



# THE IMPACT OF DIGITAL TECHNOLOGY ON FILM PRODUCTION & DISTRIBUTION

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## ABSTRACT

Over the past five years, the use of streaming services has steadily increased, as has the number of subscribers. This research was done to determine how the growing popularity of streaming services has impacted the film industry. The history of film and the advancement of technology are intricately interwoven. It should be mentioned that new developments were created at the start of every new chapter in the history of the film business. It seemed inevitable that the television and film industries would advance quickly in the digital era. Film and analogue cinema technology have essentially been replaced by the digital cinema format. Every change in the movie business has been a step closer to giving viewers fresh experiences and more lifelike movie experiences. One of the developments that have arisen as a result of the development of digital technology is streaming services. They enable viewers to access content for a set cost. With little technical assistance, streaming ensures availability and quality. In order to conduct this study, theoretical materials about the influence of digital technology on developments in cinema were looked into.

The main goal of this article is to clarify some of the problems associated with digital film making and to determine what effect digital technology has on the film making production process. This study examines the history of evolving film making techniques within the movie industry as well as the significance of the digital revolution. The study's conclusion discusses how cinema may reinvent itself in the digital era and considers whether the current predicament is fundamentally different from the uncertainties surrounding the birth of film. In an effort to provide a current, objective, and balanced summary of the topic, this research was undertaken using several interviews, websites, and textbooks.

## INTRODUCTION

This article attempts to establish the impact of digital technology on the film making production process while addressing some of the challenges related to digital film making. Last but not least, the goal is to assess the impact that digital film making has had and will continue to have on cinema as a whole. The purpose of this thesis is to analyse the broader effects that digital technology has compared to earlier technologies, as well as what these effects entail for filmmakers, the film industry, and audiences. Binary digits are discrete units used in digital technology to store information electronically. Resolution, bit rate, and the compression ratio used by a certain technology are only a few of the variables that affect how good an information is. It's also crucial to keep in mind that the challenges faced by digital film making are much more severe than those faced by cameras. The linear editing process has been transformed into a non-linear process through the use of digital editing techniques, yet editing is still a crucial step in the production of a movie. Instead of focusing only on the camera, the production process as a whole will examine all facets of digitalization.

Bits, also known as combinations of the digits 0 and 1, which represent words and images, are used to represent digital information and are used to store it in binary code. Huge volumes of knowledge can now be condensed using digital technology into manageable, portable storage devices. The speed of data broadcast is also accelerated by digitization. The way people learn, communicate, and

work has been skewed by digital technology. On digital methods of message delivery, broad castings are significant. Many forms of telecommunication, particularly cable and cellular phone systems, switched from analogue signals to digital ones.

For the purpose of converting analogue data into digital signals, beat code modulation was invented by analog-to-digital converters. Digital signals were easier to replicate and less difficult to distinguish than analogue ones. Books and magazines are now published differently thanks to digital printing, electrocardiograph, and organized data technology. The authorized copying of music and videos without giving credit to the performers has been addressed through patent disputes involving digital technologies.

The advent of digital photography, the quick evolution in data storage that followed, and the growth of the internet set the way for the era of digital film making. This change is being observed by us. Despite the fact that the "Film Vs. Digital" discussion may last for a few more years (some veterans have criticized digital technology due to quality and other conversion problems), it is noteworthy that film specialists from all over the world have been adjusting to the changes. Despite the fact that there are advantages and disadvantages to using digital technology, the change cannot be ignored. Newer generation prospective filmmakers must be up to date on the most recent advances and should be knowledgeable of the numerous stages the filmmaking medium has undergone over the last 100 to 150 years. The majority of industry professionals believe that the current digital era is one of the most significant changes the film industry has experienced to yet.

The advancement of film and television is happening concurrently with the advancement of digital technologies. To draw viewers and advance the industry, new tools must be used. The major turning points in the history of cinema and television production's advancement and modernization coincide with those times when new technologies first became widely available. The development of the camera obscura, phenakistiscope, and chrono photography represented the initial stage in the development of cinematography. These gadgets are the ancestors of the camera when combined. The Arrival of a Train at La Ciotat Station is the title of the first motion picture created with a camera obscura. Although it was only 50 seconds long and shot in black and white, the production of this short film helped to advance cinema.

The pictures at this point didn't have sound. Only background music and some text-based character lines that were placed in between frames. Films starring Charlie Chaplin are among the most remarkable examples of silent cinema. Numerous issues made the use of sound in films impossible. Among them were the challenges associated with synchronising the audio and video material, as well as its insufficient volume. The 1920s saw the creation of a low frequency amplifier. This made it possible to handle the low sound level issue. When Warner Brothers, a then-unknown studio, was on the point of going out of business in 1925, it took a chance and chose to put the last of its money into sound pictures.

. The era of full-length sound films is seen as having started with the debut of their "Jazz Singer." Thanks to the development of new transmission channels, film and television production advanced as well. New cameras and methods of picture development and editing have been developed, both of which have increased the quality of the images that are captured. In films, the technical aspects were improved. Work on special effects started in addition to the typical filming of real people and objects. Digital post-production methods are being employed more and more in films, regardless of how the primary material was captured on camera. Even the smallest midbudget producers now have access to special effects.

The earliest examples of any digital special effect may be found in traditional animation, including puppet and hand-drawn animation. The first six installments of George Lucas' space opera "Star Wars" offer the best examples of the evolution of special effects, which were developed and improved over the course of 30 years beginning in 1977. The first episode in which "drawn" ships flying in space were created using aircraft flight trajectories from the military history of World War II was Episode IV, "A New Hope," which was published at that time. Stereo cinematography, or 3D filming, was the following technological advance in the production of visual resources. This shooting technique employs two cameras, the images from which are then superimposed on one another.

It appears as though a picture is three-dimensional when using glasses with particular light filters. Beginning at the turn of the 20th century, stereo imaging went from being a sci-fi concept to an actual technology. Bwana Devil, a 1952 film by Arch Oboler that

was directed, is thought to be the first 3D colour movie, notwithstanding the several experimental tapes that had been shot before. Large film studios started using the technology soon after it was introduced, and it quickly developed. Every advancement in the film business has served as a new step in the direction of guaranteeing that moviegoers have an even more lifelike experience when seeing films in theatres. Distributors of films favoured the established guidelines for releasing feature films as early as the beginning of this century.

Analogue technology was the main topic. Traditional film production models are under strain as a result of recent developments in digital technology, which are altering how viewers consume media. To analyse the effects of new technologies on the distribution and consumption of films, the value chain idea (Porter, 1985) is utilised as a framework. The main claim is that instead of the single value chain that has dominated conventional film distribution, there are now numerous business models that can be specifically designed to meet the requirements of each given picture. As the independent film industry transitions from a supply-driven to a demand-driven market, this could signal a significant shift.

Internet revenue began to soar in 1995. A current mobile phone processes information 30 times faster than the on-board computer that oversaw the first manned lunar landing. This is significant since access to and advancements in information processing have increased. This led to the production and archiving of content in digital form. The movie business underwent a transformation at this time. The definition of films and TV shows has expanded beyond simple entertainment. As time went on, they began to resemble information streams. According to Elberse and Eliashberg (2003), the first cellphones and tablets debuted in the 1990s and 2000s, respectively. As plasma TVs entered the market at the same time, the thinnest OLED screens have essentially replaced them today.

Numerous viewing habits have emerged as a result of the limitless supply of screens. It is not necessary to be connected to the airwaves to consume visual content, such as films, TV shows, or news reports, at any time of day. In order to create a new everyday information environment, internet corporations have embraced the audience's omnivorous nature. In addition, they joined the content race. Television and the Internet working together harmoniously is the fundamental prerequisite for diversity (Patynkova et al., 2018). Finally becoming intelligent, televisions already had the capability of streaming content from the Internet. The launch of their online theatres and streaming services was announced by practically all major media corporations by the year 2020.

Film combines scientific technique with literary and artistic elements. The growth of the film business is heavily dependent on technological advancement. The history of the cinema industry is greatly influenced by technological advancement. Since the turn of the century, a slew of new digital technologies have been developed, including computer graphics, digital audio synthesis, 3D, digital processing, electronic digital information, 3D animation, virtual reality, and all types of digital film, including those that are shot, downloaded, and screened. These technologies provide audiences with a brand-new audio-visual experience and incredible three-dimensional enjoyment. The processes for producing, distributing, and storing films have undergone significant modification. On the subject of cinema range, nature, and expression, an unprecedented audio-visual extravaganza is produced. The third revolution in the film business, following the transition from silence to sound and from black and white to colour, is the full application of digital technology.

The cinema industry evolved at an astounding rate because to the widespread and rapidly expanding use of the internet. In just a few decades, China's film industry has travelled more than 100 years of foreign roads.

## RESEARCH METHODOLOGY

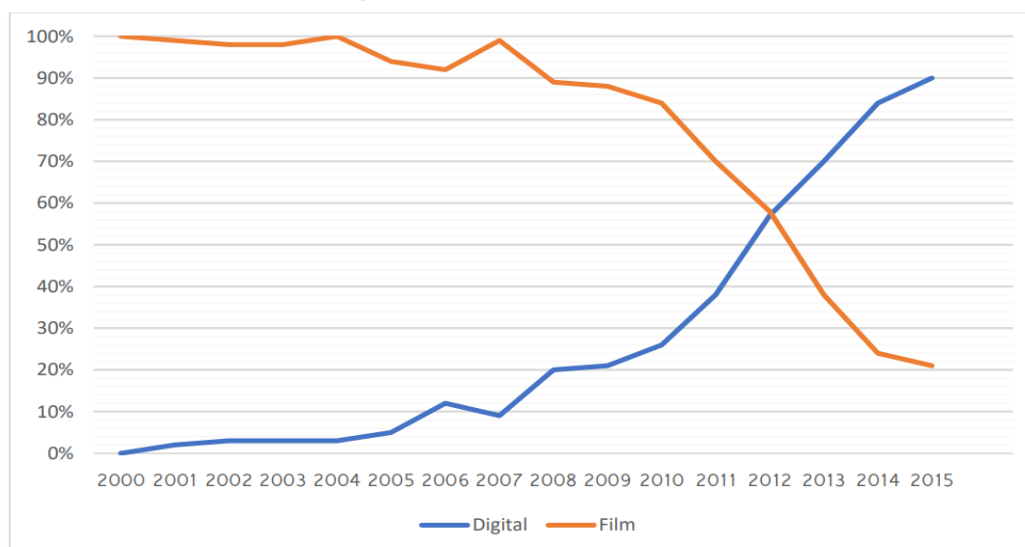
The film industry's engine is digital technology. The convergence of computer technology and film production results from the digital wave. The audiovisual effects and filmmaking technique have undergone a dramatic change. As a result, the expression of movies is substantially enhanced. The introduction of digital technology into the filmmaking process gives all forms of cinematic art fresh life. The detail can be broken down into the following several points. New movie genres and styles are being produced as a result of digital technology. With the development and maturation of several cinema genres, including science fiction, fantasy, and catastrophe movies, the fictional world of film became more and more palpable. It is lofty, enigmatic, and unreal.

Filmmaking resources including production, distribution, and editing are improved by digital technology. Film production becomes digital as a result of digital technologies. In the early stages of creation, during the actual shooting, and during post-production, computers must be used. Through extensive, imaginative, and realistic digital technology, the traditional filmmaking process is gradually changing. Digital technology improves the way films are distributed and modifies audience viewing habits. Playback carriers and kinds are altered by advances in digital technology. Projecting a single film is no longer working. The growth of movie distribution methods is compelled by the development of film digitalization and should be more varied and individualised. The original methods we used to watch films and TV, such as film, tape CDs, and so on, have been completely altered by digital technology. The ways of gathering, processing, transferring, and displaying information, among other things, have evolved significantly.

New materials and new digital technology techniques create the miracle of film. When digital technology is applied, it is possible to set up dream worlds like virtual reality and future worlds in addition to the real world. Actually, what we've seen has been planned and directed. The methods of creation are improved by digital technology. The continuation of visual art is film art. The primary expressive elements are photographs and images. The making of films has been transformed by digital technology. The use of digital technology significantly enhances all aspects of film production, including speed, effectiveness, and flexibility. The process of making films on film can be replaced by digital HD cameras.

Filmmaking now has access to new creative spaces because to digital technologies. Because of computerised camera applications, the function of cameras has surpassed that of human sight. Not only can it discover invisible perspectives, but it can also take pictures of things that are invisible to the naked eye. Thus, more eyewear is provided. In other words, a prospect can be displayed on a computer. Computers are capable of performing tasks more accurately and effectively than conventional methods. The computer can still perform superbly when a conventional method cannot. The film industry now has access to a whole new universe thanks to digitalization. The cinema industry had been greatly influenced by television. It is challenging to get people to return to the movies by using conventional filmmaking methods.

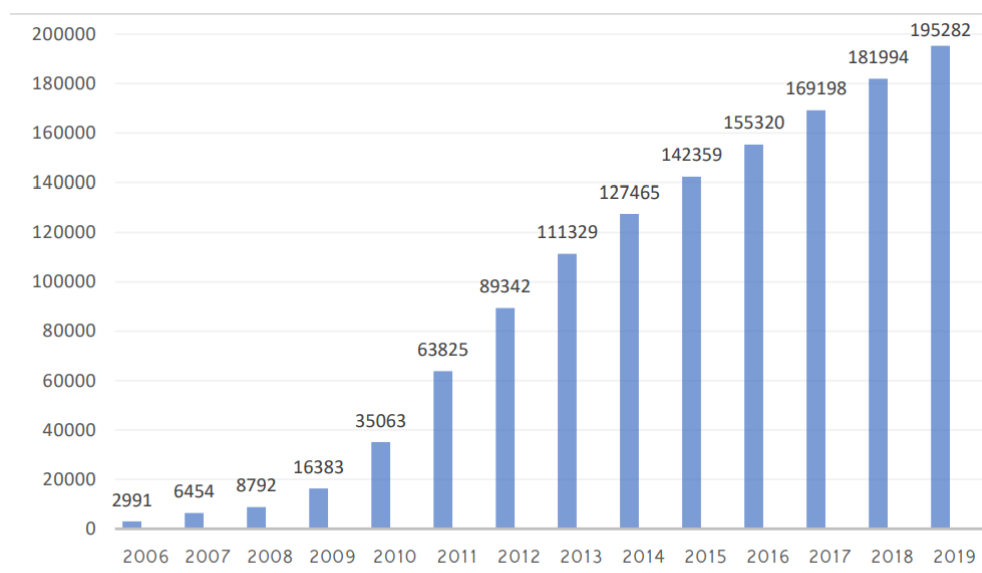
Filmmaking has unquestionably been impacted by digital technologies. The amount and types of products being made have changed as a result of the introduction of new techniques for filming, editing, distributing, and displaying films. The major method of producing products for the film business is now digital films, as can be seen from the above. In 2000, analogue technology was used in the production of every movie, both those created by major studios and those made by small filmmakers. The only means to capture photos was with film cameras. A reversal in trend has been seen in the world in recent years following the invention of digital cameras.



**Figure 1. The total number of films shot worldwide with the use of digital and analogue technologies**

Video recording is a technology for capturing and reproducing moving images using electronic media as the product of extensive scientific and technical study and development. The distribution channels and techniques for audiovisual products have been endlessly expanded, and in the realm of creation, it has opened the door for computer technology, such as the ability to create virtual images, which has greatly boosted the entertainment value of movies. While applied developments enabled the resolution of particular issues, such as improving the quality of the image and sound, creating new models with improved technical features, and expanding their range, fundamental developments in cinematography led to the creation of new types of on-screen performances.

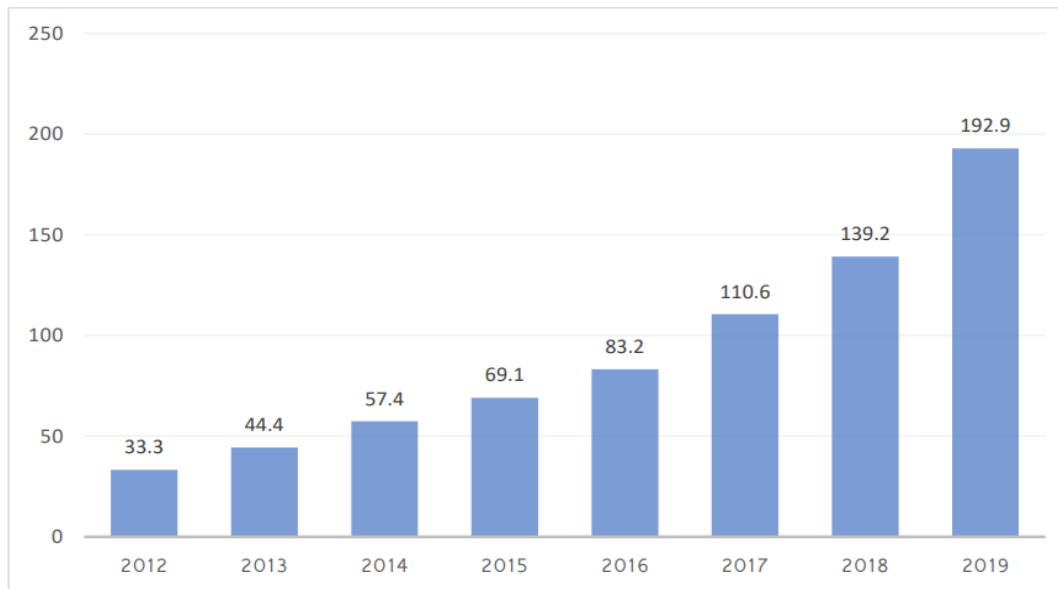
In the end, this aided in accelerating and lowering the cost of all production phases and offered the filmmakers more latitude in putting their imaginative ideas into action. Cinemas have become more modern as a result of the rise in the amount of films shot using digital cameras. Such films required the use of novel media, equipment, and unique screens. There were 2,991 of these screens in theatres worldwide in 2006.



**Figure 2. The number of digital cinema screens in the world from 2006 to 2019**

The development of streaming services has become inescapable due to the uptake of digital technology (Prokopenko et al., 2019). Their goal is to leverage technology that is readily available to everyone to provide consumers with high quality content. Streaming video service subscribers increased and, in 2018, surpassed cable TV subscribers for the first time. 613 million consumers globally used streaming websites, compared to 556 million who used cable TV. The information in the Motion Picture Association (MPA) report serves as proof of this. The report claims that in 2018, the global entertainment market as a whole earned a new record-breaking 96.8 billion US dollars.

When compared to 2017, there was a 27% increase in streaming service subscribers. Companies like Amazon, CBS, Hulu, and Netflix have contributed considerably to the growth of the streaming industry. They were quickly joined by NBCUniversal, Apple, and Disney. While physical media sales fell 14% globally, revenue from digital distribution increased 34%. It's obvious that more and more individuals are preferring to purchase films digitally rather than on disc. Data from the Netflix streaming service also support this assertion. Over a period of 7 years, their subscriber base grew from 33.3 million to 192.9 million.



**Figure 3. Netflix streaming service audience (million)**

Regarding the influence of digital technology and the rise of streaming services on the film industry, it is noteworthy that these businesses have started writing, producing, and filming their own films and TV shows. For instance, Amazon invested 6 billion US dollars in original content in 2018, which included movies, music videos, and other media. Apple, who released the Apple TV invested 6 billion dollars in original content for its streaming service. Disney has spent 23.8 billion US dollars on video production and filming, but only 1 billion US dollars of that is for streaming (1 billion US dollars for Disney Plus originals).

There is notably little translated content available on Ukrainian streaming providers. There are no foreign films, TV shows, or other entertainment offerings that are dubbed in Ukrainian or have Ukrainian subtitles. Users are being forced to use services that are better suited to Ukraine by this issue. You may view films and TV shows in Ukrainian through, for instance, the website Megogo. More than 800,000 persons are active subscribers to this programme. An analogue television service that can be used in place of cable. 2020 saw the debut of Takflix, another Ukrainian service. When it comes to watching Ukrainian films legally, Takflix will function as a streaming service. The platform's first curators concentrated on contemporary Ukrainian writers and indie cinema.

As a result, the streaming service is unique from other online movie theatres. It offers a unique payment mechanism that is for each individual video rather than for services rendered over an extended period of time. The viewer won't need to subscribe or register in order to purchase a separate online ticket for the chosen movie. The limited selection of films available through the service has an impact on this strategy. Only 15.50% of the proceeds from ticket sales currently go to the directors and filmmakers, but in the future, Takflix curators intend to designate a separate section for crowdfunding initiatives that support the creation of films. The creation and usage of streaming services have an impact on the movie business. The availability of more high-definition films and TV shows, the usage of special effects, and the development of technology that can deliver them through the screen all have an impact on the viewer's decision regarding what they will watch. To match audience expectations and remain current, filmmakers experiment with genres, timing, and images. It can appear that the technological and cultural advancement in the market for video material has not had an impact on how cinemas are positioned within the larger film industry. Throughout the period of instability in the film markets, moviegoing attendance has remained steady.

The blockbuster effect, in which the most well-liked films have a higher percentage of the total market than they did previously, and the long tail effect, in which the number of unique titles released has greatly grown, are two effects of digitalization on the cinema repertory. Consequently, because of the demands that their audience has already formed, cinemas impose certain requirements on the filmmakers. While also providing a platform for home viewing, streaming offers a wide range of opportunities for form and content experimentation. Over the past five years, the amount of money a given distributor has made from home



viewing the films they distribute has increased in relation to the amount of money they have spent on upkeep and improvements to theatres.

Initially, an upcoming information event is connected with information lighting tools. An information event, according to G.V. Kiuru, is a component of the information exchange system that allows the audience's information needs to be expressed and met (Fritzschea and Dürrbeck, 2019). Given the multidisciplinary nature of digital transformation and the interdependencies that exist among business models, it goes without saying that researchers from various fields must collaborate in order to not only broaden our knowledge but also actively link these topics and disciplines in order to develop a holistic understanding of why, how, and when digital transformation succeeds (Atton, 2008). Such multidisciplinary research aids informing the strategic choices that practitioners make about how to use digital technology and promote change in the digital world.

According to several academics, the most recent advancements in digital technology will make the interdisciplinary field of digital transformation a very significant one for future research. In fact, the digital transition offers fresh chances for the advancement of already-established facets of our existence. In this study, a more focused area of this transition is examined. It may be said that, in the context of cinema, digital revolution gives rise to new forms and genres, enabling culture to alter and adapt to the requirements of the time. The parties have not yet come to an agreement on additional steps. Technology businesses need the support of studios and exhibitors to advance this progress.

This is due to the fact that digital cinema is incompatible with conventional cinema equipment, unlike earlier film advances like SRD sound, acetate/cellulose film, or 35- and 70-mm formats. According to Fair (2006), both are incompatible. While flagship theatres still have the option of two projectors operating simultaneously, most theatres no longer have this option, and no dual-use projector is currently planned. This means that in order for studios to provide the finished product to theatres, digital cinema must have full backing from all of them before it can be introduced to new screens. If other nations don't fund conversion themselves, US norms will be used to define international standards. Digital cinema is not a mature enough industry to accommodate many standards, unlike technologies like television or computers.

The major benefit of the film, which is one standard, specifically 35 mm, will be lost because numerous standards will necessitate multiple inventories. Some studios were involved in the industry as a source of funding early on, and their choices are likely to be important. Continents like Europe that attempt to forge their own course will be compelled to alter course as their position grows more precarious without direct government intervention. The results of the study indicate that analogue filmmaking is quickly fading into history. Analogue films are less a handy, purposeful choice of directors and more of a respect to the traditional processes of filming. Not just the people involved in making it, digital cinema is more convenient. It now costs a lot less to distribute and post-produce than it did previously. There's little doubt that technology will advance and make filmmaking even more productive and affordable.

The manner that people watch films is evolving, and with it, the films that people choose to see and, ultimately, the films that are made. This is known as the feedback effect. Technocultural, which denotes the relationship between technology and culture, is the ideal term to describe these cultural implications of innovative and disruptive technologies. The impact of market developments on the supply of local films is being studied by experts in the context of this technocultural revolution. This shows that because local films are rarely made with streaming platforms and as a result are made more reliant on box office receipts, theatres are becoming more significant. . In the home video industry, streaming services for purchasing and renting films (EST and TVOD) have emerged as the most significant source of income for regional films, while audiences have mostly switched to subscription-based services (SVOD).

When their material does not support the strategic core and brand of these services, SVOD services become commercially unimportant for local film distributors due to their low cost, which attracts customers to them. Local material from niche markets, like Norway, typically has a limited audience due to linguistic and cultural barriers, making it particularly sensitive to SVOD's low value created per viewer. Most of the time, it won't profit from the economies of scale that big SVOD firms provide. As a result, in

order to encourage local films, governments and industry participants can optimise their effectiveness by concentrating on film and EST/TVOD services, market channels that seem to better match the film format and business models. According to Gaustad (2019), this may result in a paradoxical political trade-off between the opposing objectives of affordability and economy. It demonstrates how the development of cinema has been influenced by digital technology, in contradiction to the authors of the prior study.

Using their own preferences and tastes, users of streaming services are able to set up a broadcasting network. Focusing on it will lead to the creation of more popular films, TV series, and TV shows by modifying their content. It is possible to begin to comprehend how cinemas remain popular by looking at the research conducted by researchers on an open set of practises associated to or geared towards them (Hu, 2016). Despite the fact that the films are increasingly easy to access from a wide range of desired locations through a variety of distribution platforms. This is because watching films still fulfils a very specific set of needs that cannot be met by other forms of watching, at least theoretically. Although it seems to still be the case, the "special feeling" of going to the movies has taken precedence over the technical excellence of movies.

But it should be noted that this unique sensation is not solely influenced by the cinema's atmosphere or technical aspects. It is unlikely to be a brand-new finding to learn that going to the cinema is seen as a social activity. To be sure, going to the cinema and viewing movies in general still have a social component, but there are now more levels to it than there may have been in the past. Aside from the fact that going to the movies is a social activity because you might go with friends or family or just because there are other people in the same room, going to the movies is also a shared experience. The discussion of the movie follows in the immediate social circles, such as at work or in interest groups.

Many of the interview subjects engaged in online discussion. Whether they are interacting with close friends, members of their family, or even strangers—that is, people they are familiar with in the sense that they have met them in person. According to Andryeyeva et al. (2019; Fadeeva, 2020), the basis of a discussion space might be as much on a common hashtag, commenting on other people's public postings, or membership in a Facebook group with similar interests. Regarding only going to the movies, the expanded social focus of doing so can be reduced to a Facebook location announcement supplemented by the movie's name. It would be fascinating to conduct more research on how social media affects the social aspect of moviegoing.

It is likewise noteworthy that, in comparison to the experiences that viewers might have with new technology and the use of streaming services, going to the movies can gradually lose some of its appeal. They will be able to stream more effectively with the addition of new tools and technology like virtual and augmented reality.

## **ANALYSIS AND FINDINGS**

Filmmaking's production phase is when the actual shooting of the movie takes place. Hollywood and all other film companies across the world have steadily increased their use of digital cameras in recent years. These cameras take pictures in digital format rather than on film. Although only a few recent high-profile Hollywood productions were shot on film, the industry now relies primarily on digital equipment to create movies. In today's Hollywood, digital cameras are used to shoot more than 90% of the movies. Digital camera films are made at a low cost of production. Filmmakers from all over the world are increasingly choosing digital cameras over film ones for their films, and this is one of the main causes. A smart phone and a handy camera are all that some budding filmmakers need nowadays to create a movie. All limitations imposed by conventional thinking have been completely destroyed by digital technology, which has created a whole new world of amazing opportunities.

Editing or post-production used to be one of the most arduous tasks involved in the production of a movie. When making films, visual effects had to be produced manually by the filmmakers. Today, you can easily create the effects of a fantastical world and seamlessly integrate them with footage that was shot using a digital camera thanks to the development of sophisticated film editing software products. One of the biggest advancements in filmmaking that digital technology has made is this. In the movie industry, visual effects is a specialised field that has seen recent growth in demand.



Producers frequently mention handling and storing the canister (the circular box containing the film roll) when asked about their major duty following the conclusion of the film. Movies are now considerably easier to handle and transport to theatres than they formerly were because of changes in storage technology brought about by the development of digital technology. Movies are now screened using digital projectors, and they are stored on servers, hard drives, and video tapes. The new generation of filmmakers are looking at various alternate channels. Filmmakers can now present their work to audiences over a wider geographic spectrum thanks to the internet. To guarantee that the movie reaches out to a larger number of audiences from around the world, social media platforms and other online promotional tactics can be used.

The third and last significant stage of production is known as post-production. Post is a common abbreviation for it. "We can take care of that in post," In post-production, a lot of things could happen. Digital non-linear editing offered an entirely new concept to the way images might be chopped together, much like text may be cut and pasted in electronic word processors. Whereas digital cameras may be imitating their celluloid predecessors, digital non-linear editing offered a completely new concept to the way images could be edited together. Perhaps because of this, computerised non-linear editing was one of the first uses of digital technology in the film industry, specifically in post-production. The choice to develop this technique was undoubtedly influenced by economics because conventional editing was not quite economical.

.But non-linear technology also offered other benefits that could be taken advantage of. Since different sequences can be easily cut and recut using non-destructive editing software and no film stock is being damaged while the edit is being done, it has most obviously had an impact on the creative control it gives filmmakers. As the name implies, non-linear editing did in fact create a method for creating edits that were not consecutive. Even though we tend to think of narrative as being linear, the introduction of timeline allowed for sections to be skipped and come back to at a later time. Non-linear editing is just one application of digital technology in post, though. The effects and animation produced by computer-generated images (CGI) have perhaps had one of the biggest long-term influences on cinema during the past fifteen years.

In a recent article by Corliss, he discusses digital technology. According to a comment from Steven Spielberg, a benefit of computer-generated imagery is that it allows directors to now follow their imaginations. These CGI effects help increase ticket sales at the box office, as Corliss astutely notes. Perhaps all three of Bordwell and Staiger's reasons for change apply to this technological development. The novelty of computer-generated images is popular at the box office and gives the director creative control over their aesthetics. However, novelty fades quickly, and since there is a constant need to enhance the effects, prices for computer generated images fall by 90% roughly every five years.

which shows how post-production technology is developing at a rapid pace. Again, the huge Bollywood/Hollywood movies have been the focus of this post-production research thus far, but the one benefit of these ever-improving, reasonably priced editing packages is that low-budget filmmakers may now edit without having to pay for an expensive post-house. The film and television industries are still in the early stages of change. Movie studios and other video content producers, including TV networks and streamers, must continue to create innovative monetization plans that take into account the realities of digital consumers if they are to continue to exist. As an illustration, a lot of content producers are experimenting with interactive storytelling, which is media that invites viewers to engage with the plot – typically in a "choose your own adventure" style.

Netflix has made a few of these items available over the past three years, including Unbreakable Kimmy Schmidt's Interactive Special and Black Mirror: Bandersnatch. The use of interactive, gamified adverts has been tested by other streamers including Hulu. The only issue is that 80% of viewing occurs on television screens, which aren't yet conducive to interactive advertisements. Making films is another industry where artificial intelligence (AI) is beginning to be used. Netflix and other studios are beginning to utilise AI-powered predictive analytics to assist them choose which films to approve and to automate the creation of marketing materials like trailers. On the creative side of things, it is unclear if AI will have a stronger impact. To automate songwriting, scriptwriting, and cinematography work, however, a large number of individuals are working on this.

Not only has digital technology changed how we watch films, but also how they are created. By eliminating film, digital cameras have significantly lowered the expense and difficulty of producing films. Using them needed careful preparation, a high level of technical expertise, and they were expensive, fragile, and highly flammable. The ability to watch and edit digital footage, on the other hand, just seconds after it is recorded makes it a much more useful option for filmmakers. Digital technology has not only democratized the filmmaking process but has also sparked an explosion of innovation, from CGI to 3D plus 4k technologies. Workflows for production and post-production have also been merged.

Initial-principle photography has historically been the initial step in the production process, followed by post-production and, if there are any issues with the video, retakes. This model is, however, beginning to alter. As an illustration, consider *The Mandalorian*. The production is done in a specialised studio, allowing the filmmakers to edit and apply special effects in real time as they shoot, as opposed to being shot in various locations. According to the Industrial Light & Magic (ILM) website, "The Mandalorian performed in an immersive and massive 20' high by 270-degree semicircular LED video wall and ceiling with a 75'-diameter performance space, where the practical set pieces were combined with digital extensions on the screens.

Pixel-accurate tracking and perspective-correct 3D imagery projected at high resolution using systems powered by NVIDIA GPUs were made possible by the interactive playback of digital 3D scenes built by ILM on the LED walls. These environments were altered in real-time during the shot. This method of filmmaking significantly minimises the amount of time it takes to make movies as well as the risk because video can be seen and edited on-site and filmmakers no longer have to worry about outside factors like the weather. Technology has fundamentally altered the film industry, just as it has for many other sectors. It has altered everything from how films are produced to how they are edited to how consumers watch them.

Everyone involved in film production now has an easier life thanks to technology. A whole crew was required to handle cameras just 50 years ago, and if they wanted an aerial image, they needed an aircraft-mounted camera that was so heavy it weighed more than the aircraft! Additionally, after the film was captured, the editing process involved physically cutting and pasting the film together, which was not exactly a quick or effective method. Only poor-quality images were produced despite the lengthy and difficult work. But today's lighter, newer cameras enable shots that were previously unthinkable and provide clearer images. Plus, editing movies has never been simpler thanks to the cloud. Teams from all over the world can collaborate on a movie from any location, even the comfort of their own homes. For filmmakers who previously wouldn't have been able to join, this opens up a completely new universe.

Additionally, viewers no longer need to travel to their neighbourhood theatre for the single nightly showing of a movie. The ability to watch their favourite films whenever and wherever they want has been made possible via on-demand, streaming services, and television. In a relatively short amount of time, technological advancements have transformed the movie-making industry from silent, black-and-white movies to high-definition movies that can transport viewers to the scene.

## CONCLUSION

The emergence of new methods and types of filmmaking is significantly influenced by technological advancement. We may safely say that the digital revolution has already altered how we view films. Film production prospects have increased dramatically during the previous 15 years. The quality of the photography and the image that is produced, along with the technological capabilities that practically every city dweller possesses, allow for the unrestricted viewing of films and television shows wherever you are and whenever you want. The ability to access the internet and choose appropriate content in a matter of minutes is transforming the viewing experience even if films are still quite popular.

Filmmakers may benefit or suffer from the rise of streaming platforms. As an illustration, the Netflix service began purchasing the rights to air films that were presented at the Sundance Film Festival. Prior to now, these films have only been distributed solely under the "festival cinema" moniker; they have been seen in numerous theatres, but none of the distributors have expressed any interest in releasing them. Currently, auteur filmmakers have the chance to interact directly with their audience rather than relying

on movie theatres to assist in distribution. These genres are probably being kept alive by the development of streaming services in the digital era.

Along with that, the growth of other genres is also noticeable. Because streaming offers a way to watch a series in good quality without breaking copyright laws, series and TV shows have grown in popularity. Additionally, this altered how well this format was shot. There is still place for quieter genres because blockbusters of all kinds are still allowed in theatres. For film producers today, the key obstacles are identifying the viewer and making films that may be successful on streaming services. The advancement of technology has made it feasible to convert traditional television into a digital broadcasting network with features customised for each user. To compete with foreign films, Ukraine does not, however, have any authentic content. Streaming service growth in Ukraine can undoubtedly be beneficial in this regard. But it's crucial to work hard to produce original content in addition to broadcasting it.

The film industry is experiencing revolutionary changes because to both digital technology and the internet. The revolution is still going on. It has produced a global sensation and had a significant impact on the revolution of movie special effects and film concepts thanks to further advancements in digital technology and internet cooperative application. However, the development of the film industry uses both digital technology and the internet as tools. The use of these technologies to create the best films is essential to the development of the film industry. The film industry is experiencing revolutionary changes because to both digital technology and the internet. The revolution is still going on.

With the development of digital technology and the use of internet collaboration, it has generated a global sensation and had a significant influence on the revolution of cinema special effects and film conceptions. However, the development of the film industry uses both digital technology and the internet as tools. The use of these technologies to create the best films is essential to the development of the film industry. We acknowledge that technology has changed the way that films are made over the past century, so why do we suddenly view any future advancement as a loss? Is this just another change, then? It's possible that this aspect will have the biggest influence on how films are made thanks to digital technology. The consumption of films is by no means declining, and in fact, as this study has explored, it is rising.

With the advent of digital technology, viewers are now able to search for any films they desire and examine scenes and visuals in ways that were not previously possible. Through the use of film as a medium for communication and expression, digital has made it possible for audiences to more easily and affordably explore their own creativity. Digital has made it possible to have options, expand the number of markets that can be served, enhance production, and boost consumption. As a result, studios are forced to develop ways to make production more efficient, and one such method appears to be a production method that is fully digital. Although there will always be some degree of uncertainty in a world that is changing, it is safe to say that digital technology has already taken off and is not likely to disappear anytime soon.

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