

A Comparative Study of Airtel and Jio's 5G Services: Insights into Customer Preference and Perception in Rayalaseema Region

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Abstract

The research compared Jio and Airtel's 5G services in Andhra Pradesh's Rayalaseema area. This study used rigorous research methodologies to investigate pricing tactics, customer preferences, network performance, service quality, and technological infrastructure. It highlighted significant achievements in the rapidly expanding 5G telecommunications market, as well as crucial factors impacting customer decisions. The study collected and evaluated data from a large sample of users to highlight each provider's strengths and weaknesses, shedding insight on the competitive dynamics of the region's 5G telecoms market. This research gives a complete understanding of their performance in a geographically unique and economically significant area. Based on the data, there are practical lessons for service and stakeholder providers trying to bridge the digital gap. Furthermore, the research identified areas for innovation and development that may promote the usage of 5G technologies. This research contributes to the wider topic of India's 5G evolutions by highlighting the impact of regional markets such as Rayalaseema on the growth of the country's telecoms environment.

Keywords: 5G Services, Customer Preferences, Customer Satisfaction, Key Factors &5G Technology

1. Introduction

The introduction of 5G technology represents a significant step forward in telecom expansion. It provides unparalleled speed, decreased latency, and enhanced connectivity (Singh, R. 2023). Jio and Airtel, India's biggest telecom operators were pioneers in the introduction of 5G technology, which have transformed how consumers and companies interact with digital connections. In addition to pushing technological boundaries, the rivalry between these two titans has made it more important than ever to understand consumer preferences and satisfaction.

The adoption of 5G technology has the potential to considerably revolutionize Rayalaseema's digital landscape, in particular in Tirupati District. Tirupati which is an ideal location to examine the effectiveness and advantages of 5G services as it combines urban and semi-urban areas (Kumar and Gupta, 2022). Because of its enormous customer base, this region is suitable for testing how 5G networks satisfy a wide range of expectations and goals (Jain et al., 2022).

The major objective of this study is to evaluate Airtel and Jio's 5G services in Rayalaseema based on network performance, user preferences, and satisfaction (Kumar, V., & Gupta, A. 2022). Its goal is to evaluate the influence of main factors such as network quality, pricing, and additional services on consumer choices (Suguanthi and Shanthi 2017). Customers' preferences are increasingly influenced not just by technical considerations, but also by value-added services, price, and overall user experience (Verma, A., Singh, P., and Gupta, R. 2022).

By focusing on the Rayalaseema region, this research intends to uncover regional nuances that impact the adoption and satisfaction of 5G services. (Sharma and Malhotra 2021). The findings aim to provide actionable recommendations for Airtel and Jio to enhance their offerings, address service gaps, and improve customer experiences (Verma, Singh and Gupta 2022). Ultimately, this study advances our knowledge of how cutting-edge telecommunications technologies can be tailored to meet a range of consumer demands in cutthroat marketplaces.

2. Literature Review

The Jio and Airtel comparative study examined a wide range of consumer preferences and service performance parameters. The study identifies several significant aspects that influence consumer choice, including pricing strategies, network dependability, customer service, data speed, and value-added services. In terms of customer preferences, the survey stressed the importance of affordability and data-driven tariffs, both of which have a significant role in deciding market share. Furthermore, the study investigated regional preferences, finding complicated rivalry impacted by localized marketing techniques, demographic considerations, and the urban-rural split (Singh 2023).

DivyaBharathi and Khan (2022) conducted a comprehensive analysis of customer preferences for Jio and Airtel, two prominent Indian cellular service providers. The study looked at a variety of elements that influence customer decisions. It emphasized the relevance of promotional offers, brand loyalty, and service bundling, all of which have a significant influence on consumer behavior. The study also investigated how technological improvements, such as the introduction of 4G and 5G technologies, influence consumer expectations and desires. The analysis noted how Jio's aggressive marketing efforts and the introduction of its cheaply priced data plans upended the Indian telecom industry, forcing competitors such as Airtel to change their business strategy in order to retain market share.

Agarwal and Bedi (2022) provided an interesting overview of the prospects and problems associated with the implementation of 5G technology in India. The report stated that 5G has the potential to disrupt many industries, including manufacturing, education, healthcare, and telecommunications. According to the authors, 5G has the potential to completely transform connectivity by enabling much faster data

speeds, lower latency, increased network efficiency, and the capacity to manage multiple devices at once. Despite its vast potential, the study highlights three major impediments to 5G adoption in India. Furthermore, gaps in internet access and digital expertise exist between urban and rural residents, limiting the equitable benefits of 5G implementation.

A comprehensive examination of consumer preferences for 5G service adoption was conducted, with an emphasis on understanding regional variances and how these impact customer behaviour. The survey found that the most critical drivers of 5G adoptions are cost sensitivity, perceived usefulness, technological awareness, and network reliability. Geographic differences, such as those between urban and rural regions, have a significant impact on consumer choices, according to the authors, since they are influenced by variations in local economic situations, digital literacy, and infrastructure availability. The report also emphasized the need of customized service offerings in 5G adoption. Consumers demonstrated a desire for services tailored to their specific requirements, such as dedicated data plans for heavy internet users, gamers, or companies in need of incredibly dependable, low-latency communication. Customization was seen as a way to increase customer satisfaction and strengthen brand loyalty in a competitive market (Kumar and Gupta 2022).

Verma, A., Singh, P., and Gupta, R. (2022) explored customer preferences for 5G service adoption and emphasized the relevance of local differences in influencing consumer behavior. Their research revealed many crucial elements driving 5G technology adoption, including perceived value, service coverage, network dependability, and technological awareness. According to the survey, customers in rural regions place a larger importance on service availability and pricing than those in cities, who prefer high-speed connections and seamless network experiences. Kumar and Gupta emphasized the importance of competitive pricing strategies in increasing adoption, particularly in price-sensitive markets. The poll also underlined the need of adequately describing the benefits of 5G technology.

This comparative analysis of emerging-market telecom service providers took into account major criteria such as service quality, customer satisfaction, pricing strategies, and market competition. The study's purpose is to identify the key factors influencing customer decisions in this rapidly increasing industry. The authors investigated how cultural, economic, and legal variations influence consumer choices and business performance. According to the research, customer preferences vary widely, with cost and service quality being the most important criteria in the majority of markets. The authors also emphasized the need of creative pricing methods, particularly in price-sensitive industries where customer acquisition and retention are frequently influenced by affordability. The report also highlighted the competitive landscape in emerging markets (Jain, Kumar, and Singh 2022).

Verma, Singh, and Gupta (2022) investigated pricing strategies in the 5G telecom industry, focusing on how service providers adjust their price structures to meet the demands of a rapidly evolving market. As telecom operators compete for consumers while managing the high costs of 5G infrastructure and spectrum acquisition, the research underscored the critical role that pricing plays in the deployment of 5G services. Furthermore, Verma, Singh, and Gupta identified an emerging trend of combining 5G rates with value-added services such as cloud storage, streaming platforms, and cybersecurity solutions to

increase user loyalty. The authors also examined the competition-related challenges that telecom providers experience.

A detailed examination of network performance for 5G services in developing economies was conducted, with a focus on the unique promise and challenges that these places provide. The study analyzed critical performance characteristics such as speed, latency, reliability, and network coverage, as well as the impact of local environmental and socioeconomic factors on the performance of 5G networks (Sharma and Malhotra 2021).

Suguanthi and Shanthi (2017) investigated how consumers in the Indian telecom industry rate the quality of the services they receive, focusing on the factors that influence customer loyalty and satisfaction. The poll emphasized the importance of providing high-quality services in retaining clients and achieving a competitive edge in a highly competitive and dynamic industry.

In Avadi, Chennai, a study comparing customer happiness with Airtel and Vodafone services was carried out, with an emphasis on the variables affecting customer preferences and satisfaction levels. The study sought to assess important factors that affect customer loyalty, including pricing, network performance, customer support, and service quality (Sudheesh, Chand, and Subraman 2015).

Myilswamy and Kumar (2013) evaluated the preferences and activities of consumers in the Coimbatore District while selecting mobile communication service providers. The study focuses on the factors that influence customer desire, enjoyment, and loyalty in a competitive and dynamic telecom business.

3. Objectives of the study

The main objectives of this comparative analysis are:

1. To assess Jio and Airtel's 5G network performance in the Rayalaseema region.
2. To investigate consumer preferences, contentment, and perceptions concerning extra services, pricing, and network quality.
3. To identify the main determinants that influence consumers' choices between Jio's and Airtel's 5G networks.
4. To make suggestions for enhancing both providers' service offerings and client experiences.

3. Scope of the study

This research focused on the different 5G services provided by Jio and Airtel in the region of Rayalaseema, particularly in Tirupati District. It sought to understand how the customers' preferences and perceptions are formed. It also studied the pricing strategies, as well as the network quality and value added services offered.

The scope also encompasses the identification of the characteristics of a customer who is switching from one supplier to the other in relation to the technical, economical, and service quality aspects involved.

Along with participating in the broader discussion of the 5G adoption and competition for available markets in the region, the study intends to give actionable recommendations to Jio and Airtel regarding the improvement of service delivery and customer satisfaction.

5. Need for the Study

As a consequence of India's rapid adoption of 5G technology, telecom firms such as Airtel and Jio have emerged as pioneers in the provision of next-generation connectivity solutions. Understanding customer preferences and 5G service performance is critical in areas with increasing digital penetration, such as Rayalaseema.

As one of the region's major cities, Tirupati District is a key urban hub in the region, serves as a representative area to examine how well these services satisfy user needs in terms of network quality, pricing, and additional features.

A comparison analysis is required to assess the benefits and drawbacks of each supplier's offerings. This will provide essential data for improving consumer happiness and promoting market innovation.

This research will help to identify the key factors that influence customer decisions, allowing service providers to better tailor their goods to the region's specific needs. In a competitive market, it will also be useful for developing targeted efforts to boost consumer happiness and loyalty.

6. Methodology:

The research technique for this study, which focuses on the Tirupati District, attempts to provide a complete comparison of Airtel and Jio's 5G services in the Rayalaseema area.

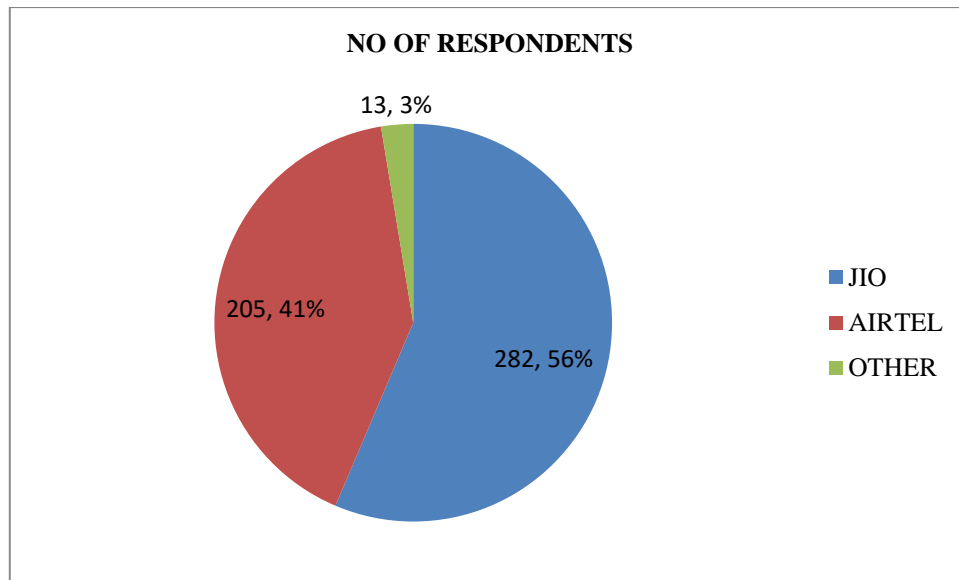
A quantitative research technique was employed to collect data from a sample of 500 respondents of various ages and vocations from both urban and rural locations, using a standardized survey questionnaire. The sample was selected using stratified random selection to ensure representation across a variety of demographics, including age, employment, and district location.

The poll will assess customer preferences, satisfaction levels, and views on network performance, cost, and additional services. The data was analyzed using the SPSS program, with descriptive and inferential statistical techniques employed to identify relevant characteristics influencing consumer selections and compare the service quality of the two providers. The findings lead to actionable ideas for improving service offerings and consumer experiences.

7. Results:

The data analysis in this study focuses on the important elements influencing consumer perceptions and decisions about Airtel and Jio's 5G services in Rayalaseema. The study used both qualitative and quantitative data to examine key elements such as performance, pricing structures, service quality, and customer happiness.

User surveys, comments, and performance measurements served as a good framework for investigating the competitive effect of the two telecom titans. The study aims to provide a complete perspective of the market landscape in this economically important region by identifying trends, correlations, and discrepancies in consumer satisfaction.



Source: Survey

Figure1: Preference of network between Jio& Airtel in the Rayalaseema region.

The figure shows the status of preference of network towards Jio and Airtel in Rayalaseema region that Jio is the most preferred network with 54%; Airtel is the second most preferred network with 41%. Airtel has the potential to compete, and other networks have very little preference, with only 2%.

Table 1. Comparative analysis of Plan preference for Entry-level and Premium Plans of Jio and Airtel

Plan Type	<u>Jio</u>	Airtel
Entry level plans	58%	42%
Premium level plans	57%	43%

Table 1.1 Plan preferences for Entry-level and Premium Plans of Jio and Airtel

Plan type provider Cross tabulation					
			provider		Total
			airtel	jio	
plantype	entry level plans	Count	1	1	2
		Expected Count	1.0	1.0	2.0
	premium level plans	Count	1	1	2
		Expected Count	1.0	1.0	2.0
Total		Count	2	2	4
		Expected Count	2.0	2.0	4.0

Table 1.2 Analysis on plan preference for Entry-level and Premium Plans of Jio and Airtel

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	E: Chart Area (2-sided)	Exact Sig. 1-sided)
Pearson Chi-Square	.000 ^a	1	1.000		
Continuity Correction^b	.000	1	1.000		
Likelihood Ratio	.000	1	1.000		
Fisher's Exact Test				1.000	.833
N of Valid Cases	4				

Source:Survey

*Significance Chi-Square at the 0.05level (2-sided)

The comparison between observed and expected data under the null hypothesis is validated by the study. The fact that the p-value is 1.000 higher than the significance level of 0.05, suggests that Jio and Airtel do not differ statistically significantly in their preferences for entry-level and premium-level plans. The outcome shows that there is no discernible benefit for either provider and that both are equally appealing across various plan categories.

Analysis of Network performances (Average download speed)

Data: Speedtests at 10 locations (Mbps):

Jio: [349, 300, 182, 148, 68, 369, 135, 165, 22, 220]

Airtel: [231, 170, 138, 308, 124, 14, 100, 99, 281, 173]

Table 2 Network performances (Average download speed)

Group Statistics					
	Provider	N	Mean	Std. Deviation	Std. Error Mean
Speed	JIO	10	195.80	114.781	36.297
	AirTel	10	163.80	89.522	28.309

Table 2.1 Independent Samples Test Network performances (Average download speed)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Speed	Equal variances assumed	.729	.404	.695	18	.496	32.000	46.031	-64.708	128.708
	Equal variances not assumed			.695	16.992	.496	32.000	46.031	-65.121	129.121

Table 2.2 Independent Samples Effect Sizes

Independent Samples Effect Sizes					
		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
Speed	Cohen's d	102.929	.311	-.576	1.189
	Hedges' correction	107.481	.298	-.551	1.139
	Glass's delta	89.522	.357	-.543	1.240

Source:Survey

*Significance Chi-Square at the 0.05level (2-tailed)

According to the analysis, Jio has a faster average download speed than Airtel. Jio's speeds, on the other hand, fluctuate more (with a larger standard deviation), indicating inconsistent performance across all 10 locations. Jio and Airtel's average download speeds do not differ substantially, as evidenced by a p-value (0.496) greater than 0.05. Although the difference is not statistically significant, the data show that Jio has slightly better average download speeds.

Table 3.Overall Satisfactionlevel of Customers with Jio and Airtel

Satisfaction Level	Jio (% of customers)	Airtel (% of customers)
Very Dissatisfied	7%	12%
Dissatisfied	12%	16%
Neutral	3%	5%
Satisfied	54%	47%
Very Satisfied	24%	20%

Table 3.1 Satisfaction level of Customers with Jio and Airtel

Satisfaction Level with Provider Cross tabulation				
Count				
		Provider		Total
		Airtel	JIO	
Satisfaction Level	Dissatisfied	1	1	2
	Neutral	1	1	2
	Satisfied	1	1	2
	Very Dissatisfied	1	1	2
	Very Satisfied	1	1	2
Total		5	5	10

Table 3.2 Satisfaction level of Customers with Jio and Airtel

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig (2-sided)	Exact Sig. 1-sided)
Pearson Chi-Square	.000 ^a	1	1.000		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.000	1	1.000		
Fisher's Exact Test				1.000	.833
N of Valid Cases	4				

Source:Survey

*Significance Chi-Square at the 0.05level (2-sided)

According to the results of the investigation, there is no significant difference in customer satisfaction between JIO and Airtel. Because the p-value (1.000) exceeds the usual significance level of 0.05, the null hypothesis is rejected.

Customers' overall happiness with Jio and Airtel is determined by a variety of critical factors, including network speed, cost, customer support, extra features, and network coverage.

Table 4. Customers' perception on Network speed

Network Speed	very poor	poor	average	good	excellent
Jio	4.4%	6.2%	30.2%	48.6%	10.6%
Airtel	6.3%	9.2%	33.5%	44.4%	6.6%

Table 4.1 Customers' perception on Network speed

provider * <u>networkspeed</u> Crosstabulation							
			<u>networkspeed</u>				
			average	<u>excellant</u>	good	poor	very poor
provider	<u>airtel</u>	Count	1	1	1	1	1
		Expected Count	1.0	1.0	1.0	1.0	1.0
	<u>jio</u>	Count	1	1	1	1	1
		Expected Count	1.0	1.0	1.0	1.0	1.0
	Total	Count	2	2	2	2	2
		Expected Count	2.0	2.0	2.0	2.0	2.0

Table 4.2 Customers' perception on Network speed

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.000 ^a	4	1.000
Likelihood Ratio	.000	4	1.000
N of Valid Cases	10		

Source:Survey

*Significance Chi-Square at the 0.05level (2-sided)

According to the analysis of customers' perceptions of network speed, the observed data and the data predicted by the null hypothesis match exactly. The standard significance level of 0.05 is significantly smaller than the p-value of 1.000. This suggests that when it comes to how customers perceive network speed, Jio and Airtel do not differ statistically significantly.

Table 5. Customers' perception on Network Coverage

Service Provider	Very Poor	Poor	Average	Good	Excellent
Jio	4.4	6.2	30.2	48.6	10.6
Airtel	6.1	8.9	36.5	41.4	7.1

Table 5.1 Customers' perception on Network Coverage

Service Provider * Customer Perception Cross tabulation								
			Customer Perception					Total
			Average	Excellent	Good	Poor	Very Poor	
Service Provider	Airtel	Count	1	1	1	1	1	5
		Expected Count	1.0	1.0	1.0	1.0	1.0	5.0
		% within Service Provider	20.0%	20.0%	20.0%	20.0%	20.0%	100.0%
		% within Customer Perception	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
		% of Total	10.0%	10.0%	10.0%	10.0%	10.0%	50.0%
	Jio	Count	1	1	1	1	1	5
		Expected Count	1.0	1.0	1.0	1.0	1.0	5.0
		% within Service Provider	20.0%	20.0%	20.0%	20.0%	20.0%	100.0%
		% within Customer Perception	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
		% of Total	10.0%	10.0%	10.0%	10.0%	10.0%	50.0%
Total		Count	2	2	2	2	2	10
		Expected Count	2.0	2.0	2.0	2.0	2.0	10.0
		% within Service Provider	20.0%	20.0%	20.0%	20.0%	20.0%	100.0%
		% within Customer Perception	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	20.0%	20.0%	20.0%	20.0%	20.0%	100.0%

Table 5.2 Customers' perception on Network Coverage

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.000 ^a	4	1.000
Likelihood Ratio	.000	4	1.000
N of Valid Cases	10		

Source:Survey

*Significance Chi-Square at the 0.05level (2-sided)

The above analysis indicates that the p-value (Asymptotic Significance) is 1.000 and the chi-Square value is 0.000. As the p-value is higher than 0.05, the null hypothesis is rejected. This suggests that the service provider and customer perception do not statistically significantly correlate. Both Jio and Airtel have the same distribution of customer perceptions across categories ("Very Poor" to "Excellent").

Table 6. Influencing factors for customer decisions for choosing between Jio and Airtel

S.no	Influencing factors	customers	Percentage
1	Network Coverage	260	52
2	Network Performance	35	7
3	Pricing and Plans	205	41
4	Customer Service	-	-

Table 6.1 Influencing factors for customer decisions for choosing between Jio and Airtel.

Statistics		
customers		
N	Valid	4
	Missing	0
Mean		125.00
Median		120.00
Std. Deviation		126.951

Table 6.2 Analysis on influencing factors for customer decisions for choosing between Jio and Airtel

		customers			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	25.0	25.0	25.0
	35	1	25.0	25.0	50.0
	205	1	25.0	25.0	75.0
	260	1	25.0	25.0	100.0
	Total	4	100.0	100.0	

Source: Survey

The above analysis highlights the key factors influencing customer decisions when choosing between Jio and Airtel. **The network coverage** is the most critical factor, influencing customers' decisions.

This indicates that customers prioritize reliable and extensive network coverage. **Pricing and Plans** is the second most influential factor, customers prioritizing affordability and attractive offers. Customers are influenced by network performance as well, but it is less important than coverage and affordability.

Statistical research shows that the average number of clients across variables is 125, with a median of 120, showing a modest central tendency. However, the large standard deviation (126.951) indicates substantial heterogeneity among the relevant factors. According to the research, network coverage is the most important element in users' decisions to choose between Jio and Airtel.

8. Discussion

This research analyzes Jio and Airtel's 5G services in Rayalaseema, focusing on user perceptions and preferences (DivyaBharathi and Khan, M. M. 2022). Customer satisfaction and adoption are highly dependent on the performance of 5G networks (Sudheesh et al. 2015). Jio and Airtel's network performance in Rayalaseema are compared (Sharma, R., and Malhotra, N. 2021).

This study is conducted utilizing a few critical characteristics, including Network Coverage: In urban, semi-urban, and rural areas, both providers are likely to have varying degrees of 5G coverage. The review can help establish each provider's strengths and development potential. Speed: By comparing the upload and download speeds of Jio vs Airtel, you can tell which network works better. Reliability and Consistency: Frequent outages or variable network quality can erode customer trust. Understanding these indications is vital for assessing the network's overall consistency and reliability. The network's performance directly affects both customers and its reputation.

Understanding consumers' preferences needs a detailed evaluation of crucial dimensions, such as (Myilswamy & Kumar, R. 2013). Customers' perceptions are highly influenced by network quality, which includes call clarity, internet speed, and uninterrupted access. Pricing plans and affordability, which are the second most important factors. Customers prioritizing affordability and attractive offers

(Jegan, &Sudalaiyandi. (2012). This investigation in the Rayalaseema region can reveal the level of satisfaction and perception.

This study explored key factors influencing customer decisions and also determined how Airtel and Jio are perceived relative to each other (Singh 2023).The considerations include network coverage and pricing plans and affordability. These factors are influencing customers' decisions extensively for choosing between Jio and Airtel.

Based on the findings, both providers require realistic advice.

Airtel should prioritize affordability in order to attract budget-conscious clients while maintaining service quality. More 5G network development in Rayalaseema's underdeveloped areas is needed to expand coverage and adapt to regional preferences. Airtel should prioritize improving network speed to close the performance gap with Jio. Additionally, Airtel should invest in rural coverage.

Jioshould concentrate on improving network reliability and consistency, especially in high-demand areas as well as superior download speeds, network performance, and high customer satisfaction levels by encouraging value-added offerings and expanding its infrastructure in rural areas.

Conclusion

In this study, we compared Airtel and Jio 5G service offerings in Rayalaseema. It examined development potential and proposed strategies for increasing competitiveness by focusing on performance indicators, customer preferences, and affecting variables. Finally, our findings will benefit both service providers and end users by improving the overall quality of 5G services.

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