



A Study on the Impacts and Benefits of 4G Network in Kanyakumari District

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Abstract:

4G is the next generation of wireless telecommunications network with higher features than the previous generation of 3G. In the telecommunications sector, 4G represents the fourth generation standard mobile phone and is considered a strong supporter of 2G and 3G technology. 4G is also now and again called 4G LTE, but this is technically incorrect as LTE is one category of 4G network. Presently the most superior technology adopted by most mobile network service providers. 4G was introduced to provide a wider Internet Network. 4G is similar to high-speed data. When it earliest came out, 4G rapidly distorted the way we use the portable internet. Although 3G networks were very speedy, 4G network connectivity legitimate users to look around the web and stream HD videos on mobile devices, which fundamentally transformed smart phones into contemporary computers. 4G Technology was first introduced in the early 21st century to meet the demand for high-speed broadband and multimedia services, while 4G services are considered an extension of 3G mobile information services. In this study the researcher going to analyse the impacts and benefits of 4G network in Kanyakumari District.

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Introduction:

4G services are a type of multimedia mobile services that provide consumers with connectivity at all times, everywhere, worldwide travel and specific services in the 4G environment. 4G leadership has encouraged incredible economic growth, and allowed for completely new industries. Wireless speeds are high, and consumers are finding great value in these 4G networks. Nowadays that we are inflowing the 5G epoch, the next generation of wireless networks will bring flat superior consumer benefits. As we get up at the
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commencement of this dynamic 5G decade, it is significant that we reproduce on how 4G has fashioned our country's financial system and health over the earlier period. Wireless was a very dissimilar obsession in 2010 at what time 4G was first introduced. At the moment, we are familiar with the extensive, high-speed 4G mobile networks that enable a wide range applications, applications, and content existing with incredibly dominant smart phones. But it was the continuing, step-by-step enhancement in capacity, haste and integration over the past decade to build the solid



4G proposal we rely on nowadays. As we seem to the expectations of 5G, it is imperative to note to a decade of 4G is not a matter of nightly accomplishment.

How fast is 4G?

4G networks be extremely speedy compared to the preceding generation networks. Standard 4G offers download speed up to 14 Mbps, five times quicker than those preceded by 3G network. In detail, 4G networks are able to reach speed of up to 150 Mbps, allow users to download gigabyte data in minutes or seconds, as a substitute of hours comparable to 3G networks. Data uploads are as well extremely fast - emblematic 4G upload speed be about 8 Mbps, and theoretical speeds reach as high as 50 Mbps, at the same time as 3G can shut down about 0.5 Mbps. It is an imperative divergence. Even though there are so many benefits in 4G network. Technologies been widely developing and so the network usage .The speed and quality that 4G offers is not quite enough, it seems. Our study is based on the impacts and benefits of the 4G network.

Objectives of the Study:

- To categorize the impacts of 4G network towards people in Coimbatore District.
- To examine the benefits of 4G network in Coimbatore District.
- To find out the altitude of satisfaction towards 4G network.
- To analyse the needs and requirements of Broad Band connections in 4G network.
- To study the consumer preference from the network providers.

Statement of the Problem:

4G communication technology now-a-days like a hasty internet bond. India has engaged a lot of time to comprise hasty mobile equipment following the steady emergence of 2G and 3G services. 4G networks are very useful for users and they also face some problems in the real world. Like:

Signal Problems - One of the foremost problem with the 4G service as numerous users argumentative about that there is a numerous loss

of signals on their smart phones. Even though they were in a high range of data providing area.

Slow Data Speeds - The basic goal of 4G network is to make available sky-scraping data rates, nevertheless numerous users are experiencing deprived data speeds, which be disappointing. India's mobile data hustle is ranked 128th in the world by Ookla's speediest global ranking. The way we use the internet has been transformed by smart phones. As a result, there has been a significant increase in data demand. Previously, customers were limited to 1GB of data each day; however, this restriction has since been increased significantly. We get more data that we can use, but without sooner speeds. The fact is that telecom operators cannot meet this high demand for consumers. in other words, networks are overcrowded, and this has an impact on speed.

Cost Issues - Transit Costs: The cost of public transportation is a big consideration. The internet is all on connectivity, and India is linked to Singapore's major internet data centre hub via submarine cables. This mode of transportation is extremely expensive. There is no way India will receive cheaper internet unless the transit cost drops.

Quality of Service: The quality of service the network provides is not in the satisfied level. QOS quality service, reliability and usability of communication service. Mobile service providers may provide mobile QOS to customers. But still there are many unsolved problems. The quality of service should to be improved to satisfy the people demand.

Although 4G gives a high speed of network there were many problems occurring. In this study we are about to discover how 4G network impacts the Coimbatore people and what are the benefits the people gaining from the 4G network.

Scope of the Study:

The mobile region has been distorted by 4G data networks, which encompass opened path for broad employ of today's mobile diplomacy. Companies as well as human being nowadays boast the facility to keep on associated in a less restrictive way due to

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4G networks, which have an impact across a wide range of industries. Because 5G is on its way to becoming a reality. The main scope of our study is to know that what impact does 4G made on our consumers? and what are the benefits does the consumer gained using 4G? to identify the consumers satisfaction, needs and requirements in broadband connections .To know the consumer preference from network providers.

Research Methodology:

Tools Used:

The tools used to analyze be

1. Percentage Investigation
2. Chi square Testing

Percentage Investigation:

It refers to a extraordinary category of rates, percentage are worn in assembly evaluation connecting two or additional sequence of data. A percentage is used to conclude association between the sequences.

FORMULA: Number of respondents / Total number of respondents X 100

Chi-Square Testing:

A chi-square test is a statistical examination worn to judge experimental results with ordinary results.

FORMULA: $\chi^2 = \sum (O - E)^2 / E$

Collection of Statistics:

Both primary furthermore secondary data is worn designed for the study. Questionnaires were equipped in favour of collection of principal data from the respondents. The questionnaire is geared up in uncomplicated and understandable mode so as to convey their estimation unreservedly and bluntly. Secondary data be unruffled through Articles and Websites.

Limitations of the Study:

Despite the piece of evidence to 4G networks be the furthestmost designed for mobile patrons, they do boast a quantity of drawbacks. The most momentous problem is the operational vicinity, which is a drawback of every communiqué networks, together with 2G and 3G. In today's contemporary world, countless bucolic locations and numerous buildings in hefty centres are devoid of network service. This is owing to our existing communiqué standards and apparatus, which have

to be rationalized for this hottest expertise, which has the potential to bring communication and many other advanced applications everywhere. The second concern is the network cost, which must be taken into account. Given the high cost of 4G network equipment, carriers and providers should plan carefully to keep costs as low as possible.

4G Network:

4G uses advanced protocol spectrum that is up to four times as effective and efficient as 3G networks, has better means of handling dynamic load variations, and generates more bandwidth. Fourth- generation (4G), often known as beyond 3G, is a term used to denote the next complete progression in wireless communications. A 4G system will be able to deliver a comprehensive IP solution to consumers, allowing them to receive voice, data, and streamed multimedia —anytime, anywhere and at higher data speeds than prior generations. The fourth age bracket cannot be an incremental advancement of existing 4G technology, but rather a entirety substitution of modern 4G networks and handsets, just as the second generation was a total replacement of opening age bracket networks and handsets, and the third cohort was a entirety substitution of trice age bracket networks and handsets. 4G is the fourth generation of broadband cellular network technology, succeeding 4G, and preceding 5G. The first-release Long Term Evolution (LTE) standard was commercially deployed in Oslo, Norway, and Stockholm, Sweden in 2009, and has since been deployed throughout most parts of the world. It has, however, been debated whether first-release versions should be considered 4G LTE. The 4G wireless cellular standard was defined by the International Telecommunication Union (ITU) and specifies the key characteristics of the standard, including transmission technology and data speeds. Since we rise at the commencement of this 5G-motorized decade, it's important to replicate happening how extensively 4G shaped our country's economy and our lives over the eleven years. Wireless was a vitally dissimilar occurrence in 2010 whilst 4G was initially introduced.



Benefit of 4G network:

Such latest expertise, 4G LTE (Fourth Generation - Long-Term Evolution), offers superior recital improvements than preceding mobile technologies, and offers the guarantee that communication will no longer be a obstruction to realizing the reimbursement of business travel.

4G Speed:

4G preserve accomplish 100Mbps, 150Mbps and 300Mbps, the expectations will improve to 1000Mbps, 4G mobile networks recommend astonishing swiftness and effectiveness and obtain the mobile bazaar by tempest. Hypothetically, a 4G network will encompass a superior data transmit rate than a 3G network. The 4G LTE network is incredibly speedy with the accurate sum of spectrum and competent network business. The Long Term Evolution (LTE)-based network has the capability to reach 100 Mbps.

IP structured networks:

A set of preset rules that structure and format the data we communicate over internet networks is known as an internet protocol. IP is essential for our devices to communicate with one another. The IP address serves as a unique identifier that distinguishes any device connected to a network.

Advantages of 4G:

The 4G wireless network is a uncontaminated data association, an laterally Internet code of behaviour relationship that allows cellular providers to convey data admittance to a extensive assortment of devices. 4G technology enables mobility, flexibility, and reliability. People may merely admittance the Internet, instant messaging, communal networking sites, streaming media, video conferencing, and

Analysis and Interpretation:

Simple Percentage

Sl. No.	Age	Percentage	Sl. No.	Occupation	Percentage
1	18-25	40	1	Student	11
2	26-45	36	2	Govt employee	27
3	46-60	13	3	Private employee	36
4	Above 60	11	4	House wife	16
	Total	100	5	Retired	10
				Total	100
Sl. No.	Gender	Percentage	Sl. No.	Marital Status	Percentage
1	Male	64	1	Married	61

erstwhile broadband services. It is extremely steady after associated to a stable internet. The most noticeable advantage of a 4G mobile network is its astonishing swiftness. Augmented bandwidth leads to quicker data shift speed, which greatly benefit mobile devices.

Impacts of 4G:

Gathering information from individuals dishonestly becomes easier, 4G technologies involves a lesser amount of disruption, more attacks (jamming waves) and more intrusion. Consumer is affected to acquire a new-fangled device to support 4G, Innovative Frequencies mean new mechanism in mobile towers, higher price for data used for consumers, the existing apparatus cannot be companionable with 4G network, it has dissimilar network bands. Customers are unnatural to acquire a novel appliance to hold up 4G LTE, Consumes a lot of battery when used, Consume data very quickly and your battery heats up if used for too long. Users will be strained to use 3G or Wi-Fi connections in areas with the intention of 4G mobile network, Although this is a predicament in itself, the worst problem is to facilitate to pay the equivalent amount as fixed. With the 4G network system, this circumstances can only be resolved if mobile carriers extend their 4G network installation to include multiple regions.

The battery uses is more nowadays. It indispensable to gain services of 4G technology. The apparatus necessary for the next age bracket network is still dreadfully expensive. Not many areas of 4G services yet. Data roaming or voice work together has not up till now been implemented.



2	Female	36	2	Un-married	39
	Total	100		Total	100
Sl. No.	Monthly Income	Percentage	Sl. No.	Area of Residence	Percentage
1	Up to 5,000	11	1	Rural	43
2	5,001 to 10,000	13	2	Urban	36
3	10,001 to 20,000	30	3	Semi-urban	21
4	above to 20,000	26		Total	100
	Total	100			
Sl. No.	Educational Qualification	Percentage			
1	Illiterate	11			
2	SSLC	27			
3	HSE	16			
4	Under Graduate	36			
5	Post Graduate	10			
	Total	100			

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Chi-Square Analysis

Age	Benefits of 4G Network			Total
	High	Low	Medium	
18-25	10	5	6	21
26-45	10	6	7	23
46-60	14	7	9	30
Above 60	11	7	8	26
Total	45	25	30	100

O	E	(O-E)	(O-E) ²	Σ(O-E) ² / E
10	9.45	0.55	0.3025	0.0320
5	5.25	-0.25	0.625	0.0119
6	6.30	-0.30	0.09	0.0142
10	10.35	0.35	0.1225	0.0118
6	5.75	-0.25	0.0625	0.0108
7	6.90	0.10	0.01	0.0014
14	13.50	0.50	0.25	0.0185
7	7.50	-0.50	0.25	0.0333
9	9.00	0.00	0	0
11	11.70	-0.70	0.49	0.0418
7	6.50	0.50	0.25	0.0384
8	7.80	0.20	0.04	0.0051
Calculated Chi-Square Value				0.2192

Table Value at 5% level of Significance = 5.34

Interpretation:

The table value is larger than the calculated chi-square value, so the null hypothesis is



acknowledged; there is no momentous association among the age cluster and benefits of 4G networking.

Findings:

- Most of the Consumers (64%) are male.
- Majority of the respondents (40%) belong to between 18-25 years.
- Most of the respondents (36%) are Under Graduates
- Most of the Consumers (61%) are unmarried.
- Majority of the 4G users (45%) are having 3-4 member is their family.
- Majority of the respondents (34.0%) are earning up to Rs 10,001 to 20000.
- Majority of the 4G users (43%) residing in the rural area.

Conclusion:

4G has definitely been a sanction for India. It has prearranged a most important and enormous stimulus to digital India. With the arrival of far above the ground haste internet in the appearance of 4G services, foremost mechanism of digital actions like E-commerce, digital payment, use of IT/ITeS are on a revolve. Benefits of E-governance are on the finger tip. In spite of this fact, 4G has been intensifying at a hasty pace transversely the country, and networks are being upgraded from slower 3G services. The people are currently looking at 5G, the sophisticated and distant advance description of 4G. Key aspire of 5G will be to improve superiority of service supplementary and lengthen the horizon of services like IOT (Internet of things) over a broader geographic area in a nut shell, 4G has really impacted and it highly benefited to the society especially in the study area Kanyakumari District.

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