CHAPTER- I

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1.1 Background

Television is developing. Currently we are going through a paradigm shift in the Television industry. If TV (Television) was originally to be perceived as a medium of ‘viewing’, we are recently facing a new generation of ‘doing’ over IPTV (Internet Protocol Television). IPTV is a new concept in television, which employs Internet protocols to provide real-time broadcasting, multi-media contents and two-way interactive services. The scale of this service is increasing considerably. Though IPTV is now in a nascent stage in India, it is presently repositioning itself as a practical medium for the next generation.

Unlike television in previous years, IPTV is able to provide two-way services including VoD (Video on Demand), games, finance, and shopping, weather reporting. Moreover, IPTV is capable of interactivity via CMC (Computer Mediated Communications), which is the combination of network devices and TV including commerce, SMS (Short Message Service), chatting, and e-mailing.

The new IPTV media has superior features relative to the conventional TV. However, such functions necessitate user involvement, and are ineffective if the usage intentions are unclear. Therefore, it is important to conduct research into the manner in which factors enhanced by IPTV influences usage intentions and associated variables.

1.2 Concept and Importance of IPTV

According to Peters (2000) in the year 1935 first television service was started at Berlin and in 1967 colour television services was launched in England, Germany and France successively. Due to its audio-visual and demonstration capability TV become one of the most useful entertainment instruments. Nowadays Television is a significant part for source of information as well as significant part of socialization also. It is a known fact that, often people try to copy fashion, sartorial designs etc. from TV programs. They even attempt to copy the behavior of their favorite actors, seen in their
favorite TV program. Therefore, TV has a big effect in our day-to-day life. TV programs can be delivered through satellite, cable, terrestrial and Internet Protocol (IP).

Noam (2008) explained about three generation of television, the first generation of television was Limited TV, few media companies or some political parties were the owner of TV channels in first generation of TV, in most of the countries. Sometimes it was controlled by the government also. Market was monopoly in nature on that time, for this reason TV companies earned high profit. Second generation was Multichannel TV stage, which included Cable TV, VCD and DVD. Cable TV can provide more than 150 channels. Modern cable system offers much higher bandwidth than terrestrial broadcasting. TV transmission transformed to High Definition (HD) from Standard definition (SD). HDTV can offer much higher resolution picture than SDTV. Finally, third generation of television now it is Individualized TV. As TV programs carried by internet, it is called as Internet Protocol Television (IPTV). It consists of two parts Internet Protocol (IP) and Television (TV). In this technology TV program can be delivered to PC(Personal Computer), TV or even on mobile screen. Thus, television is moving from its conventional single screen to three kinds of screens. Day by day, more applications are being added to in IPTV’s range. In addition to watching video programs on the TV, it can become a screen to watch our digital images or to make a video phone call. Now users are free from the boundary of place, time and screen. Viewers can select not only the screen-TV, PC, Mobile phone but also where they watch TV, at home or outside. TV service delivering via IP is most recent development of Information Technology (IT).

1.2.1 Applications of IPTV

The evolution of engineering has assisted television connect to the Internet. Cho et al. (2008) explained many TV viewers enjoy searching extra content such as news, video clips, and product information after they watch a TV program. Due to the growth of technology and changing viewing habits, audience can skip TV advertisements. Moote (2006) said that IPTV is a technology where individualized applications are available, customers can get access to their preferred online services such as image sharing and online gaming. It is to be noted that there is a difference between Internet
TV and IPTV. Internet TV is broadcasted through the internet, which provides unrestricted access to content, whereas IPTV is broadcasted through personalized networks and having restricted access to content. To generate long-term revenue IPTV service provider may include value added services, such as the following: selected camera angles for viewers, Pay per View for channel and for Video on Demand (VoD) for proper pricing, Gaming services, Content hosting services, Community television, ethnic program bundles, Genre-based television services etc. Picture in Picture (PIP) is another killing application of IPTV. Using PIP user can see 4 to 6 program at a time (sound will be activated for only one).

Gang et al. (2006) included that IPTV can incorporate interactivity and new value-added applications on existing Internet Protocol platform. IPTV based E-Learning is also an appealing feature. The most significant feature of IPTV application is the interactivity, which makes it more powerful distribution system. Because of this characteristic, it also has an advantage in the modern IPTV studying service. Instead of only viewing video recordings in conventional internet-based learning, learners can individually interact with the back-end learning technology. Additionally IPTV based E-Learning is more effective than conventional web-based learning in the situation, where availability of desktop computer is less. IPTV can be deployed in hotels also. According to Alessi (2007) most hotels in America offer pay-per-view television service. User interactivity is one of the most significant benefits of IPTV. IP is a bi-directional interactive technology. Using this interactivity IPTV provider can provide many more services, like video on demand (VoD), interactive channel guides, Voice over Internet Protocol. The IPTV service can provide many more channels than conventional television system. The ability to pack varieties of services into one IP platform is an excellent advantage. Combining Internet access, VoIP telephone, IPTV and Wireless access onto one network is known as ‘quadruple play’ and except Wireless access bundle of the remaining three is called ‘triple play’ service. Most of the companies are offering either ‘triple play’ or ‘quadruple play’.

Addressability is the most important characteristic of IP. Using this characteristic IPTV can delivered specific message to target subscriber only. This is the
most appropriate answer for advertisers, who want to control their advertisement money. Using addressability, advertisers can make profile for group of customers depending on their geographic location, demographics, purchase behavior, brand attitudes etc. Again using the feature measurability, advertiser can measure the number of interested audience. This helps them to calculate their ROI immediately. But in case of traditional TV they need wait till enquiry call or till the time of product sale. For the purpose of this section a screen shot (Figure 1.1) of interactive TV is given, where it is used for customized application in retailing. Advertiser allows purchasing product through interactive TV. Retail locators can also be included into custom applications (Interactive Advertising Bureau [Iab], 2010).

![Interactive TV Screenshot](image)

Figure 1.1: Customized application/commerce through interactive TV (Source: Iab,2010).

1.2.2 IPTV Advertising as Marketing Activity

On-line advertising has some inherent features like addressability, interactivity and measurability. TV advertising can be energized by IPTV, by using these features.

- Addressability: Every internet user has unique IP address. Using this special attribute targetable advertisement can be made possible. The IP endpoint is the television set or the set-top-box attached to it, which allows programs or advertisement to be viewed via TV, depending on the instruction of remote commander.
Hart (2008) comments that due to its inbuilt addressability many hundreds or even thousands of IPTV advertisements can be delivered simultaneously during a single timeslot and can be targeted at large groups, small groups or even individuals, and for viewers’ responses to be collated. The personalization can be based on sophisticated demographics so that viewers no longer need to be bombarded by irrelevant advertisements. The targeting can be demographic as well as geographic also. In demographic targeting, advertisement spot are sold multiple times to different advertisers targeting different non-overlapping demographic audiences, but in case of geographic targeting advertisements spot are sold multiple times to different advertisers or same advertiser having regional agents or franchisees targeting different audience by place or location.

Recent study (Harte, 2009) indicates that matching the right advertisements to the right customer at the right time can involve many rules and decisions. Advertisement campaigns define what promotional opportunities advertisers are willing to pay for, including region, system type and times of insertion. Advertisers may define what types of content they want to insert in their advertisements. Addressable advertising systems can select advertisements, coordinate advertisement insertion and track the advertisement consumption (viewing and interaction). Addressable advertisement insertion systems may be capable of managing advertisement in broadcasts (linear advertising) or programs (on demand). Advertisements can be placed at relevant time, for example before starting of any program or when the set-top box boots up, as a Screensaver, as a buffer when a movie loads or dynamically in the video streams, as an information screens.

- **Interactivity:** One of the distinguished characteristics of IPTV is its interactivity. Through IPTV system users can choose the program they wish to see on-demand, to listen on-demand whenever they want, without depending on the broadcast schedules of TV stations. Additionally, further value-added services can be included, such as gaming, user-generated content, social networking, chat functions or other feedback mechanisms allowing the viewers to provide ratings or discussion forums on the shows.
Explorations by Akerkar (2010) reveal that interactive TV will bring services not yet delivered such as time shifting, on-demand video content, network-based Digital Video Recorder (DVRs), where the content is potentially stored on the network and streamed to the device wherever it might be. In addition, the content which is available on the Internet will be available for viewing on the television. Interactive TV will allow the users to experience digital quality television with the added advantage of being a “pay per view” – service. Consumers can expect services such as “pay-per-view”, Video on Demand, Video Conferencing and Interactive TV – pause, fast forward and rewind live TV or recorded content stored on the service provider’s remote servers. Therefore, all parameters of comfort, cost and quality will be taken care of.

For the purpose of this section a screen shot (Figure 1.2) of interactive TV is given, where it is used for voting. An overlay or application based questions are designed to solicit info from viewers. Voting can be incorporated into an on-screen overlay for a single-location interactive experience (Interactive Advertising Bureau [Iab], 2010).

![Survey/Voting/Polling](image)

**Figure 1.2:** IPTV usefulness for polling on Mercedes Benz. (Source: Iab, 2010).

- Measurability: Since IPTV technology allows feedback data to be received from a television household, real-time audience measurement is possible. The research on return response can prove return on investment (ROI). IPTV advertising provides a new channel for customer knowledge opportunities. The measurement process in IPTV
advertisement is used to track what consumers are doing, how they interact, how long they interact and what their preferences are for certain products and/or services. Accumulating these data valuable research and media reports can be prepared as per requirement to help advertisers measure the effectiveness and efficiency of campaigns, and gain insight into consumer behavior. These data can also be utilized to optimize the media plan. As IP address of customer is available advertisers can target the location from where he is getting more responses. Advertiser can compare response with actual sales volume also.

Telecommunication operators have unique assets, which is valuable for advertisers. First, they have huge customer base. They have direct relationship with customer. Due to authentication and accounting controls vast quantities of customer data may be collected, which can be used to develop profile of consumers, including personal preferences, demographic characteristics etc. Telecommunication operators can determine who the customers are and what service or product they are buying. So not only controlling the destination of advertisement, but also tracking the effectiveness of advertising campaigns is possible. They have the ability to send advertisers’ message to audience anywhere, on any device, at any time. For example, they can manage the delivery of advertisements across the mobile, TV, PC, as well as over fixed line and wireless line also. Therefore, telecommunication is the backbone for this type of highly personalized and targeted advertising where addressability, interactivity and measurability are required.

Advertisement agencies prepare multiple copies of the advertisements to reach different audiences. To send advertisement copy to target audience data needs to be generated. Data can be stored in the receiver to log which advertisements have been viewed. Audience measurement and reporting will become increasingly important to demonstrate the effectiveness of targeted advertisement. Table 1.1 shows different features of IPTV.
Table 1.1: Summary of IPTV features. (Source: Lee, 2009)

<table>
<thead>
<tr>
<th>Features</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support for interactive service</td>
<td>The two-way capabilities of an IPTV system allow service providers to deliver a whole raft of interactive TV applications. The type of service delivered via an IPTV service can include standard live TV, high definition TV (HDTV), interactive games and high speed Internet browsing.</td>
</tr>
<tr>
<td>Time shifting</td>
<td>IPTV in combination with a digital video recorder permits time shifting of programming content.</td>
</tr>
<tr>
<td>Personalization</td>
<td>An end-to-end IPTV system supports bidirectional communications and allows the end user to personalize their TV viewing habits by deciding what they want to watch and when.</td>
</tr>
<tr>
<td>Low bandwidth requirements</td>
<td>Instead of delivering every channel to every end user, IPTV technology allows service providers to only stream the channel that the end user has requested. This attractive feature allows network operators to conserve bandwidth on their networks.</td>
</tr>
</tbody>
</table>
Accessible on multiple devices

Viewing of IPTV content is not limited to televisions. Consumers often use their PCs and mobile devices to access IPs.

1.2.3 Identification of Revenue Generating Factors for Advertisement through IPTV

Only features cannot attract customers towards IPTV, advertisers need to utilize those features in proper ways so that they can create different business models, which can improve the revenue. Recent studies (Lostanlen, 2008) indicate that three-phase model can be used for serving a practical guideline to the growth of IPTV operators’ advertising revenue and business opportunity. First phase is to deliver better video like HDTV to provide better viewing experience. Second phase is adoption of better business model that promotes greater revenue potential and profitability. Third one is implementation of improved media distribution operations, maintaining operation cost. She also added that Content, Coverage and Commercial are three C’s which drive the quest to improve revenue picture and business model.

• Content: With content IPTV service provider must try to deliver most obliging entertainment content, using which they can expand their customer bases and as a result attract the interest of advertising agencies. They need some sticky contents so that further viewing can be ensured and engage customers with the contents.

• Coverage: As more subscribers sign on, the audiences become more attractive to advertisers. A bigger customer base provides higher purchase power to service provider when negotiating for programming rights. Amplifying the coverage is vitally important to the growth of IPTV business. By improving the quality and value of the content number of viewers grow. IPTV service provider then also can invest their increased earnings to expand interactive capability or to stock more content. At last reaching their customer directly becomes a very attractive proposal for an advertiser, which is again a revenue enhancer for them.
Commercial: Once they have grown their subscriber bases and viewers, they will start seeking advertising deals and income. The audiences are people, who elect to pay for the service, and the IPTV platform offers the prospect of delivering targeted, interactive advertising. IPTV operators can expect more lucrative advertising deals.

In addition to these three ‘C’s’ another important C is cost. Cost of IPTV services offered are quite competitive in India, but still the costs of IPTV Set-Top-Boxes (STBs) are high compared to cable or DTH STBs. To spread out the business, service provider need to be focused on broadband penetration, again which is a costly matter.

Dureau (2004) reported that varieties of addressability option can be offered. These options can be thematic addressability, geographic addressability and home addressability. In case of thematic advertising, advertiser can buy airtime and run their advertisement campaign only for a niche market. Main advantage of this type of advertising is that extra infrastructure or modification of existing infrastructure is not required. Geographic Addressability is type of local advertisement. Depending on the culture and economy condition advertisement can be delivered. Hampp (2009) explained, Geographic addressability refers to a bunch of ZIP codes or locality that can often be clustered demographically, so an advertiser can target their TV viewers properly. On the other hand for home addressability marketer can target audience, based on particular data cropped from age to gender to recent ownership of consumer goods. This system offers multiple advertising in a single time slot. So advertisers can offer different advertisements to different house-holds at same time. At the end of the advertisement, local dealer name, place and contact can be tagged. The use of Addressable Advertising permits rapid and direct measurement of the effectiveness of advertising campaigns. Hampp (2009) also included that, this system enables the viewer of a single spot to be sectioned into multiple household groups. That, in turn, increases the profitability of the advertisers’ by:

- Extending access to new and more addressable family profiles.
- Enhancing overall per spot income.
• Reducing wastage and bettering inventory usage.

1.2.4 Opening up TV Advertising for Smaller Budget Business

As IPTV enables many advertisements to share one avail, so the cost will be divided and dream of TV advertising can be converted into reality for smaller business, special interests groups or even individuals. It could even be possible that highly targeted advertisements pay less for broadcasting their advertisement to a smaller audience. At the same time, the cost of producing a television commercial is also dropping day by day. For smaller businesses, a reduced cost of distribution paired with a reduced cost of production could really make TV advertising a real possibility. It becomes more naturalistic to imagine a school uniform manufacturer in one city promoting its’ products to a highly selective but geographically dissipate audience nationwide at a relatively fair rate. Van Den Dam (2007) claimed that Telecom Austria has already deployed ultra-local TV advertising in the village of Engerwitzdorf experimentally and found that ultra-local TV advertising especially attracted local companies for advertising. In the United States, Verizon (an IPTV service provider) is currently deploying the technical tools that will allow it to insert local advertisements into its programming. On that foundation, it plans to introduce more targeted and interactive advertisements in its IPTV service. Of course this new era of TV advertising still requires that TV advertising that is creative and relevant is more likely to be effective. But it does add a new stratum of opening onto the existing model that creates opportunities for advertisers, media agencies and broadcasters.

1.3 Recent Status of IPTV Market

Currently 152 IPTV service providers are serving 60 countries worldwide. Most of the service providers are based in North America, West Europe and in Asia (Skytide, 2013). The list of the global IPTV service providers are given in Annexure I.

MRG forecasted the global IPTV subscriber for 2009-2013. This study has forecasted that the number of global IPTV subscribers will grow from 26.7 million in 2009 to 81 million in 2013, with a compound annual growth rate of 32% which is given in the figure 1.3.
In this report, the global market was split in four regions namely Asia, Europe, America and Rest of the World. Below Figure 1.4 shows regional IPTV customer base forecast.

For service revenue, the Global IPTV market was US$ 12 billion in 2009 and growing to US$38 billion in 2013 (shows in Figure 1.5), a compound annual growth rate of 33%. By 2013, Europe and North America will generate a larger share of global
revenue, due to very low ARPUs in China and India, the fastest growing in Asia. Figure 1.6 shows the regional service revenue forecast.

Figure 1.5: Global IPTV Revenue Forecast. (Source: International television expert group, 2009)

Figure 1.6: Global IPTV Service Revenues - Regional Split (MRG’s forecast in May 2009). (Source: International television expert group, 2009)

SNL Kagan (2013, cited in Broadband TV news, 2013) has forecasted that “the global IPTV subscriber base will grow at a 9.1% 2012-2017 compound annual growth rate (CAGR), reaching 100.5 million homes by 2017, equating to an 11.5% pay TV subscriber share. IPTV video service revenues are expected to reach $41.2 billion by 2017, accounting for 13.9% of global total pay TV revenues. Almost 76% of global
IPTV subscribers are found in Asia and Western Europe, with 40% in Asia-Pacific and 35.8% in Western Europe, North America, Eastern Europe, Latin America and the Middle East account for only 16.6%, 6.3%, 0.7% and 0.5% of the global total IPTV customer, respectively. Below table 1.2 shows the forecasts (Range- 2012-2017) about top five countries in the world.

Table 1.2: Top five countries by IPTV subscribers. (Source: Broadband TV news, 2013)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Top 5 Countries by IPTV subscribers</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2012-17 CAGR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>15,172</td>
<td>17,478</td>
<td>18,322</td>
<td>19,661</td>
<td>20,965</td>
<td>22,427</td>
<td>8.1</td>
</tr>
<tr>
<td>2</td>
<td>France</td>
<td>13,372</td>
<td>14,179</td>
<td>14,757</td>
<td>15,212</td>
<td>15,565</td>
<td>15,846</td>
<td>3.5</td>
</tr>
<tr>
<td>3</td>
<td>U.S.</td>
<td>9,917</td>
<td>11,307</td>
<td>12,639</td>
<td>13,859</td>
<td>15,059</td>
<td>16,226</td>
<td>10.3</td>
</tr>
<tr>
<td>4</td>
<td>South Korea</td>
<td>4,380</td>
<td>4,900</td>
<td>5,317</td>
<td>5,703</td>
<td>6,001</td>
<td>6,266</td>
<td>7.4</td>
</tr>
<tr>
<td>5</td>
<td>Japan</td>
<td>3,057</td>
<td>3,358</td>
<td>3,694</td>
<td>4,064</td>
<td>4,446</td>
<td>4,864</td>
<td>9.7</td>
</tr>
<tr>
<td></td>
<td>Total Top 5</td>
<td>30,726</td>
<td>33,744</td>
<td>36,407</td>
<td>38,838</td>
<td>41,071</td>
<td>43,203</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>Global Total</td>
<td>65,007</td>
<td>73,375</td>
<td>79,717</td>
<td>86,308</td>
<td>93,255</td>
<td>1,00,544</td>
<td>9.1</td>
</tr>
</tbody>
</table>

According to Broadband TV news (2013) IPTV subscriber base reached an estimated 65 million by the end of 2012 globally. These deployments created $21.9 billion in video service revenue in 2012, equating to 9.3% of global total pay TV revenues. IPTV video service revenues are expected to reach $41.2 billion by 2017, accounting for 13.9% of total pay TV revenues globally.
Figure 1.8 shows the total number of IPTV customer in the world. If we compare the forecasted data of MRG from the Figure 1.3, it was almost 64 million, and the actual number from the Figure 1.8 is more than 69 million, which exceeds the forecasted number.

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Subscribers</th>
<th>Net adds (qtr)</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2 2011</td>
<td>53,341,835</td>
<td>3,651,676</td>
<td>7.3%</td>
</tr>
<tr>
<td>Q3 2011</td>
<td>57,280,904</td>
<td>3,939,069</td>
<td>7.4%</td>
</tr>
<tr>
<td>Q4 2011</td>
<td>61,625,696</td>
<td>4,344,792</td>
<td>7.6%</td>
</tr>
<tr>
<td>Q1 2012</td>
<td>65,515,339</td>
<td>3,889,643</td>
<td>6.3%</td>
</tr>
<tr>
<td>Q2 2012</td>
<td>69,086,675</td>
<td>3,571,336</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

**Figure 1.7: World IPTV subscriber numbers with growth. (Source: Point topic, 2012)**

Below Figure 1.8 and Figure 1.9 shows the regional shares of subscribers up to end of Q2, 2012 and penetration with quarterly growth by region respectively.
Figure 1.8: Share of world IPTV subscribers by region – Q2, 2012. (Source: Point topic, 2012)

<table>
<thead>
<tr>
<th>Region</th>
<th>Q2 2011</th>
<th>Q1 2012</th>
<th>Q2 2012</th>
<th>Quarterly % Increase</th>
<th>Annual % Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>70,000</td>
<td>90,000</td>
<td>95,000</td>
<td>6%</td>
<td>36%</td>
</tr>
<tr>
<td>America - North</td>
<td>8,807,720</td>
<td>10,180,366</td>
<td>10,540,113</td>
<td>4%</td>
<td>20%</td>
</tr>
<tr>
<td>America - Other</td>
<td>250,212</td>
<td>292,623</td>
<td>312,724</td>
<td>7%</td>
<td>25%</td>
</tr>
<tr>
<td>Asia - East</td>
<td>20,770,370</td>
<td>26,689,089</td>
<td>28,451,039</td>
<td>7%</td>
<td>37%</td>
</tr>
<tr>
<td>Asia - Other</td>
<td>1,085,748</td>
<td>1,858,710</td>
<td>2,085,165</td>
<td>12%</td>
<td>96%</td>
</tr>
<tr>
<td>Europe - East</td>
<td>1,710,524</td>
<td>2,915,299</td>
<td>3,266,815</td>
<td>12%</td>
<td>91%</td>
</tr>
<tr>
<td>Europe - Other</td>
<td>20,647,261</td>
<td>23,469,252</td>
<td>24,316,819</td>
<td>4%</td>
<td>18%</td>
</tr>
<tr>
<td>Oceania</td>
<td>20,000</td>
<td>20,000</td>
<td>19,000</td>
<td>-5%</td>
<td>-5%</td>
</tr>
<tr>
<td>IPTV Subscribers</td>
<td>53,341,835</td>
<td>65,515,339</td>
<td>69,086,675</td>
<td>5%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Figure 1.9: Penetration and quarterly growth by region. (Source: Point topic, 2012)

Point topic (2012) has also surveyed top 10 IPTV countries and percentage growth of Q1, 2012 to Q2, 2012 which shown in below Figure 1.10 and Figure 1.11 respectively.
The figures, showing IPTV is growing rapidly all over the world. However, that growth is small in comparison to Pay TV. The survey of Tele Geography (2012, cited in International Telecommunication Union [ITU], 2012) explains that Telecommunication companies’ worldwide IPTV subscriber penetration reached 15 percent in Q1 2012, equivalent to 67 million subscribers and 8 percent of the world’s 812 million pay TV subscribers.
In terms of regions, North America’s pay TV market is saturated, and subscriber growth is at a standstill. Western Europe’s pay TV market is also nearing saturation. The Asia-Pacific region has a pay TV household penetration rate at 46 percent, and penetrated IPTV services is just 12 percent of their broadband subscribers. This information is indicating that there is high chance of market growth and has huge opportunity for IPTV. Below, figure 1.12 shows the comparison between IPTV and Pay-TV market penetration regionally.

![Figure 1.12: IPTV and Pay-TV Penetration Rates, Q1 2012 (Source: Tele Geography, 2012)](image)

1.3.1 Indian Scenario

In a recent study (Vasu and Goel, 2009) indicate that global IPTV market has reached an advanced stage in developed countries. Near about hundred and twenty service providers are available in over sixty countries.

Major IPTV service providers in India are BSNL, MTNL, Bharti-Airtel, Tata Teleservice and Reliance. These companies started IPTV service mainly in metros like Kolkata, Delhi and Mumbai. Major vendors for IPTV in India include UTStarcom, Alcatel Lucent, SeaChange, Harmonic, Cisco, Irdeto, Harris, Viaccess, NDS, Conax,
Verimatrix, Oracle, and Sun Microsystems. There are other companies also who are playing big role though different purpose. AKSH OPTIFIBRE- one of the largest manufacturers of cable and optical fibers, HARMONIC- It is one of the major vendors for encoders in the IPTV segment. NDS- NDS is the worldwide market leader in content protection and DRM solutions for pay-tv operators. Recently the government has also increased FDI limits for IPTV and DTH from 49 to 74% respectively, which is also a good sign for IPTV industry (Assocham, 2012).

1.4 Proposed Area of Research

Traditional IPTV players are responding with bundled value-added services, such as online gaming, local news, and karaoke – particularly popular in Asian countries (Wood, 2012).

Another important forecast is that in the next five years, Asia-Pacific will continue to host the biggest IPTV population in the world (Broadband TV news, 2013). Monterey (2013) added Asian telecommunication companies accounted for 49.2% of the top 20's IPTV subscribers in 2012, reflecting the region's huge market size and limited competition among the service providers. IPTV can easily beat DTH growth if Broadband penetration increases. Moreover, TRAI is taking huge interest in raising broadband penetration in India (Gupta, n. d.).

According to Preethi (2009), current stage of customer base and sales do not show the potential of the product. However, industry prediction is that the IPTV subscriber base in India will be 4 million by 2013. Smart Digivision (BSNL’s IPTV franchisee) expects that in the next five years they will have a base of 2.5-3 million users.

There is a huge opportunity in Electronic Learning (E-Learning) (Williams, 2009). Through IPTV, training can be delivered to all corners of the country. The training may be anywhere anytime. It can be conducted for

1. Instructors in schools and post-secondary institutions

2. Trainers in private industry

3. The workforces in general.
4. As maximum people of India live in rural areas and are agriculture based; the training related to modern cultivation method can be delivered to farmers. The training through IPTV can be conducted in nearby local panchaayet offices so that people engaged in agriculture can get scientific training about cultivation.

5. Further the IPTV system can be deployed at hotels and hospitals also.

Industry experts are forecasting that there is a huge opportunity waiting for IPTV in India but review of literature indicates that there have been only limited attempts to study the acceptance of IPTV. In case of India no study has been found related to this subject. It is also observed that most studies related to Technology Acceptance Model (TAM), were done on developed countries. To date, there is hardly any literature that provides factors for acceptance of IPTV reporting in developing context.

The thesis extends beyond previous studies by identifying major factors of acceptance of IPTV in India and thereby provides suggestions to Indian IPTV service providers for finding better revenue model for IPTV.

1.5 Objective of the Study

IPTV is expected to grow at a rapid speed in the coming years, as broadband is now available to more than 100 million homes worldwide (Shin 2009). Many telecommunication and cable operators around the world have already rolled out successful IPTV services to their subscribers and are gaining from the increased revenues and reduced costs. The technology appears easy for subscribers to adjust to, with the integration of television services now allowing telecommunication companies to target broadband adopters, while bundling new services in their offering. Therefore, the main objectives of this research are:

i) To study the advertising strategies of IPTV providers in India.

ii) To study the consumers awareness and acceptance level of IPTV in India.
1.6 Expected Contributions of the Study

Drawing on the evidence in literature, an empirical study has been conducted that specifies how the factors associated with the acceptance of IPTV affect consumers and their intention to use IPTV. This study integrates the insights from previous studies concerned with Technology Acceptance Model (TAM) and IPTV into an aggregate framework and explains how the factors affect intention of use.

From a managerial perspective, this study provides empirical evidence of acceptance of IPTV, which will help in setting criteria for selecting the most appropriate business models for enhancing value of their business. Multifunction and perceived usefulness are important selection criteria for IPTV business. The study is beneficial for companies who want to start or have IPTV business; they can prepare their business strategy accordingly.

1.7 Methodology and Data Collection

A critical step is the review of previous research on the topic chosen. The fresh data that are specifically collected for the recent research project is called primary data, where the researcher is the first user, as opposed to secondary data. Review of literature is a critical part of nearly all research. Available data, which was collected for an intention other than that of the current study, but which can be used a second time for a current project is referred to as secondary data.

The literature review contains academic work, and other published sources related to the theories in consumer behavior, interactive advertising, technology acceptance model (TAM) and IPTV. Primary data were collected from respondents who are using IPTV.

For this study two stage cluster sampling was chosen. In this type of sampling method, there is initial sampling of groups of clusters and then selection of elements within each selected cluster. The samples were drawn equally from subscribers of this system belonging groups having all level of income, their level of education and covering all working groups namely student, Working in Govt./PSU sector, Working in
private sector, Housewife, Self-Employed / Business. The sample size was estimated 500.

In order to fulfill the objectives, the following methodology was adopted for the present study. First, constructs affecting the acceptance of IPTV were chosen from previous research. After searching of literature, new items were generated. So to generate new item, focus group study was conducted and opinion taken from experts who have knowledge in this field. Six numbers of hypotheses have been developed. Pilot testing was done for checking the reliability and validity of the questionnaire. Total 27 numbers of items were selected for the study. Cronbach’s alpha was used for testing the reliability of the instrument. Subsequently, an exploratory factor analysis was conducted for testing of convergent and discriminant validity. In order to test the hypotheses multiple regression analysis was used. The result of these tests helped to develop a framework for future IPTV acceptance among the Indian consumers. Statistical software, SPSS, version 17 was used for the statistical analysis.

1.8 Organization of Thesis

The thesis has been compiled into five chapters.

The first chapter begins with the introduction of the thesis and provides a background of the study by discussing the importance of IPTV service. It also identifies the objectives of the research along with an outline of the data collection and methodology used in the study.

The second chapter provides a brief review of theoretical models and empirical literature. The chapter discusses the research works relating to Technology Acceptance Model (TAM) and IPTV across various countries. It also makes a review of empirical studies on various determinants influencing IPTV acceptance in different countries. The review of literature also provides a discussion on the various models being proposed and developed globally.

The third chapter presents the detailed methodology adopted for carrying out the research. It deals with data collection methodology, the survey instrument, sampling
The design and methodology used for conducting the survey and analyzing the survey findings.

The fourth chapter provides a detailed discussion of results and interpretation of the factor analytic model. A set of critical factors are identified in this chapter and their influences on intention to use IPTV have been identified using a multiple regression analysis.

The fifth and final chapter summarizes the findings of the study, discussing its inherent limitations and identifies the scope for further research in the area of adoption of new technology like IPTV.