



ANALYSIS OF TELEVISION AND INTERNET SERVICES AT RURAL PLACES IN PUNE DISTRICT

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ABSTRACT

This study is based on questionnaires presented to people from rural places from Pune district. People were satisfied with Internet service available in their area but they are more satisfied with Television entertainment services.

Keywords: Television, internet, services, satisfaction.

I. Introduction

The role of telecommunication has changed dramatically in recent years, with respect to industry trends which are competitive vendors, carriers, alliances and network services and growth of Internet and World Wide Web. The technology trends which has Internet, digital fibre optic and wireless technology to create high speed local and global Internet-works for voice, data, and images, audio and video communications.

Telecommunications can be used for a wide range of applications for stores on rural main streets, for education, libraries, health care and social services, agriculture, tourism and other rural industries, and for other applications not yet discovered. The operative word is 'can' whether these applications will be widely implemented may depend on the vision of state and federal policy makers and regulators. The underlying rationale must be that universal access to information is critical to the development process. Mobile services, Mobile services also need to be universally available. Mobile communications can be particularly important to people

who spend much of their time on the land far from their homes, or who travel long distances across the countryside.

Application trends towards use of Internet, enterprise intranet and inter-organizational extranets to support electronic business and commerce, enterprise collaboration and strategic advantages in local and global markets.

Broadcast TV, High-definition TV, Enhanced pay-per-view, Video-on-demand, Interactive TV, Interactive video games, Video catalogue shopping, Distance learning, Multimedia services, Image networking, Transaction services, Internet access, Telecommuting, Videoconferencing, Video telephony, Wireless access .

Information Technology has become major facilitator for human being, organizations, business and application. Information Technology is creating transformation in the way business is conducted, facilitating transitions to a digital economy. The digital economy refers to the convergences of computing and communication technologies on the Internet. Large numbers of well paid opportunities appearing in the emerging area such a Internet (Web page design and operation), e-commerce, network security, system development, telecommunication, multimedia design, artificial intelligent and document management.

Internet access through Public Switching Telephone Network (PSTN), it was there is only one telecommunication service which only provided Data Service through Public Switching Telephone Network (PSTN). Therefore Data Service was provided refer PSTN service. It was that telecommunication companies provided dial up connection while subscriber want to access Internet service with has limited bandwidth (64 kbps). Then it was upgraded to the latest DSL technology such as DSL (Digital Subscriber Line) such as ADSL (Asymmetric Digital Subscriber Line), SDSL (Symmetric DSL), HDSL (High Data bit rate DSL), and VDSL etc.

Connecting Internet via Local Area Network (LAN) Server (56 Kbps or faster) cost can be spared over multiple LAN users.

Connecting via Serial Line Internet Protocol (SLIP) or Point-to-Point Protocol (PPP), users have modem with specialized software to dial into a SLIP/PPP server through a service provider at \$30 per month or less, which is useful for employee working at home.

This study relates to IT services in India, major role of service provider as to give sustainable services with innovative way. Information Technologies and business systems that use to

work more intelligently, efficiently, importance on people, organizational structure organizational strategy and management process. Information Technology focus on well paid opportunities such as the Internet (web based designed and operation), e-commerce, network security, system development, telecommunication, multimedia design, artificial intelligence and document management. Transition to E-government has six stages:

Information publishing and dissemination, Multipurpose Portals, Portal personalization, Clustering of common services, Full integration and enterprise transformation, Service Quality and Upgrading.

While quality of service is certainly not a uniquely rural concern, it is likely to remain a pressing rural issue because carriers for urban and rural areas are likely to invest more in upgrading and maintaining the potentially more profitable urban and suburban networks.

Rural disparities, in addition to rural or urban disparities, there may be disparities in service quality within rural areas, with high quality networks available only to some users. For example, in many states, the state lotteries have data communications links with every county, while rural residents, schools, and businesses may still be waiting for access to comparable facilities.

Digital switches can become platforms for a wide range of services, such as compressed digital video for teleconferencing and distance education. Another enhancement is Common Channel Signaling System 7 (SS7), a digital switching enhancement that separates signaling and transmission functions, with several advantages including extending signaling information to subscribers and the ability to set up services through access to databases.

Rural users are concerned about price as well as quality of service, especially where LEC boundaries, intraLATA tariffs, and limited access to competing interexchange carriers (IXCs) may contribute to high costs in reaching their communities of interest.

Rural subscribers often have to pay toll charges to call places such as government agencies, doctors' offices, and stores and services that urban dwellers can reach with a local call. A way to reduce these disparities is to consider communities of interest in pricing of services. For example, local calling areas for rural residents can be designed to generate the same percentage

of local calls compared to all intraLATA calls made by urban residents. Alternatively, toll free access can be provided to frequently contacted public services. Some specific solutions include: Extended Area Service (EAS). EAS offers callers an option of discounted or flat-rate calling within a zone.

Toll-free access to government services. Various approaches can be used to offer toll-free calling to regional government offices or other important social services.

States including Colorado, Georgia, and Louisiana have extended local calling areas to enable rural citizens to reach county government offices with a local call.

II. Methodology

To study the various information technology services available at rural places in Pune district, and to understand problems of connectivity at rural places in Pune District.

The researcher has adopted Methodological approaches in research design of the topic. The study is focused on the availability of Information Technology Services and Network Connections at Rural places in Pune District. The study is trying to find out the usage of Information Technology services in rural area also the study shall investigate the impact of IT services on the life of rural area. The study shall investigate the awareness, need, frequency of use, performance satisfaction of using, Benefits about IT services. Researcher shall investigate Internet connectivity and Mobile Services Network in rural area of Pune district and trying to understand the upcoming new technologies, and interest of rural people in using them in rural area of Pune district.

Research Hypotheses:

H1 The villagers are of the opinion that Internet services rather than entertainment services are essential and are satisfied with Internet services.

These questions, immediately correlate to the research objectives, are integral to the testing of the hypotheses and are essential for the answering of the research questions.

Researcher had to understand the problems and prospects of rural Information Technology Services and network problems and prospects. Since the requirements of Information Technology of various villages were to be understood and documented, an exploratory design was chosen to conduct the study.

Sample size and Sampling method:

As there are different types of IT requirements of in different people, looking at the universe stratified random sampling was done with the sample size of 150 (around 10% of total villages that is 1500) was selected as representation of population. The method of sampling used was non probability random sampling. Researcher has selected group of respondents like Student, Employee, Self Employee, Farmer and Other (daily wages, Landless etc.). Family structure whether joint / nuclear as well as Monthly Income (Below 3,000/ 3,000-5,000/5,000-10,000/10,000-20,000/Above 20,000)

The purposes of gathering information were distributed among different respondents. They are designed for statistical analysis of the responses. Type were considered for the purpose i.e. some question are in the form of Yes/No type, some descriptive, for some scale was provided.

For this study researcher has selected 150 villages out of villages in Pune District and collected one questionnaire from each village. Researcher has collected basic information right from demographics as well as IT services available, usage, awareness, Need of service, benefit, Interest of using and opinion of village people.

Secondary Data Collection:

Secondary data for the study was taken from various Indian and Foreign surveys, manuals, websites, magazines, etc.

Analysis and Interpretation of Results:

Once the data is collected, analysis and interpretation of results is one of the important steps in research. This process is linked with various operations. Like - establishment of categories, the application of these categories to raw data through coding, tabulation and then drawing statistical inferences. There exist different categories through which new data can be classified like coding, editing and tabulation. After this classification, analysis of work is based on the computation of various percentages, coefficients etc., by using statistical methods and formulae. In the process of analysis, relationships or differences supporting or conflicting with original or new hypothesis should be subjected to tests of significance to determine with what validity of data can be said to indicate a conclusion.

Research Tools used:

Researcher assumed the Normal Distribution for interval estimation for the % of data with given attributes at the confidence level of 95%.

In probability theory and statistics, the **normal distribution** or **Gaussian distribution** is a continuous probability distribution that describes data that cluster around the mean. The graph of the associated probability density function is bell-shaped, with a peak at the mean, and is known as the **Gaussian function** or **bell curve**.

The normal distribution can be used to describe, at least approximately, any variable that tends to cluster around the mean. For example, the heights of adult males in the India are roughly normally distributed, with a mean of about 70 in (1.8 m). Most men have a height close to the mean, though a small number of outliers have a height significantly above or below the mean. A histogram of male heights will appear similar to a bell curve, with the correspondence becoming closer if more data are used.

Chi-square test is used by researcher to find out the dependency of the variables. This has also helped researcher to find out whether there is difference sector wise in the security requirements of the organizations.

III. Analysis of Television Entertaining Services and Internet Services

According to the census 2001, Pune District has population of around 4,485,000 (2005), 71 % population is literate, geographic area is 700 km² (270 sq mi). Pune District has 14 Taluka, there are around 1500 villages. Researcher has taken 12 Taluka and 150 villages as a sample for data analysis.

Table 1 Population of Villages:

Total Villages	150
Mean	2217
Minimum	1015.00
Maximum	6046.00

Table 2 Age Group of 150 respondents:

Age Group in years	15-20	20-25	25-30	30-40	40-45	Above 45	Total
Respondents	15	43	65	15	12	Nil	150

The researcher has collected data from respondents having age of 15 years and above.

Table 3 Profession of 150 respondents:

Profession	Student	Service	Self Employed	Farmer	Other	Total
Respondents	25	34	53	27	11	150

Maximum respondents contacted by the researcher were self employed. In villages most of the people are self employed or engaged with farming.

Table 4 Education level of 150 respondents:

Education	Secondary	Higher Secondary	Graduate	post Graduate	Total
Respondents	30	67	41	12	150

Table 5 Monthly Income of 150 respondents.

Monthly Income	Below 3,000	3,000-5,000	5,000-10,000	10,000-20,000	Above 20,000	Total
Respondents	14	81	42	13	0	150

It was observed that monthly incomes of people staying in villages are having less than Rs. 20,000.

Table 5 Family type of 150 respondents

Family Type	Joint	Nuclear	Total
Respondents	86	64	150

In villages researcher has observed joint families. Because of the old tradition and their convenience people stay in joint families.

Table 6 Amenities available in the villages.

Amenities available	Yes	No	Total
Internet	57	93	150
	38.0%	62.0%	
Mobile Phone shop	121	29	150
	81.2%	18.8%	
Cyber Café	37	112	150
	24.8%	75.2%	
Television	150	0	150
	100.0%		
Mobile Phone service	150	0	150
	100.0%		
Computer Training	64	86	150
	42.3%	57.7%	

It was observed that only 38% villages are having Internet facility, 81.2% villages are having mobile phone shop available. 24.8% villages are having cyber café. 100% villages are having television access.100% villages are having mobile phone service shops. 42.3% villages are having computer training centres.

The researcher has found out that the villages in Pune district are not having good Internet services where as they have good mobile connectivity.

Table 7 Electricity available in 150 villages:

Amenity	Available	Percentage	Not Available	Percentage	Total
Electricity	150	100	0	0	150

All the villages were having electricity connections, but the continuous supply of the electricity is a major problem in rural parts of Pune district.

IV. Comparing attributes in Television Entertaining Services and Internet Services

Table 8 the Internet available in 150 Villages.

Amenities	Yes	Percentage	No	Percentage	Total
Internet	56	37.33	94	62.67	150

It was observed that only 37.33% villages are having Internet connections. This reveals that Internet services have not yet reached to the rural parts of Pune district.

V. Understanding of Television Entertaining Services and Internet Services

Table 9 Awareness of using Information Technology Services: Telephonic Communication, VOIP and PBX.

	Aware	Not Aware	Total
Information Technology Services Telephonic Communication	150 (100.0%)	0 (0%)	150 (100%)
Information Technology Services VOIP	9 (6.0%)	141 (94.0%)	150 (150%)
Information Technology Services PBX	25 (16.8%)	124 (83.2%)	149(100.0%)

100% population staying in villages is awareness about telephonic services. Majority of them not aware about various related services. They need to be told about various facilities like VOIP and PBX.

Table 10 Awareness of Television Services: Doordarshan (National Television), Cable TV, Accessing Information, Satellite TV, Entertainment Program, Learning Activities.

Television services	Aware	Not aware	Total
Doordarshan	150 (100.0%)	0 (0%)	150
Cable TV	87 (58.0%)	63 (42.0%)	150
Accessing Information	38 (25.3%)	112 (74.7%)	150
Satellite TV	64 (42.3%)	86 (57.7%)	150
Entertainment Program	150 (100%)	0 (0%)	150
Learning Activities	66 (43.6%)	84 (56.4%)	150

It was observed that most of the people in the rural do not know about various television services available and how to use them. They understand that television is only for entertainment. They are not aware about its other benefits like accessing information, learning activities, Internet usage etc.

Table 11 Awareness of Computer Services: Data Storage, Analysis of Information and Writing Reports.

Computer services	Aware	Not aware	Total
Data Storage	87 (58.4%)	62 (41.6%)	149
Analysis of Information	8 (5.3%)	142 (94.7%)	150
Writing Reports	86 (57.0%)	64 (43.0%)	149

There were 94.7% people who said that they are not aware about analysis of information on their computers. Most of the computer users from rural area are not aware of benefits of having a computer. They consider computer for data storages and only for writing reports. There is a

greater need to make them understand the benefits of its other usage like information analysis etc.

Table 12 Awareness of Internet Services: Communication, Web Services, Information Retrieval, Internet Telephony.

Internet Services	Aware	Not aware	Total
Communication	56 (37.6%)	93	149
Web Services	56 (37.6%)	94 (62.4%)	150
Information Retrieval	56 (37.6%)	94 (62.4%)	150

Table 13 Useful Services to the 150 villages.

Tick the useful Service for your Village	Availability of Useful Services	Percentage
Telephone	150	100
Radio	150	100
Computer	112	74.66
Teleconferencing	8	5.333
E-mail	56	37.33
Online Ticket Booking	75	50
E-Governance	8	5.333
Mobile Phone	100	100
Television	100	100
Internet Services	112	74.66
Videoconferencing	8	5.333
E-Commerce	6	4
Online Banking	75	50
Kiosk Centres	15	10

It was observed that 100% villages are having telephone and radio facility for communication. Although most of them are aware about various information services like e mail, online ticket booking, and e-Governance. Either they don't understand how to use that or they are not aware of its benefits.

Table 14 Frequency of Telephone Usage per day response from 150 villagers.

Telephone (Calls) Data	Frequency of Usage per Day	Percentage
Up to 5 calls	87	58
Up to 10 calls	38	25.33
Above 15 calls	25	16.67

Majority of the respondents were making up to five calls from their telephones. There is a very low usage of telephone and they consider it costly affair.

Table 15 Television Usage per day response from 150 villagers.

Television(Hr.)	Frequency of Usage per Day	Percentage
Up to 2 Hr.	66	44.00
Up to 5 Hr.	35	23.33
Above 5 Hr.	45	30.00

Respondents were watching television up to 2 hours.

Table 16 Computer Usage per day response from 150 villagers.

Computer(Hr.)	Frequency of Usage per Day	Percentage
Up to 2 Hr.	85	56.67
Up to 5 Hr.	35	23.33
Above 5 Hr.	29	19.33

Majority of the respondents were using computer up to 2 hours. There is a greater need to create awareness about usage of computer so that they will get attracted towards using various Information Technology Services.

Table 17 Bandwidth availability

For Internet Connection	Bandwidth availability response from 150 respondents	Percentage
Dial Up (Phone line -Speed 56 kbps or slower)	14	9.33
ISDN (Phone line- Speed 128 kbps)	10	6.67
Satellite (Phone line to Wireless -Speed 400 kbps or slower)	0	0
Cable (Cable -Speed up to 2.5 mbps)	21	14.00
DSL (phone line -Speed up to 8 mbps)	11	7.33

It was observed that the 14% villages were having dial up facility for their Internet connection.

Dial-up service, subscriber chooses username and password, once the modem calls the phone number and makes a connection takes place in which information is exchanged between the computer modem and the remote server. Dial-up service is the least expensive but also the slowest type of Internet access. Due to the limited bandwidth, the ability for the modem to send and receive data - dial-up service can take up to five minutes to download just one megabyte of data. Dial-up transmits data across the telephone line using the standard analog frequency, making it impossible to use telephone while online. Dial-up Internet connection make one of the viable option for g Social networking site (Facebook or Twitter) because it required limited graphics and reduced functionality. Dial-up access as a cost alternative for rural or remote places users.

It was observed that wireless or satellite connection not present in the selected area.

It was observed that ISDN was just next alternative of dial-up connection. ISDN internet service was basically a telephone-based network system. There are two different types of ISDN line, Basic Rate Interface (BRI) this line has two data channels that operate at 64 kbit/sec. Two or more ISDN-BRI lines can be combined as well and yielding speeds of 256 kbit/sec used for video conferencing. The second type, Primary Rate Interface (PRI) this line had 23 bearer channels and has a total speed 1,544 kbit/sec. It is used mostly for telephone communication rather than data transmission, particularly within companies that have large, private telephone exchange systems operating inside their business.

It was observed that Cable (21%) an excellent choice for Internet access, faster than Dial-up, DSL and satellite. Internet and phone bill offering collective discount price. Cable user was not concerned about how many cable subscribers are actively using the network. Cable connections are always on, eliminating long waits to make a connection.

It was observed that DSL uses are 11%, standard telephone line for high speed broadband Internet access. DSL subscriber need to worry about how far they are from the main office, not worry about amount of Internet traffic during peak period. DSL was less common for rural area.

VI. Conclusion

The villagers are of the opinion that Internet services rather than entertainment services are essential and are satisfied with Internet services.

The Researcher was interested to investigate the opinion of the respondents regarding essential IT services in the villages. With the penetration of Internet at the village level different types of services which included Internet, entertainment and financial services were available in the villages. Researcher was interested to find out which services are essential in the opinion of the respondents. Researchers was further interested to find out satisfaction of the respondents while utilizing these services. Above hypothesis was statistically stated as follows:

H₀: There is no correlation between essential need of Internet services and satisfaction while utilizing these services.

Alternative hypothesis

H₁: Essential requirement of Internet services is positively correlated with satisfaction of using the services.

Test Statistic: Spearman's rank correlation coefficient (ρ). The researcher identified question Q_12 of the questionnaire that dealt with ranking the services the respondents felt were most essential variable (V1) and Questionnaire Q_6 was identified as the 2nd variable. Wherein the respondents were requested to select the most appropriate answer for the given question (V2). Both the variables V1 and V2 were discrete categorical variables measured on ordinal scale. Therefore Spearman's rank coefficient was thought to be most appropriate test.

Observations: It is observed from Table no. 5.20 that Internet Service, $\rho = 0.396$, $p = 0.001$, $\rho = 0.033$, $p = 0.685$ and $p = 0.084$, $p = 0.305$, for radio and Television respectively.

Inferences: Since $\rho = 0.396$ and $p = 0.001$ in case of satisfaction with Internet Services, there is positive association at 1% level of significance. There is positive correlation between Internet services being essential services and satisfaction of utilizing Internet services.

In case of entertainment services (Radio, Television), there is no significance value observed. There is no association between entertainment services like Radio, Television and satisfaction of these services.

Conclusion: Hence it can be concluded that the villagers are of the opinion that Internet services are essential services and villagers are satisfied with the performance of the Internet services. Hypothesis 1 is tested and validated.

Table 18 Nonparametric Correlations opinion of using Internet service.

Correlations

Spearman's rho		These Services are essential part of my life	Satisfied with the Performance of following IT Services in your Village Radio	Satisfied with the Performance of following IT Services in your Village Television	Satisfied with the Performance of following IT Services in your Village Internet Services
		Correlation Coefficient	0.033	0.084	0.396(**)
		Sig. (2-tailed)	0.685	0.305	0.001

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