Evolution from Analogue to Digital Television in India: An Update of Stakeholders' Subscription Revenues and Challenge

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ABSTRACT: *Digital television is a new buzzword in Indian entertainment & media industry. The limitations of analogue transmission brought the concept of digital television in India. The digital television is expected to bring more transparency in the system and better revenue sharing among the stakeholders. The present study makes an attempt to study the subscription revenues in the pre and post digitisation periods. For DAS-I the pre digitisation period taken is FY 2011-12 and post digitisation period is FY 2014-15. Similarly for Das-II pre digitisation period is FY 2012-13 and post digitisation period is FY 2015-16. Broadcasters Multi System Operators (MSOs) and Government are selected as key stakeholders in the present study. The other stakeholders such as Local Cable Operators (LCOs) are not considered due to unavailability of data. The study also addresses the challenges faced by the industry in the digitisation road map and various causes for unnecessary delays. The findings of the study indicates that the conversion from analogue to digital Television in India is successfully achieved in major cities in phase I and phase II, however subscription revenues of stakeholders are still to be seen a significant rise. Socio-political factors have caused unnecessary delays in Chennai and Coimbatore and have spoiled the smooth implementation of digital television. This as a result has provided big setback to the entertainment and media industry. The industry must gain knowledge from the faults of phase I & II and put improved methods and procedures in place. The complete mistrust between MSOs and LCOs is one of the biggest reasons for the stumbling pace of digital switchover. The study suggests that the role of government is also crucial and should set up a digital switchover support, which could spread awareness and rewards stakeholders who are the part of making the switchover a success.*

Keywords: Digital Addressable System, Broadcasters, Multi System Operators, Subscription Revenues

Received: 10 May 2017, Revised 14 June 2017, Accepted 19 June 2017

1. Introduction

Analogue Regime & its Deficiencies: The cable TV sector in India was primarily analogue in nature. The analogue television in India was started with Doordarshan which was administered by the Ministry for Information and Broadcasting (MIB). The first programme was transmitted on September 15th, 1959 in the All India Radio (AIR) building on. There were only seven cities offering

television services until 1975. After six years, Doordarshan (DD henceforth) became as a national broadcaster with DD-1. Public broadcaster Doordarshan started from two channels DD1 and DD News has almost 800 television channels in India. The analogue regime was very popular because several Multi System Operators (MSOs) and Local Cable Operators (LCOs) in the supply chain were mostly small individual local businessmen who could not have enough money to meet the massive capital investments required for setting up the receiving equipment to enable digital transmission.

The analogue regime had several deficiencies. In analogue transmission, it was very difficult to determine how many households (hhs) have subscribed to cable services. The actual number of subscribers was unknown (non addressability) for the broadcasters and Multi System Operators (MSOs). The accurate information about the number of subscribers was available only to the local cable operators (LCOs). As per TRAI guidelines, revenues gathered by cable operators must be shared among stakeholders such as Broadcasters, Multi Service Operator and Local Cable Operators. But local cable operators very often undervalued the amount collected. As a result there was a significant loss for broadcasters in terms of revenue; and to the government in terms of Service Tax and Entertainment Tax collection. Moreover, analogue transmission does not support emerging technologies like high definition (HD) and has restriction on the number of channels that can be carried on the platform. It also does not offer high-quality quality viewing experience to the end user and has restriction on the quantity of channels that can be accepted on the analogue platform. The number of channels accepted on an analogue system is as low as 60-70; of which only 10-12 are of good quality; whereas a digital based system can carry over 1,000 channels (Damodaran, 2012). This channel capacity limitation of the analogue regime; both by way of limitations of analogue as a technology and the ability of these small MSOs and LCOs to make the required capital investments; affected the availability of channels to the end user.

Digital Addressable System in India: A lot of ill of analogue regime is associated with LCOs. LCOs are never meant to be one of beneficiaries of the digitization. The primary motive of implementing digitization was to ensure the transparency in the system so that the under declaration of subscribers by LSOs could be minimized and revenues for the Broadcasters, MSOs and the government can be enhanced. Consumers were never meant to be the primary motive behind implementing digitization (Kapoor, Mittal & Dhiman, 2016). Due to several deficiencies of the analogue regime, strategies were developed for switchover from the analogue cable TV service to digital television in India. Switchover from analogue to digital is expected to reap very rich dividends for the stakeholders such as broadcasters, MSOs, government and consumers. Subscription revenues are expected to increase for the major stakeholders such as broadcasters and MSOs. LCOs used to under report the subscribers numbers for revenue sharing purpose. Digital switchover will move the bargaining power from LCOs to MSOs and broadcasters as they will now have the authentic figure of number of subscribers. MSOs or the wholesalers of signals will have better control over their respective local cable operators (LCOs), they will also be able to negotiate better revenue sharing with them. The source of the revenue for the government in terms of entertainment and service tax is also expected to enhance due to more transparency in the digital transmission. The consumer will also reap rich dividends because of better sound quality, video quality, larger access to channels, and subscription to high definition channels. The MIB set the deadline for finishing the switchover by December 2013 (Bhat, 2012). In October, 2011 the Union cabinet approves the Ordinance on digitisation setting December 2014 as the sunset data for analogue cable across India. The Ordinance receives parliament nod and India's journey toward digitisation begins (TRAI, 2013).

Industry Opinion on Expected Outcome of Digital Television:

The industry research estimates an enhance in the subscription revenues of stakeholders and end of under declaration in addition to better audio/video quality and more transparency in the system with the emergence of digital switchover. Table 1 makes a comparison of pre and post digitisation scenario. The subscription revenues collected by the cable TV operators from an estimated 90 million (cable only) households (HHs) is 162 billion. Under declaration of subscriber is up to 85 %. This leaves LCOs with largest share of subscription revenues amounting to 138 billion. MSO take only 24 billion and give almost everything i.e. Rs 23 billion to broadcasters.

Now if we turn to post digitalisation scenario (Table 2) the estimated revenue for MSOs and broadcasters (cable contribution only) is Rs. 58 billion and Rs. 68 billion respectively which is a very good business for them. It is estimated that all 90 million households have got digitalised and Post Tax Average Revenue per user (ARPU) have increased from Rs. 150 to Rs. 180 per month. Going by TRAIs tariff orders of sharing 35 % Post Tax Average Revenue per user (APRU) with LCOs , their revenues fall by almost 50% to Rs. 68 billion, thus taking care of under declaration.

International Experiences of Digitisation:

The deadline for completing the entire process of digitisation had to face unnecessary delays due to several reasons which will be discussed later in the study. Various countries in the world also had to face challenges while implementing the digital switchover causing unnecessary delays. Table 3 shows the time taken by the countries from legislation till the complete conversion of digitisation

Number of cable TV (HHs) in million (mn)	**90**
Post Tax Average Revenue per user (ARPU)	**150**
Subscription Revenue on the ground (Rs mn)	**162,000**
Under Declaration (%)	**85**
Under Declared revenue (Rs mn) or LCOs revenue	**137,700**
MSO Revenues (Rs mn)	**24,300**
Broadcasters Share (Rs mn)	**23,000**

Table 1. (Pre- digitisation scenario)

Source: Television Post Research, 2014.

Number of cable TV (HHs) in million (mn)	**90**
Post Tax Average Revenue per user (ARPU)	**180**
Subscription Revenue on the ground (Rs mn)	**194,400**
Under Declaration (%)	**0**
LCOs revenue @ 35 % of on – ground revenue (Rs mn)	**68,040**
MSO Revenues @ 30 % of on – ground revenue (Rs mn)	**58,320**
Broadcasters Share @ 35 % of on – ground revenue (Rs mn)	**68,040**

Table 2. Post - digitisation scenario

Source: Television post Research

Market	**Legislation**	**Launch**	**Complete Conversion**
Brazil	2002	2006	Not determined
China	2000	2003	2015
Hong Kong	2000, 2004	2001	2012
Germany	2002	2003	2010
Japan	1998	2000	2011
Korea	2000	2001	2010
Taiwan	1998	2002	2008
U.K.	1999	1998	2006-12
U.S.	1996	1998	2009

Table 3. Time Table for digital switchover across different countries

Source: TRAI, (2005)

European Context: Kleinsteuber (2011) conducted a research for investigating the digital swtichover in Germany. The study concludes that cable is the largely used supply system in Germany, reaching about 51% of all households. The analogue transmission offers about 36 channels, but digitalization has the capacity to carry large number of channels. Wagner & Grunwald (2003) confirms that the first jurisdiction to switch off the analogue transmission in August 2003 was Berlin. The digital switchover process was supported by advertising campaign, of less than •1.2 million. The low-income family groups were also included in the right to use the television, for achieving this target the government approved the budget of •1 million as subsidy and provided the welfare benefits for such family groups by paying for Set Top Boxes (STBs). Krstic (2014) examines the development of the digital switchover in Serbia. The time span taken is from 2006 to 2014. The study suggests that the lack of consumer awareness has created barriers for making the switchover successful. Rozgonyi & Lengyel (2010) studies the accomplishments and challenges from digital switchover in Hungary. The digital switchover in Hungary took place in March 2007. The study concludes that majority of the accomplishment of digital switchover was attained with the help of telecom regulatory framework. The study recommends that better support is required from all stakeholders involved in digital switchover in order to make this entire process a big success.

Asian Context: Ko, Chang, & Chu (2011) studies the current situation of digital TV in Taiwan. The study concludes that high definition (HD), digital video recording, and the electronic programme guide are the three largely essential features of digital Television in Taiwan. In the academic literature some studies are also found which suggests that the process of switchover was successfully completed as scheduled without any challenges. A study conducted in Japan by Kumabe (2010 & 2012) suggests that digital switchover was completed as scheduled without any major challenge. The government played a crucial role by increasing the subsidies to encourage the diffusion of digital television. The government identified low income groups and decided to provide free of charge STBs to about 2.6 million such family groups. The government also bring in various support programmes to encourage switchover. Some studies also focussed on the importance of educating and making the consumers aware about the digital switchover. Xing, W; Hanhui, H; Chong, W (2009 analysed digital switchover in China and suggests that in the initial phases of digital TV, spreading awareness among consumers with a convenient and pleasant experience is very important.

African Context: Ihechu & Uche (2012); Balarabe (2013) conducted a study in Nigeria and suggests that many benefits have been recognized with the evolution digital technology. It has been ascertained that digital TV offers clearer picture and sound. It also enables multiple channel reception. Moreover the signals are also less prone to distortion. The gains are countless. However, the digitization process is also accompanied with certain challenges. The one big challenge is that the majority of households are not all aware of what this process of switchover is all about. The study recommends that if the policies are consistently followed; if governments support by the way of funding and subsidy to low income families, then the road to the digitization shall be smooth. In addition, awareness creation among the masses shall speed up the process.

Australia: Balnaves, Walsh & Varan (2004) provide an overview of transmission of digital television and the strategies of broadcasters in Australia. The study suggests that no doubt digitisation is associated with larger gains in the Australian television market. But in Australia there is no clear strategy. Australia is out-of-step in strategic terms. Given (2012) studies digital switchover in Australia and confirms that 82 per cent of Australia's 8.3 million TV households had converted their main TV set to digital by the end of September 2011, including the areas where switchover has already occurred.

USA: Hart (2010) studies the switchover and the delays in USA. The study confirms that all digital transitions are difficult but the US transition was successful. The newly elected Obama administration decided to delay the analogue switch off from 17 February to 12 June 2009 because of the under-funding of a programme and to provide coupons for analogue-digital converter boxes to those still dependent on over-the-air broadcasts. The study also identified several factors like the willingness and ability of consumers to purchase digital receivers or converter boxes or to subscribe to cable and satellite services towards the success of digitisation.

New Zealand: Norris (2013) studied the advancement of the transition from 2006 to analogue switch-off that began in 2012 and is to be completed by the end of 2013.The study also highlighted on the role of the government for completing the digital switchover. The government ensured formulating startegies for braodcasters so that customers can be motivated to switch from analogue to digital. The New Zealand strategy was to introduce new channels to encourage viewers to switch to digital.

Significance of the study: From the above discussion it is quite clear that digital switchover across various countries in the

world has started reaping dividends in terms of rich consumer experience. However several challenges were faced by number of countries causing delays. The government being a key stakeholder has to play a critical role in terms of educating the consumers and providing subsidy to low income families. Digital switchover in India is also expected to reap rich dividends for the stakeholders involved. The post-digitisation era as suggested by literature will ensure bargaining power for LCOs to get weaken, as: (a) the regime leads to a more transparent system wherein the actual subscriber base is disclosed leading to proper declaration of service tax and entertainment tax thereby leading to enhancement of government revenue. In the present study the interconnections between various stakeholders of the industry are studied. Since digital television is still a new concept in India and researcher could not come across any such study, hence it becomes really important to study how digital switchover in India has influenced the stakeholders' subscription revenues such as broadcasters and MSOs in India. The international experience of various countries as discussed indicates that even in the most developed countries there have been a few cities that have been able to convert 100% to digitalisation. So there must be certain issues between the stakeholders involved for unnecessary delay. Broadcasters, MSOs, LCOs, Government and consumers are the stakeholders involved in the digital switchover in India. Our study takes in to account broadcasters, MSOs and government as key stakeholders. The present study will also highlight the key challenges faced in the roadmap of digitisation.

Theoretical Framework:

Switchover from analogue to digital can be seen as result of the advancement in technology. The important stakeholders must to be addressed during evolution of any technology advancement in the industry. Stakeholders involved play a very significant role towards the successful implementation of any technological advancement or change. So the theoretical framework of the present study is laid on the foundation of various stakeholders involved.

Stakeholder Theory: E. Freeman (1984) introduced the concept of stakeholder. According to Freeman "any group or individual who can affect or is affected by the achievement of a corporation's purpose" is a stakeholder. The primary purpose behind the formulation of stakeholder theory is to understand the needs and concerns of various groups in order to improve the survival of companies the in the highly competitive global market. Donaldson and Preston (1995) confirmed that the relationships among various stakeholders play an important role towards the success or failure. So the relationships always need to be properly managed and all the issues rose by the stakeholders must be addressed in an effective manner. The companies must prioritise the stakeholders in terms of their significance in the decision making process. Every stakeholder can influence towards the success or failure of the firm. Second, it is assumed that the organisations are run by top corporate managers as they have the authority to make the strategic decisions for the welfare of the organisation (Jones,1995). Hult et al. (2011) classifies six primary stakeholder groups namely customers, employees, suppliers, shareholders, policy makers, and community.

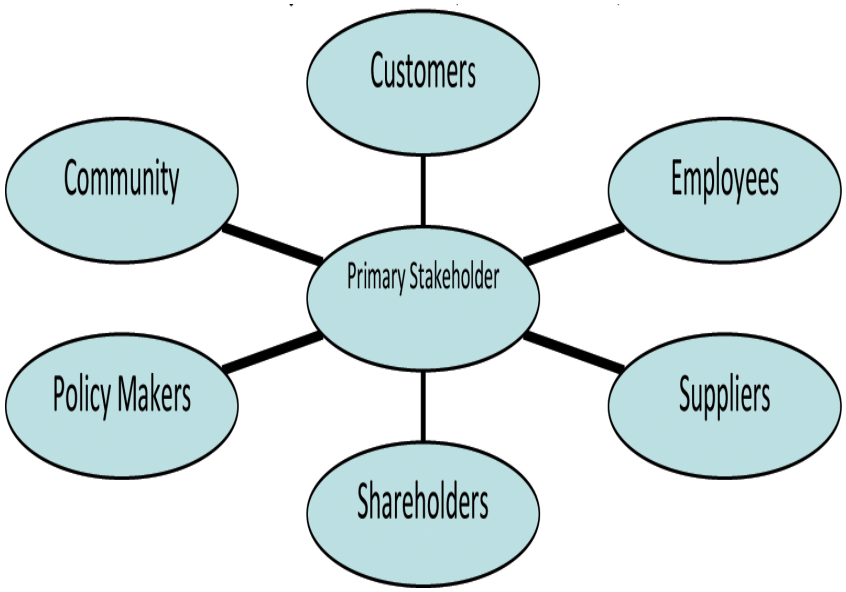

Figure 1. Primary Stakeholders (Hult et al. 2011)

Primary stakeholders can be defined as groups on which the success or failure of a firm depends. Primary stakeholders because of the interconnected relationships that create options, decisions, and the assessment of their demands are more critical in terms of the uninterrupted survival for the firm. While acquisition of resources a firm has to deal with number of stakeholders. Customers supply the firm with revenues, employees with labor, suppliers with essential inputs such as raw materials , shareholders with necessary finance, communities with natural resources, and regulators with funds and and access to markets(Porter, 2008; Day and Fahey, 1988; Porter and Cramer, 2006; Bimbaum, 1985). In the present study the primary stakeholders viz Broadcasters and Multi System Operators (MSOs) are selected as key stakeholders .

Objectives of the Study:
From the above discussion the following research objectives are formulated for this study.

1. To study the evolution of Digital Addressable System in India and its current status.

2. To study the effect of Digital Addressable System (DAS)–I & II on the select stake holders in pre and post- digitisation scenario.

3. To highlight the major challenges faced by the industry during implementation of DAS.

Research Questions

1. Why and when the concept of Digital Addressable System was introduced?

2. Who are the key stakeholders of the Entertainment industry?

3. How the stakeholders are going to be benefited from the implementation of DAS in India?

4. What are the challenges faced towards successful implementation of DAS-I &II?

5. What is the current status of DAS-I & II implementation?

6. What are the changes that DAS brought out to improve the position of stakeholders of the industry?

Research Methods:
The study is both exploratory and descriptive in nature. The one of the important prerequisite for the analysis part of the study is the availability of the consistent and easily assessible database. The secondary data is collected from various published sources of Government agencies such as TRAI, MIB, Annual Reports of Ambit Capital, KPMG, FICCI, ASSOCHAM, ICICI Securities, HSBC Global Research. The data of major broadcasters such as Star India and ZEE Entertainment are obtained from their respective websites. Similarly dataset of major MSOs such as Hathway, Den Networks, Siti cable are obtained from their websites. The subscription revenues of Broadcasters and MSOs will be taken in to account for pre and post digitisation periods. CAGR will also be calculated for subscription revenues.

The source of revenues collected by the government in terms of Entertainment tax is collected for pre and post digitisation periods. Entertainment tax data of the cable industry has been obtained from the MIB (DAS Section) for select 23 cities. The data for rest of the cities is unpublished. However data on the service tax is not available in any published form. An RTI was filled wide reference no 311842/2016-RTI cell dated 18th November, 2016 to get this data from relevant government authority. The CPIO shown their inability about the required data as per revert of the RTI dated 7th December, 2016. Hence it is not possible to make any comparison with pre and post digitisation data and come to any conclusion

Period of Analysis:
The study has been divided in to two parts a) Pre-digitisation scenario b) Post digitisation scenario. For DAS-I the pre digitisation period taken is FY 2011-12 and post digitisation period is FY 2014-15. Similarly for Das-II pre digitisation period is FY 2012-13 and post digitisation period is FY 2015-16 (see table 4)

Sampling Design:
The Present makes an attempt to study the key stakeholders involved in the digital switchover. Broadcasters, MSOs, LCOs, Government and Consumers are the stakeholders involved in the digital switchover in India. Our study takes in to account only broadcasters MSOs and Government as key stakeholders. The remaining stakeholders are not considered due to unavailability of data.

	Pre Digitisation Period	Sunset Date	Digitisation Period Period	Post digitisation
DAS-I	FY 2011-12	October, 2012	FY 2012-13FY 2013-14	FY 2014-15
DAS-II	FY 2012-13	January, 2014	FY 2013-14FY 2014-15	FY 2015-16

Table 4

Broadcaster: Star India Private Limited and ZEE Entertainment Enterprises Limited are selected as sample from the broadcaster. Because their data is available and they account for 50-55 per cent of the subscription revenue for the industry. Viacom and Sony are not listed hence data is not available and are excluded. Sun TV is based primarily in Tamil Nadu where digitization has not happened. Therefore Sun TV has not been considered for the study.

Multi System Operators (MSOs): Hathway Cable & Datacom Limited, Den Network Limited, Wire & Wireless India Ltd. (Siti Cable) and Indusind Media & Communication Limited are the only national level MSOs today accounting for over 60 per cent of the industry revenues and their data is also available. All other MSOs are not listed and data is not available therefore excluded from the scope of the design.

Evolution of Digital Addressable System:

Turnbull provides various definitions for "Evolution". According to him "Evolution is survival of the fittest". "Evolution is finding the best design to fit the environment". "Evolution is taking risks and being prepared to discard failures" (Turnbull, 2004). Cable television came into existence in India in 1983 when Doordarshan started its services on cable networks in rural areas of Rajasthan. In 1989 few entrepreneurs setup small Cable TV Networks and started local video channels showing movies & music videos after obtaining rights from film & music distributors. In 1962, India had 41 TV households (hhs). In 1993, 12 million rural hhs had TV. By 2013 the figure had climbed to 89.6 million. In 1993, 28 million urban hhs had television, by 2013 the figure was 77.7 million. Rural India has overtaken urban India in TV ownership. With the passage of time and expansion of analogue transmission the bargaining power of local cable operators also increased. LCOs were used to under report the subscriber base which in turn affected the revenue shares of other stakeholders such as broadcasters and multi system operators. The transparency in the entire system was lacking. In addition to it viewing experience was also not enjoyable on the part of the end user. These deficiencies of the analogue transmission showed the way to go digital. Digital' is the new buzzword in the entertainment and media (E&M) industry. Digitization is seen as a primary growth driver, which offers a number of advantages as compared to analogue transmission. These include better audio/video quality, larger channel-carrying capacity, new features such as programme guides etc.(Bhat, 2012).The concept of digitisation was laid in the form of Conditional Access System (CAS) in 2003. The Government of India has embarked an determined exercise to digitize its cable network in four phases, leading to a complete switch off of analogue TV services by 31 December 2016 (Economic Survey, 2015-16).

Different Phases of Digitisation and Status:

The Government of India divided the entire process of digitisation in to four phases. The phase-I targeted four metros- Mumbai, Delhi, Kolkata, Chennai. The deadline for the phase- I was October, 2012. The second phase of digitisation targeted to cover 38 cities having population of more than one million and the actual implementation date decided was January 01, 2014 which later on was extended to March, 2013. Phase I of digitization was completed by 31st October, 2012. Out of the four metro cities planned to be digital, digitization has been near total in Delhi, Mumbai and Kolkata. Chennai is yet to undergo the digital transition due to several pending Court cases. About 85 lakh cable STBs have been installed in Phase I cities. Maximum number of 34 lakh STBs were installed in Delhi, followed by 26 lakh in Mumbai, 22 lakh in Kolkata and 3.5 lakh in Chennai. Phase II was concluded by 31st March, 2013 in 38 cities spanning across 14 States and one Union Territory. Switch over is complete in 36 cities while in 2 cities the work is in progress. 3 crores STBs have already been installed. The additional time was provided by the government for the manufacturing of set top boxes and MSOs registration. While analogue signals have been discontinued in Mumbai, Delhi and Kolkata; migration to digital cable has remained voluntary in Chennai as Arasu Cable TV Corporation Limited, the largest cable operator in Chennai awaits the DAS (digital addressable system) license. Also, certain markets like Hyderabad and Coimbatore from Phase II are yet to report complete digitization on account of local issues. More than 95 percent of digitisation has taken place in phase-II. Different phases framed by the government are as follows in Table 5.

Phase	Area	Analogue Subscriber Base*	Digitized Subscriber Base*	Regulatory Direction for Analogue Shutdown	Actual Implementation Date	Status
Phase –I	4 metros – Mumbai, Delhi, Kolkata, Chennai	1 million	12 million	June 30, 2012	Oct 31, 2012(Delhi and Mumbai);**15 Feb 2013 (Kolkata)**	100% Complete**(Except Chennai)**
Phase –II	38 cities with population > 1mn	1 million	22 million	March 31, 2013	Jan 01, 2014	Almost complete except for certain cities in Andhra Pradesh
Phase –III	All other urban areas across India with a municipality	14-16 million	16-18 million	Sep 30, 2014	Dec 31, 2015 (Planned)	Completed
Phase –IV	Rest of India	54 million	19 million	Dec 31, 2014	Dec 31, 2016 (Planned)	Voluntary digitization taking place

Table 5. Different Phases of Digitisation

Stakeholders' Involved in the Digital TV:

Broadcaster: "Broadcaster" means any person including an individual, group of persons, public or body corporate, firm or any organization or body who or which is providing programming services and includes his or her authorized distribution agencies **(**Telecom Regulatory Authority of India). Star India Private Limited and ZEE Entertainment Enterprises Limited are the major broadcasters operating in India. Both of them account for 50-55 per cent of the subscription revenue for the industry.

a) Star India Private Limited: The first broadcaster to effectively broadcast in India was the STAR (Satellite Television Asian Region) Network in 1990s, owned by Li Ka-Shing from Hongkong. Within six months of its launch, STAR set up India to be its largest market. Star India is a completely owned subsidiary of 21st Century Fox. STAR's channel portfolio includes Star Gold, Channel V, Star World, Star Movies, Star Utsav, Life OK, Movies OK and Star Plus, India's No. 1 Hindi General Entertainment Channel. It has a leading presence in regional broadcasting as well, through a bouquet of affiliate channels which includes Star Jalsha, Jalsha Movies, Star Pravah, Asianet, Asianet Plus, Suvarna, Suvarna Plus and Vijay. Star's sports business has grown swiftly to 8 channel properties (Star Sports 1, 2, 3, 4 and Star Sports High Definition HD1, HD2, HD3 and HD4), making it the top sports network in the country.

b) Zee Entertainment Enterprises Limited (ZEE): ZEE is India's biggest vertically integrated media and entertainment company. The Company was shaped in 1982. ZEE was the first private company to commence a satellite channel in India. Today ZEE operates many channels across manifold geographies in different languages. The Company has 33 domestic channels that provide the widest collection of content in India and is the top broadcaster across the country. ZEE is also the pioneer in the international markets with 36 dedicated channels serving Indian content across 169 countries.

Multi System Operator: The MSO aggregates the signals acquire from diverse broadcasters and supply these aggregated signals to cable TV operators either themselves or through their franchisees. Hathway Cable & Datacom Limited, Den Network Limited, Wire & Wireless India Ltd. (Siti Cable) and Indusind Media & Communication Limited are the only national level MSOs today accounting for over 60 per cent of the industry revenues and their data is also available.

a) Hathway Cable and Datacom Ltd.: The Company's business operates across major Indian geographies and supply cable television services across 140 cities.

b) Wire & Wireless Indian Ltd (Siti Cable Network Ltd): SITI Cable Network Limited also known as Wire and Wireless (India) Ltd is part of the Essel Group, which is one of India's foremost business houses in media and entertainment industry **c) DEN Network Ltd.:** DEN Networks is one of India's biggest cable TV distribution company serving 13 million homes in more than 200 cities.

d) IndusInd Media & Communications Ltd. (IMCL): IN Cablenet is classified amongst the 10 largest Multi Systems Operators in the world in terms of number of subscribers. In Cablenet is part of the media division in Hinduja Group called Indus Ind Media & Communications Ltd. (IMCL).Figure 2 indicates that Hathway has been the leader in terms of market share and then followed by DEN Networks in installing the set top boxes in the phase I & II.

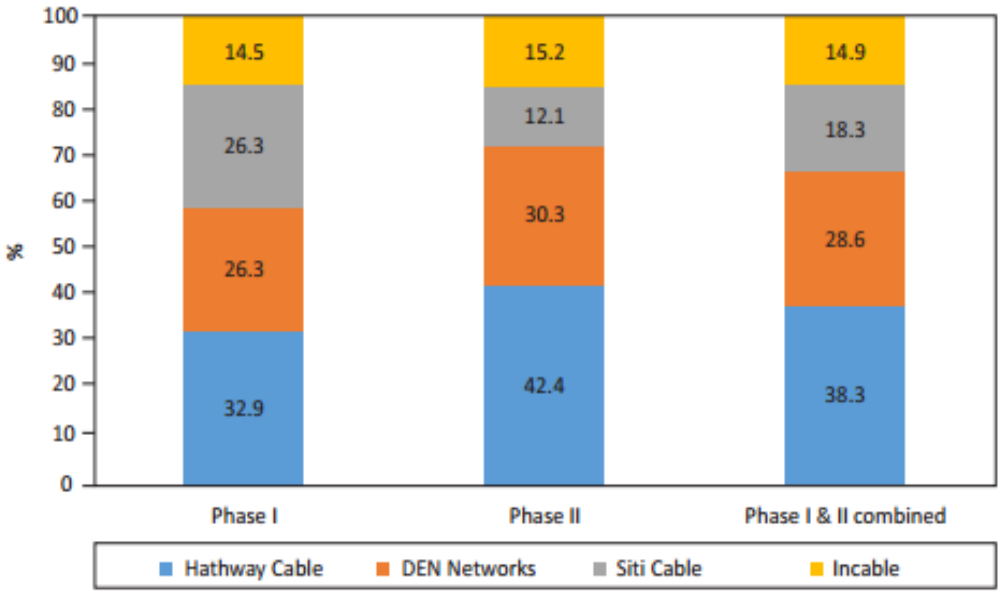

Figure 2. Market Share among top four MSOs during phase I & II

Source: Television Post Research

Subscription Revenues of Broadcasters & MSOs in Pre & Post Digitization Scenario:
ZEEL and STAR, the two dominant broadcasters under study have not published any subscription data and growth performance with respect to DAS-I and DAS-II. Therefore it is not possible to access the impact of these two digitisation phases separately. Accordingly the interpretation of the above data will consider DAS-I and Das-II together on a consolidated basis.

From the below data it is clear that during the FY 2011-12, FY 2012-13 both the companies experienced a significant growth in subscription revenues and which sustained in FY 2013-14. This can be largely attributed to the advent of digitisation. This was also expected as transparency set in and a more accurate declaration of STBs took place.

In the case of ZEEL, after three years of sustained good subscription revenue growth there was a plateau in FY 2014-15. This was due to the earlier high growth rates. As can be seen from the data the subscription revenues grew 55 % from FY 2011-12 to 2015-16.

In the case of STAR subscription revenues doubled between FY 2011-12 and FY 2014-15. FY 2015-16 data is not available; but looking at the trend it is reasonable to assume that growth would have been atleast 25%. The relatively low growth of 8% in FY 2014-15 is on account of very high annual compounded growth of over 35% in the earlier three years.

ZEE Entertainment Enterprises Ltd					
	FY 2015-16	**FY 2014-15**	**FY 2013-14**	**FY 2012-13**	**FY 2011-12**
Subscription Revenue	20579	17935	18,022	16,235	13,251
% growth over the previous year	15	0	11	23	18
M/s Star India Private Limited					
Subscription Revenue	NA	26095	24180	18381	13082
% growth over the previous year		8	32	41	39

Table 6. Subscriptions Revenue of Selected Broadcasters *(In Rs. Millions)*

Subscriptions Revenue of Selected MSOs

For interpreting the above data we should consider Hathway, DEN and Siti Cable together and IMCL separately. This is so because over the last four to five years Hathway, DEN and Siti cable have been able to manage their business well, bring in the required funds and leverage the benefits of digitisation. This is reflecting in their subscription revenue performance. However IMCL has been beset with management problems and financial constraints. Consequently IMCL has seen a decline in its market standing and competitiveness. This has resulted in them not being able to leverage the digitisation opportunity. Therefore the revenue has not grown. Increasingly, despite still being a relatively large MSO it is seen an erosion in its claim to be national level MSO.

Now coming to Hathway, DEN and Siti Cable. All three MSOs have shown robust compounded annual revenue growth rates from the years 2012-13 to 2015-16. Over these four years all three MSOs have shown strong revenue growth in atleast three of the years. One year has been somewhat lean. Which is fine considering that in the first two years of digitisation there was steep growth, after which a slight dip in the growth is understandable because the market can take only so much growth. If one looks at the revenue figures in FY 2011-12 and compares them with those of FY 2015-16 one sees that the revenue has doubled or tripled. This clearly shows that atleast from the revenue perspective the MSOs have reaped benefits of digitisation.

Government

The Government of India has claimed that preliminary data shows that central and state governments have gained considerably because of digitization of cable television, as transparency through digital switchover has led to add in tax collections. Economic Survey for 2015-16 has not provided any figures specifically relating to increase in revenues because of digitization. But it is said that digitization achieved would lead to a fresh period in broadcasting, as it would improve the viewing experience of the end user due to better sound and video quality and also upgrade the service, the survey said.

The primary benefits that were supposed to accure to the government through digitisation and resultant full declaration of subscribers, were increase in revenue from entertainment tax and service tax. Entertainment tax data of the cable industry has been obtained from the government published records as given in the charts below for select 23 cities. The data for remaining cities is unpublished. It is clearly evident that there has been surge in the entertainment tax collection in these cities subsequent to digitisation.

However data on the service tax is not available in any published form. An RTI was filled wide reference no 311842/2016-RTI cell dated 18th November, 2016 to get this data from relevant government authority. The CPIO shown their inability about the required data as per revert of the RTI dated 7th December, 2016. Hence it is not possible to make any comparison with pre and post digitisation data and come to any conclusion.

It is quite clear from the above data that there have been 2 to 3 times increase in the Entertainment tax collection from Pre to post

	FY 2015-16	FY 2014-15	FY 2013-14	FY 2012-13	FY 2011-12
DEN Network Limited					
Subscription Revenue	11444	9435	9366	7260	4523
% growth over the previous year	21	1	29	61	28
Hathway Cable & Datacom Ltd.					
Subscription Revenue	11933	10381	9881	6680	5287
% growth over the previous year	15	5	48	26	7
Wire & Wireless India Ltd (Siti Cable					
Subscription Revenue	8958	6133	5166	4293	2664
% growth over the previous year	46	19	20	61	17
M/s Indusind Media & Communication Limited					
Subscription Revenue	NA	4819	5725	5476	4245
% growth over the previous year		-16	5	29	15

Table 7. Subscriptions Revenue of Selected MSOs *(In Rs. Millions)*

DAS implementation. Among the cities for which data has been provided, Pune-Pimpri Chinchwad, Kolkata and Thane-Navi Mumbai-Kalyan Dombivali saw a huge jump in entertainment tax collections from cable TV. The combined entertainment tax collection from Thane-Navi Mumbai-Kalyan Dombivali jumped to Rs 21.31 crore (Rs 213.1 million) in FY15 from a meagre Rs 1.11 crore (Rs 11.1 million) a year ago. Similarly, the collection from Pune and Pimpri Chinchwad jumped to 22.17 crore (Rs 221.7 million) in FY15 from Rs 4.40 crore (Rs 44 million). In Kolkata, entertainment tax more than doubled to Rs 28.48 crore (Rs 284.8 million) in FY15 from Rs 11.99 crore (Rs 119.9 million) a year ago.

Due to transparency in subscriber base in the digital system, as shown below the received data of the reported number of cable connection, thereby entertainment collection by State Governments is showing increase. Table depicts Entertainment Tax collection by Delhi in Phase 1. In August- 12 ET collection was 55.89 lakhs, thereafter an increase has been found in the subsequent months and reaches 215.1 lakhs in the month of March-13 and 224 lakhs for August-13. Table 8 depicts the Entertainment Tax collection by Kanpur in Phase II, which also indicates the entertainment tax collection has been increasing due to more transparency achieved in the subscriber base. In FY16, entertainment tax collection in eight states Bihar, Gujarat, Karnataka, Maharashtra, Mizoram, Rajasthan, Uttar Pradesh and Uttarakhand increased to Rs 358.28 crore as compared to Rs 284.63 crore in the previous financial year. The growth is almost 128.04% when compared with Rs 157.11 crore in FY2013.

Challenges in the Digitization Roadmap:

Digitization of television in India is also connected to several challenges among the stakeholders. India's experience of digitisation hasn't been all bright. Some cities are unable to digitize due to several political reasons. Key markets such as Chennai, Coimbatore and Hyderabad continue to observe unnecessary delays in the digital switchover. Chennai was to be digitised in November 2012, while Coimbatore and Hyderabad in April 2013. These cities are still receiving analogue signals due to local political factors. Various socio-political factors such as (a) the aspiration of local MSOs to remain important part (b) the role of the state government to have power over the broadcasting contributed towards these unnecessary delays. As per the Indian television report,

Entertainment Tax Collections (in Rs lakhs)			
Cities	**Pre DAS**	**Post DAS**	
	FY 2012-13	**FY 2013-14**	**FY 2014-15**
Kolkata	233.90	1199.43	2848
Patna	5.92	75.96	207.62
Bengaluru	199.03	462.56	937.43
Mysuru	21.15	30.04	67.07
Visakhapatnam	24.62	31.57	74.93
Pune & Pimri Chinchwad	454.25	440.99	2216.98
Thane, Navi Mumbai & Kalyan Dombivali	1306.16	110.76	2131.36
Nashik	209.22	363.85	661.20
Aurangabad	256.73	374	442.95
Agra	217.97	313.17	459.87
Allahabad	139.99	221.64	326.83
Ghaziabad	530.64	643.58	1026.43
Kanpur	478.80	915.34	1324.09
Lucknow	483.22	638	902
Varaansi	152.71	210.52	422.01
Bihar	19.16	18.61	238.44
Gujarat	796.63	899.31	993.64
Karnataka	238.88	528.59	1047.49
Maharashtra	7525.03	7146.68	10545.96
Mizoram	43.82	48.17	97.83
Rajasthan	NA	1389	5145
Uttar Pradesh	4775.08	5979.33	7869.06
Uttarakhand	2312.5	2341.87	2525.74

Table 8. Entertainment Tax Collection

Source: Entertainment Tax Department and Television Post Research (2016; 2017)

2015, More than hundred cases so far have been filed in the court on the subject of analogue switch off in Chennai. The MSOs desire to seed STBs, but they are unable to do so till the final verdict of the court. As per interview published of one MSO from Chennai, there are near to 30-35 lakh cable Television homes in Chennai but as of now only five lakh have been digitised. There are six MSOs operating in Chennai and they have changed only 10 per cent of their consumers to digital Televisions. Another challenge which MSOs are facing in Chennai is that of pay TV channels are free of cost available to Arasu Cable while the remaining operators are paying for it. About 33 pay channels are available to Arasu Cable for free, but all remaining MSOs have

to pay for those 33 channels which is a big hurdle in the path to digitisation. Such socio-political factors have spoiled the smooth implementation of digital television and hence provided big setback to the entertainment and media industry.

The state of Coimbatore, which falls under phase II, is no better. As of now Coimbatore has not witnessed digital switchover. To make digital switchover a big success and to be termed as a success, all cable households in Chennai and Coimbatore need to be digitised which is possible only after the court gives its final judgment on the state owned Arasu Cable. If the I&B Ministry really wants its vision for cable TV digitisation to get complete within the stipulated time period, it will have to speed up the case. In addition to this the government should set up a digitisation transition fund, which helps educate, train and provide seed capital to and rewards cable TV operators who walk that path. If the I&B Ministry in reality wants cable TV digitisation to get complete within the predetermined time period, it will have to fast track the case digital switchover support fund which could spread awareness and rewards stakeholders who are the part of making the switchover a success**.**

Conclusion

The digital switchover in India has been successfully achieved in major cities as analogue signals are switched off in phase 1 and phase 2, however some cities such as Chennai and Coimbatore are still awaiting the complete switchover. The better part of DAS apart from the challenges is the fact that more than 95 per cent of the homes in Phase 1 and Phase 2 of the digitisation have a set top box which is an accomplishment. The most unhappy among various stakeholders of digital switchover are the broadcasters and MSOs as their subscription revenues are still to be seen a significant rise. Socio-political factors have caused unnecessary delays in Chennai and Coimbatore and have spoiled the smooth implementation of digital television. This as a result has provided big setback to the entertainment and media industry. The industry have a chance to gain knowledge from the faults of phase I and II and must put better scheme and processes in place so that the stakeholders get fair share. TRAI also suggested that complete mistrust between MSOs and LCOs is one of the biggest reasons for the stumbling pace of digital switchover. The role of government is also crucial and should set up a digital switchover support fund which could spread awareness and rewards stakeholders who are the part of making the switchover a success.

Limitations of the Study

Local Cable Operators (LCOs) and Consumers are not included in the study. A lot of ill of analogue regime is associated with LCOs. LCOs are never meant to be one of beneficiaries of the digitization. Moreover LCOs are not listed and data is not available. Therefore LCOs are not included in the study. The primary motive of implementing digitization was to ensure the transparency in the system so that the under declaration of subscribers by LSOs could be minimized and revenues for the Broadcasters, MSOs and the government can be enhanced. Consumers were never meant to be the primary motive behind implementing digitization. So the researcher could not study each and every stakeholder of the industry. Future researchers are encouraged to carry out their research by including consumer and LCOs as an important stakeholder towards digitization**.**

References

[1] AbuKhalief, A. N. (2013). The Antecedents Affecting Employee Engagement and Organizational Performance. *Asian Social Science*, 9 (7) 41-46.

[2] Adda, J., Ottaviani, M. (2005). The Transition to Digital Television. *Economic Policy*, 159-209.

[3] Bakker, A. B. (2012). Work Engagement Performance and Active Learning: The Role of Conscientiousness. *Journal of Vocational Behavior*, 80, 555-564.

[4] Balarabe, S. (2013). Digitization of Television Broadcasting in Nigeria: Review. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering* , 2767-2771.

[5] Balnaves, M., Wlash, L., Varan, D. (2004). Digital Television (DTV): An Overview of Developments in Australia, UA and the UK *ANZCA 04 Conference, Sydney, July 2004* (p. 1-9). Sydney.

[6] Bhat, R. (2012). Television in India: The starting point for digital switchover. *International Journal of Digital Television* , 73-83.

[7] Bowler, P. (1975). The Changing Meaning of "Evolution". *Journal of the History of Ideas* , 36 (1) 95-114.

[8] Buyucek, N., Kubacki, K., Thiele, S., Pang, B. (2016). A systematic review of stakeholder involvement in social marketing interventions. *Australasian Marketing Journal* , 24, 8-19.

[9] Chuang, C.J. (2010). An Analysis of the Cable TV Digitization Policy in Taiwan. *Mathematics and Computers in Contemporary Science* , 227-232.

[10] Clarkson, M. (1995). A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of Management Review* , 20 (1) 92-117.

[11] Damodaran, S. (2012). The Indian television broadcasting industry 2012. *Emerald Emerging Markets*, 1-13.

[12] Donaldson, T., Preston, E. (1995). The stakeholder theory of the corporation: concepts, evidence, and implications. *Acad. Manage. Review* , 20 (1) 65-91.

[13] Eesley, C., Lenox, M. J. (2006). Firm responses to secondary stakeholder action. *Strategic Management Journal* , 27 (8) 765-781.

[14] FICCI and KPMG (2015). *The Future : now streaming.* KPMG-FICCI.

[15] Freeman, R. (1984). *Strategic management: A stakeholder.* Marshfield: Pitman Publishing Inc.

[16] Frooman, J. (1999). Stakeholder influence strategies. *Academy of Management Review* , 24 (2) 191-205.

[17] Hart, J. (2010). The Transition to Digital Television in the United States: The Endgame. *International Journal of Digital Television* , 1 (1) 7-29.

[18] Hult, G., Meena, J. A., Ferrell, O. C., & Ferell, L. (2011). Stakeholder marketing: a definition and conceptual framework. *Academy of Marketing Science*, 1, 44-65.

[19] ICICI Securities. (2016). *India Digitisation.* New Delhi.

[20] Ihechu, I., & Uche, U. (2012). The Challenges of Digitization of Broadcasting in Nigeria. *New Media and Mass Communication , 5*, 38-44.

[21] Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review*, 20 (2) 404-437.

[22] Kapoor, A., Mittal, A. Dhiman, R. (2016). Digital Switchover in India: An Overview of Key Stakeholders, Challenges and Likely Impact**.** *Innovation and Sustainable Development*. (p. 142-149).Bloomsbury Publications: India.

[23] Kleinsteuber, H. (2011). Digital television in Germany. *International Journal of Digital Television* , 2 (1), 87-93.

[24] Ko, H., Chang, C., Chu, N. (2011). The positioning and current situation of Taiwan's digital TV. *International Journal of Digital Television , 2* (1), 95-107.

[25] Krtic, A. (2014). Digital switchover in Serbia in a comparative perspective. *International Journal of Digital Television* , 237-253.

[26] Kumabe, N. (2012). DTT switchover accomplished in most areas of Japan. *International Journal of Digital Television* , 3 (1) 85-87.

[27] Kumabe, N. (2010). Preparations for Digital Switchover in Japan: An Update. *International Journal of Digital Television* , 1 (1) 85-87.

[28] Maheshwari, M. (2014). Digitisation of Cable Television in India. *International Journal of Research* , 73-81.

[29] Mitchell, R. K., Agle, B. R., Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review,* 22 (4) 853-886.

[30] Moreno, M., Xu, A. (2014). Innovation during evolution: Document Supply Service digitises library collections. *Interlending & Document Supply,* 42 (1) 1-6.

[31] Norris, P. (2013). The progress to digital in New Zealand. *International Journal of Digital Television* , 4 (1) 21-32.

[32] Ottaviani, J. A. (2004). The Transition to Digital Television. *Digital Television* , 1-45.

[33] Paschal, I. (2012). The Challenges of Digitization of Broadcasting in Nigeria. *New Media and Mass Communication* , 38-44.

[34] Rozgonyi, K., Lengyel, M. (2010). Digital switchover in Hungary: achievements and challenges. *International Journal of Digital Television* , 1 (2) 173-191.

[35] Siwei, H. (2013). Broadcasting and television digitization strategy in China. *International Journal of Digital Television* , 4 (2) 203-213.

[36] Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review , 20* (3) 571-610.

[37] TRAI. (2016, March 15). Retrieved May 11, 2016, from trai.gov.in: http://trai.gov.in/content/Regulation/0_5_ALL.aspx

[38] TRAI. (2005). *Digitalisation of Cable Television* . New Delhi.

[39] TRAI. (2010). *Implementation of Digital Addressable Cable TV Systems in India.* New Delhi: TRAI.

[40] TRAI. (2005). *Recommendations on Digitalisation of Cable Television.* New Delhi: TRAI.

[41] Turnbull, J. (2004). Evolution or Revolution? New roles for Library staff in organisational knowledge management. *ALIA*, 1-4.

[42] Vaagan, R., Wang, Y. (2008). The Development of Digital Television in China and Norway. *Intercultural Communication Studies* , 17 (3) 169-184.

[43] Wagner, C., Grunwald, A. (2003). DTV update: Berlin area completes switch-over by mid 2003. *International Journal of Communications Law and Policy* , 7, 1-2.

[44] Xing, W., Hanhui, H., Chong, W. (2009). A theoretical and empirical study on China's transition to digital TV. *Telecommunications Policy* , 33, 653-663.