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The Age Of Digital Technology In Music Industry

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Abstract: Entertainment industry is going through a period of structural change. The spread of digital technology has transformed the sector from physical to digital. This change can be witnessed in almost all the segments of the entertainment industry. This is especially true of music industry where the shift from analog to digital platform is much easier. A technology revolution is a great stride forward for any industry; costs would come down, profits would rise and those who surround the industry and live by it would benefit. The article tries to examine the structural shift in the music industry from physical formats to digital formats as a result of technological innovations. There has been a tremendous change in music formats right from the period of LP records to digital music.

Index Terms: Digital, Technology, Music, Industry, Digital Technology, New Age, Trends

1 INTRODUCTION

Entertainment industry is going through a period of structural change. The spread of digital technology has transformed the sector from physical to digital. This change can be witnessed in almost all the segments of the entertainment industry. This is especially true of music industry where the shift from analog to digital platform is much easier. A technology revolution is a great stride forward for any industry; costs would come down, profits would rise and those who surround the industry and live by it would benefit. The structure of music industry has been transformed by the digital revolution. Music industry does not intermediate between the producer and consumer. The middlemen are removed from the picture with the advent of internet. Disintermediation prevents the middlemen from having a direct relationship between producer and consumer. Music is delivered to the final consumer speedily. The trends and patterns of music industry in India is in fact a reflection of the changes that have been taking place in the global sphere. The technological revolution, resulting in the digitalisation of music, attendant problems of piracy and anti-piracy moves, changes in copyright laws- all reflect global patterns. The article tries to examine the structural shift in the music industry from physical formats to digital formats as a result of technological innovations. There has been a tremendous change in music formats right from the period of LP records to digital music. India which has been one of the largest producer of music cassettes moved to digital technology and mobile music.

2 THEORETICAL FRAME WORK

In explaining great economic upheavals, conventional economic frameworks have always been used. Political economy has always provided its own theoretical framework for the great techno economic surges like the industrial revolution (market economy model), the depression of 1929 (Keynesian model), the recession and stagflation of the early seventies (monetarism). Keynesian economics has served as Theoretical model, not only for the 29 depression,

But for several other revolutionary changes. Marxian model, unconventional as it is, could still be used for explaining dynamic movements in society. It is against this theoretical backdrop that we make use of Schumpeter's analysis of innovations and creative destruction to explain the dynamic changes in music industry. The technological swings rocking the music industry, as the aftermath of the ICT revolution could be analysed in the framework of the neo Schumpeterian model. The cost escalation and the ensuing problems in the entertainment industry was first analysed by Baumol and Bowen in 1966 which is considered as the beginning of cultural economics. Baumol and Bowen models deals with the cost structure of the music industry especially with its focus on escalating costs of live performances. The subsequent studies which followed Baumol's cost disease dealt with the question of subsidization of arts, the debate initiated by Mark Blaug, Peacock, Moore and others. The present study has its focus, not on the cost structure of the music industry but on the revolutionary changes that have taken place in the music industry as a result of digital technology. And as such, we cannot analyse it with Baumol and Bowen model. The ideal framework for the transformational changes in the music industry seems to be the Schumpeterian model of creative destruction. Growth is a dynamic process which passes through instability and destruction of the old.

3 THEORY OF INNOVATION

Schumpeterian and neo Schumpeterian economics seem to offer a better framework for analysing the revolutionary changes that have been occurring in the music industry in the wake of ICT. There is a great surge of development in the technological field. Institutional changes become necessary for initiating investments to reap the benefits of technical innovations. The effectiveness of traditional economic theories is challenged. Neo Schumpeterian economics tells us that new Theoretical frameworks, aiming at explaining the evolving industries should learn from industries that have emerged as success stories in the past 20 or 30 years. Schumpeter believed that competition would take place dynamically through the development of technologies. Changes in technology can catch out the incumbent firms in an industry, making way for new entrants that understand and can manage the new technologies better. The recent crisis in the music industry, to handle the digital delivery of music directly to customers, arises from an inability to grasp and benefit from new technology. Economists call this "technological lock in". The high outlay of investment in many information goods

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industries exacerbates the switching costs to a firm and locks it in to an older technology, which eventually makes its costs too high or its products too old fashioned to compete successfully. Technology as the means of reproducing and copying words, sounds and moving images is basic to the publishing, sound recording, film, and video industries, since without it, they could not have developed in the first place, and they are subject to ongoing technological progress. The digitalisation of content came into what Shapiro and Varian (1998) have called "bits and bytes" industries. According to Shapiro and Varian the development of computers and Internet significantly altered many economic aspects of creative the creative industries as part of the wider information economy, which displays certain economic features: high fixed or sunk costs combined with very low or even zero marginal costs, reflecting economies of scale, of synergies between similar products, scale economies in advertising and marketing them and the pooling of risks in similar undertakings and possible network economies that increase consumers' willingness to pay for a product. The Internet enables delivery of customised bundled services and discriminatory pricing for identical products and services and also the sale of different versions of the same item, a phenomenon called versioning according to Shapiro and Varian. The great ICT revolution, which seems to be a continuing one, has revolutionised the world. It has created a new elite, has made many billionaires and paupers, has revolutionised our day to day life, but still, there has occurred destruction of the old. There has been creative destruction when innovations have been made. New technology has been created making the old technology obsolete and redundant. Music industry is one among the several industries that have been affected by the ICT revolution. The industry has been transformed; new beneficiaries and stakeholders have been created. Many establishments have closed down. This is the scenario which could rightly be explained with the help of Schumpeter's theory of creative destruction and innovations.

4 REVOLUTIONS IN MUSIC INDUSTRY

A great surge of development in music industry is driven by the Schumpeterian process of creative destruction. This occurs when a large number of technical innovations, leads to creation of new technical systems and spreads to the entire economy. The established branches, either develop, reorganise or adapt to the new innovation or fade out and disappear in competition. (Perez 2009). Up till the 1970's vinyl records was the only music format available for purchase. For over sixty years, music lovers purchased their music on vinyl records. By the end of seventies gulf returnees popularized cassette players and cassettes. Most of these were cassette recorders from Japan. In 1979 came the emergence of the Sony Walkman. Prior to the advent of the Walkman, only AM/FM radio was available. The Walkman provided the first truly moveable and convenient way for music fans to travel with their own music. Records gradually disappeared and were replaced by cassettes.

5 RISE AND FALL OF CASSETTE INDUSTRY

By 1980's Cassette sales skyrocketed in India. Sales of cassettes increased from \$1.2 million in 1980 to \$ 12 million in 1986 to over \$21 million in 1990. Exports of Indian made

tape recorders increased from 1.65 million rupees worth in 1983 to 99.75 million in 1987. By the late 1980's, Indian consumers were buying around 2.5 million cassette players annually. Philips, the largest local maker of cassette recorders in the early 1980's, sold 72,000 units in 1983 and 395,000 units in 1986 introducing seven new models in the mid-eighties. It became one of the dynamic sectors of the economy. By 1991, India became the second largest manufacturer of cassettes, marketing about 217 million cassettes, surpassing China (125 million), Britain (83 million), the first being United States (446.2 million) (Manuel 1993) The development of cassette technology brought about structural changes in the music industry in India. By the mid 1980's cassettes accounted for 95% of the recorded music market (Manuel 1993). Correct estimates are not found about the number of cassette producers in India in the eighties. A survey conducted by Venus records estimate it to be more than 250. HMV remained the largest music company. By mid-1980's T series emerged as the leading producer of cassettes. They produced cover versions of HMV's classic songs. T series is alleged to have progressed by resorting to pirated versions of film songs originally released by HMV (Manuel 1993). Music India Limited, Venus records and tapes, Music today, TIPS music were some of the largest producers of music in India during this period. A look at the world sale of music cassettes of the top music markets are shown in Table 1. The top music markets are USA, Japan, UK, Germany, France, Canada, Brazil, Mexico, Spain, and Australia. Though India does not come under the top music markets during this period, the sale of music cassettes is highest in India. The sale of music cassettes in millions of units is shown in the table. From 2000 onwards there is a steady decline in the sale of music cassettes. By 2004 music cassettes have completely disappeared in all the top music markets. In India, cassette sales have declined from 178.4 million units to 104.2 million units with a negative growth rate of 41.59%.

Table: 1 world sales of music cassettes (Millions of Units)

| Country | 2000 | 2001 | 2002 | 2003 | 2004 |
|-----------|-------|------|-------|-------|-------|
| USA | 76 | 45 | 32.4 | 17.2 | - |
| Japan | 6.5 | 6.1 | 4.6 | 0.4 | - |
| UK | 11.1 | 4.5 | 1.9 | 0.9 | - |
| Germany | 20.6 | 22.2 | 21.8 | 15.5 | - |
| France | 8.8 | 6.8 | 5 | 2.5 | - |
| Canada | 3.5 | 1.5 | 1.1 | 0.4 | - |
| Brazil | 0.1 | - | - | - | - |
| Mexico | 13.1 | 6.5 | 2.9 | 2.1 | - |
| Spain | 8.8 | 7 | 2.4 | 1 | - |
| Australia | 1 | 0.9 | 0.6 | 0.4 | - |
| India | 178.4 | 190 | 162.5 | 137.7 | 104.2 |

Source: IFPI Reports 2000 to 2004

CDs emerged by mid-90's as an alternative to cassettes. The quality of music was better in CDs compared to cassettes. But CDs were costly, having a price range of Rs 300 to 400 depending upon the type of CD, whereas the price of a cassette was around Rs 50. CD players were also expensive with a price of about Rs. 5000. As a result, purchase of CDs remained confined to the upper classes. The supremacy of cassettes remained unchallenged.

6 EMERGENCE OF MP3 TECHNOLOGY

The end of 1990's witnessed the emergence of MP3 technology. MP3s had large storage space and was less costly. A CD contains a maximum of 10 to 12 songs, but an MP3 can store up to 200 songs or more. As compression technology is used in MP3s the quality of songs is affected. Though CDs could not make much of a dent in the cassette industry, the spread of MP3s challenged the existence of cassette industry. Cassette sales began to decline by mid-2000 and by 2010 cassettes almost disappeared from music shops. Music shops which were filled with cassettes began to stock only CDs and MP3s. Cassette players disappeared. New and improved versions of CD players emerged. The 'destruction' was creative: between 1998 and 2010 the yearly output of the music industry has increased by 40% and this positive trend has not been affected by the economic crisis. Digital technology has revolutionised the way music is bought and sold. They provide information and also an opportunity to experience and purchase music. Traditional record shops have closed or have been confined to small portions of other shops like mobile shops. There is a large unexploited demand for music from lesser known artists or new artists and dynamic pricing may help the artists and reward the hard core fans. The major protagonists in the music business have lessons to learn from thirty years of creative destruction. The value chain of the industry has changed: there is more competition at the end of the value chain for music lover's attention. Users can actively experience the same music in different forms and therefore the sale of records become lesser compared to the pre digital era. The variety of forms of packaging has contrived to make the industry more dynamic. Music industry as a thriving a business provides a variety of music experiences to its users; and the more exceptional is the experience, as it is the case of live performance, the higher is the price the consumers are willing to pay. Therefore, copyright owners and distributors should lower their prospects of higher margins from the sale of records and in addition to looking for ways to limit the propagation of unlawful copies of records, they should look into a better tuning of their price structure and into adjusting prices depending on forms of delivery and the popularity of the artist. (Rogers, Sparviero 2011). Perhaps a better strategy would be to, discern more the price of records between artists and make it comparative to the price the audience is willing to pay for their live performances. The music industry could follow the steps of other industries that sell services and goods through internet, and make the price rise along with the quantities bought by the audience. The price of records of relatively unknown artists would remain low until they become famous. The distribution phase of a great flow of development is a period of social and institutional change rather than technical change. It is a period as Perez (2009), defines it of 'creative destruction'. During this period, new theories evolve, values change and regulation is more amenable to acceptance. It is a period when change is more demand made rather than supply made. The music industry's consumer have already indicated they want: more music, better variety and lower prices. So far, the music industry's response has been to brand the unauthorised use of music files as illegal. Such an attitude does not buy a lot of support. Great benefits, can be the reward of the ones willing to adapt. They should accept that their roles have

changed, that they are no longer music manufacturers, but service providers. The rise and fall of cassette industry can be seen in the Schumpeterian frame work of creative destruction. Creative destruction refers to the continuous innovation mechanism by which new production units replace outdated ones. This was what has happened to the cassette industry in India. With the advent of digital technology cassettes became obsolete. The producers of cassettes either had to close down production or had to adapt themselves to the new technology. An industry which reigned supreme for over twenty years disappeared without a trace. India who was the second largest producer of cassettes in the world witnessed the collapse of cassette industry. Now we can hardly see a cassette in a music shop. Cassette players are no longer available. Those producers of music who adapted themselves to the new technology, survived, the rest of the producers perished under the onslaught of new technology.

7 SAMPLE SURVEY

Music industry has transformed itself with the onset of digitalization. Digitalization has caused shifts in music buying and music listening. It has also made shifts in music selling. The pattern of sale of different music formats and different music genres in retail music shops is analysed. The study focuses on the trend in sales of different music formats. Primary Data were collected from retail cassette shops in Trivandrum, Ernakulam, Kozhikode, Palakkad and Thrissur districts in Kerala through interview schedules. Twenty five music shops each were randomly selected from the selected districts. A total of 125 samples were collected. A five year period is taken from 2010 to 2014. The physical sales of music are mainly in the formats of MP3, CD, DVD, Cassettes and Records. Of these Cassettes and records are stocked in very few shops. Cassettes have almost completely been replaced by other music formats. Records are available in select shops and are viewed as collectors' items. Sale of music formats show that MP3 has the highest sales though music sales as a whole have fallen. Table 2 shows the sale of different music formats during the period 2010 to 2014. Total sales have fallen with a growth rate of -16.1. There is 82% fall in the sale of cassettes. The sale of records has fallen by 23 per cent. Sale of MP3s has fallen by 9.5 per cent. CDs have shown a negative growth of -8.03 per cent. Only the sale of DVDs has shown an increase with a growth of 19.26 per cent.

Table 2. Sale of Different Music goods

| Sale of Different Music Formats (in Numbers) | | | | | | |
|--|-------------------|-------------------|--------------------|-------------------|------------------|--------|
| Year | MP3 | CD | DVD | Cassettes | Records | Total |
| 2010 (%share) | 47366 (20.96%) | 35476 (20.88%) | 295.83 (16.92%) | 23923 (46.01%) | 8349 (23.04%) | 144697 |
| 2011 (%share) | 47966 (21.22%) | 35176 (20.71%) | 38683 (22.13%) | 11164 (21.47%) | 7649 (21.11%) | 140638 |
| 2012 (%share) | 44326 (19.21%) | 33296 (19.60%) | 35318 (20.20%) | 7564 (14.54%) | 7129 (19.67%) | 127633 |
| 2013 (%share) | 43426 (19.21%) | 33251 (19.57%) | 35898 (20.54%) | 5128 (9.86%) | 6699 (18.49%) | 124402 |
| 2014 (%share) | 42866 (18.97%) | 32626 (19.21%) | 35283 (20.18%) | 4214 (8.10%) | 6399 (17.66%) | 121388 |

| e) | %) | %) |) | %) | %) | %) |
|-------|--------|--------|--------|--------|--------|--------|
| Total | 225950 | 169825 | 174765 | 51993 | 36225 | 658758 |
| GR | -9.5 | -8.03 | 19.26 | -82.38 | -23.35 | -16.1 |

Source: Sample Survey, 2015

Table 3 shows the market share of different music formats. The market share of MP3s, CDs and DVDs has increased over the period 2010 to 2014. Market share of cassettes and records have fallen steadily. In 2010, the share of cassettes in the total sales was 16.53 percent. It decreased to 3.47 percent in 2014.

Table 3. Market proportion of Different Music goods (%)

| Market Share of Different Music Formats (%) | | | | | | |
|---|-------|-------|-------|-----------|---------|-------|
| Year | MP3 | CD | DVD | Cassettes | Records | Total |
| 2010 | 32.73 | 24.51 | 20.44 | 16.53 | 5.76 | 100 |
| 2011 | 34.1 | 25.01 | 27.5 | 7.93 | 5.43 | 100 |
| 2012 | 34.72 | 26.08 | 27.63 | 5.92 | 5.58 | 100 |
| 2013 | 34.9 | 26.72 | 28.85 | 4.12 | 5.38 | 100 |
| 2014 | 35.31 | 26.87 | 29.06 | 3.47 | 5.27 | 100 |

Source: Sample Survey, 2015

Table 4 shows the total sale of different music formats in the period 2010 to 2014 in the sample districts. Total sale of MP3 is higher compared to other music formats. The sale of MP3 is highest in Thrissur, Palakkad and Ernakulum. The share of cassettes and records sales are high in Kozhikode compared to other regions. The sale of CDs and DVDs are high in Ernakulum, Thrissur and Palakkad.

Table 4. Sale of Different Music goods 2010-2014

| Sale of Different Music Formats 2010-2014 (In Numbers) | | | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|--------|
| Region | MP3 | CD | DVD | Cassettes | Records | Total |
| Kozhikode (% share) | 22590 (10.00 %) | 21520 (12.67 %) | 28990 (16.58 %) | 18644 (35.85 %) | 20655 (57.01 %) | 112399 |
| Trivandrum (% share) | 24740 (10.95 %) | 26005 (15.31 %) | 27830 (15.92 %) | 10819 (20.80 %) | 11300 (31.19 %) | 100694 |
| Palakkad (% share) | 56900 (25.20 %) | 37500 (22.08 %) | 48225 (27.59 %) | 7000 (13.46 %) | 1000 (2.76 %) | 150625 |
| Thrissur (% share) | 69050 (30.58 %) | 45980 (27.07 %) | 34510 (19.74 %) | 5800 (11.15 %) | 1870 (5.16 %) | 157210 |
| Ernakulum (% share) | 52500 (23.25 %) | 38820 (22.85 %) | 35210 (20.14 %) | 9730 (18.71 %) | 1400 (3.86 %) | 137660 |
| Total | 225780 | 169825 | 174765 | 51993 | 36225 | 658858 |

Source: Sample Survey, 2015

Table 5 shows the market share of different music formats in the selected sample districts from 2010 to 2014. The market share of MP3 and CDs is highest in Thrissur. The market share of DVDs is highest in Palakkad. In the case of cassettes and records Kozhikode has the highest market share. But the market share of cassettes and records remain consistently low in all the selected districts.

Table 5. Market proportion of Different Music goods 2010-2014 (%)

| Market Share of Different Music Formats 2010-2014 (%) | | | | | | |
|---|-------|-------|-------|-----------|---------|-------|
| Region | MP3 | CD | DVD | Cassettes | Records | Total |
| Kozhikode | 20.09 | 19.14 | 25.79 | 16.58 | 18.37 | 100 |
| Trivandrum | 24.56 | 25.82 | 27.63 | 10.74 | 11.22 | 100 |
| Palakkad | 37.77 | 24.89 | 32.01 | 4.64 | 0.66 | 100 |
| Thrissur | 43.92 | 29.24 | 21.95 | 3.68 | 1.18 | 100 |
| Ernakulum | 38.13 | 28.19 | 25.57 | 7.06 | 1.01 | 100 |

Source: Sample Survey, 2015

Primary data samples are consistent with the changes in music industry all over the world. Technological innovations have paved the way for a new market structure where virtual sale of music is gradually replacing physical sales as shown by the fall in sale of music formats. Sale of cassettes and records have gradually decreased over the years to a very small percentage of the total market sales. Cassettes and records are being replaced by new music formats like CDs and MP3s.

8 CONCLUSION

Digital revolution has fundamentally changed the structure and functioning of music industry in India. The industry is in transition, moving from a physical to digital platform. The technological changes, resulting in the digitalisation of music has been happening, all over the world and problems of piracy, changes in copyright laws, disappearance of some industries and the emergence of others are all reflections of global trends and patterns. Innovations and the spread of digital technology have caused massive changes in music industry. There have been many transformations, from the period of vinyl record players to the current world of MP3s and peer to peer networks. Schumpeter's analysis of creative destruction have been used as a frame work to analyze the transformation in music industry. Music industry has travelled a long way, right from the period of sheet music to the modern day world of digital music. Developments in the music industry have been many and varied and have kept pace with the technological changes happening all over the world.

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