Exploring Feasibility of Alternate Channels of Information Dissemination: Study of Rural Consumers Information Needs

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W.P. No.2008-05-01
May 2008

INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD-380 015
INDIA

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Abstract

Information plays a vital role in lives of individuals/groups for development and growth. Just information does not serve the purpose, but accurate information does. The sources/tools/techniques used to get the desired information have evolved from the foremost person-to-person interaction to the latest search engines on the World Wide Web. Thus options to obtain information have widened. Search engines have enabled to get information from any corner of the world to person's desktop within fraction of seconds. In this paper, we try to study the information needs of rural population in India. This research tries to understand types of information required and frequency of search for information among the rural population. The study attempts to understand whether, demand exists for 'information on demand' or search engine service itself would unlock a new untapped demand. The socio-economic aspect, livelihoods of rural population and the available resources for information retrieval have been studied to enable, if search engine service could be made available to them and in what form. Whether this proposition of search engine services being made available to those who are unable to access or rural population would be a win-win scenario for the users as well as for the search engine service providers (considering the limiting factors). The paper ends, with possible alternatives to make search engine services available to those unable to access and at the same time can be attractive to the search engine service providers.

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Exploring Feasibility of Alternate Channels of Information Dissemination: Study of Rural Consumers Information Needs

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1. Introduction

Information plays a vital role in lives of individuals/groups for development and growth. Just information does not serve the purpose, but accurate information does. People are continuously in search of types of information as per their need. The need for information is growing as the society is making a transition towards becoming an information society. People devoid of information would be disadvantaged in this era. The sources/tools/techniques used to get the desired information have evolved from the foremost person-to-person interaction to the latest search engines on the World Wide Web. Thus options to obtain information have widened. Search engines have enabled to get information from any corner of the world to person's desktop within fraction of seconds.

Usage of search engines is growing. It is giving competition to print, post & telegraph, telephone, television, mobile, radio, libraries etc. Search engines are being recognized as one stop point to gather any type of information as per the users' convenience. Thus saving time and cost for the information seeker. However, usage of search engines is low. According to Internetstats.com, as of 2007 world internet penetration was just 20 per cent[i]. Out of the 20 per cent penetration of internet, majority share is of the urban population concentrated in developed countries. Still 80 per cent of the world's population remains unaware or unable to access search engine service due to lack of internet services.

Those who are unable to access internet facilities have the following limiting factors: a) Inadequate Infrastructure, b) Illiteracy – (regular education, English illiteracy and IT illiteracy) c) Lack of internet facilities and lack of knowledge about internet's applications usages. d) Unaffordable. Majority of the population especially the developing and under-developed countries are unable to access search engines due these limiting factors. The concentration of rural population is high in these developing and under-developed countries.

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If we look at the socio-economic aspect, there are still many villages, which do not have access to basic infrastructure facilities and livelihood. Initiatives are being taken to reach out the unreached masses, but the movement is slow. Search engine companies have a huge untapped market to cater both in urban and rural areas of the world. The information needs of the rural population differ from its urban counterparts. The search engines are moving towards localization, like eg. Google providing its search service in Hindi, Tamil, Bengali etc. Google provides its services in diverse languages across the world. The barriers as discussed earlier open up opportunities to make the information available to these untouched masses by making search engines adaptable and accessible to the masses.

Those, who are unable to access internet services, fulfill their needs through interaction with person/s, listening to radio, watching television programs, accessing libraries (if literate and have access to libraries). However, the flop side of these information sources is that there is time gap between information search and retrieval i.e. information is not available on demand. The time spent on searching is more. The scope for variety of information is limited.

In this paper, we try to study the information needs of rural population in India. This research tries to understand types of information required and frequency of search for information among the rural population. The study attempts to understand whether, demand exists for 'information on demand' or search engine service itself would unlock a new untapped demand. The socio-economic aspect, livelihoods of rural population and the available resources for information retrieval have been studied to enable, if search engine service could be made available to them and in what form. Whether this proposition of search engine services being made available to those who are unable to access or rural population would be a win-win scenario for the users as well as for the search engine service providers (considering the limiting factors). The paper ends, with possible alternatives to make search engine services available to those unable to access and at the same time can be attractive to the search engine service providers.

2. Information Search on Internet

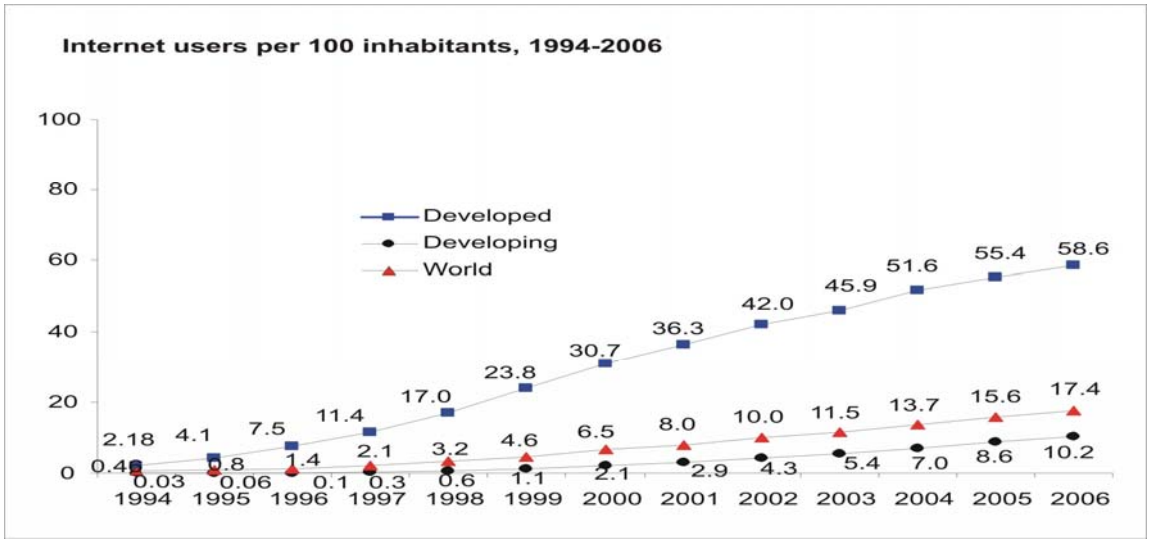
2.1 Internet Penetration

Worldwide internet penetration was 20 per cent in 2007as per Internet World Stats)[ii]. When we analyze continent wise, the highest internet penetration is in North America (71.1 per cent), followed by Oceania/Australia (57.1 per cent)[iii]. The internet penetration is high compared to the population concentrated in these continents. The reasons are due to high broadband penetration, English literacy and high levels of IT literacy. However, there are rural areas of developed countries, which have no accessibility to internet services. The opportunities are galore in these

rural parts. Moreover, there is a huge population in the developing and under-developing countries. Exhibit 1 gives an insight into the penetration of internet across the world.

According to International Telecommunications Union's research studies access to internet is growing rapidly, but number of internet users in the developing countries is limited. As of year 2006 just over 10 per cent of the population living in developing countries were using the internet while their developed counterparts constituted of 60 per cent users[iv]. Internet users per 100 habitants were 10.2 in developing countries while at the world level it is 17.4. Figure 1 gives a worldwide statistics. The lowest penetration is in Asia (13.7 per cent), Africa (4.7) which has countries with very high population. The reasons are illiteracy, inadequate infrastructure, inaccessible, unaffordable, IT illiteracy and less or no awareness of internet and its services. The concentration of rural population is high is developing and under developed. Still they have long way to catch up with their developed counterparts. These countries are now the thrust points and being actively pursued by UN through their Millennium Development Goals (MDGs) to make internet and its services accessible to people unable to use.

Figure 1: Internet Users per 100 Inhabitants Worldwide



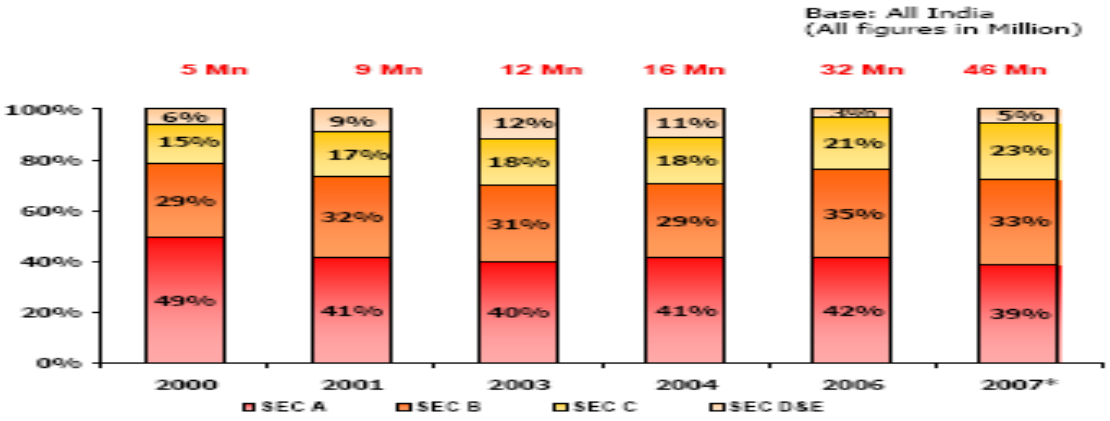
Source: International Telecommunication Union http://www.itu.int/ITU-D/ict/statistics/ict/graphs/internet.jpg

As of September 2007 there were 46 million total internet users[v] in India. Further, when we study the Indian scenario from internet usage perspective urbanites are the most active users. According to I-Cube India 2007 a study conducted by IAMAI (Internet & Mobile Association of India) along with IMRB International there were only 32 million active users out of the 250 million urban populations residing in India[vi]. Further there are 205 million literates, of which only 77

million know English language (the most prominent language in the internet search engine world). The PC literates are 65 million[vii]. Thus within urban population there is a large gap between internet users and non-users additionally there is a huge rural population.

The non-metro cities and small towns are catching up with this new medium. Figure 2 below gives a picture of growing percentage of SEC C segment. However, the internet users are minuscule, considering more than 1billion population of the country. People are becoming aware internet as one point source for retrieving any information of their choice. The other factors contributing are reduction in prices of PCs and internet connection charges, wireless technologies etc. In India, state wise each have their own language. According to India's constitution there are 22 officially recognized languages, while English is a secondary language. However, people are recognizing importance of English and learning it.

Figure 2: Usage of Internet among Different SEC Segments (2000-2007)



** - Figures reported for 2007 are for Sep 2007, all the other figures are for March in the respective years*

Source: I-Cube 2007 (Internet & Mobile Association of India)

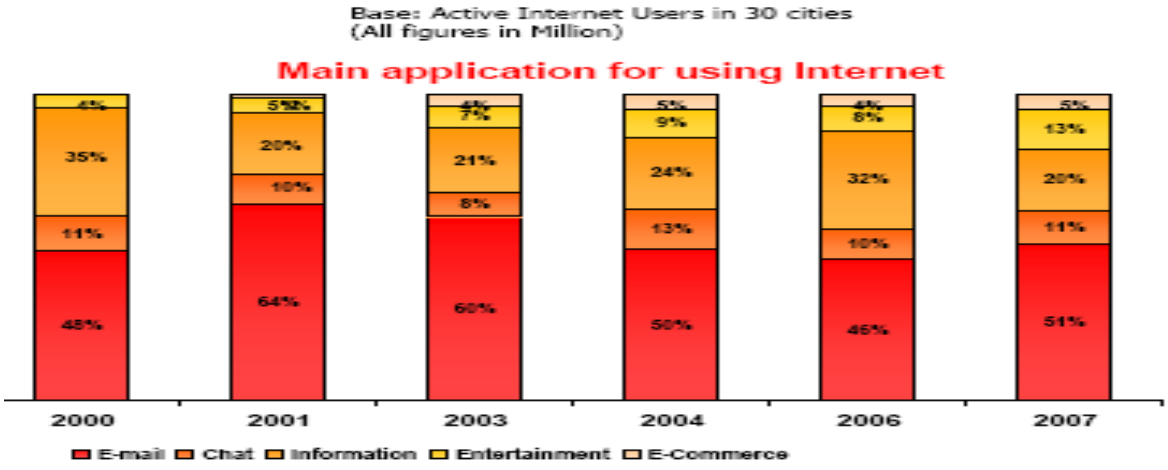
In rural India too many initiatives have been taken by corporates/governments to bring in internet services and worldwide information services. Examples: ITC e-Choupal (Madhya Pradesh), Gyandoot(Madhya Pradesh), Akshaya (Kerala), Bhoomi Project (Karnataka), Gramdoot (Rajasthan), Drishti etc. These initiatives are few compared to the population, which still is unconnected. These markets are considered unattractive or unprofitable by international search engine service providers. Thus, there is no awareness about search engine services among the rural population. eg. Google, Yahoo, MSN etc. However, these international search engines are facing competition from local search engines eg. Guruji.com (India), Baidu (China) etc provides better local information.

2.2 Usage of Search Engine

Among the many tools used on internet, search engines are one of them used for information searching. According to a study conducted by comScore, in December 2007, 66.2 billion search queries were conducted worldwide[viii]. In a study conducted by iProspect along with Jupiter Research in US, which has the highest number of internet users, 57 per cent of online users claimed that searches on search engines have become more important in their internet usage[ix]. 72 per cent of respondents from the age group of 18-24 years, agreed that search became very important for them, while 55 per cent from 25+ age group agreed on increasing usage of search engines among other internet applications.

In India, the usage of search engines ranks second, while emails and chatting are on the top most in their internet usage. According to the I-Cube 2007 Research statistics usage of search engines (combination of information, entertainment and E-Commerce) is just below 50 per cent between 2000-2007. Figure 3 gives insight into usage of different applications of internet. In 2007 usage of search engine compared to other applications of internet was 49 per cent. Out of the total usage of search engines in 2007 information search (20 per cent) is leading, followed by entertainment and e-commerce. Usage of search engines is competing tightly with usage of emails and chatting by the users. Usage of search engines is expected to increase, when they would be available in more and more Indian regional languages. If search engine services would be available in interactive media form its usage will be boosted in the rural segment.

Figure 3: Main Application for Using Internet



Source: I-Cube 2007 (Internet & Mobile Association of India)

The usage of search engines for information is highest among school kids and college going students i.e. 31 per cent and 35 per cent respectively in 2007. This is similar to usage of search engines by the age group of 18-24 in US. Working Women (21 percent) and Non-Working women (17 per cent) are the second largest users of search engines for information. The usage of search engine services among women can be reaffirmed from the research study by comScore in 2008. The study found 60 per cent of women rely on the internet versus 51 percent who consult friends, family or significant others[x].

Usage of search engines is very low among men whether young or old. Majority of men are non-users, which gives an opportunity to convert non-users into active internet users. These active internet users are mainly concentrated in metro cities and small towns. There is a huge rural population, where either males or females from any age group have not accessed internet services and search engines.

2.3 Prominent Search Engines

In 2007, comScore conducted worldwide research on internet search. The respondents were from 15+ age group. The respondents where users accessing internet from home and work locations only. 66.2 billion search queries were conducted worldwide in December 2007[xi]. Google is the leader occupying 62.4 per cent share in the market of searches. Google has maintained its position a leader in search engine. Other leading search sites are Yahoo (2nd rank) and Baidu.com (3rd rank China). Exhibit 2 gives share of searches done on the top ten search engines of the world[xii].

When we analyze further, the top ten search engines are from US except Alibaba abd Baidu.com. The Chinese search engines have made major break through. Thus major search engines are in English, which is a hindering factor among non-internet users; while Chinese are giving tough competition to Google and Yahoo. In case of India Guruji.com is an Indian search engine. It has to still make its mark but it is surely giving tough competition to Google's localized service in India. If more and more localized search engines come up usage of search engine services would increase. Moreover, search engines need to make their services user friendly and affordable to both unreached masses of urban and rural population.

2.4 Topics Searched

The topics searched differ across each search engines. Wide number of topics are searched across each search engine. We take a look at the prominent topics searched on the leading websites. On Google the leading search engine, technology products and search for social networking sites was prominent in 2007. Search for second life was among the leading topics

searched on search engines. On Yahoo, unique topics searched were environment and product recalls by corporates[xiii]. People were searching for ways to tackle the environmental changes, which are badly affecting the lives on earth. Recycling, freecycle, hybrid cars and solar energy were the topics on the topmost during search on environment. Recall products children and pet product categories were searched the most. As per Ask.com, search for social networking site was on the top, followed by dictionary, Google, themes and Area Codes among the top five. Exhibit 3 gives an insight into top ten topics searched across the popular search engines across the world.

3. Barriers to Penetration of Search Engines

Penetration of search engines depends on English literacy and IT literacy (knowledge about internet and its applications) and penetration of ICTs, awareness about search engines, affordability to access internet serves and importance in the lives of the people. We shall study into the major barriers to search engine service penetration.

3.1 Human Barriers

Half of the world's population lives in the rural and remotest parts of the world i.e.3 314 299 (thousands)[xiv]. Further, when analyzed from literacy perspective, according to UNESCO's estimates 799147 thousands million adults are illiterate, out of which 64 per cent are women[xv]. 788999 thousands of illiterates live in developing countries and 9151 thousands lived in developed countries[xvi]. However the highest concentration of illiteracy is in Sub-Sahara Africa, South and East Asia and Arab countries. The literacy rates in Sub-Sahara Africa, South and East Asia and Arab is around 60 per cent only[xvii]. 70 per cent illiterates live in only nine countries of the world. 34 per cent of these illiterates lives in India. In the youth category (15-24) there are 137 million illiterates out of which 63 per cent are females.[xviii]

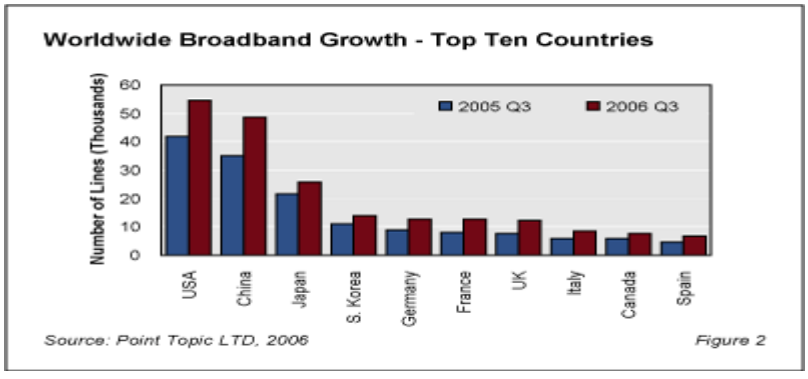
The youth literacy rates are above 70% in all regions, though individual countries fall below the average. In developing regions, youth illiteracy rates range from 2% in East Asia and the Pacific to 28% in South and West Asia. Gender disparities are generally less pronounced in youth literacy than in adult literacy, but regional variations follow the same line as for adults, with gaps between men and women still notable among youth in South and West Asia, the Arab States and sub-Saharan Africa. The positive aspect is that, youth have better access to basic education, which is for the betterment of the nations and opportunities to access this emerging market. More than 72 million children are out of school and many more attend irregularly[xix].

In India when it is divided into urban and rural population,15+ age group 19.6 per cent (urban) and 45.2 per cent (rural) people are illiterate, while in 60+ age bracket 41.2 per cent (urban) and 73.5 per cent (rural) are illiterates. Exhibit 4 gives a statistical insight as per National Sample Survey. People in rural area can communicate (speak) effectively but are unable to read and write properly their vernacular language. Considering India's diversity in language, each state having their own. It is a major challenge for penetration into the urban and rural parts untouched by the internet and services of search engines.

3.2 Slow Growth and Penetration of Broadband Technologies

[xx]Internet penetration depends on penetration of broadband technologies. Today, broadband penetration worldwide is only 4.75 per cent where penetration is defined as the percentage of internet users whose primary access is via broadband. As per the study of Point Topic Ltd *(a U.K.-based research company that focuses on global broadband communications*) as of third quarter of 2006 the total number of broadband lines deployed worldwide exceeded 263 million. Thus there was 33 per cent growth compared to the same quarter in 2005. However, the critical point to be noted is that, growth rate has fallen from 38 per cent in 2004/2005. This drop is chiefly due to slower growth in Europe and Southeast Asia. According to Point Topic, the European slowdown occurred because of market saturation, while the Southeast Asian slowdown happened because of slower growth in China and India over the previous year. Figure 4 below gives insight into broadband growth in top ten countries of the world.

Figure 4: Growth of Broadband – Top Ten Countries



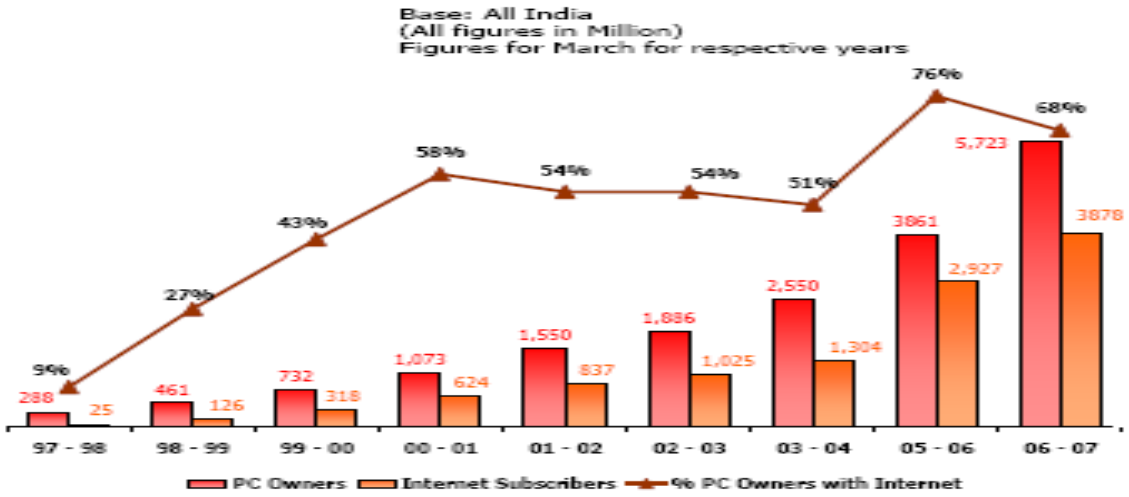
Source: http://www.computereconomics.com/article.cfm?id=1206

Other than US and China the remaining top countries in top ten had growth rates below 30 per cent, but are nevertheless also experiencing steady growth. The country with the highest annual

growth rate of broadband lines is Greece at 243%. In second place is India with an annual growth rate of 185%, followed by Croatia at 150%. Thus India is among the leading countries; however care needs to be taken to reach out those who have need but are unable to afford. In developing countries the maximum access point are public places than homes. In fact, access from public facilities may be so successful that it may even be constraining growth in home internet access in developing nations[xxi].

As of August 2007, the total broadband connection in India was only 2.56 million (projected figures for 2007 = 9 million)[xxii]. 2007 was announced as Broadband year to facilitate penetration of internet. The internet ownership has noted a raise of 32 percent growth in year 2007{3}. Figure 5 gives gap between penetration of computers and internet. When we compare penetration of PC owners with internet connection, there was decline in 2007 (68 per cent) compared to 2006 (75 per cent).

Figure 5: Comparative figures of PC Penetration and Internet Penetration in India



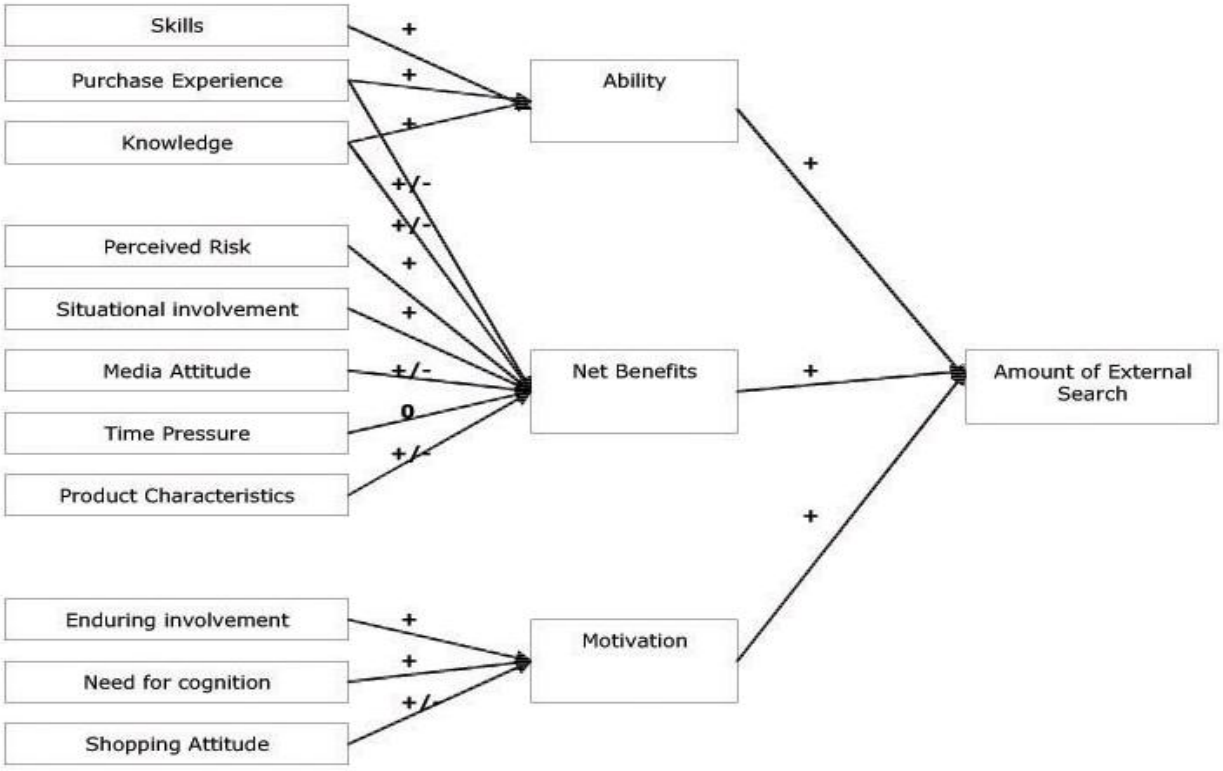
Source: I-Cube 2007 (Internet & Mobile Association of India)

This decline in 2007 was due to difference in growth rate of PC owners and internet subscribers. The gap is expected to reduce in India over the next few years if NEGP, digital divide and more initiatives from private investors/corporates. Computer Economics projects that the number of worldwide broadband lines will exceed 500 million by the end of 2010 and approximately one-third of the world population will be active members of the global internet community. Thus there lies a huge opportunity for international and national search engines to bring information to millions of people and one-point centre for information access, entertainment and e-commerce facilities.

4. Internet Search Behavior Model

In Gao's book on Online Consumer Behavior, he posits that there are 3 primary drivers for online information search as explained in the Exhibit 5 below.

Exhibit 5: Information Search on the Internet: A Causal Model (Ref: Gao, 2005)



Source: Web Systems Design and Online Consumer Behavior by Yuan Gao, Idea Group Publishing, 2005

These drivers are also responsible for a majority of the successful online purchases and hence they are among the most researched topics for understanding online consumer behavior. These can also be applied to information search off the internet, with a few modifications.

However, an important characteristic that is different among rural Indian consumers is the very low income level prevalent among them. The other limiting factors are the skills and knowledge about the usage of search engine services.

5. Rural Information Needs

Rural populations have their respective information needs. In order to enable internet search services to be availed by a large population of rural area, it is essential to study their information

needs. In the context of India , which has 70 per cent rural population and each state having their own vernacular language, making search engine services is a challenging task. Baijal [xxiii] states that there is urgent need for rural networks on IP with unlimited bandwidth to provide quality services. This would pave way for search engines to reach the rural masses.

The rural population would be ready to use modern technologies, but it should be affordable and accessible to them. It should be compatible with their mother tongue. As most of villagers are illiterate they prefer those sources of information which provides information in vernacular language, interactive and pictorial information. They also depend on third person for information if the source/organization is trustable. There is a need for information and communication among rural people as Chowdhary[xxiv] states, easier and quicker communication enables villagers to deliver effectively and efficiently their economic activities. When they communicate directly, it can enable villagers for direct access to market to sell their agricultural produce and not be dependent on middlemen. Moreover earn better profits and be updated about developments in market. When ICTs are affordable they can connect with near and dear ones by being owners of modern communication technologies.

As Bhatnagar[xxv] states through his research on rural telephony, that telephone services are subsidized for the rural India. But they can be potential revenue generators, if they become users of emerging information and communication technologies, which policy makers need to consider. He asserts that, when internet based services (information search, online business, voice-over-telephony, email services, kiosks, entertainment services, television, cable TV etc.) can be provided in local language creates lots of opportunities.

According to the study conducted by National Informatics Centre (NIC), Government of India in Bihar's rural area(one of the illiterates states with high rate of unemployment) regarding information needs of rural India, the following were the information needs:

- Health
- Agriculture
  - Rainfall (forecasting)
  - Cropping Pattern
  - Modern Techniques of Cultivation/Farming
  - Irrigation (Sources)
  - Information on Market and Market Prices
- Education
  - Distance Education/Learning

Information on Schools & Virtual Schooling

- Government Information

Information on Soft loans & Financial Institutions

Information on Government Go downs

- Land Records

6. Study Conducted In Rural Areas of Gujarat

Research studies have been conducted in the context of information needs and penetration and usage of information and communication technologies in rural and urban areas. This study was conducted to get an insight into characteristics of rural population, especially in India (developing countries), socio-economic lifestyle and literacy level, sources/techniques accessible for information needs and types of information needs. This study attempts to get an insight, how search engine services can be availed to the rural population and whether it could be a win-win situation for the users and service providers, keeping in the context of existing limiting factors.

The study was conducted in rural areas of Gujarat, one of the most industrialized states of India. The study was conducted in three different districts located far and wide from each other. The study was conducted in Gandhinagar, Bharuch and Kodinar. Gandhinagar – the state capital and one of the most accessible districts. Bharuch – highly industrialized belt, which has mix of tribal areas. It is located on the Mumbai and Delhi rail and road belt. Kodinar is devoid of rail and less developed compared to the previous districts. Moreover it has less access into mainstream developments of the country.

6.1 Research Methodology

The primary objective was to understand the information needs and sources accessed to fulfill the need. Through this research, attempts to study the modus operandi of making available the non-conventional channel for information diffusion among the rural communities. The research was done to find out the typical search terms on the internet and their applicability for rural areas. A study was conducted on users' responses in the rural areas of Gujarat State to gauge the local feasibility of this project.

Methodology

1. To identify rural user requirements, through consumer surveys, and the various success parameters for different channels of information dissemination.
2. Based on the above mentioned findings, suggest for future research and strategies to cater to unreached masses.

6.2 Research Hypotheses

Based on secondary data analysis, five initial hypotheses were formulated. These fall under the 3 categories: i) sources of information, ii) shopping categories and iii) information needs (time sensitivity of information need, type of information desired).

H1 - There are various channels of information dissemination available to the rural consumer

The motivation here is that a villager can currently find out farming or any other information from various channels available today, including the TV, Newspapers, Other people etc and that no medium is predominant. Also, this would indicate the consumer's willingness to use the telephone for his information needs, in case another medium is not available.

H2 - The consumer's information needs for purchases are adequately satisfied at present.

Online product sales are an important part of the advertising driven search technology today, hence it is important to gauge whether people satisfied with their current information search methods. Also, there are people who are willing to adopt the internet, while others are resistant to it; hence this would give an idea of the consumer's willingness to use the internet.

H3 - There are different categories of information that the consumer desires from available channels.

The primary motivation is to ascertain which categories of information does the village consumer desire. This can also be an important indicator of the best way to provide him with that information.

H4 – The consumer is not adequately served regarding his most time critical information needs.

Typically, there is a time delay in the desire for information, and its gratification. This is another indicator that can be used to find out whether people would be willing to use the instant response capabilities of the internet.

H5 - Different people are likely to have different willingness to use the Internet for information search.

The motivation here was to judge willing level among people towards embracing search engines to fulfill their information needs. Without customer acceptance, search technology would be a failure or of limited use, even if it were available for free to villagers.

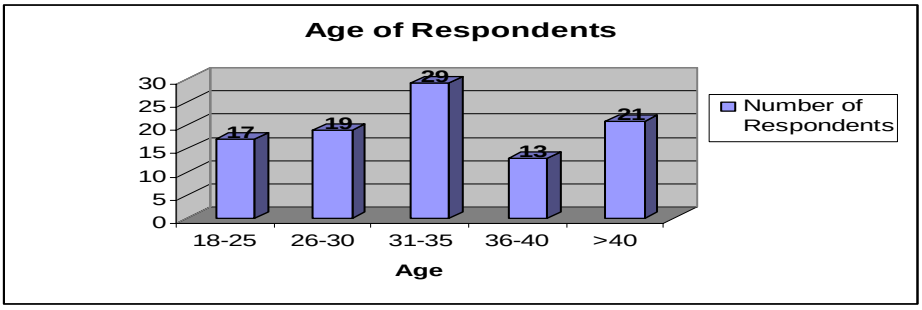
6.3 Research Techniques

The data for the research was conducted through personal interview techniques. The language used in the questionnaire was in Gujarati, as it is the local language and majority of the population did not understand English. Sample questionnaire is given as Exhibit 6. Most of the questions were exploratory than qualitative. Total sample size was 115. The consumer survey covered 17 villages spread across the three districts. The sample size of each district was less than 50 owing to convenience and to avoid distortion. From Gandhinagar and near by areas - 41responses, 47 responses from Bharuch and near by areas and 27 responses from Kodinar and its nearby places. However 15 responses from Kodinar were dropped due to errors in the response provided. Thus total 100 responses were used for analysis.

6.4 Socio-Economic Findings

Population Composition: The age groups corresponded during the survey was 18-25 years, 26-30 years, 31-35 years, 36-40 and > 40. The highest response was received from 31-35 age bracket i.e. 29 respondents. Followed by 21 respondents from >40 age group, 19 (26-30 years), 17 (18-25 years) and 13 (36-40 years). Majority of the respondents were male i.e. 85 per cent out of which 78 per cent were married. Out of the total respondents 38 per cent had not completed high school education. The number of female respondents from the survey also indicates that they are still not fully mainstreamed into the society. Educational and economic advantages of females were low. The females of villages were dependent on the males of their family.

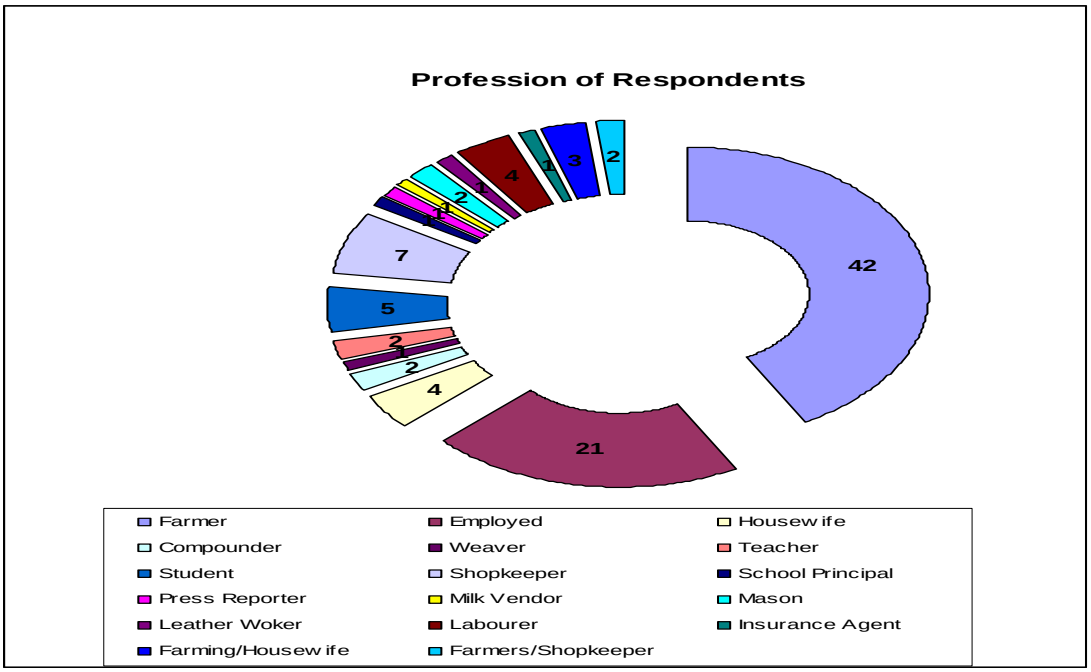
Figure 6



Economic Perspective: During the survey economic condition of the sample size were assessed through their economic activity and monthly income. Out of the total respondents 42 persons were farmers, 21 were employed, while other activities were teachers, retail shopkeepers, labourers. Figure 7 gives an overall picture. It needs to be noted that female's main role was as housewives. Few of them along with house cores were also farmers or shopkeepers. Monthly income in the sampled villages ranged from Rs. 900 – Rs. 33,000. As per statistical calculation average monthly was Rs. 6133.5 per month. It needs to be noted the monthly income would differ

from village to village depending on infrastructure facilities, economic status and their interaction with the world outside their villages. Moreover, there are villages in India, where basic necessities are not satisfactorily satisfied.

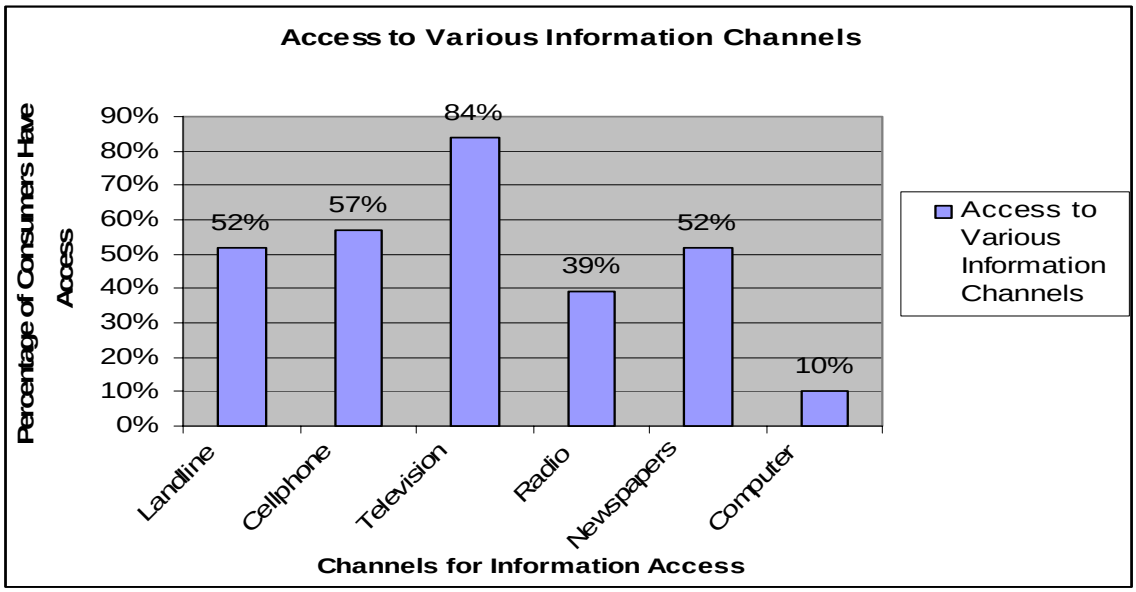
Figure 7



6.5 Hypothesis Test Results

Access to Various Channels of Information Dissemination: Among the communication and information technologies used Television (84 per cent) was leading while computers (without internet) were accessible to least numbers of respondents 10 percent. Among the tele communications, mobile phone was leading i.e 57 per cent and fixed line (52 per cent). Usage of radio was low at 39 per cent, while newspaper was accessible to 52 per cent of the respondents. The high percentage of newspaper readers indicates that literacy levels of Gujarat's rural populations are in a better position but educated in Gujarati medium. The accessibility to non-conventional communication in these rural parts of Gujarat was high, this can be owed to their economic wellness and people's willingness to keep pace with new technologies and keep pace with their urban counterparts. It is possible due to support from government, various economic and social organizations. Moreover, these communications resources would be used to make their economic activities better. Thus hypothesis test has been positive.

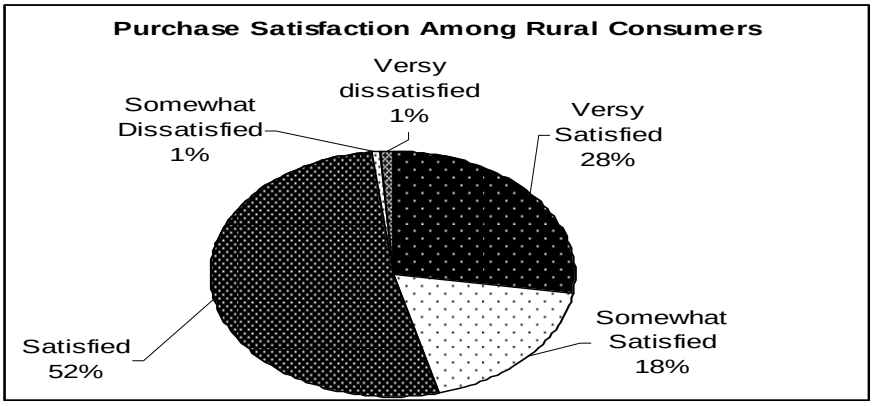
Figure 8



Information Satisfaction for Purchases: To assess information satisfaction among rural consumers, they were asked the sources used for their largest purchases in the past six months and level of satisfaction. 67 per cent sought the required information from other people while 33 per cent informed they accessed television. While other sources accessible to them were least used. 35 per cent respondents had seen the product on television and 23 per cent in print medium prior to the actual purchase of the products.

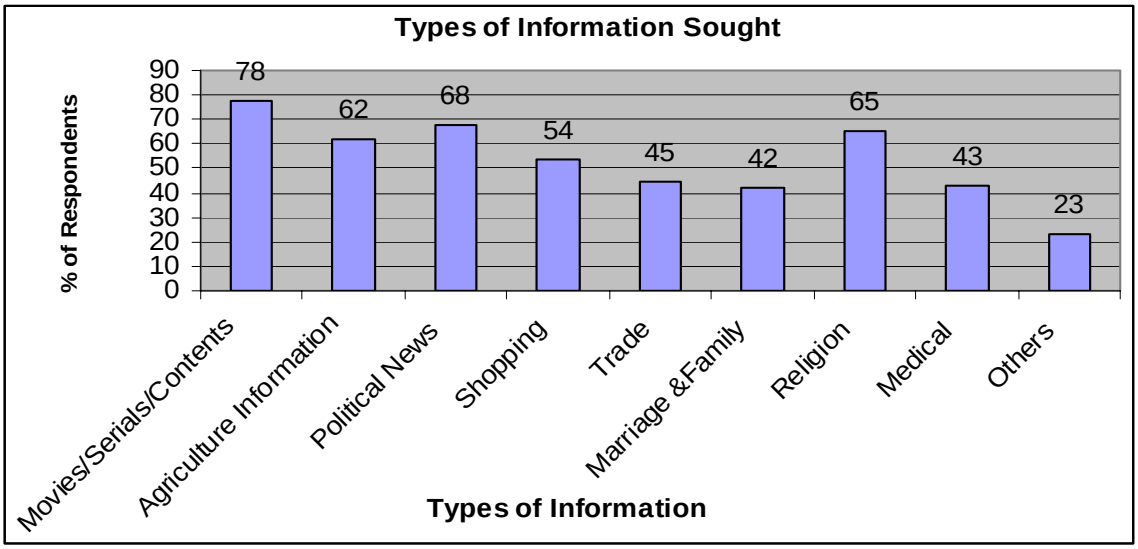
Majority of the consumers (98 per cent) were satisfied with their purchases, out of these 27 per cent were very satisfied. Dependence on other person for getting the desired information is high; this indicates their trust level on another person and consumers were satisfied with their purchases based on the information received. Hypothesis 2 has been tested positive. Consumers were satisfied with information received

Figure 9



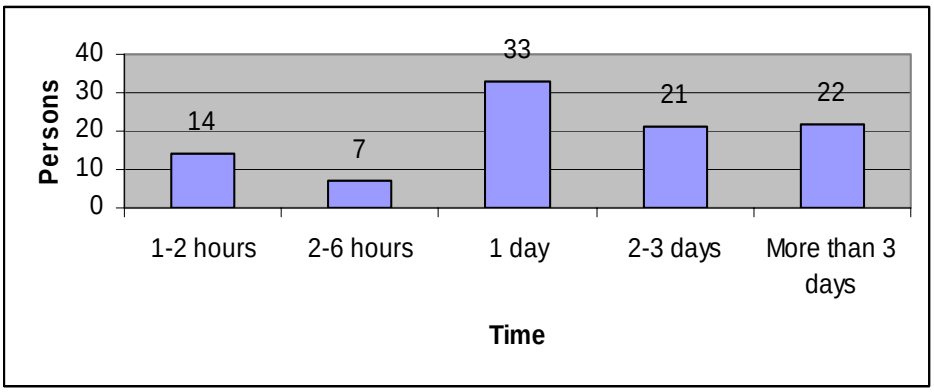
Types of Information Search: Study was done to assess information search behaviour and sources of information accessible to them. Satisfaction level from the information made available to them. Rural people have need for information on variety of topics/areas. According to the study entertainment was leading, followed by agriculture, political news, shopping, trade, marriage & family related information, religion information, medical information and others. During the study it was found people trusted highly on their Gram Panchayat (local government) and state/central government for receiving the desired information in important areas. Thus rural consumers have wide range of information needs. However, some of the information needs differ from the non-rural population.

Figure 10



Consumers Not Adequately Served Regarding their Most Time Critical Information Needs:
During the search, it was tried to access waiting time to get the desired information. 76 per cent of respondents had to wait for one day to get the desired information as per their satisfaction. Figure 11 gives a holistic view on time spent waiting to get the desired information. The dependence on Gram Panchayat is prevalent in rural parts of India, as it the governing body. Their involvement is essential for all infrastructure and developmental issues of a village. For quicker and better penetration of internet services and information search engines, it is essential to involve the panchayat, as its initiatives are quickly accepted and enables in long-term sustainability. Thus, this hypothesis also was proved correct.

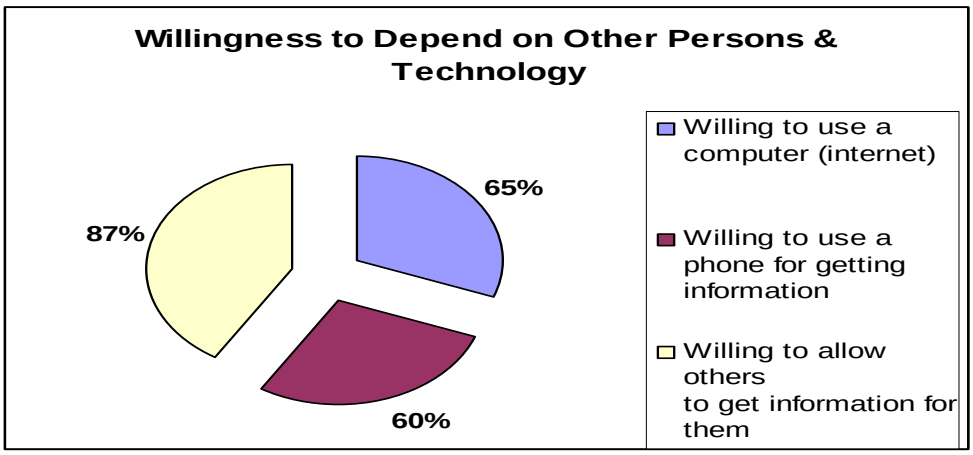
Figure 11 Waiting Time for Suitable Information



Different People Are Likely To Have Different Willingness To Use Internet For Information Search:

In order to understand their trust level on another person to get the desired information, the consumers were inquired about it. Majority of respondents were willing to depend on another person to get information for them. Willingness to use internet services (search engine) was ranked second ahead of phone for retrieving information. 65 per cent respondents were willing to use internet. This study reveals that there is an unfulfilled demand among rural population to access and use modern information technologies. It indicates about unsought demand among rural population to fulfill their information needs as quick as possible. Only 35 per cent responded, that they were not willing to use internet. The hypothesis proved be correct.

Figure 12



6.6 Research Implications

Through the research study important trends on information search were noted, which is peculiar to the rural population. They were as follows:

- People are very interested in information about Cricket, a sport that is religiously followed here.
- Motorcycles and Farming related purchases dominate the category of largest purchase over the past 6 months.
- People are willing to trust the Gram Panchayat (local government) and State/Central Government to get their desired information.

Thus information related to farming and its related activities and occupation relevant to the rural population is of highest interest and people are ready to listen and purchase farming items. Gram Panchayats have a crucial role to play in enabling search engine services to be made available to the rural communities. However, their specific information needs, their literacy levels and compatibility with IT and internet is essential to be considered.

The items prominently purchased in the last six months, the top categories include Electronics and Household items (Cellphone, TV, Refrigerator, and Clothes), Farming Related Purchases (Seeds, Tools, Tractor, Animals) and Automobiles (Motorcycles).Regarding his information needs, we can clearly see that Entertainment, Politics and Religion are the 3 most sought after topics. The information needs may vary from village to village or region to region depending on the economic and social scenario of the villages in different corners of the India. However, information oriented to farming, rural occupation and other information related to rural lives are among the foremost. Also, in the category of other information, some atypical answers were Crime and Law and Order, and Stock Markets, hence providing such information might also be a good idea.

Willingness to use internet for information search is very high rather than to use telephone. This is a positive indication that search engines have to opportunity to penetrate into the rural places, however the limitation of rural population need to be considered. 40 per cent of the respondents were not willing to use telephone to retrieve information considering the costly charges.

7. Conclusion and Further Work

Around the world, Internet based search engines have changed the way computer literate people having Internet access used to search for information gratifying their needs. Search is in the heart of every living human being and at every moment, we are searching for something based on the drive for fulfilling our requirements – some people are searching for peace on the Internet, while some others are searching for Britney Spears. With more and more Internet users understanding the power of search engines, a number of user requirements for searching on information to cater to their needs have increased. With a lot of research going in making the search engines more contextual, they have proved to be a fantastic technology platform to provide information on demand, thus cutting latency in information retrieval. However, depending on the nature of search and the end users searching for some information, there can be possible areas where end users would be okay in imbibing a bit of latency given the accuracy of the information being searched for.

In this paper, we have tried to understand the major information requirement of rural Indians along with different channels of information delivery on which they would prefer to rely on. The samples of responses were collected from villages in Gujarat for convenience of data collection. A few hypotheses were made at the start of the exercise about the information needs of the rural population, all of which were found to hold good during the exercise. Interestingly, it came out clearly that the cluster of popular internet search terms today is vastly different from the search requirements of rural Indian information consumers. The top advertisement topics on such a search engine may be expected to be related to Farming, Automobiles and Electronics & Household items; however these would need to be customized for local advertisers, depending on the locality and the demographics of the targeted rural segment. Apart from these, if information on Religion, Politics and Entertainment matters, (especially Cricket in India) could be provided, then it will be easy to spread the use of search engines across the village.

Moreover, the preferred channels of information gathering was found to be counter intuitive than popular beliefs. As the majority of purchase information sought is through word of mouth (58%), especially through the Gram Panchayat or the print media (29%), it is important to ensure that alternate channels of information delivery can be looked at with search engines at the backend for providing robust information sources. Interestingly enough, though a small part of the study sample was found to be literate, however, the penetration of television, mobile phones, print media etc. is seemingly quite high. More interestingly, respondents showed their preference for being able to search online than use telephone as a medium for communication.

Till date, the spread and usage of search engines have been mainly restricted to the penetration of broadband Internet technologies, which has been relatively slow not only due to the tiem taken for some of these technologies to get matured, but also due to the huge dependency on exogenous factors like willingness of telecom service providers to rollout broadband in rural areas, policy making in different levels of the Government, infrastructure related issues etc. Given the fact that organizations providing search capabilities (like Google, Yahoo!, MSN etc.) have typically correlated their penetration with that of the broadband in particular locations, actually restricts access of rural people to advanced search technologies on one hand and huge missed opportunity for revenue generation for these organizations on the other.

Given that the ensuring broadband penetration to the rest of the eighty percent of the world's population (and in the typical Indian case making it reach all villages) in foreseeable future really a tall order, search engine providers must explore alternate channels of information delivery for fulfilling needs of information on demand, with the understanding that some of the channels of information delivery may also imbibe a some latency, given the particular nature of the channel. For example, a local language call center may be setup in a particular region catering to a population base, where end users may call to get some information (and may also be exposed to some advertisement in local language pertaining to their subjects of interest). Else, may be the Gram Panchayats are given a bunch of advertisement filled pre-paid postcards that may be sent to a local collection agency replying back to the end user in a pre-defined time period.

In this paper, we have focused mainly on the information needs of a particular type of rural population from a single state in India. Given socio-economic perspectives, Gujarat is one of the leading states in India. Further to this study, we would like to repeat the same exercise in other parts of the country and also in other countries, especially focusing on lesser developed parts of the rural population in understanding their information requirements and preferred channels of information delivery. In addition to this, we also need to set up a pilot study to understand all different alternative channels of information delivery possible to cater to information need of this set of target users.

Exhibits

Exhibit 1: World Internet Usage And Population Statistics

World Regions	Population (2007 Est.)	Population % of World	Internet Usage, Latest Data	% Population (Penetration)	Usage % of World	Usage Growth 2000-2007
Africa	941,249,130	14.2 %	**44,361,940**	4.7 %	3.4 %	882.7 %
Asia	3,733,783,474	56.5 %	**510,478,743**	13.7 %	38.7 %	346.6 %
Europe	801,821,187	12.1 %	**348,125,847**	43.4 %	26.4 %	231.2 %
Middle East	192,755,045	2.9 %	**33,510,500**	17.4 %	2.5 %	920.2 %
North America	334,659,631	5.1 %	**238,015,529**	71.1 %	18.0 %	120.2 %
Latin America/Caribbean	569,133,474	8.6 %	**126,203,714**	22.2 %	9.6 %	598.5 %
Oceania / Australia	33,569,718	0.5 %	**19,175,836**	57.1 %	1.5 %	151.6 %
WORLD TOTAL	6,606,971,659	100.0 %	**1,319,872,109**	20.0 %	100.0 %	265.6 %

NOTES: (1) Internet Usage and World Population Statistics are for December 31, 2007. (2) CLICK on each world region name for detailed regional usage information. (3) Demographic (Population) numbers are based on data from the US Census Bureau . (4) Internet usage information comes from data published by Nielsen//NetRatings, by the International Telecommunications Union, by local NIC, and other reliable sources. (5) For definitions, disclaimer, and navigation help, please refer to the Site Surfing Guide, now in ten languages. (6) Information in this site may be cited, giving the due credit to www.internetworldstats.com.

Source: Internet World Stats (http://www.internetworldstats.com/)

Exhibit 2: Top Search Engines of the World

Worldwide Search Top 10 December 2007 **Total World Age 15+, Home and Work Locations*** **Source: comScore qSearch 2.0**		
	Searches (MM)	**Share of Searches**
Total Internet	66,221	100.0
Google Sites	41,345	62.4
Yahoo! Sites	8,505	12.8
Baidu.com Inc.	3,428	5.2
Microsoft Sites	1,940	2.9
NHN Corporation	1,572	2.4
eBay	1,428	2.2
Time Warner Network	1,062	1.6
Ask Network	728	1.1
Yandex	566	0.9
Alibaba.com Corporation	531	0.8

Excludes traffic from public computers such as Internet cafes or access from mobile phones or PDAs.* ***http://www.comscore.com/press/release.asp?press=2018*

Exhibit 3: Top Ten Searches – 2007

Ranks	Google	Ask.com	Yahoo
1	iphone	MySpace	News Stories • Saddam Hussein • Iran • Iraq
2	Badoo	Dictionary	Environmental Searches • Recycling • Global Warming • Freecycle
3	Facebook	Google	Celebrity Downslides • Britney Spears • Paris Hilton • Anna Nicole Smith
4	Dailymotion	Themes	Tech • YouTube • Wikipedia • Facebook
5	Webkinz	Area Codes	top 10 on del.icio.us • Design • HDTV • Games
6	Youtube	Cars	Top ten consumer Call backs • Pet Food Recall • Fisher Price • Thomas the Tank Engine
7	ebuddy	Weather	Top Searches on Yahoo Kids • Games • Animals • Dinosaurs

8	Secondlife	Games	Top Sports News • NASCAR • Maria Sharapova • Boston Red Six
9	Hi5	Songy Lyrics	Top ten send offs • Harry PPotter • Anna Nicole Smith • The Sopranos
10	Club Penguin	Movies	
Source	Google	Ask.com	Yahoo

Exhibit 4: Illiteracy Rates by Age Group in India

Proportion of population age group, 2004

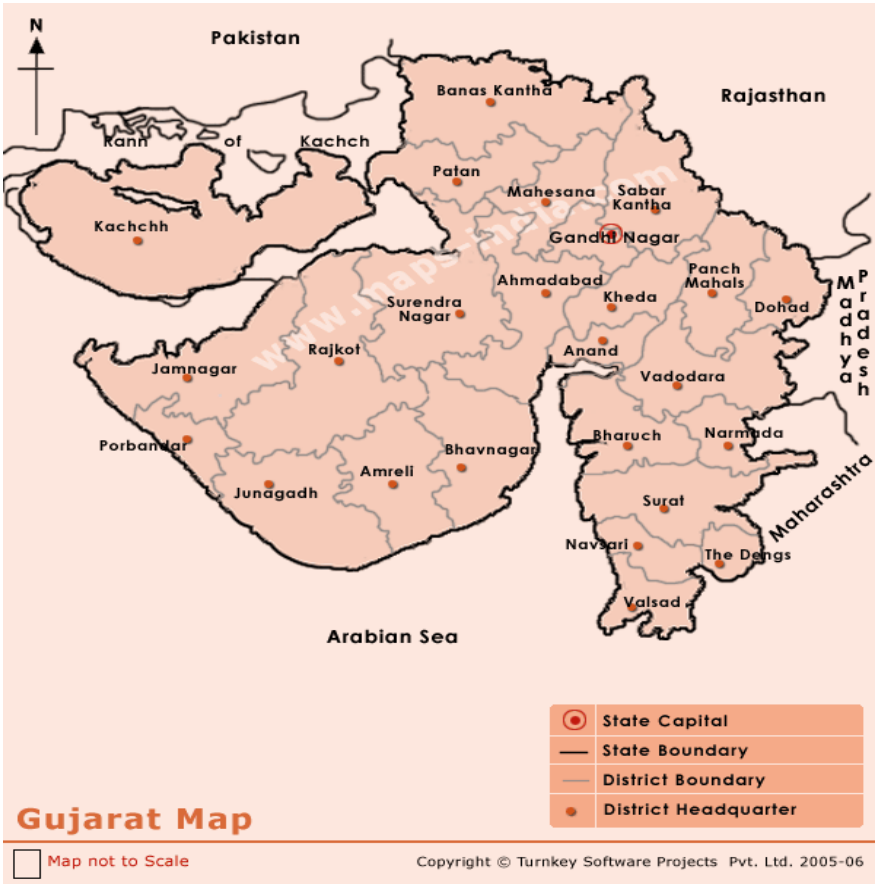
Age Groups	Illiteracy rate %				
	15-24	25-29	30-59	60+	15+
Urban	9.6	13.9	22.7	41.2	19.6
Rural	23.6	36.6	53.1	73.5	45.2
All India	19.7	30.2	44.7	65.5	38.2

Age groups 5 to 14	Illiteracy rate %			Schooling status %
	at school	not at school	total	proportion not at school
Urban	7.0	53.0	13.7	14.6
Rural	8.9	72.3	22.5	21.4
All India	8.5	69.1	20.5	19.9

Source: 61st National Sample Survey.

Source: OECD Economic Surveys : India , Volume 2007, October 2007
http://site.securities.com/doc_pdf?pc=IN&doc_id=152903449&auto=1&db=en_1y_d

Exhibit 6: Map of Gujarat



Source: ***www.maps-india.com***

Exhibit 7: Questionnaire

Section A

1. **Age**
   18-25 years
   26-30 years
   31-35 years
   36-40 years
   >40 years

2. **Marital Status**
   Single / Married

3. **Gender**
   Male / Female

4. **What is your education level?**
   No Formal Education
   Class ____
   High School
   Graduate
   Post Graduate

5. **Profession**

6. **Village**

7. **Average Monthly Income** _____

8. **Do you have access to the following devices?**

	Yes	No
Telephone		
Cellphone		
Television		
Radio		
Newspaper		
Computer		

Section B

1. **What is the largest purchase amount that you have spent in the past 6 months? Rs.** _____

2. **What was the product/service which you purchased?** _____

3. **How did you find out information about the product?**
   Talked to people TV Phone Call Others _____

4. **Please indicate if you saw the advertisement for the product?**
   TV Print Radio Others _____

5. **Are you satisfied with the information you found about the product before purchase?**

Very Satisfied	Somewhat Satisfied	Satisfied	Somewhat Dissatisfied	Very Dissatisfied

6. **Typically what information do you look for in the Newspaper/ TV/ Radio?**

		Yes	No Rank of Importance
1	**Entertainment (Movies/Serials/Contests)**		
2	**Agricultural Information**		
3	**Political News**		
4	**Shopping**		
5	**Trade Related**		
6	**Marriage and Family Related**		
7	**Religion Related**		
8	**Medical Information**		
9	**Others**		

7. **What is the most important information that you need now?**

8. **What is your normal source for such information?**

9. **How much time do you have to wait for getting the information?**
   1-2 hours 2-6 hours 1 day 2-3 days more than 3 days _____

10. **Would you be willing to use the telephone to get such information?** Yes/No

11. **Will you be willing to let someone else find out information for you?** Yes/No

12. **Will you be willing to use the internet (computer) to find out information that you now get from other sources?** Yes/No

End Notes

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