

Draft

The Digitization of Media

1. Introduction

The digitization...(Rest of the Introduction will follow later)

Joseph Alois Schumpeter (1883-1950) was an Austrian national economist and a politician. In his work "The Theory of Economic Development" of 1911 Schumpeter recognized the interplay between innovation and imitation as the driving force of competition. This forms the basis for a series of economic models. The terms Creative Destruction and 'creative destruction' are known in macroeconomics today. The Creative destruction describes a process of innovation can be triggered. This old technology is replaced by a newer one. After principle something new can only establish themselves if something old disappears. An example is the Creative Destruction is the slide rule. Before us today calculator was invented was the arithmetic slide the computing resource of many people. After the innovation of the calculator slide rule was ousted in further until it has completely disappeared from everyday life. In my view, one can be considered the digitization of data as such a large changing innovation.

In my paper I want to examine how two established and analog media could arrange (print media, cinema and movies) with digitization and whether there was more to the advantage or disadvantage. I also want to check whether the theory of creative destruction of Joseph Schumpeter applies here, in part or not at all. I would also like this still take the video games on a third medium which could only unfold right through digitization.

2. The print media

The Print media are printed matter and one of the oldest mass media. To you include newspapers, magazines, books, catalogs, geographical maps and plans, as well as postcards, calendars, flyers, posters and posters. In this chapter, we discuss mainly on the print medium of the newspaper, because it is used to gather information. Since the late 1990s and early 2000s, the information gathering of many people displaced in the direction of digital media such as the Internet or television (Figure 1).

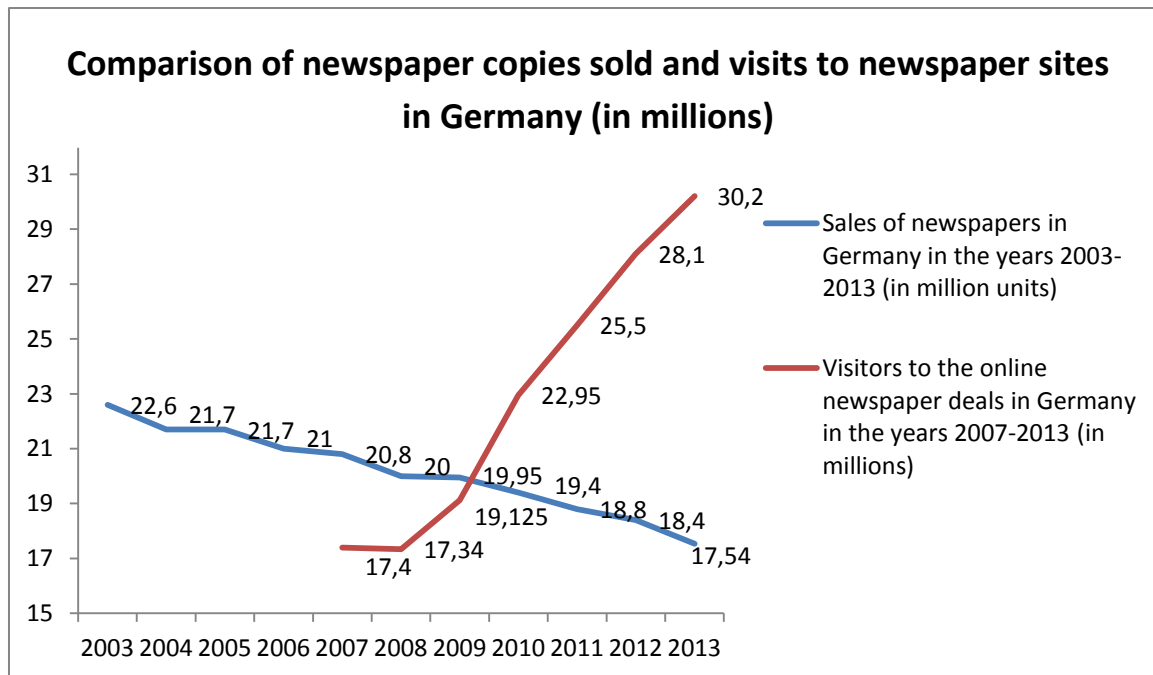


Figure 1: Sales of newspapers in Germany in the years 2003-2012 (in million units) and Visitors to the online newspaper deals in Germany in the years 2011-2013 (in millions) *source: statista.com*

The figure shows the people in Germany and news reports largely sourced from the online portals of the newspapers and the number of regular newspaper readers continues to fall. Reasons for the decline of traditional newspapers are purchased:

1. The fast pace of information (newspapers can about current events or incidents until the next edition the following day to report, unlike TV or Internet)
2. The availability (newspapers are not available at any place and at any time which is why many people fall back again on television and the Internet)
3. Missing generation assault (Many young people have grown up with the Internet or TV and cannot identify with the medium of the classic newspaper as their previous generations)
4. Higher costs (For many people who own a computer or television is cheaper to obtain information from the Internet or news portals than to pay for a daily newspaper).¹

The reasons for this development are manifold, for one, it is faster to obtain information from the internet on the other hand it has also become cheaper for companies and for customers online editions to produce and read.

With the decline of the normal newspaper demand in the early 1990s, the newspaper publishers began to look for new opportunities to sales of its newspapers to increase again.

¹ <http://images.zeit.de/wissen/2011-07/Infografik-Medien-30.pdf>

One of the biggest competitors of the newspaper was television and the ever-growing Internet. Many newspaper publishers realized that the classic newspaper was no longer profitable printing. So they were forced to act and directed her and offer more and more on digital products. Of course there was also opposition from the traditional newspaper readers and also in the ranks of publishers about these plans but examples from the histories showed that something would have to change to avoid being forced out of the market. One example is Kodak which was one of the largest companies for analog photographic equipment. Kodak invented the digital photography but did not recognize the potential of innovation. Other competitors of Kodak saw the potential and developed the first digital cameras and so displace Kodak gradually from the market.

By digitizing and technical innovation (e.g. storage media such as CD-Rom, USB sticks and Clouds) for a cost of internal pressure and staff were saved and on the other hand, access to new readers has been facilitated by the Internet. About the Internet sites of newspapers and current news releases can be published and read faster. Moreover, on the websites advertising the addition bring revenue. Many newspaper publishers offer on your online websites not only news but also to, among other counselor, columns, blogs and even shops with own or third-party products (e.g. BILD.de or ZEIT ONLINE). Also offer online newspapers more recently, subscription contracts, the advantage to the readers is that he gets access to even more exclusive information (e.g. BILD.de) or even the newspaper as an e-book download and they like to rest on his tray almost a classic newspaper can read. Many newspaper publishers have therefore gradually changed from traditional newspaper into a multimedia online newspaper.

But now is the change by the digitization rather to the advantage or disadvantage? Benefits of the more efficient and sustainable operations are definitely (e.g. provide less paper consumption and space requirements and faster and update of information). Access to information has become easier for many people, and makes the preserved information through technical innovations such as servers and clouds. In addition, articles can be commented on by readers what the newspaper is also equal to a kind of feedback function and reflects the mood or opinions of the readers to conscience issues. Disadvantages are mainly the news or online newspapers degenerated into a mass-produced, in contrast to classical newspapers for many people something personal and pulling back by itself is medium. Furthermore, favorable information must not be the same quality news. Through the Internet, and access to lots of information, many newspaper publishers have also

reduced correspondents and reporters network. Many messages are therefore "copied" only from other websites and passed without proper research. The danger is also increasing the likelihood to spread wrong messages or half truths, by the news of online newspapers can be published immediately.

In my opinion, the transformation from traditional print medium into a digital medium or a hybrid media (print and digital) was the right decision despite the existing risks and disadvantages. Using the example of Kodak and the digital photograph was made clear what can happen if you ignore opportunities or is not willing to break new ground. Many newspaper publishers have realized the digitization and the Internet also provide opportunities, not only are risk factors. Furthermore, I believe that the traditional newspaper medium never completely digitized many publishers will because already now so advertise the newspaper print a relaxed atmosphere creates as a Tablet PC. For younger generations newspaper is read as a classic medium again interesting because it has acquired for this already a kind of retro character. Therefore I come to the conclusion that applies Schumpeter's theory of "creative destruction" here only in part. Thus, the classical newspaper converts more and more into a digital good and has also been in large part to a one can speak of a creative destruction process. However, the classic newspaper will never disappear so completely because for many people it is still a sign of classical education and personal well-being is why it is my opinion never completely digitized.

3. The Cinema and movies

The cinema is adjacent to the print media, one of the oldest mass media. In the 1920s, emerged in most major cities movie palaces in people flocked to entertain but also to obtain information in addition to the radio and the newspapers. The films were shown there were usually recorded on 35mm film rolls with analog cameras and demonstrated by means of projectors. At the Oscar ceremony in 1979 the famous director Francis Ford Copolla presented his vision of an electronic cinema which today's digitization comes close. From the mid-1990s, powerful digital projectors were available on the market that allowed even on larger screens films to project. However, the number of conversions from analog to digital systems as well as the creation of a digital process chain from production and distribution is rather low. In 2010, of the 140,000 commercial cinema screens worldwide only around 16,000 in a fully digital process chain with digital projection and about a third of them were equipped with 3D technology. These numbers show that the digitization in the cinemas reacted only slowly. Reasons for this are all the many different systems which are offered on

the market and the high cost (€ 80,000 per screen plus extra costs) brings a shift to a digital cinema system with it. An important step for the introduction of digital cinema was the technical recommendation of the DCI (Digital Cinema Initiative) which is a consortium of movie studios (Disney, Fox, MGM, Sony, Paramount Pictures, Warner Bros. and Universal) in the year of 2005. This defines a technical standard for studio production and sales. For example, that more films will be produced and shown in 3D or must be the resolution of at least 2K (2048x1080 pixels). Through technical innovation will be in the future even standardizing resolutions up to 4K (4096x2160 pixels).²

But how does the digitization of production and distribution? And what advantages or disadvantages do this in all corresponding areas? The production of a film consists of planning, filming and post-production. Due to technical progress of high-resolution digital cameras (e.g. Panasonic, Sony or Panavision) can be used. The advantage of digital technology during the filming is lower cost of film tape, longer rotation periods and higher resolution images. In addition, the film can be viewed or corrected during the turn, further the development time of the movie roles and the viewing of the film materials are dispensed faster. In the post-processing of digital film material and digital audio (music, dubbing and sound effects) can be stored and implemented faster and computer generated imagery (CGI) like scenes, persons or effects are processed and embedded.

However, show some disadvantages which can complicate the production. Due to the multitude of new possibilities for the end of the filming and post-production already has to be planned in the planning phase. The high-resolution images (High Definition or higher) cause to see on the big screen more is why is necessary to work on the set accurate and detailed which can lead to additional costs. In addition, when filming the high cost of the technology and additional staff has to use the technology.³

Digital technology provides a multitude of new possibilities in the field of digital post-processing of films. Firstly, the film crews have to work more closely with the post production companies together. On the other hand, these companies play an increasingly important role in the film production which is why specialists for visual artists, colorists, visual effects artists and animators are increasingly in demand. This is where working areas the new possibilities and perspectives offer. But a supervisor team is engaged by the technical higher workload on a film set mostly, the filming monitors on set and in post-production houses to ensure trouble-free digital recordings, which of course leads to additional costs in

² Cf. Filmecho/Filmwoche (2010) , 33, S. 38.

³ Cf. Becker et al (2013), S. 112.

production. In particular, therefore, at high budgeted film or series production still shot on 35mm or 16mm film strips and subsequently digitized. Kodak reported for example in the 2000s; demand what this trend has increased by 60 percent after 35mm film strips reflect.⁴

During the archiving and storage of film large warehouses are superfluous, since these can be captured and stored on digital storage media such as hard drives, servers or Blue-ray disc. This eliminates large storage costs and logistical costs of the films. By means of digital technology, the film will be processed on computers and digital sent and forwarded upon completion. Thus, much of the tedious transport chain from the film lab omitted to cinema. In this way, the production process is more efficient, so that even more time for reshoots or post production is available. Moreover, as the work and memory resources of the individual production areas (Film Set, Post Production and Logistics) are bundled and used optimally. The problem many experts see the movies from time to time must be transferred again to new digital media so they do not get lost. This method is expensive and for the preservation and costly. The archives see especially the producers to take care of the preservation of films in the duty, because they cannot guarantee a long-term preservation of the films. Many studios have recognized a further advantage of the digitization technology, such as the fully digital can produce the films also. In recent years the number of animated films produced has taken strong, generated once in this genre blockbusters with high returns. For example, the animated film "Shrek" will cost \$ 70 million and \$ 921 million played at the box office. One reason for this is that the films completely created on the computer and thus keep production costs to a certain extent. In addition, you do not need highly paid actors but voice actors which are significantly cheaper. The entire logistics and supply chain is greatly simplified what the cost is greatly reduced.⁵

The actual function of film distribution was to give you movies to the cinemas so that they could be played there. The impact of digitization on the distribution is illustrated by the fact that is changing the classical function to a pure marketing. The goal is to generate the highest possible interest to the theatrical release of a film, so that it is successful and profitable. This is due to the fact are that the running times of films in the cinemas shortened and produces more and more Blockbuster or Hollywood production year. In 2009, the number of blockbuster films had more than 5 million viewers from 34 to 42. Due to new opportunities of digitization, it happened that the film distributor had more problems with film piracy (illegal movie downloads, piracy and filming) or competitors such as video on demand services (e.g.

⁴ Cf. Filmecho/Filmwoche, 26/2010, S. 42.

⁵ Cf. Becker et al. (2013), S. 114.

Lovefilm, Netflix, Maxdome etc.), DVD and Blue Ray collecting societies have to fight. However, the cinema is still considered to increase the popularity of a film as a marketing locomotive. In addition, the film distributors continue to see opportunities and potential in Asian markets since there the demand for movies is constantly increasing.⁶

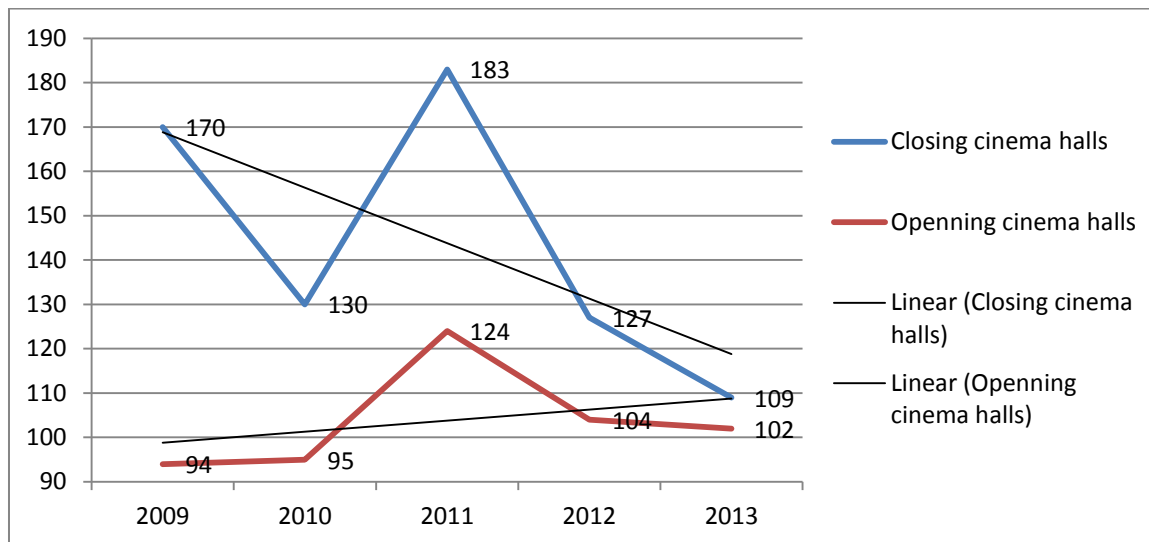


Figure 2: Numbers of closing and opening cinema screens in Germany (2009-2013)
Source: German Federal Film Board

In Figure 2 it can be seen that the number opened in cinema halls over the closed cinema halls in Germany is lower. Consequently, the number of cinemas in Germany, which can be seen also in the trend lines decreases. From 2002 to 2013 there was an average of 1,768 cinemas in Germany. In the 12 years the number of cinemas decreased by about 11 percent. Consequently, every 10th cinema was closed in this period up to 2013.⁷

Currently there are attempts of film distribution offer its own video-on-demand portals where you can watch films exclusively before DVD or Blue Ray release against a certain fee or premium. There are also interactive projects where the film distributors are trying to bring video-on-demand system to mobile devices (e.g. Smartphone's, tablets, and laptops). So you can use all the multimedia landscape of the end user. The advantage of such a system is that the end user can use his films and other deals anytime and anywhere. Risky course is represented by a higher offer in this area and of course the movie can continue to lose its appeal.

In my opinion digitization in the field of film production was an important step. The advantages listed above project, in my opinion, the disadvantages already clear. Although the transition to digital technology in cinemas progressing slower than expected, they will prevail

⁶ Cf. Becker et al. (2013), S. 115.

⁷ www.statista.com, Anzahl der Kinos in Deutschland (2002-2013)

<http://de.statista.com/statistik/daten/studie/3077/umfrage/anzahl-der-kinos-in-deutschland-seit-dem-jahr-2002/>

in the long run and still set even higher standards for the future. By digitizing the access to films is facilitated, so theoretically anyone with an Internet-enabled computer device (PC, smart phone, tablet, TV) has the opportunity to look at this (streaming, download, DVD, Blue-ray, etc.). Movies are also cultural objects, so they must be protected for future generations. The digitization is any way to make this more durable and protect. In addition, the films can be space-saving and thereby stored efficiently on servers or storage media. Furthermore, nowadays almost everyone can afford a good digital camera and thus himself shooting films in good quality and this also professionally rework on the computer. These can also favorable film productions are produced in good quality. For many aspiring directors, this is also a springboard to discovered by major movie studios to be, for example, Oren Peli the director and producer of the Paranormal Activity series. The first film in the series had production costs of just \$ 15,000 and played world's 193 million \$ one at the box office. Many studios have budget films recognized in the past the potential of this low especially in the horror or mystery genre. Of course by the digitizing the cinemas and films risks, thereby degenerated the movies as cultural commoditization and the value of movies is no longer recognized what happens through the film piracy. For some people it is not uncommon more movies or TV shows on the internet to download illegally or to look at streaming sites like Movie4k.to or other.

(Conclusion will be finished later...)

4. Video Games

(How the medium has evolved in recent years?)

5. Conclusion

(Will follow later)