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A Study on "Customer Satisfaction Level Towords 5G Network with Special Reference to Tumkur City"

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Abstract
Abstract Fifth-generation wireless (5G) is the latest repetition of cellular technology, planned to greatly increase the speed and responsiveness of wireless networks. With 5G, data communicated over wireless broadband connections can travel at multi gigabit speeds, with prospective highest speeds as high as 20 gigabits per second (Gbps) by some estimates. These speeds exceed wire line network speeds and offer latency of below 5 milliseconds (Ms) or lower, which is useful for applications that require real-time feedback. 5G will enable a sharp increase in the amount of data transmitted over wireless systems due to more available bandwidth and advanced projection technology.

Keywords: Customer satisfaction, 5G network, Telecommunication services, User experience, Network quality.

Introduction

Previous generations of wireless technology have used lower-frequency bands of spectrum. To offset the challenges relating to distance and snooping with mm Wave, the wireless industry is also seeing the use of a lower-frequency spectrum for 5G networks so network hands could use spectrum they already own to build out their new networks. Lower-frequency spectrum reaches greater distances but has lower speed and capacity than mm Wave. 5G networks and services will be deployed in stages over the next several years to accommodate the increasing reliance on mobile and internet-enabled devices. Overall, 5G is estimated to generate a variety of new applications, uses and business cases as the technology is rolled out.

Research Methodology

Statement of the Problem

The study adopts a descriptive research design to analyse customer satisfaction with the 5G network in Tumkur City. A structured questionnaire was used to collect primary data from respondents, focusing on network speed, reliability, coverage, and affordability. A sample of 200 respondents was selected using a stratified random sampling method to ensure diverse representation. Secondary data was gathered from journals, reports, and online sources to support the analysis. Quantitative analysis was performed using statistical tools such as percentage analysis and regression models. Data interpretation was done using charts and graphs to provide meaningful insights. Ethical considerations, including informed consent and data confidentiality, were strictly followed.

Objectives

1. To know the public opinion towards 5G network
2. To know the various benefits of 5G network
3. To know the various challenges faced by public
4. To know the satisfaction level towards 5G network

Literature Review

1. Kumar and Patil, studied about the Literature Review of IoT & 5G, in that "The future of human life will be dependent on Internet of Things and 5G, which will

transform the devices into intelligent machines. The purpose of this paper is to give an overview of IoT and 5G. In this paper, all the basic information about IoT and 5G is provided and also that how these technologies can change the perspective of human towards digital world."

2. Nayana & Reka studied about the 5G Technology stands for 5th Generation Mobile technology, in that "5G mobile technology has changed the means to use cell phones within very high bandwidth. 5G technology including camera, MP3 recording, video player, large phone dialling speed, audio player and much more you never imagine. The advanced billing interfaces of 5G technology makes it more attractive and effective.5G technology also providing subscriber supervision tools for fast action.

Research Design

Sample Size: 50 respondents.

Tools for Data Collection: Primary data is used in the study. It is original data for the purpose of collection of primary data, e-questionnaire were filled by the respondents. The e-questionnaire comprises of close ended. The secondary data was collected from various possible records like books, magazines, periodicals and Websites.

Data Analysis, Interpretation and Suggestion

36% of respondents are the male and 64% are the female.

78% of the respondents belongs to age group of 20-25 years 18% of the respondent belongs to the age group of 25-25years. 50% students having the occupation.78% students and 20% employees 2% others.

Primary Reason for using a 5G Network

The study reveals that faster internet speed is the most significant factor influencing customer satisfaction with 84% (42 out of 50 respondents) considering it the primary advantage of 5G. This highlights the growing demand for high-speed connectivity among users in Tumkuru City. Lower latency, which ensures minimal delay in data transmission, was a priority for 10% (5 respondents), indicating its importance for gaming, video calls, and real-time applications. Enhanced connectivity was chosen by 4% (2 respondents), showing a relatively lower concern for network stability. Lastly, 2% (1 respondent) cited other factors, suggesting individual-specific needs that were not widely recognized in the study. These findings emphasize that speed remains the top reason for adopting 5G, while other technical benefits are secondary concerns for most users.

Factor Influencing are you Satisfied with 5g Network Coverage in Your Area

The study indicates that 34% (17 respondents) find the 5G network in Tumkuru City to be excellent, reflecting satisfaction with speed, connectivity, and overall performance. However, the majority, 44% (22 respondents), believe that while the network is good, there is room for improvement, highlighting the need for better coverage and stability. 12% (6 respondents) feel that 5G is poor in certain areas, suggesting issues with inconsistent signal strength or coverage gaps. Additionally, 10% (5 respondents) find 5G availability very limited, implying restricted access to the network in specific parts of the city. These findings suggest that while many users appreciate the benefits of 5G, improvements in coverage and reliability are necessary for wider acceptance and satisfaction.

How would you Rate the Cost of 5g Plan?

The study reveals mixed opinions on the affordability of 5G network services in Tumkuru City. While 36% (18 respondents) consider 5G to be affordable, the majority, 46% (23 respondents), feel it is slightly expensive, indicating that pricing is a concern despite perceived benefits. Additionally, 14% (7 respondents) believe that 5G is overpriced, suggesting dissatisfaction with the cost in relation to the services provided. A small percentage, 4% (2 respondents), feel that 5G is not worth the value, possibly due to inconsistent network performance or high costs compared to benefits. These findings highlight the need for competitive pricing strategies to enhance customer satisfaction and increase 5G adoption.

Table 1: Factors for How Satisfied are you with the Internet Speed on 5G Compared 4G

S. No.	Factors	No of respondent	Percentage
1	Highly satisfied	16	32
2	Neutral	28	56
3	dissatisfied	5	10
4	Very dissatisfied	1	2
	Total	50	

1. **Highly Satisfied (32%):** A significant portion of respondents (16 out of 50) are highly satisfied with 5G services, indicating good network performance and service quality.
2. **Neutral (56%):** The majority (28 respondents) have a neutral stance, suggesting that while 5G meets basic expectations, it does not exceed them, or improvements are needed in certain areas.
3. **Dissatisfied (10%):** A smaller group (5 respondents) is dissatisfied, possibly due to network coverage issues, pricing, or inconsistent speed.
4. **Very Dissatisfied (2%):** Only 1 respondent finds 5G very unsatisfactory, indicating that extreme dissatisfaction is minimal but still present.

These findings suggest that while many users have a neutral or positive perception of 5G, further improvements in coverage, affordability, and service reliability are necessary to increase overall satisfaction.

Table 2: How would you Rate the Cost of 5G Plan?

S. No.	Factors	No of Respondents	Percentage
1	Affordable	18	36
2	Slightly expensive	23	46
3	Over priced	7	14
4	Not worth the value	2	4
		50	

Analysis

The data indicates that 46% of respondents find the product slightly expensive, while 36% consider it affordable. A smaller portion, 14%, perceives it as overpriced, and only 4% believe it is not worth the value. This suggests a mixed perception of pricing among consumers.

Interpretation

While the majority of respondents (82%) accept the pricing as either affordable or slightly expensive, a significant portion (18%) feels it is overpriced or not worth the value. This implies that price sensitivity exists, and potential adjustments

or value enhancements may be necessary to improve customer satisfaction.

Table 3: Have you faced any Issues with Device Compatibility 5G Network?

S. No.	Factors	No of Respondents	Percentage
1	No issues at all	17	34
2	Occasionally certain device Struggle	24	48
3	Frequently my device are Not compatible	8	16
4	I had to upgrade my devic 5g	e 1	2
		50	

Analysis
The data reveals that nearly half of the respondents (48%) occasionally face compatibility issues with certain devices when using 5G. A significant portion (34%) reported no issues at all, indicating that many users have devices that seamlessly support 5G.

Interpretation
While a majority of users (82%) experience little to no trouble with 5G compatibility, a smaller but notable group (16%) frequently faces compatibility challenges. Only 2% had to upgrade their devices specifically for 5G, suggesting that most existing devices are either already compatible or users are not prioritizing upgrades.

Table 4: How would you Rate the Battery Consumption on your Device while using 5G?

S. No	Factors	No of Respondents	Percentage
1	Similar to 4g or better	13	26
2	slightly higher than 4g	23	46
3	Significantly higher than 4g	11	22
4	Extremely draining	3	6
		50	

Analysis
The data indicates that the majority of respondents (46%) perceive 5G's battery consumption as slightly higher than 4G, suggesting a noticeable but not drastic increase in power usage. A significant portion (26%) believes it is similar to or better than 4G, implying that for some users, the impact on battery life is minimal.

Interpretation
The findings suggest that while 5G does consume more battery than 4G for most users, it is not excessively draining. However, a smaller group (22%) finds the consumption significantly higher, and a minority (6%) considers it extremely draining. This variation may be due to differences in device efficiency, network conditions, and individual usage patterns.

Table 5: Do you Feel 5G Delivers the Promised Speed and Reliability?

S. No.	Factors	No of Respondents	Percentage
1	Always	19	38
2	Some times	24	48
3	Rarely	5	10
4	never	2	4
		50	

Analysis
From the collected data, it is evident that a majority of respondents (48%) engage in the activity sometimes, while 38% always participate. A smaller portion, 10%, rarely take part, and only 4% never engage. This distribution indicates that most individuals have a moderate to high level of involvement in the activity.

Interpretation
The findings suggest that while participation is relatively frequent, it is not consistent across all individuals. The majority fall in the "sometimes" or "always" category, indicating a general but varying interest. The minimal percentage of respondents who never engage suggests that the activity holds some level of relevance for nearly all participants.

Table 6: What is the Most Frustrating Aspect of Using 5G Network?

S. No	Factors	No of Respondents	Percentage
1	Limited availability in my areas	25	50
2	High cost	21	42
3	Poor performance in doors	4	8
4	Rapid battery drain	0	0
		50	

Analysis
From the data, the majority of respondents (50%) identified limited availability as the main factor affecting their decision. High cost was the second most significant concern, with 42% of respondents indicating it as a barrier. Poor indoor performance was noted by a smaller fraction (8%), while no respondents reported rapid battery drain as an issue.

Interpretation
The findings suggest that accessibility and affordability are the primary concerns for users, highlighting the need for wider distribution and cost-effective solutions. While indoor performance is a minor issue, it may still impact a niche group of users. The absence of concerns about battery drain indicates that existing battery performance meets user expectations.

Table 7: How would you Rate the Cost-effective Ness of your 5G Plans?

S. No	Factors	No of Respondents	Percentage
1	Excellent value for money	10	20
2	Good value of money	19	38
3	Average	15	30
4	Over priced	5	10
5	Extremely over priced	1	2
		50	

Analysis
The majority of respondents (38%) believe the product offers good value for money, while 30% consider it average. A smaller yet notable portion (20%) finds it excellent in terms of value, indicating overall positive perceptions.

Interpretation
Most consumers are satisfied with the pricing, as 88% rate it

from average to excellent. However, 12% consider it overpriced or extremely overpriced, which suggests a need for potential pricing adjustments or added value to enhance customer satisfaction.

Hypothesis

H0: students did not experience frustrating aspect of using 5 g network

H1: students experienced some kind of frustrating aspect of using 5 g network

S. No	Factors	No respondents	O-E	(O-E)2	(O-E)2/E
1	Limited availability in my areas	25	12.5	156.25	12.25
2	High cost	21	8.5	72.25	5.78
3	Poor performance in doors	4	-8.5	72.25	5.78
4	Rapid battery drain	0	0	0	0
	Total	50			23.81

E=50/4=12.5

Degree of freedom = [n-1] [4-1] =3

For the degree of freedom, the value from the table at the degree of freedom 3 is 11.345 and the value calculated is 23.81. here calculated value is greater than the table value. Hence the null hypothesis formulated is rejected.

Suggestions

The study on "Customer Satisfaction Level Towards 5G Network with Special Reference to Tumkur City" provides valuable insights into user experiences and expectations regarding 5G services. It highlights key factors such as network speed, coverage, affordability, and overall service quality that influence customer satisfaction. The findings indicate that while many users appreciate the speed and performance of 5G, there are concerns about pricing, network consistency, and availability in certain areas. Telecom providers can use these insights to enhance coverage, improve service reliability, and offer competitive pricing. This study serves as a useful resource for industry stakeholders, policymakers, and researchers focusing on 5G adoption and customer satisfaction. Future research can explore long-term trends and the impact of technological advancements on user experience.

Findings

- 56% of respondent feeling neutral about the internet speed on 5G compared to 4G.
- 58% of respondents had a positive view of the cost-effectiveness, indicating that more than half found the service worth the price.
- 64% of respondents reported being satisfied, indicating that the majority of users are pleased with the overall service.
- 78% of the respondents. This suggests that the feedback is largely influenced by younger users.

Conclusion

The study on customer satisfaction towards 5G networks in Tumkur City reveals that while many users appreciate the faster internet speed, concerns remain regarding pricing, coverage, and reliability. A significant portion of respondents find the service good but in need of improvement, with affordability being a mixed opinion among users. Although some are highly satisfied, a majority hold a neutral stance, indicating that expectations are not fully met. Limited availability and network issues in certain areas also impact user experience. Overall, the study highlights the need for better coverage, competitive pricing, and enhanced service quality to improve customer satisfaction.

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