

To Study and Analyse The Market Potential for 5g Services in Nagpur

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ABSTRACT

5G is important for various segments also in this real world to gain experience and to get connected to all the devices. In India 5g is still no rolled out the trials are still going on. Also 5G is essential need for human life. In this research we will also study about the market potential for 5G services. Will the customers consider 5G services over 4G services. Many researchers have carried out various researches on 5G services similarly this research is focused on market segment for 5G services taking cost (tariff) as a parameter is done also are people ready to use 5G services in Nagpur region as the tariff would be more as comparison to the 4G services that is present services they are using.

The purpose of this research is to study the overall market potential for 5G services with a strong emphasis on the parameter cost majorly in Nagpur. And how this 5G technology will be accepted by the customers when 5G will rollout in India.

The research design will consist of using both primary as well as secondary data. Collection of primary data will be done with the help of effective and efficient questionnaire. Secondary data will be collected from various technology based articles and websites. After collecting and analysing data we'll try to view the results in statistical format.

After interpretation of statistical data it can be concluded that there is a potential market for 5G services in Nagpur also people are willing to pay extra tariff for 5G services.

INTRODUCTION

To explore how 5G networks will perform in the real world, and to gain experience in building and operating them, India's network operators have applied to the government for permission to conduct field trials and selected one or more equipment vendors with which to collaborate. They are also enhancing their network cores to prepare for the additional traffic loads that 5G radio interfaces will carry. 5G phones are already available in India but building the 5G networks they will work with is going to take time: The network operators must test the technology, acquire the necessary radio spectrum from India's government in an auction, then invest in and build out the network infrastructure before they're ready to offer service. Here's everything you need to know about 5G in India: what it is, how Indian network operators are preparing for 5G, when the government plans to conduct the spectrum auction, and finally when 5G services will effectively roll out in India.

When 5G mobile networks come to India, they will use a new radio technology and a different network architecture to deliver LTE and 3G networks we have today. 5G promises peak data speeds of up to 10 Gbps – up to 100 times faster than the 100 Mbps of 4G. Latency, a measure of the time it

takes data to travel from the phone to the distant server, could be less than a millisecond in 5G networks, or 60-120 times better than 4G. To make the most of this high bandwidth and low latency will require computing resources close to the mobile device, so 5G could also be a contributing factor to the growth of the . The ability of private 5G networks to coexist alongside private ones – or for public networks to be “sliced” into multiple virtual private networks – also makes the technology attractive in an enterprise context.

RESEARCH PROBLEM

- The potential market segment of Nagpur for 5G services is not studied properly
- No clear indication towards customer mind-set towards 5G considering price in mind .
- Customers are not aware of 5G related technologies and services.
- No confirmation regarding 5G rollout in India.
- Research conducted in India regarding 5G and its advantages are purely based on assumptions.
- How much are consumers willing to pay for 5G services is yet to be known.

Research Objective

- 1.To investigate the market potential who are ready to 5G services in Nagpur.
2. To understand the willingness of the customer towards to pay extra tariff for 5G services in comparison with 4G services.

Hypothesis

- Ho- There is no market potential in Nagpur who need 5G data services in their routine life .
- Ha – There is a market potential in Nagpur who need 5G data services in their routine life .
- Ho – People are not ready to pay more tariff for 5g services over / in comparison with 4G services.
- Ha – People are ready to pay more tariff for 5g services over / in comparison with 4G services.

LITERATURE REVIEW

The most prominent players in the 5g market in the world are AT&T Inc , Ericsson , chia mobile Ltd , Huawei technologies co. Ltd. Vodafone and idea ltd , Bharti Airtel Ltd , Reliance Jio . The market segment of 5g services globally will be at par also according to economics time group till 2022 a Swedish company this was updated in November 2019 . Also according to author(John Willsmith) the market segment for 5g services will majorly focused on the segment like system integrators, network equipment, chipset vendors, commercial banks, government organisation, private organisations, consultancy firms. The report (ID:MRFR/ICT/1961-HCR | June 2019) stated that consumer electronics and automotive are more likely to use 5g services globally. And the researcher concluded with that North America boasting of its firm technical support can bolster the 5g market expansion.

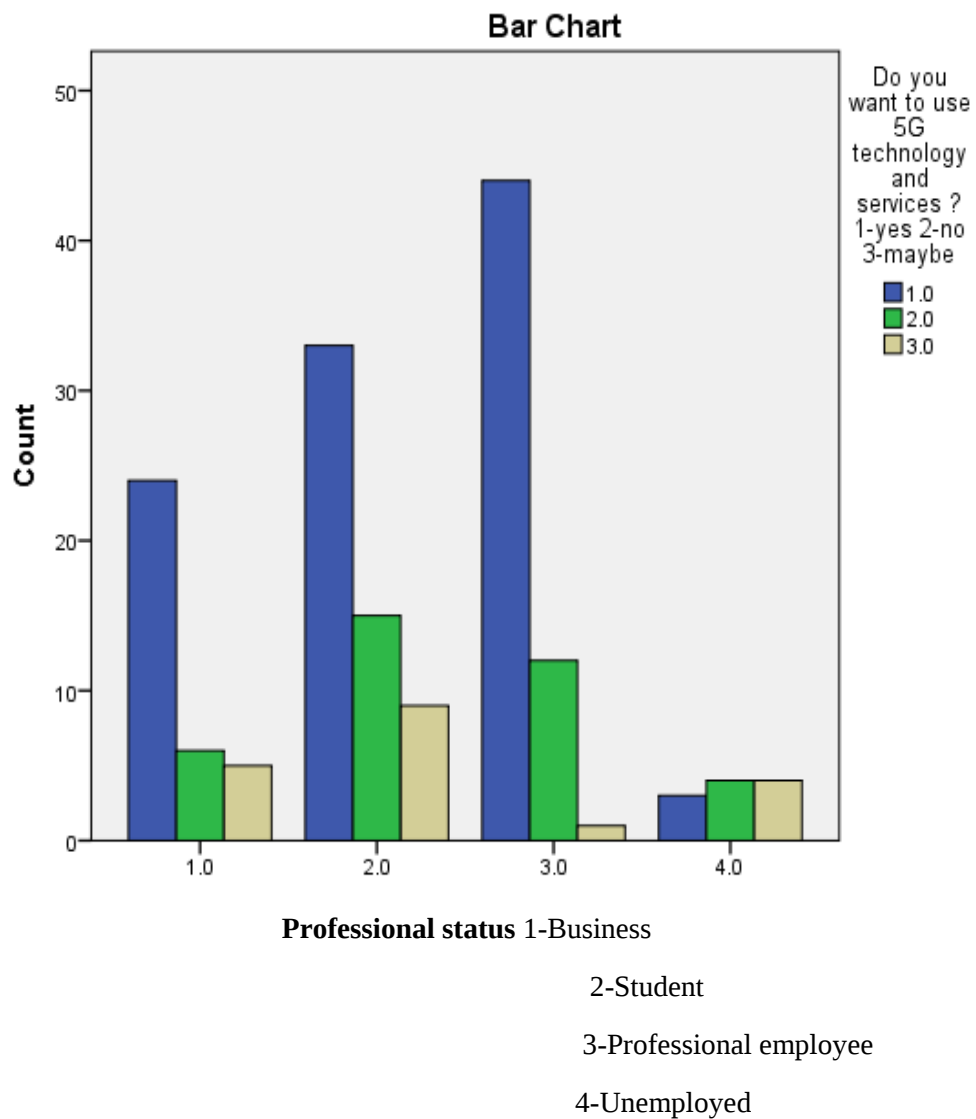
The fifth generation of cellular telecommunications ,5g promises that to succeed 4g in terms of speed, low latency, security also with extreme high bandwidth. 5g is the new world of evolution in which the world will be changed all the work will be done within no time because of 5g services. The major focus of telecom service providers is to attract the target segment also according to the author (Adams Jacob & Diana) currently 5g services market is contemplated to be worth USD 21.53 billion and will reach to USD 85.84 billion by the end of 2023. Also the report (ID:MRFR/ICT/HCR) had an overview that a complete analysis of ten global 5g services market for a more profound understanding

of the market. The report comprehensively segments the market by services type, types of organisations, IT firms, etc. also the author concluded with that 5g services is the fuel for IOT applications, cloud computing, machine learning also growing number of connected devices would consequently propel the demand for 5g services. On the contrary high costs associated with deployment of 5g network and concerns regarding the global spectrum are likely to impede the growth of the market.

5g is the latest iteration of cellular technology that will provide customers seamless coverage, high data rate, low latency and highly reliable communications globally. It will definitely increase energy efficiency, spectrum efficiency, network efficiency. Besides providing faster & reliable access to internet, it will act as an information duct built to connect billions of internet of things (IOT) devices. Also according to TRAI white paper which was published on 22nd Feb 2019 the report was called White paper report “Enabling 5g in India” in this report it was described the spectrum ranges as well as pricing. Ericsson who is a china based company has installed the first public access 5G test bed at IIT Delhi, India in July 2018 for developing applications in the broadband and low latency areas as India is majorly covered with rural areas and has provided access to the industry and institutions as well as organisations to work on India specific usage scenarios and applications. Also it concluded that in India TRAI has started working on 5g services and enabling it for betterment for India.

There will bring in many good changes in the world it will be connecting millions of heterogeneous objects while providing a homogenous link and that link is high speed internet and using real time data for real time analysis like for coordination of road, car sensors and fast tags. But the world will be facing many new challenges. According to the authors Sorabh Puri, R.S. Rai, Karunesh Saxena there are 4 broad categories found are system level, network level, spectrum level and performance based challenges. The nomenclature of these categories has been in the study via research and by studying secondary data.

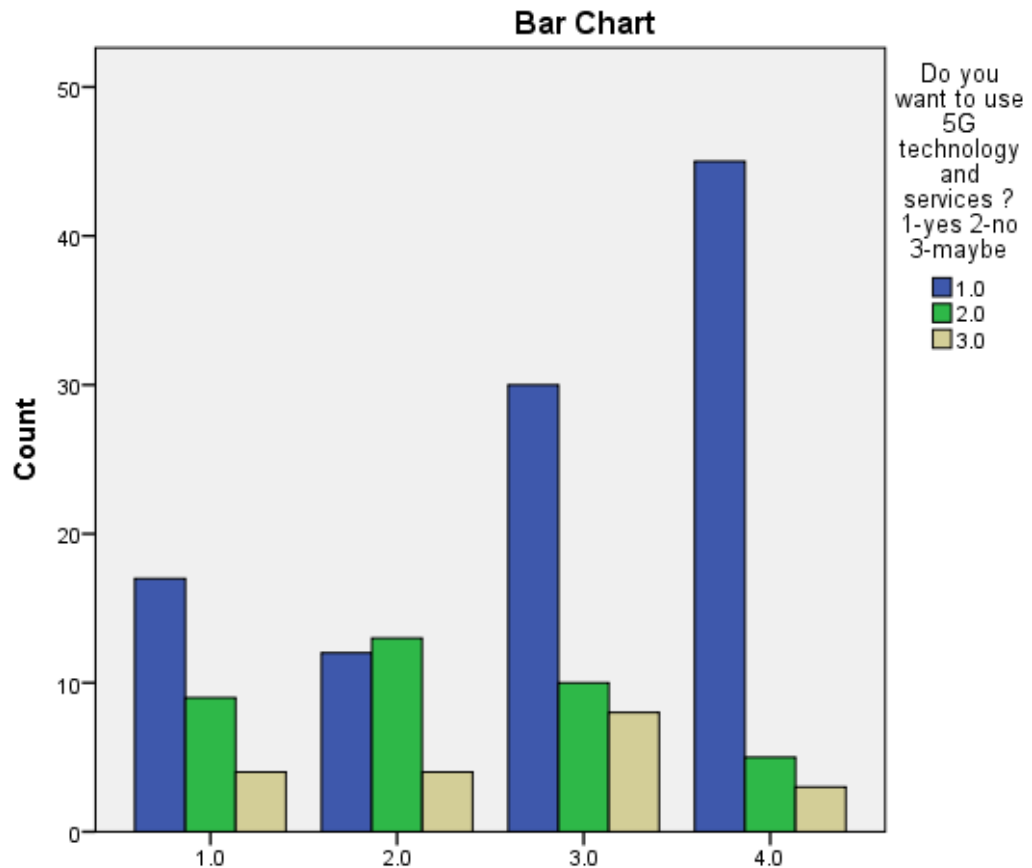
To summarise that according to these researchers 5g play a very prominent role globally also 5G services is the fuel for many applications. Transition from 4G to 5G is huge, 5G will provide customers speed, low latency, high security also new technologies will implement 5G. Also the infrastructure will be changed for 5G. There is a huge market segment for 5G services in India. The 5G telecommunication service providers should focus on more IT firms, organisation it could be government or private, etc. But the major concern is pricing for 5G services in India. Challenges faced telecom service providers is big. The 5G telecommunication service provider should find a new target segment. The biggest gap while doing research was found that very few researchers have studied on 5G services with a parameter pricing taking into consideration and my research is based on this gap that are the people ready to use 5g services in their routine life keeping the parameter pricing in mind.

Research methodology**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.334 ^a	6	.008
Likelihood Ratio	18.604	6	.005
Linear-by-Linear Association	.031	1	.860
N of Valid Cases	160		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 1.31.

Through the table 1 a chart is shown in this crosstab is applied and through it the person who has a profession status as professional employee are coming highest and the pearson chi square comes to 0.008.



Income1- Below 2 lakhs

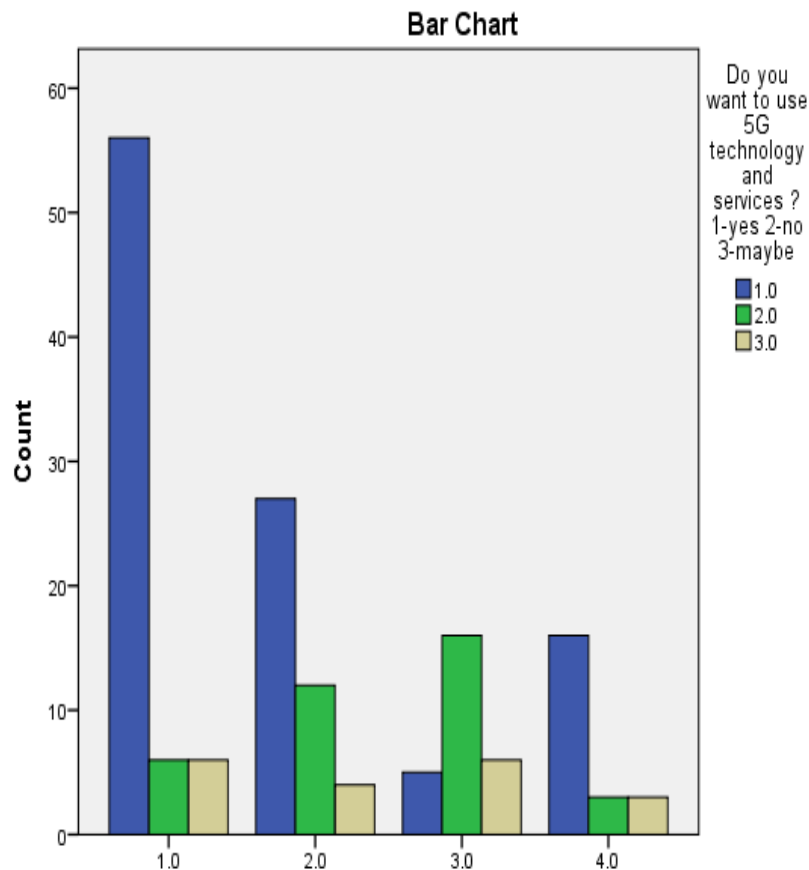
2- 2-4 lakhs
3- 4-8 lakhs
4- 8 & above

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.807 ^a	6	.003
Likelihood Ratio	20.131	6	.003
Linear-by-Linear Association	7.751	1	.005
N of Valid Cases	160		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 3.44.

Through the table 2 a chart is shown in this crosstab is applied and through it the person who has a person who has an income are coming highest and the pearson chi square comes to 0.003.



Age Group1- 18-25 years

2- 26-35 years
3- 35-45 years
4- 45 & above

Chi-Square Tests

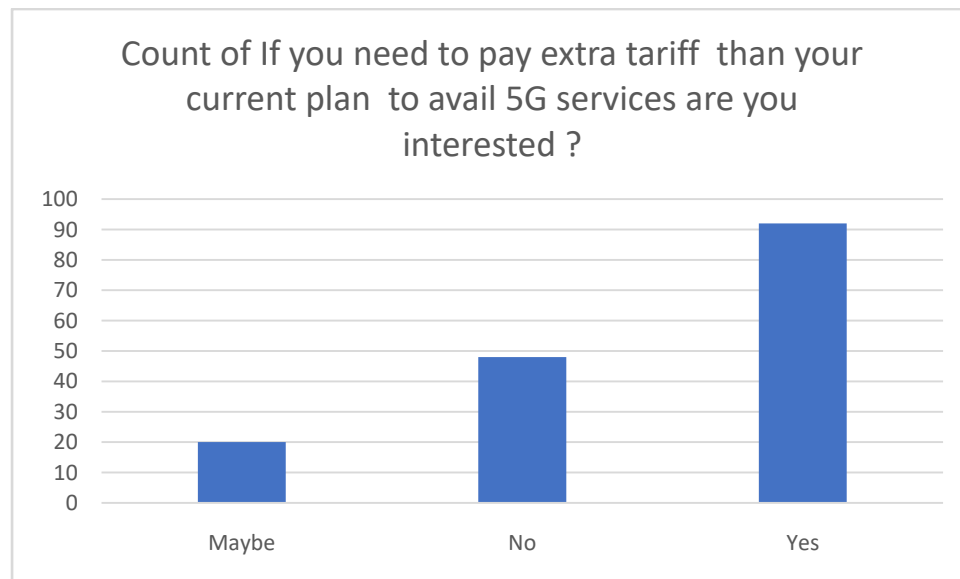
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.165 ^a	6	.000
Likelihood Ratio	38.398	6	.000
Linear-by-Linear Association	7.896	1	.005
N of Valid Cases	160		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.61.

Through the table 3 a chart is shown in this crosstab is applied and through it the person who has a person who has an income are coming highest and the pearson chi square comes to 0.000.

Ho – People are not ready to pay more tariff for 5g services over / in comparison with 4G services.

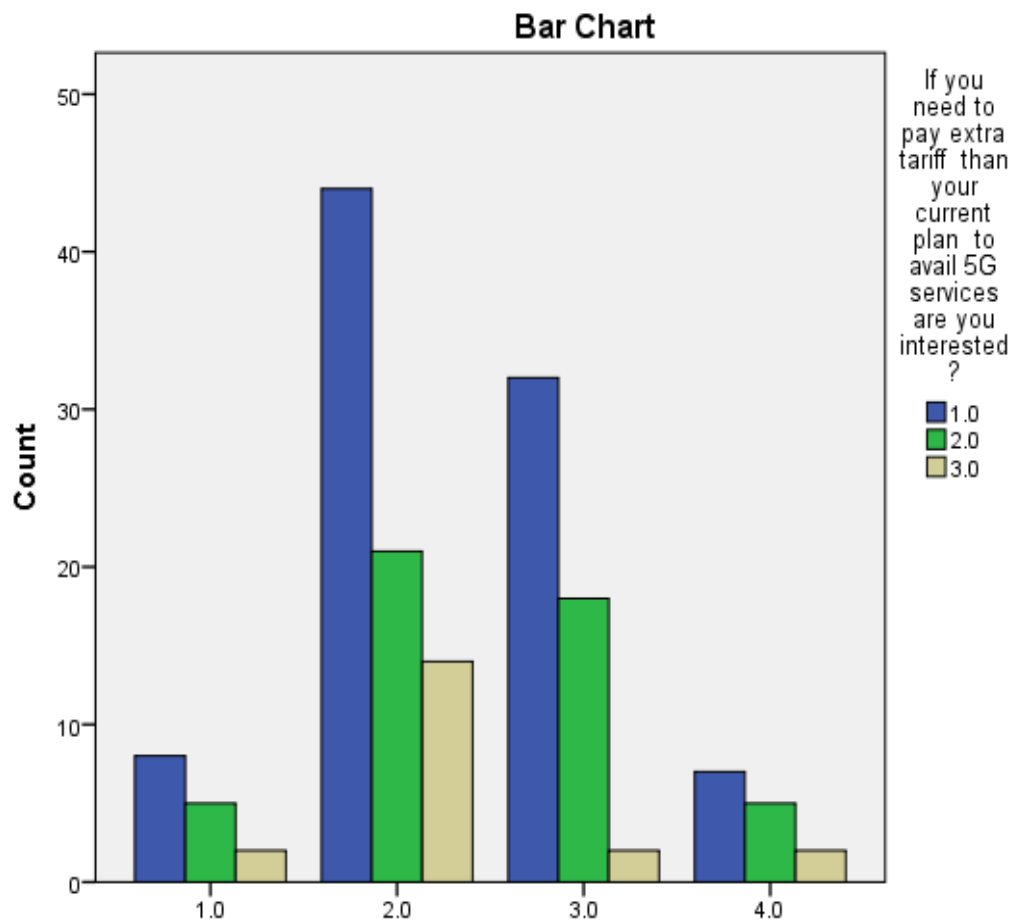
Ha – People are ready to pay more tariff for 5g services over / in comparison with 4G services.



Group Statistics

If you need to pay extra tariff than your current plan to avail 5G services are you interested ?		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
Yes	Do you want to overcome all problems that you have faced using your 4g service ? [Internet connectivity]	1.088	.2847	91	91.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Coverage]	1.099	.3002	91	91.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Voice quality]	1.154	.3628	91	91.000

	Do you want to overcome all problems that you have faced using your 4g service ? [Tariff plan]	1.154	.3628	91	91.000
No	Do you want to overcome all problems that you have faced using your 4g service ? [Internet connectivity]	1.163	.3734	49	49.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Coverage]	1.184	.3912	49	49.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Voice quality]	1.163	.3734	49	49.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Tariff plan]	1.184	.3912	49	49.000
Total	Do you want to overcome all problems that you have faced using your 4g service ? [Internet connectivity]	1.114	.3193	140	140.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Coverage]	1.129	.3359	140	140.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Voice quality]	1.157	.3652	140	140.000
	Do you want to overcome all problems that you have faced using your 4g service ? [Tariff plan]	1.164	.3719	140	140.000



Tariff (in rupees) 1- 100-300 3- 601-900

2- 301-600 4- 900 & above

Through this table and by discriminant analysis is is proved that people are willing to pay extra tariff in future to use 5G services in their routine life and also people are facing so many difficulties in their current 4G service plan therefore to overcome these problems people are ready to use 5G service at premium price also out of 160 respondents 149 respondents are willing to use 5G services.

Findings

- Out of 160 respondents, 95 respondents considered that they will use “5G” services for their personal usage.
- India being a price sensitive market, almost 67% of the respondents are ready to pay more tariff as compared to 4G mobile services. As of now the “5G” is a bit expensive in India.
- Around 85% of respondents are aware of advantages of “5G” mobile services.
- Around 60% of respondents are aware of “5G” technology and their advantage which is a good sign as lot of customers are getting technologically advanced.
- 69% of respondents are ready to migrate from 4G to 5G service.

Discussion

This research was carried out to check the potential market segment with the launch of 5G centric mobile services in Nagpur. In this research we also realized whether customers are aware or do they have any knowledge regarding 5G technology and services. Earlier customers use to visit stores or took suggestions from family members before buying a

mobile service, but nowadays customers prefer online media content such as expert reviews, review articles from renowned tech based websites and hands on experiences. In this research we concluded that even though most of the consumers own a midrange tariff plans but with the launch of 5G technology, consumers are ready to pay a premium price to avail benefits of 5G technology. In online questionnaire when such questions were asked “whether you prefer 4G mobile services or 5G mobile services?”, most of the respondents selected 5G which clearly indicates there is tremendous demand for 5G mobile services in Nagpur. Other findings include the most dominant telecom operator brand amongst the respondents in which Reliance Jio is leading the 5G technology race.

Suggestions & Future Scope

In this research paper we took random respondents hence random sampling was taken into consideration. Due to random sampling the data collected is quite vague. If the researcher wants to further elaborate ideas on this thesis he/she may consider specific group of respondents in order to get accurate results. In this way the researcher can use convenient sampling to get more insights from the research. As of now there are no 5G services in India, in future when 5G is readily available in India the researcher can focus on measuring the impact of 5G on India's digital revolution and how it is affecting the lives of Indian consumers on daily basis. In future the researcher can also focus on the new strategies implemented by the telecom operators with the launch of 5G services in India.

Conclusion

5G is considered as the next step to further enhance the digital revolution in India. In India 5G technology is still years away. It is expected that 5G auction will be in first half of 2021 with Jio as the only mainstream telecom service provider to participate in the 5G auction. Even though auctions will be held in 2021 we can expect the roll out of 5G services in phased manner. Initially 5G services will be expensive, a report published by economic times suggested the cost of 5G services will be 30% more than 4G. Initially the cost of 5G mobile service is going to be expensive. If we consider Indian mobile service market, majority of customers fall into budget or midrange segment.

Online questionnaire helped us to gather various responses from the respondents. With the help of responses we concluded that there is a potential market segment for 5G mobile services in Nagpur. Respondents are willing to avail the benefits of 5G mobile services and are ready to pay a premium price for it. There is a clear inclination towards 5G mobile services and respondents are aware of advantages of 5G technology. If given an option between 4G and 5G mobile services maximum number of respondents voted for 5G mobile services knowing the fact that the tariffs would be more than their current mobile plan which indicates the demand for 5G mobile services is rising. Majority of the respondents are considering 5G market as demand for 4G will be getting low while 5G technology will dominate the mobile services race in India.