	170
Installation facility × Pricing policy	Airtel Fiber	0.477	< .001	170
Overall performance × Ultra-high-speed (1 Gbps)	Jio Fiber	0.760	< .001	173
Installation facility × Pricing policy	Jio Fiber	0.550	< .001	175
Ultra-high-speed (1 Gbps) × Connectivity issues	Airtel Fiber	0.568	< .001	170

Source: Computed in SPSS from survey responses ($N \approx 200$).

The correlations indicate moderate-to-strong positive associations between the paired satisfaction dimensions for both providers. The strongest relationship observed is between overall performance and ultra-high-speed connectivity for Jio Fiber ($r = 0.760$), followed by the association between the support system and overall performance for Airtel Fiber ($r = 0.747$).

8. Conclusion

This research brings a new aspect to future study. Respondents found Jio Fiber very easy in terms of installation, and most were highly satisfied with its pricing policy and service. Airtel fibre is used primarily for availability, and Jio fibre for both availability and fast browsing speed. After-sales service, value-added services, connectivity, and the digital-home-services support system are all rated excellent for Jio and average for Airtel. Overall performance is rated satisfied for Airtel and highly satisfied for Jio, and customers rate ultra-high-speed connectivity as average for Airtel and highly satisfied for Jio.

The survey responses indicate that users are struggling with the speed, price, plans, and overall performance of the Airtel fibre service they use. The response to optical-fibre technology and the welcome offer by Reliance Jio gives new hope to customers for better services. Meanwhile, Airtel—already working to retain its customer base in light of Jio's wireless success—is taking countermeasures such as increasing data limits and speeds.

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