Chapter 8
Evaluation of Movie Piracy Using an Integrated Approach of Interpretive Structural Modelling (ISM) and MICMAC Analysis

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2. Dr. (Prof.) Bhama Venkataramani is the founder director of Symbiosis School of Banking and Finance, a constituent unit of Symbiosis International University. She has a vast and varied experience of around 25 years in academics ranging from creation and dissemination of knowledge to administration of educational institutions. Dr. Venkataramani has written several text and reference books on book-keeping and accountancy and got them published to her credit. She has been instrumental in policy making for educational institutions at top management level. Apart from regular academic responsibilities and writing books she has also written several research papers, got them published, and presented at national and international conferences and seminars organized by well reputed organizations like FICCI.

• The present paper is a joint effort of both the authors with equal contribution.

Abstract:
The aim of the paper is to identify the factors which lead to movie piracy and develop a theoretical framework for its prevention. With the growth in movie piracy since the appearance of BitTorrent in 2003, pirated films have become available immediately after official release across the world, while they are not available for authorised viewing abroad until their premieres in each country. This is one of the growing menaces in India and Indian sub-continent where movie is one of the major sources of entertainment. In spite of several efforts made by the Indian film industry in general and Hindi Film Industry, Mumbai in particular to prevent the piracy, the outcome of such efforts is strongly correlated negatively. In this study we have made an effort to identify variables through systematic literature review and understand contextual relationships among these variables using Interpretive Structural Modelling (ISM) and MICMAC analysis. The findings suggest that illiteracy and lack of infrastructure are two important driving variables of piracy.

**Keywords:** Piracy, ISM, MICMAC

1. **Introduction**

Copyright protects the intellectual property from counterfeiters and pirates and protect the interest of the original owner. Copyright industry, across the world, in general and movie industry in particular contributes not only to the revenue generation for its legitimate owners but also protects the workforce engaged in the industry (Lyonski and Durvasula, 2008). Apart from this the government exchequer also earns revenue in the form of entertainment tax.

The gravity and magnitude of movie piracy is very difficult to be assessed in terms of monetary loss to the legitimate players. The main bottleneck is the unavailability of reliable sources and data. There is no authentic record of monetary loss to the film industry and other stakeholders including govt. But this global phenomenon has caused huge loss and damage to legitimate stakeholders across the industry.

The study of movie piracy carried out at six different cities across the state of Maharashtra, western India has revealed some disturbing facts about the intensity of piracy through free downloading of movies from internet and from the distribution channel of pirated CDs available at every corner of the state at a throw away price. The findings of empirical studies on movie piracy suggest that India is the fourth largest movie downloader country across the world. The theft of intellectual property is a serious concern across all over the world. The entertainment industry in general and more specifically Hindi Film Industry located in Mumbai is not an exception to this. The copy right infringement has severely impacted the movie industry both in terms of loss of revenue and in terms of loss of employment opportunities. A two-fold loss to movie industry has become the concern of the state exchequer as the governments in the respective states are also losing their revenue in the form of entertainment tax due to piracy and copyright infringement. Movie piracy is rampant across the world having various forms ranging from camcording during the legitimate movie show at theatres to subscribing pirated CDs to the
easiest and cheapest form of piracy i.e. online downloading movies from unauthorized internet sites to peer to peer (p2p) file sharing. The researchers, through this research paper have attempted to identify factors contributing to online movie piracy. Entertainment is the reflection of trends, current virtues, social struggles and patterns of living in the society (Levin et. al.2007). Culture is the underlying current of a society, which in every era finds its mirror in the form of theatre, folk art and music and the most powerful among all is cinema. Cinema dishes out what the youth wants and what the youth is inspired from. Entertainment in India has shaped up to be an organized industry with a sizeable foreign direct investment, comprising of film industry, music industry and television industry. With bank financing now accessible to the entertainment industry of India, 100% FDI is allowed in the film industry (FICCI, 2010).

India is the home to one of the largest film industries in the world with an average of around thousand movies produced every year. The Indian film industry comprises of Mumbai based Hindi film industry, popularly known as “Bollywood”, along with the film industries of regional languages such as Gujarati, Marathi, Bengali, Tamil, Telugu, Malayalam, Punjabi, Bhojpuri and Nagpuri etc. with the largest viewership and a total workforce of 5 million. The Mumbai film industry is the largest branch of Indian film industry with an annual production of around 250 feature films, while in terms of turnover it has second position just after Hollywood with a total turnover of US$2.85 billion with an expected annual growth rate of 19 percent estimated to reach a turnover of US$5.7 billion according to a report published in 2010 by the Federation of Indian Chambers of Commerce and Industry (FICCI). The report suggests, Mumbai Film Industry loses nearly 50 per cent of its total revenue to movie piracy every year. Another study carried out by Television & Film Producers Guild of India and YES Bank also suggest that the movie piracy has caused severe damage to the Mumbai based Hindi film industry both in terms of loss of revenue and loss of employment as well. The report published at the website www.lumiere.net.nz reveals that nearly nine lakh jobs had been lost in Indian Entertainment Industry out of a total number of five million people to movie piracy by the year 2009. If we study the financial data in terms of entertainment tax revenue to the Government, according to a report published in Entertainment tax in India, mapsofindia.com- the entry tickets to any cinematographic exhibitions have 25-30 per cent entertainment tax, while in another report of FICCI, alone Indian film industry is losing almost 50 per cent of its total revenue to movie piracy every year. This is translated as an average annual loss of entertainment tax at 12.5-15 per cent to the Government (i.e., 50 percent of total entertainment tax at the rate of 25-30 percent per ticket).

**Piracy** is “unauthorized task of creating duplication of an original recording without the approval of the rights owner.” Piracy in general and movie piracy in particular is done by the bootleggers in various forms ranging from producing CDs through camcording during the exhibition of movies at theatres to downloading movies and sharing files with each other without the permission of copyright holders from unauthorized sites using software named Bit Torrent. File sharing is one of the oldest forms of internet piracy and these are created to share each other’s libraries of music, video clips, and other files, according to a report published in 2013 by the “Motion Pictures Association of America” (MPAA).
The problem of piracy is now more widespread with advanced technology, new techniques of printing, recording and fixation of broadcast or recorded programmes. Piracy across the world is an illegal and criminal activity and the person who indulges in piracy is strictly punishable as per the law of the respective land.

We therefore posit following research questions, which will help us to guide our present research:

*RQ1: What are the variables which can lead to movie piracy?*

*RQ2: Can we develop a theoretical framework for movie piracy?*

*RQ3: Can we provide further research directions based on our limitations?*

In order to answer three key questions of our research, we have undertaken research which we presented in various sections and their sub-sections. Our present chapter is organized as follows. In the following section we will review related literature. In the third section, we will discuss research methodology. In the fourth section we have presented our analysis based on our ISM modelling. In the fifth section we have concluded our research findings. In this section we discussed our research limitations followed by further research directions.

2. Literature Review

2.1 Movie Piracy

The research papers, articles, and reports were searched using various combinations of the search terms viz., copyright, intellectual property, movie piracy, p2p file sharing, and the psychological and behavioural pattern of consumers behind movie piracy (Plowman and Goode, 2009). “Online Piracy Act” (SOPA) feels that shutting down websites to counter online movie piracy is not the solution (A report CNN Global News). They stressed on the identification of real culprits. Gross and Dough (2012) in their report argue that to change the mind set of movie subscribers who believe piracy is a painless and victimless crime, is more important. Another report “Overkill on Internet Piracy” suggests that cracking down on websites may also cost dearly to the innocent websites. The logic behind this argument is that websites have no control over the files and materials posted by their users. Therefore this would be injustice with the millions and billions of website users, who do not indulge in any form of piracy (Rubin and Jennifer 2011). A news report published in The Economist, 2011. Gross and Doug 2012 argue that to change the mind set of internet users who perceive piracy as a victimless crime is the only solution to effectively curve the piracy instead of cracking down at websites. Websites do not have full control over the content uploaded by their users. If websites are closed then there are bigger chances that for the mischief of handful internet users, majority of the users are deprived of their right to have access. Both the articles argue that legal framework does have its own lacuna, which may affect the innocent internet users. Instead of
framing country wise laws against online piracy it is advised to frame a uniform code of conduct for all the countries involved in online piracy with mutual consent.

To recognise and protect intellectual property of creators there is a need to ask the websites like Megaupload to stop rewarding illegal uploading of movies (Peter 2012). Not only the piracy alone is responsible to affect the sale of movie tickets at box office, but other factors are also responsible. It is a well-known fact that the licenced CDs/DVDs are costlier than their pirated version, but still they are much cheaper than the cost incurred on watching movies in theatres. (Smith, 2008 and 2011) in his paper argues that significant increase in the sale of DVDs at much cheaper prices and poor quality of services and facilities offered by theatres at a higher price has certainly forced cine goers to shift their orientation from theatres to sitting back at home with better ambience and digitized projection facility. Now people increasingly prefer to watch movies at home with state of the art technology (plasma TV, surround sound system, and all). In another empirical study the contributing factors of online music piracy have been examined. The finding is perhaps not surprising. As Williams et.al. (2010) contends, much online piracy offers the illusion that the act is victimless. It is human tendency to treat its own belongings in a different manner from the property belongs to others. Situational factors also contribute, when someone observes people downloading music and other contents. Similarly personal factors and economic factors also play a significant role, because watching movie online is virtually free of cost coupled with anonymity. Taylor (2012), in his study found that online digital piracy behavioural intentions are positively related to the desire to engage in online piracy behaviors, the desire to engage in online piracy is positively related to frequency, and the intention to engage in online piracy behaviour is also positively related to the frequency of downloading. Several empirical studies conducted around the world suggest that the movie and other content downloader rationalize their behaviour of downloading. Irena et.al. (2012) investigates consumer perceptions of risk and benefits of online piracy and their justification for such behaviour. It has been discussed in details referring to the scholarly written research papers that the people engaged in online piracy do justify their act of downloading files. Such consumers believe that the legal consequences of downloading files from unauthorised websites are far distant, whereas the cost factor is encouraging. Online digital piracy today is a widespread problem that permeates almost all online media including music software and movies. The convenience and anonymity of online movie piracy presents itself as a ‘guilt-free’ and ‘victimless’ crime (Jacobs et. al. 2012) due to the highly decentralised nature of online file sharing using peer-to-peer networks.

2.2 Factors affecting movie piracy

(Williams et. al., 2010) The stark contrast between the behaviour of individuals towards their own property, and other’s property is identified as one of the reasons for the piracy. The general perception of individuals that online movie piracy is a victimless crime and hence nobody suffers from it also prompts people to resort at piracy. There are fewer empirical studies on movie piracy than the other forms viz., music, and software piracy. More importantly the
findings of such studies are ambiguous. The empirical work on movie piracy has predominantly focused on the estimation of impact rather than the reasons and causes (Bagnasco 2010). Smith and Telang (2009) in their empirical study found a steep surge on pirated DVD sales over the period 2002-2003. Their finding suggests the rise of internet and broadband access led to a $1.4 billion increase in DVD sales.

The present paper intends to identify the factors contributing to the online movie piracy of Mumbai based Hindi film industry. “The Motion Pictures Association of America” (MPAA) has identified various forms of movie piracy, viz. camcorder theft, “peer-to-peer” (P2P) theft, optical disc theft, theatrical print theft, screener theft, signal theft, broadcast theft, and illegal public performance (MPAA, 2013). The present paper has been associated with the academic literature on the impact of online file sharing and piracy. Online piracy has become the biggest threat to the movie industry across the world. Several empirical studies conducted all over the world suggest that there is no country with less than 20 percent piracy. Way ago in 2001, the movie industry along with music industry lost hefty amount of its revenue to piracy worth US$10.97 (Haberman, 2003). Peer to peer distribution allows pirated movies reach the subscribers before the official exhibition of movie on theatre screen. This restricts many potential movie watchers from going to theatres. The lost revenue goes to the movie pirates instead of its legitimate stakeholders like the producers and distributors of the movie, theatre owners who buy rights to show the movie on their theatre screen and the govt. exchequer in the form of entertainment tax. Steps taken by the movie industry may be futile (Clark, 2000).

This would be injustice with the millions and billions of users of social media sites like Facebook and twitter, who could get affected just for the mischief done by a handful people (Rubin and Jennifer, 2011). The legal framework does have its own lacuna. Till date no law has been framed to be fully effective. Therefore dependence on law and legal system to curb the problem of online movie piracy shall not be effective until consensus is collected from common mass and users of the facilities and awareness campaign is driven against the evils of piracy. The reason behind this argument is that the overtly dependence on framing of more and more stringent law and their implementation may turn into censorship which would have in return an adverse effect on internet community (The Economist, 2011). It seems that the advent of information technology has made people more unethical towards the theft of someone else’s intellectual property. A very wrong trend has started that internet users almost across the world have an indifferent attitude toward the gravity of crime they are committing unhesitatingly. This worrisome trend can only be translated into chaos in future where the legitimate owner of intellectual property will lose his livelihood to the online movie pirates. A few websites like Megaupload, is encouraging their users to upload files of movies and music, which are in demand with attractive incentives in the form of cash reward. This act has also fuelled the online piracy significantly. With users of internet appreciating the efforts of original creator of intellectual work alone is not enough unless and until the law breaker online movie pirates are booked behind the bars for their unlawful act causing damage not only to the creators of some
intellectual work but also the very ethical fabric of the society. Needless to say original creators do create something innovative not just to satisfy their inner urge of immense satisfaction but also consider their effort as a source of their livelihood (Peter, 2012). It is truly said that movie piracy is the unconditional pillage of others intellectual property. The ease of sharing file online has made internet users indifferent about the pains taken by the creator of movies, music, songs and so on so forth just a few to name all over the world. This technological advancement has made people forget and uproot from their ethical values, an essential to maintain the social fabric of the society. An emotional statement of Tim Chey, a film producer shows the gravity of the movie piracy. Bootleggers and pirates steal files from unauthorized internet sites without paying a single buck neither recognizing the effort of their intellectual pursuit. It’s really irony that at one hand the producer of the movie pays hefty bills for the production including equipment used in the production, while on the other hand movie pirates steal their copyrighted files containing intellectual property virtually at free of cost (Laura, 2012). The internet sites which indulge in piracy through uploading and downloading files in an unauthorized way are getting more and more evasive for the USA, where a very strict law has been enforced to protect the intellectual property right of the owner. These sites have deceptively made their base outside the US to escape the charges filed by the Federal Bureau of Investigation (FBI), and the US Govt. The base location of websites as mentioned above in case of Megaupload has really worsened the situation of movie piracy via file sharing on net. The article titled “Megaupload lawyers move to kill US internet piracy charges” further argues that nothing other than sensitizing internet users not to resort at online piracy via file sharing on net will prove to be effective in real sense. If people will get sensitized, there will be positive reflection on their behaviour resulting in the gradual loss of frequency of unauthorized file sharing and in due course of time these unauthorized websites, which are promoting online piracy of movie and music shall come to their end. It may sound funny but the report (Reuter 2012) argues in its favour, instead of closing down such unauthorized websites, which is otherwise not possible, because of different geographic locations of their base coupled with no uniform policy or law at international level across all the countries. The newspaper report (Reuter 2012) clearly portrays the magnitude of online movie piracy which has left movie industry in lurch and helpless all over the world. The online movie piracy has made the film industry lose its legitimate revenue and earnings in billions of dollars across the world. People who intend to make a living out of their creativity and intellectual property are being deprived of their fundamental right to reap economic benefits from movies they have produced or have bought the right to distribution and exhibition on theatre screen. This would have been an ideal situation had we been able to curb the online and other forms of piracy to bring social and economic justice to the owner of intellectual property, but unfortunately due to many reasons we couldn’t have succeeded due to rampant online piracy done by majority of internet users across the world. Internet piracy has paved the way to share intellectual property (movie in particular) freely around the web without the consent of the original creators or owners, causing their work to lose its value (Thomas, 2012).

2.3 Research gaps
We have reviewed articles or papers published in reputable journals, magazines or reports. We have derived lot of insights on current state of art; however there are gaps which have further motivated us to undertake the study. There are articles which has provided an insight into factors affecting, movie piracy. However, there is hardly any literature which has attempted to explore possible linkages among these factors. Second, there is lack of enough literature which has focused on empirical analysis.

3. Research Methodology

The research is carried out on secondary data and the researchers have identified five antecedents namely illiteracy, high price, unemployment, poor enforcement of law, and poor infrastructure responsible for the rampant practice of online movie piracy across the country. Interpretive structural modelling has been used for analysis to explore the interrelations between the elements of complex nature.

Facilitated by Bentley’s integration platform for open infrastructure information exchange, interpretive structural modelling (ISM) is the first methodology to maximize the predictable interoperability of structural information among different specialized applications CAD and Building Information Model (BIM) platforms, and design review environments for creators and consumers of a project’s structural information.

The research was carried out using the interpretive structural modelling method, a method that is used to identify and clarify the factors leading to innovation and their interrelations in terms of their power value. It is an interactive planning methodology whereby a set of directly and indirectly related factors are structured into a comprehensive systematic model. For complex problems, like the one under consideration, a number of antecedents may be affecting the innovation management. However, the direct and indirect relations between the barriers describe the situation far more accurately than do the individual barriers isolated. Therefore, ISM develops insights into collective understanding of these relationships.

ISM based model:
From the final reachability matrix and level partitions, the structural model is generated by means of vertices or nodes and lines of edges. If there is a relationship between the barriers j and i, this is shown by an arrow which points to from i to j. This graph is called graph or digraph. After removing the transitivity as described in ISM methodology, the diagram is finally converted into ISM. Reviewing the ISM model to check for conceptual inconsistency, and make the necessary modifications.

3.1 Findings of the antecedents from literature review

In the present research we have identified following antecedents which lead to piracy are:

- **Illiteracy:** The degree of illiteracy in India is 48 percent. Almost half of the total population of India lacks basic qualification. This higher illiteracy is translated into lower
demand for books, study materials, and keeps people unaware about the origin of the genuine work and legal and economic implications of piracy. In most of the cases people are not aware of the suffering of loss to the legitimate players like producers, distributors, financiers, and govt. exchequer (who loses revenue in the form of entertainment tax), neither they are aware of the legal implications of resorting at piracy. The ignorant people feel that the movie uploaded on net are all free of cost and anybody can have access to those movies without paying anything. (Nair et. al., 1999).

- **High price:** Affordability of licensed CDs/VCDs is not the lone contributing factor. It is rather more psychological among that movie watchers class, which could afford but feels that if a pirated version of the movies is available in pirated CD/VCD form at almost throw away price and online movie is available virtually at free of cost, that too of the same quality, then why should one spend more money on the licensed products. Here applies the law of demand which suggests that higher quantity is demanded at lower price and vice-versa. (Nair et. al., 1999).

- **Unemployment:** Though the movie piracy causes legitimate players of the show business to bleed but the advent of technology (making illegal copy of movies and internet where movies are uploaded at unauthorised websites), it is considered as a good source of employment for those who are otherwise unemployed. Even people who are employed they find it as lucrative source of making money at virtually no risk or minimal risk to the maximum extent. A rough estimate of this illegitimate business in India alone is almost 50 percent of the total revenue of Mumbai based Hindi film industry. (Nair et. al., 1999).

- **Poor enforcement:** To protect the interest of intellectual property right holders the federal govt. in India has devised laws like Copyright Act, and Intellectual Property Right Act. But the lack of their effective implementation has made it as a safe heaven for the law breakers who do movie piracy and escape any punishment or penalty. A few people in past booked behind the bars were later released in absence of sufficient proof and sometimes faulty provision of law. (Nair et. al., 1999).

- **Lack of infrastructure:** One important contributing factor to the magnitude and frequency of the movie piracy is poor infrastructure. A study conducted by The World Competitiveness Year Book 1998, brought out by Lausanne (Switzerland) based International Institute of Management Development (IIMD) India has been accorded the last rank in infrastructure among 46 countries. Poor infrastructure does not fulfill the demand, and the demand which is not met yet resorts at unfair means i.e., movie piracy using various ways and means. (Nair et. al., 1999).

### 4. Data analysis and findings

The research carried out is based on the secondary information (data) taken from a research paper written by Nair et.al. 1999. The paper identified five antecedents namely illiteracy, high price, unemployment, poor enforcement of law and lack of infrastructure as responsible for movie piracy. All five antecedents are qualitative in nature. Based on the nature of information i.e., antecedents we decided to use interpretive structural modelling (ISM) and MICMAC analysis for qualitative analysis. The ISM and MICMAC models developed in this study demonstrate contextual relation among chosen antecedents. If elaborated further this means that
one antecedent will achieve another antecedent; the latter will be achieved by another antecedent; the two antecedents will help achieve each other or the antecedents will be unrelated.

4.1 Structural self-interaction matrix (SSIM)

Developing a structural self-interaction matrix (SSIM) of elements, this indicates pair-wise relationships between elements of the system (Table 1). To analyse the antecedents, a contextual relation of “achieve” was chosen. This means that one antecedent will achieve another antecedent; the latter will be achieved by another antecedent; the two antecedents will help achieve each other or the antecedents will be unrelated. For analysing the barriers in developing SSIM, the following four symbols have been used to denote the direction of relationships between barriers (i and j):

- \(V\) = Antecedent \(i\) will help achieve antecedent \(j\);
- \(A\) = Antecedent \(j\) will help achieve antecedent \(i\);
- \(X\) = Antecedent \(i\) and \(j\) will help achieve each other; and
- \(O\) = Antecedent \(i\) and \(j\) are unrelated to each other.

**Table 1: SSIM**

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<th>4</th>
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<th>2</th>
<th>1</th>
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<tr>
<td>1(Illiteracy)</td>
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<td>O</td>
<td>O</td>
<td>V</td>
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<td>2(High Price)</td>
<td>V</td>
<td>A</td>
<td>A</td>
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<td>3(Unemployment)</td>
<td>V</td>
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<td>4(Poor Enforcement)</td>
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<td>5(Lack of Infrastructure)</td>
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<td>6(Piracy)</td>
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4.2 Reachability matrix (RM)

The SSIM has been converted into a binary matrix, called the reachability matrix (Table 2) by substituting \(X\), \(A\), \(V\) and \(O\) by 1 and 0. The substitution of 1s and 0s are as per the following rules:

- If the \((i,j)\) entry in the SSIM is \(V\), the \((i,j)\) entry in the reachability matrix becomes 1 and the \((j,i)\) entry becomes 0;
- If the \((i,j)\) entry in the SSIM is \(A\), the \((i,j)\) entry in the reachability matrix becomes 0 and the \((j,i)\) entry becomes 1;
- If the \((i,j)\) entry in the SSIM is \(X\), the \((i,j)\) entry in the reachability matrix becomes 1 and the \((j,i)\) entry also becomes 1;
- If the \((i,j)\) entry in the SSIM is \(O\), the \((i,j)\) entry in the reachability matrix becomes 0 and the \((j,i)\) entry also becomes 0;

**Table 2: Final Reachability Matrix**

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<th>1</th>
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<th>Driving Power</th>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
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After checking the transitivity, which states that if A leads to B, B leads to C then A definitely leads to C, the final reachability matrix is similar to initial reachability matrix. Therefore we proceed with initial reachability matrix as a final reachability matrix.

### 4.3 Level Partitioning

From the final reachability matrix, the reachability and antecedent set (Warfield, 1974) for each barrier are found. The reachability matrix consists of the elements itself and other elements, which it may help achieve, whereas the antecedent set consists of the element itself and the other elements, which may help achieve it. Then the intersection of these sets is derived for all elements. The element for which the reachability and intersection sets are the same is the top-level element in the ISM hierarchy. The top-level element of the hierarchy would not help any other element above their own level. Once the top-level element is identified, it is separated from the other elements. Then, the same process finds the next level of the element. This process continues till the levels of each element are found (Table 3). These identified levels help in building the digraph and final model.

![Dependence Power matrix]

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<tr>
<th>Dependence Power</th>
<th>1</th>
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### 4.4 ISM Model

From the final reachability matrix and level partitions, the structural model is generated by means of vertices or nodes and lines of edges. If there is a relationship between the barriers j and i, this is shown by an arrow which points from i to j. This graph is called graph or digraph.
Figure 1: Diagraph1

Level 1

Level 2

Level 3

- Piracy
- High Price
- Unemployment
- Illiteracy
- Poor enforcement
- Lack of infrastructure
4.5 MICMAC Analysis

Here antecedents can be further classified into four categories, depending upon their dependence and driving power (Mandal and Deshmukh, 1994). This analysis is also termed as MICMAC analysis (Cross-Impact Matrix Multiplication Applied to the Classification Analysis). They have been classified into four categories as follows:

1. The first cluster consists of autonomous variables (autonomous enablers). These enablers have a weak drive power and weak dependence. They are relatively disconnected from the system, with which they have few links, which may be very strong.
2. The second cluster consists of the dependent variables (linkage enablers). These have strong drive power as well as strong dependence. They are also unstable. Any action on them will have an effect on others and also a feedback effect on themselves.
3. The third cluster has the linkage variables (dependent enablers). This category includes those enablers which have a weak drive power but strong dependence power.
4. The fourth cluster includes the independent variables (independent enablers). These have a strong drive power but a weak dependence power. It is generally observed that an enabler with a very strong drive power, called the ‘key enabler falls into the category of independent or linkage enablers (adapted from Grzybowska, 2012, pp.36-37).

Table 4: Position coordinates of the variables along Dependence(X) and Driving(Y) axes

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<thead>
<tr>
<th>Variables</th>
<th>Illiteracy</th>
<th>High Price</th>
<th>Unemployment</th>
<th>Poor enforcement</th>
<th>Lack of infrastructure</th>
<th>Piracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependence</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Driving</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
The MICMAC analysis output suggests that variables (1, 4, 5 and 3) are driving variables, 2 is a linkage variable and 6 is a purely dependent variable; however there are no autonomous variable.

5. Conclusions and Findings

The research carried out is based on the secondary information (data) taken from a research paper written by Nair et.al. 1999. The authors of that paper identified five antecedents namely illiteracy, high price, unemployment, poor enforcement of law and lack of infrastructure as responsible for movie piracy. The scenario has significantly been changed since the paper was written in 1999. Infrastructure has been improved with the emergence of new multiplexes and the literacy has also improved significantly. Similarly the other antecedent viz. high price, unemployment, and poor enforcement of law are still there in Indian context.

Our findings based on ISM model and MICMAC analysis does not support the view expressed in the paper titled “Study of copyright piracy in India,” written by Nair et. al.

The diagraph indicates the relationship between movie piracy, a dependent variable, and its antecedents, which are responsible for it. Illiteracy leads to unemployment and unemployment leads to piracy. Poor enforcement of law encourages people to resort at movie piracy. Price has also been identified as one of the determining factors. High price of licensed CDs/VCDs/DVDs leads to movie piracy. Lack of infrastructure facilities also leads to high price and finally impacts movie piracy. Unemployment does also have a direct impact on piracy.
Further “MICMAC” Analysis also known as “Matrice d’Impacts croises-multiplication” has been done to identify the linkage, driving, autonomous and dependent variables from among selected antecedents. The MICMAC analysis output suggests that illiteracy, poverty, unemployment, and lack of infrastructure are the driving variables with very strong driving power but weak dependence power means all the identified factors here above do significantly impact movie piracy but are not influenced by piracy on the other hand. High price and poor enforcement of law fall partly between both the categories i.e., driving as well as autonomous variables. They are moderate driving and dependent forces. There is no linkage variable as shown in the figure 3. It means there is no antecedent found with strong driving and strong dependence power. Movie piracy is a dependent variable.

5.1 Limitations of the Study

The constraints of time and money restricted the researchers to further investigate and identify the possible influencing antecedents responsible for online movie piracy through field survey. Therefore for this purpose we chose to rely upon researches conducted in the past by other researchers.

The subjectivity of ISM model and MICMAC analysis requires further an empirical research to validate the findings of the study.

With every increase in the number of variables to a problem, the complexity of the ISM model does also increase. So the least affecting variables are not taken as far as possible to avoid any such complexity, however avoiding on a few variables may also have subtle if not significant impact on the outcome. This is seen as a serious limitation to ISM model. Quantification of output is also not possible when ISM model is applied, as the model is statistically not proven, which brings down its authenticity. The validity of the research could only be achieved if the model is further tested empirically. (Klein and Kozlowski 2000).

5.3 Practical Implications

Based on the findings, the government and movie industry should make greater efforts to sensitize people against the evils of movie piracy. People should be made aware of the reality that online movie piracy is not a victimless crime contrary to the popular belief and causes huge economic damage to the film industry in particular and the entire economy as a whole. An effective implementation of Copyright Act, 1957 can counter the menace of movie piracy. The movie industry should also provide cheaper alternatives to capture low-income consumers who are likely to be illegal downloaders. While such alternatives do exist, it is still unclear how effective these measures are. Perhaps through the awareness campaign consumers’ attitude and perception about movie piracy would change.

5.3 Unique Contribution

The study carried out by us is unique in the sense that it gives direction to future researchers to further test the validity of ISM model through empirical study. The antecedents we have identified and validated with the help of ISM model are whether going to be empirically established or not could be an interesting area of further research. We feel that the present paper will ignite interest in research community for the very purpose.
5.4 Further Research Directions

We feel that due to time constraint and constraint of other resources as well we could not go far beyond to identify more factors responsible for movie piracy. Had we been able to identify more factors, the model would have been more robust and would have been able to develop new insight, which we could not. Since there is inherent subjectivity found as a salient feature of ISM model, its empirical study is a must to validate, what the ISM model says. This may be another interesting area of further research.

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