

Effects of Digitalization on the Three-tier Structure of Tanzania's Film Industry

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Abstract

This paper examines the effects of digitalization on the three-tier structure of Tanzania film industry. Explicitly, the paper focuses on the period between 1990 and 2020. It follows on the presumptions that omnipresent and pervasive digital video and Internet-based technologies promoted under the theme of digitalization and underpinned by the digital revolution theory are impacting on film industries across nations. The specific drivers of the digitalization that the paper advances are digital video cameras and computer-based nonlinear editing systems applied in the production of films, Digital Versatile Discs (DVD), Online movie streaming and Video on Demand (VOD) platforms as used in distributing films and digital cinema formats and projectors in exhibition of films. Key informant interview method was used to collect qualitative data from twenty six (26) respondents. The respondents included media experts, filmmakers, camera operators, video editors and various film industry stakeholders. Other data collection methods employed included direct observation and online ethnography. The paper reveals that digitalization elicits and enhances specific changes on the three-tier structure of the Tanzania film industry. Due to the effects of digitalization the Tanzania film industry has morphed into a functional film industry. The paper concludes that in spite of the differences in its effectiveness and purposes that are grounded on issues of contexts, digitalization is more important than other determining factors such as capital formation in impacting on the transformation of the three-tier structure of the country's film industry.

Key words:

Digitalization, Tanzania film industry, Bongo movie, Three-tier structure
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Introduction

Film is a technological driven art form, communication medium and industry. Technology is central and pivotal to the functioning and changes that have occurred in filmmaking as an art form and the industry since its early experiments. Born in the last decade of 19th century, the film industry began to experience immense and high paced changes in its technological dimension in “the second half of the 20th century when the world marked the advent of digital video and Internet technologies” (Debjani 2014, p.108). With digital video and Internet technologies, the world embarked on the 20th and the 21st century industrial revolution—the digital revolution. The digital revolution also referred to as the fourth (4th) industrial revolution (Belton 2004; Rodman 2006; Rani 2011; Magala 2015) that occurred at the beginning of 1970s “has transformed our lives and societies with unprecedented speed and scale, delivering immense opportunities as well as daunting challenges” (UNCTAD 2019).

Any viable film industry requires a three-tier structure to function properly. These tiers are production, distribution and exhibition (Silver & Alpert 2003; Bordwell & Thompson 2004; Mohammed 2008). In the interest of this paper, the two key driving forces of digitalization are broadly categorized as digital video and Internet technologies. For the past three decades, digital video and Internet technologies have been adopted and used towards the functioning of nations’ film industries (Poole & Ho, 2011; Debjani, 2014; Hu, 2016). Digital video and Internet technologies are maintained to impact the three-tier structure by effecting changes on the manner and ways in which films are produced, distributed and exhibited (Silver & Alpert 2003; Bordwell & Thompson 2004; Fair 2006; Poole & Ho 2011; Rani, 2011; Fulton et al. 2015; Straubhaar et al. 2014; Debjani 2014; Cascio & Montealegre 2016; Hu, 2016; Carrithers 2016; Waldfogel 2017; World Economic Forum [WEF] 2018; United Nations Conference on Trade and Development [UNCTAD] 2019).

The paper focuses on constructs promulgated in the assumptions of the digital revolution theory. Therefore, I approach the problem of this paper using a framework of digital revolution. Digital revolution “assumes that

new technologies have generated deep structural changes in the fields of cultural production” (Klineberg & Benzecry 2005, p.7). It follows that in terms of production of films, modes, motives and styles of production of films have changed. The new ways of telling and sharing stories such as Digital Imagery (DI) and Virtual Reality (VR) are changing enormously the art and business of filmmaking (Steyn 2013; Carrithers 2016; Waldfogel 2017; Skilton & Hovsepian 2018; Koljanen 2018). In terms of distribution, digital “opens up new forms of value distribution in cultural industries as well as very varied positioning opportunities in this sector, regardless of the position they occupy in the value chain” (Benghozi & Paris 2016, p.9).

Consequently, the exhibition of films, as a “popular form of entertainment, for almost a century, has been dramatically transformed” (Friedberg 2004, p.914). One of the forms of exhibiting films that this paper focuses on is cinema. Over the past decades, cinema has changed in response to digitalization. The digital cinema interfaces (DCI), three dimensions (3D: height, width and depth) films and the Image Maximum (iMAX) high resolution formats are increasingly becoming cinema industry standards. These new innovations in technologies create new opportunities and reverse the challenges experienced in the art and business of filmmaking. As such, the adoption and use of such digital video and Internet technologies have occurred and emerged as important accelerators of changes that have occurred on the three-tier structure of diverse film industries across continents.

Orlando (2017) observes that “new technologies have impacted cultural production” on the African continent” (p.85). The precedence of new technologies has resulted in the transition from the use of celluloid film to analogue and later digital video technologies. Consequently, many African countries’ cinema landscape changed histrionically beginning in the 1990s. One noticeable dynamic in the African cinema landscapes is, “during the last decade, video-film industries have sprung up all over the continent” (Bisschoff & Overbergh 2012, pp.114 -115). Undeniably, the socio-technical character of video-films has generated a unique phenomenon in Africa. “This phenomenon was (and still is) labelled ‘video-film’ because it is not necessarily films produced in the traditional ways of cinema, but rather stories recorded on home videos” (Gebre-Egziabher 2006, p. 4). These video-film industries in Africa are manifold

at the time when the proliferation of digital video and Internet technologies towards the functioning of the production, distribution and exhibition tier of film industries. Among the thriving video-film industries in developing countries are emerging local, popular and commercially driven video-film industries such as the Nigerian film industry popularly known as “Nollywood”. Nollywood epitomises the impact of digital video technologies and the Internet on African cinema and the film industry’s development (Harding 2003; Onuzulike 2009; Okome 2007; Krings & Okome 2013; Ebelebe 2017). Essentially, the digital video and Internet based era of production, distribution and exhibition of films is, arguably, an era that is most influential and prevailing of them all (Rani 2011; Fair 2006; Fulton et al. 2015; Poole & Ho 2011).

Tanzania film industry

Among the film industries that recorded significant changes in their three tier structure for the past three decades in East Africa is the Tanzania film industry. Such changes are especially evident after the advent and mainstreaming of the production of commercial video-films popularly known as Bongo Movies (Kang’anga 2006; Mohammed 2008; Bakari 2009; Shule 2011; Ally 2014; Nyoni 2015; Gumbo 2018). However, there is insufficient information on what has caused such changes. In fact, fewer previous scholars have partially correlated such changes in the Tanzania film industry with technological dimensions (Shule 2011; Mwakalinga 2011 & 2013). Shule (2011) asserts that “technological advancement enabled the young, amateurs and people with low budgets to produce films using video cameras. This socio-political transition contributed to a massive production of video-films that are commercially motivated in Tanzania” (p. 40). Mwakalinga (2013) proffers that, “global technological advancement and the adoption of a free market economy as part of neoliberal policy reform played a major role in the transformation and growth of the video-film industry in Tanzania” (p. 83). These observations, apart from being insufficient, are also largely uncritical of the situation they attempt to explain and lack dimension in their cause-effect analysis.

Both studies have not expanded on either the concept of technological advancement or attach any clarification as to what it means by transformation. Transformation is a term that is ambiguous when no context or clarity to it is provided. Specific evidence of change in technologies and its impacts should substantiate the assumption that the transformation of the Tanzania film industry into a commercial video-film industry was an outcome of technological advancement. The assertions also assume that changes in technologies applied in filmmaking, consequently, do influence the transformation of the Tanzania film industry. It is an overstatement to argue plainly that the industry has or will benefit from technological advancement when one considers the complexity of the adoption and use of new technologies. Therefore, the need arises to substantiate the adoption and use of specific new technologies within the value positioning parameters of the three-tier structure of Tanzania film industry.

Digitalization (and Digitization) process

Significant changes are expected to occur in cultural and creative industries and media communication as digital based technologies are applied to enhance their processes of productions or audiences consumption of contents. This digitalization is preceded by a process known as digitization (Pardo 2012; Mitchel 2004; Hu 2016). Often conflated and confusing are the two terms: Digitization and digitalization. The process of converting pictures, sounds, or information into a form that a computer can easily read is digitization. Digitization occurs when information or signal is converted from its original, often, analogue form to digital form or format. Therefore, digitization is about the conversion of any form of text, images or sound into a form that can be processed.

On the other hand, digitalization, according to Gartner's information technology glossary, refers to the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business. In filmmaking, digitalization is change associated with applying digital video technology and Internet in all aspects of the functioning film

industry; from production, distribution, exhibition to audience consumption of the films. "Digitization of movie production and their exhibition in multiplexes has been one of the primary reasons that cinema has continued to attract audiences in theatre in many parts of the world" (UNESCO 2013, p.6). Such digitalization is an impacting force that changes the way or manner of which the industry functions or operates in the interest of its key stakeholders.

Digitalization in the film industry occurs when digital technologies are applied to enhance the production, distribution, sharing and storing of film content in binary digits. Digitalization changes the idea of how films are shot, edited, distributed, exhibited, accessed and consumed by audiences. Digitization is, therefore, a process of changing the technology while digitalization is the application of the changed/new technology. As an outcome of applying the new and different processes and techniques born out of the changed/new digital technologies, the filmmaking business is expected to form opportunities for the creation and capturing of new value as well as risks (Ibrahim 2012; Ganz & Khatib 2006; Gebre-Egziabher 2006; Ebelebe 2017).

Another conceptual area is the notion that digitalization fundamentally covers the inclusive progression from invention, innovation to diffusion of new technology. Douglas Gomery (2004) is argued to have introduced the three concepts into film studies. Gomery refers to invention "as the phase in which the necessary technology is developed" where by innovation is "the phase where manufacturing and marketing of technology" occurs and diffusion is the phase where "widespread adoption of technology by industry occurs" (Gomery, cited in Belton 2004 p. 901). Largely, invention, innovation and diffusion are key drivers of digitalization in the media and creative industries. Out of the three aspects, the latter two (innovation and diffusion) were important and central to this paper. The two processes created a framework for determining the technical and technological innovations that have been diffused in the three-tier structure of the Tanzania film industry.

Thus, in this paper digitalization is explained as a process of innovating and diffusing new digital video technologies and Internet that enable or enhance functioning of the processes of the three-tier structure of a film

industry. It is basically the application or adoption and use of new technologies to change or enhance the functioning of a film industry. Such changes are incremental and first occur on the technical and technological attributes of the technology (innovation) and later its application or adoption and use (diffusion). Digitalization is not accidental; it is purposely done so as to leverage the opportunities to effect necessary changes towards the functioning of the production, distribution and exhibition tier of the film industry.

Three-tier Structure of Film Industry

Film industry is an all-encompassing term that describes a broad range of activities and processes that support the functioning of the three-tier structure (Silver & Alpert 2003; Bordwell & Thompson 2004; Mohammed 2008). The concept of a three-tier structure denotes a structure upon which the value of film as an industrial and cultural market-commodity is created and exploited. The formation of three-tier structure is an accumulated effect of the activities carried out by specific people and in a phased manner. Each tier has its specific instant of functioning and in rare cases overlaps have been considered. In that sense, the three-tier structure creates an imaginable linear progress making it possible to envision a semblance of limits as well as opportunities (Gianneti 1999; Dancyger 1999; Rani 2011; Long & Schenk 2006). The three-tier structure provided this paper with a scope for the investigation of the effects of digitalization on Tanzania film industry.

Effects of digitalization on production of films

Digitalization on production of films in Tanzania film industry started to occur when digital video cameras and computer-based nonlinear editing (NLE) systems were diffused into the process of filming and editing. Digital video cameras became the norm with the formation of the video or image standards in 1988 such as Motion Picture Expert Group (MPEG). The standard allowed video files to be compressed when stored digitally. Digital video cameras instead of using film uses digital sensor to save images onto digital memory cards or camera's inbuilt storage. As technologies continue to improve, the relative costs of digital video cameras decreased. Respondents maintained that in Tanzania by 1990s through 2000s high definition (HD) cameras such as Sony PD 1700, Z Seven were the earliest types of digital video cameras deployed into the

scenes where filming occurred.

Respondents further reported that a potential breakthrough in using digital video cameras of films came about when a new type of digital video camera that uses a reflex design scheme, popularly known among industry's stakeholders and filmmakers as Digital Single Lens Reflex (DSLR) was deployed in production of films. Beginning in 2010, DSLRs were highly disposable in production scenes of films in Tanzania. Among the early films shot using DSLR was *Mkwawa* (2013), a documentary by Tanzania filmmaker Seko Shamte. What DSLR offers as advantages to filmmakers include cinematic or film-like organic look, low noise floor, natural skin tones and the possibility to shoot raw and attempt colour grading in the post production using limited equipment. Other advantages, dissimilar to the analogue video technology, include speed or productivity that can be measured in the amount of efforts per time. As for beginners and untrained filmmakers, digital video camera such as DSLR are user friendly when used in an automatic mode and can help one to achieve better quality videos.

Editing benefitted immensely from an integration of computer to form the NLE systems. With the integration of computer, there occurred a radical shift from linear editing also known as cut-to-cut or AB roll editing to NLE system. NLE is maintained to be profoundly fast and inexpensive. It started with the use of software such as Sony Vegas, Edius, Window Movie Maker and slowly people shifted from to completely depend on the use of computers. The process of transfer of raw footages now known as importation has replaced the time consuming process of capturing as an important step in the process of using the NLE system to edit films and video. It's important to note that importation of raw footages (now data) is only possible when the video storage device used is digital such as secure data (SD).

There are also possibilities to shoot in raw format (without colour) and apply colour during post production using colour grading software or computer generated images (CGI) or any visual effects (VFX). Sequences of locally produced films where such digital visual effects were applied have grown in number while colour grading software such as Davinci Resolve gives video-films the cinema look. NLE systems in Tanzania are

set up in small rooms. Usually, the room comprises a table, an editing computer set, external hard drives, memory card readers, computer audio or home theatre speakers and a couple of DVDs and VCDs. It is these types of equipment and set-ups that have facilitated the editing of feature length films as well as short films. Some of the studios have invested and installed latest technologies in video editing and they own large format cameras such as Red Dragon and Blackmagic Ursa Mini. These studios include Wanene Entertainment (owned and operated by a foreign of Indian origin, Darsh Pandit), Timamu TV (Timothy Conrad) and Kwetu Studios (Fred Feruzi). Kwetu Studios released *Safari* (Fred Feruzi 2018); Wanene released a short film titled *Photograph* in 2018 while Timamu TV studios released the award winning film, *Sema*, in 2019.

Generally, with digital video technologies equipment used in film production are now cheaper and portable, easy to travel with and has enabled filmmakers to shoot fast and on different locations within one shooting day. This development has helped to cut down days for production and, subsequently, costs of production are affordable for filmmakers working independently. It is now possible for young, emerging and independent filmmakers to start their engagement with filmmaking and more often with less skills, experience and technical capacity. Therefore this shift from analogue to digital video technologies has challenged the opportunities for filmmakers to engage in filmmaking providing them with infinite possibilities. While there were lots of difficulties in producing films in analogue videos format; for example if one makes a mistake during editing, he/she is forced to start again, digital video formats has opened up the possibilities of producing stories faster. One can record, edit and screen the films almost immediately.

Even though digital video cameras and NLE systems have become a favourite medium for producing films, they have also presented Tanzania filmmakers with a number of challenges. To begin with, it is still expensive to buy equipment for processing large digital video formats. Similarly, the lack of formal or informal education on how to apply effectively the new technologies has contributed to poor quality films in terms of picture resolution and VFX. As compared to celluloid film cameras, the characteristic advantages of digital video cameras would contribute to the death of the filmmaking as an art form. The types of cameras used during the celluloid film era required one to fully

understand them. The cameras were heavy in terms of weight. In these sorts of cameras, there are neither margins for error nor easy second takes or going back to locations. The cameras used today are lightweight and portable and operated on automatic mode and by pressing the button one gets the colours and so forth. There is no art involved to filmmaking anymore. Therefore, most of the old school filmmakers perceive digital video technology to have destroyed the actual meaning of the art of filmmaking.

The democratization effect emanating from the affordability and accessibility of digital video technologies is another setback towards the production of quality films in Tanzania film industry. Due to easy accessibility and inexpensiveness attributes of digital video cameras and NLE systems, people with no background training in filmmaking can now engage in filmmaking. These days there is a popular statement among pundits in the industry to the effect that 'today anyone who owns a 5D (Canon DSLR camera series) considers himself a filmmaker'. Thus with the DSLR, anyone would just put together a group of actors and in the next two days release a film – an amateurish film for starters.

The challenges notwithstanding, the Tanzania film industry has experienced rapid changes in technology in the digital video technological era than it ever happened during the analogue or celluloid film era that preceded it. Digitalization has had profound effect on the production tier of the Tanzania film industry. Even though the periods between its independence (1961) and 1990s, in Tanzania, it was almost impossible to make a film, it is now becoming a day-to-day job of most youths in rural and urban Tanzania. Between these two periods, the Tanzania film industry through its state apparatuses and using celluloid film technology produced only one feature length (60 minutes and above) film titled *Yomba Yomba* (1985, Martin Mhando). There were also three short films titled *Fimbo ya Mnyonge (A poor man's salvation)* (1976) and *Wimbo wa Mianzi (Song of Bamboo)* (1984) produced under Tanzania film company, as well as *Arusi ya Mariamu (Mariamu's wedding)* (1984, Ron Mulvihil and Nangayoma Ng'oge). In this regard, the respondents reported that the marginal number reflects the inhibiting factors experienced at the time such as lack of financing, the cultural policy and priorities of the times as well as technological incapacities. As the result of the shift from the use of

celluloid film to analogue and later digital video technology more than 500 films per annum were produced and distributed into the local, regional and diaspora film market between 2000 and 2015 (Kang'anga 2006; Attiah 2014; Nyoni 2015). Tanzania was ranked the third highest film producing country in the world after Nigeria and India (Bakari 2009; Kamin, 2011; Shule 2011; Athumani 2011; Mwakalinga 2013).

As a result of digitalization, the production of films in Tanzania is solely digital video based in both filming and editing. Similar to other parts of the world, in Tanzania it is apparent that “as we move ahead into the digital age, pronouncements proliferate: film is dead” (Dancyger 1999, preface). It shall continue in that direction and there are no signs so far of revisiting the celluloid film technology. This reality is validated by the deserting of the film equipment and infrastructures that were installed at the now School of Journalism and Mass Communication (SJMC) where the studios of the now defunct Tanzania Film Company (TFC) were located. Other places where celluloid film processing laboratory were installed include the Audio Visual Institute (AVI) studios now the premises for the Tanzania Broadcasting Corporation (TBC). At the University of Dar es Salaam (UDSM)'s Department of Fine and Performing Arts (FPA) now Department of Creative Arts (DCA) equipment were availed to support training in filming and editing using celluloid film technologies. In The respective equipment of these studios have become obsolete and abandoned. Therefore, one can only have a desire to use celluloid film in production of films but fail to do so because of the reality on the ground.

Effects of digitalization on distribution of films

Tanzania has remained on the receiving end of cultural production exchange throughout the colonial and most part of its postcolonial period. Even after the adoption of free market policy,¹ the country continued to

¹ “The implementation of free market economy entailed a transformation that brought about retrenchment of government employees, liquidation of government institutions, and introduction of privately owned media production houses and an influx of foreign cultural goods” (Mwakalinga 2013, p. 210). Not just foreign produced films made their way into the country but also the video playback, screening and recording devices such as VCRs, VHS and TV screens were now available for home movie entertainment and TV programming consumption.

receive heavily the foreign produced and imported consumer goods. Among the consumer goods that were imported include Video Cassettes Recorders (VCR) and television screens. The importation of VCR and television screens marked the beginning of the popular distribution of films in Tanzania. Foreign films and TV programming in Vertical Helican Scan (VHS) tapes format were among the foreign cultural industry goods imported and distributed into Tanzania. Countries that had Tanzania as its ready film and TV content market include India, the United States, China, Japan, Egypt, Nigeria, Kenya and South Africa. Some of the Tanzanians watched also these films on cinemas and others on TV channels across regions.

Beginning in the 1990s Nigerian films became popular in Africa and the diaspora film markets. "As later comers to the establishment of video filmmaking industry, Tanzania has been a ready market for video films made in Nigeria" (Kang'anga 2006, p.33). Respondents maintained that the distribution of Nigerian films in VHS, VCD and later on through DVD and Internet based movie streaming would have an impact on the distribution of locally produced films in Tanzania (Mohammed 2008; Krings 2010; Boehme 2013). From the broadcast on television to the VHS that was available in the market, it created its market niche and an influence that was not to be ignored. By mid-2000s Tanzania was streamlined to offer a local film market for commercially produced film the Bongo Movies started to take root in the country. The films were packaged on VCDs and later DVD, which led to the advent of intermediaries or street vendors popularly known as '*Machinga*' in Kiswahili. With DVDs and VCDs, the street vendors extended the reach of the local and foreign produced films to the film fans across regions in Tanzania and beyond. It also led to an increased number of local video libraries countrywide. The Tanzania Film Board (TFB) estimate that there are more than 300,000 video libraries operating in Tanzania. Thus, the street vendors and video library owners exploited the possibilities engendered by digitalization. Most significantly, they exploit the advantages of new technologies by offering access to locally-produced and pirated film content in DVD formats to feed the DVD players and television screens kept in the comfort of homes (Bohme 2014; Kasiga 2013; Kabyemela 2017).

In Tanzania, as in other film industries across the globe, the DVD era film industry operated based on the 'classic scarcity model' (Gubbins 2011). According to Gubbins (2011) "the model supposes that a film can only be available for a period of time in a specific market. Value is based on the exploitation of rights within those parameters" (p. 13). The locally produced films packaged on DVD were distributed into the film market for a specific timeframe. That specific timeframe guaranteed the distributors/duplicators' return. The timeframe for distributing DVDs ranged from 5-6 months to hardly a month and a half. This signalled the inevitable decline of the DVD distribution in Tanzania as in other parts of the world (Athumani 2011; Kasiga 2013; Shule 2014). Data shows that by 2014, DVD began to partly collapse and so are the major distributors in most urban areas such as Dar es Salaam. Respondents also pointed out that DVD collapsed due to piracy. Indeed, "with the digital advancements, the losses have become greater than in the past; currently copying the film onto DVDs /VCDs and illegal Internet downloading, constitute most of the piracy" (Shule 2014, p. 189). A direct observation of few DVD rental libraries shows that there are very few DVDs available for rent and very few people who are interested in renting them particularly in urban and semi-urban areas. In some libraries, DVDs have disappeared or are left to fill the shelf spaces. It appears no one is interested in DVDs anymore.

Since the complete disappearance of DVD became a reality, there has emerged an alternative to DVD. Meanwhile, tis an advent of movie libraries that operate in a form of offering movies to those interested in "electronic copies of movies" other than optical discs copies. These types of video libraries are observed to have become common first in most of the urban areas such as Dar es Salaam, Mwanza and Arusha. For example, in Dar es Salaam, these video libraries are found in such areas as Ubungo, Sinza, Kinondoni A, Morocco, and Mwenge. The movie libraries keepers propounded that even though distribution of films in DVD format has become almost impossible, producers and audiences have other alternative distribution platforms to access films. These include Internet based movie-streaming and VOD platforms.

Online streaming technologies and VOD platforms are technologies used to stream or deliver audio-visual contents and performances via Internet. Thus, Internet penetration index is a significant aspect of the diffusion of

online movie streaming method to distribute films among the producers and audiences. Beginning 2010, Tanzania recorded an increase in Internet preferences as mobile communications service providers grew in number and competition in communication service packages. Internet packages became the most promoted package whereas phone tolls became cheaper. By 2020, the average price for data package is estimated at USD 0.75, an equivalent of 1, 740 Tanzanian shillings. Respondents maintained that the lowest prices has increased the number of people in the country who prefer to go online in search of stapled entertainment in a form of audio and visual performances. Magalla (2015), with reference to audio-visual performances, contends that the online platform will “be used in an increasing measure on the Internet through film and music videos as available bandwidth increases” (p. 23). Thus, the Internet has added value to how locally-produced films in Tanzania are distributed across the local and international film markets. There are many advantages of Internet-based movie streaming in the distribution of films such as quick and wider access to the film markets, smaller capital investment, no degradation of quality of the film copy and it is easiness to establish a feedback loop.

The respondents also reported that Netflix had become popular among the middle and upper socio-economic class in Tanzania. Netflix became their one stop store or window to access films anywhere and anytime they want. Nollywood took the same route with films such as Iroko TV, Ibaka TV, Afrinolly, Nollyland, and many others. The shift from DVD to online streaming on platforms such as Iroko TV in Nigeria also influenced film distributors in Tanzania to invest in the development of movie streaming platforms. Representatives of the distribution companies maintained that by mid-2010, Steps Entertainment and Proin Promotions launched their online movie streaming platforms, Afrobox and Proinbox. They further mentioned that both of these platforms monetisation model and service was based on subscription Video on Demand (SVOD). However, the early SVOD platforms were not successful. One of the reasons that catapulted their anticipated success is pointed out to be poor audiences take up in using the platform to stream films. The poor audience take up on online streaming movie platform can be attributed to the lack of the culture among local audiences to watch movies online.

On the other hand, 2018 and 2019 witnessed partial growth of the movie streaming culture in the country, with new investors emerging in this type of film distribution. The new entrants offer better solutions to the needs of the local and diaspora audiences for locally-produced films and TV drama. This is among the benefits of digital revolution. It triggers endless opportunities for new actors to continually emerge. “New actors emerge, who offer new aggregating solutions and ways of putting content across, designing original marketing and transaction modes, better suited to this new context (free, subscription, micro payments)” (Benghozi & Paris 2016, p. 5). The new entrants to the Internet-based movie streaming platforms include MPTV and Swahiliflix. MPTV was launched in 2018. It offers a one-month free trial to its users. Swahiliflix was launched in 2019. These platforms were launched at the time when the rising curve of production of Bongo Movie had flattened. Therefore, the platforms such as MPTV and Swahiliflix capitalized on the past popular films and local TV series. For example, *Kiumeni* (Ernest Napoleon) was released in 2015 but was uploaded into Swahiliflix in March 2020. This connects with the assertion that “in principal, for a digitally produced work or piece of art, there is no ending, they could be changed or continued forever” (Stewens, no year, p.63). Respondents observed that as this tendency could work in the interest of the owners of platforms as it adds to the platform’s locally produced movie content index, for most of the audiences who have already seen the films before, it could contribute to their discontentment.

The respondents further pointed out that, apart from the online movie streaming platforms, there is also a growing tendency among Tanzania filmmakers to use VOD platforms such as YouTube as a film distribution platform. An online ethnographic search for films on YouTube reveals that a significant number of locally-produced films are now available on YouTube. Such films include *Ngoswe Penzi Kitovu cha Uzembe* (Uploaded march 2020, Moja Kipongo) and *Karantini* (Uploaded April 2020, Abdallah Nzunda). Other film producers and production companies have taken initiatives to launch a specific YouTube channel for uploading all their films – past and present. One such YouTube channels is the Swahiliwood channel owned and operated by Media for Development Initiatives (Mfdi) under the steering of John Riber. In it, films such as *Hadithi za Kumekucha: Tunu* (2019) and *Hadithi za Kumekucha: Fatuma* (2019), both directed by Jordan Riber, are uploaded. The search revealed that other films that can be watched from there include *Sunshine* (2014), *Chumo* (2011), *Yellow card*

(2000) and the iconic *Neria* (1991).

All these online streaming activities indicate the extent of variations that have occurred in the distribution tier of films in the Tanzania film industry as a result of digitalization. Indeed “with social media, the Internet and general media formats that extend beyond physical barriers of nation states, linguistic parameters and cultural taboos, filmmakers have become more savvy and discerning in their approaches in creating narratives for local and global appeal” (Orlando 2017, p. 97). Amidst such success one of the issues that represent the downside of digitalization on distribution of film and which have received academic attention both at local and international scope is piracy (Shule 2014; A. Ally 2011). Piracy continues to deter efforts by the local filmmakers and industry’s stakeholders to migrate into the online streaming platforms. The extent to which Tanzanians have a tendency to seek information through Internet is still a hindering block to the promotion of online movie streaming culture.

Meanwhile, Tigo Telecommunications in Tanzania launched “YouTube Go” in early 2020. The Netherland based online movie, TV series and documentary streaming platform known as Nuela TV held a meeting with Tanzania filmmakers on 22nd October 2020 at Benjamin William Mkapa Stadium. The review of the application uncovered that Nuela TV has already introduced a category-feature for Tanzania films identified as “Movies of Tanzania”. By October 2020, the Nuela TV app had been streaming two locally-produced films: *Red flag* (2018), *T-Junction* (2019) and a documentary film, *Wahenga* (2019). In the report titled ‘Report predicts key film industry changes over the next five years’, Mitchel (2018) asserts that, “VOD services are only starting to identify how to effectively premiere feature length content. Transactional VOD (TVOD) is still expected to grow in significance” (para 9). The continued efforts to develop the VOD platforms can be considered an indicator that the Tanzania film industry has aligned itself with the opportunities of digitalization in distribution of films.

Effects of digitalization on exhibition of films

So far, the paper has demonstrated that changes have occurred in functioning of the production and distribution tier of Tanzania film industry. The changes also imply that the industry’s stakeholders particularly the filmmakers, audiences, distributors, movie street vendors,

and library keepers have benefitted and face a challenge to innovate and leverage the intrinsically emerging opportunities. This sub-section focuses on the changes that have occurred in the exhibition tier due to digitalization.

Between 1980 and 2000, there was a sharp decline in cinema attendance among Tanzanians attributable to factors such as the introduction of VCR element as already discussed under the distribution tier sub-section. As the number of people going to cinemas declined, it led to the collapse of several theatres and the Tanzania film industry was on the brink of a collapse. Between 2010 and 2020s, "Tanzania has seen the incredible revival of cinema" (Lichtenstein & Sorensen 2014, p. 41). Even though 1990s and 2000s cinema experiences in Tanzania came to a standstill, from 2010 cinema started to record resurgence, the findings show. In this regard, the respondents linked such revival to the shifts in the technological dimensions of cinema particularly the shift to digital cinema formats and projections. The shift to digital cinema projection was spearheaded by joint initiatives of film studios across Europe². The aftermath of such sorts of initiatives changed the cinema landscapes across the world. Different initiatives made member countries agree on the technical standards; however, these agreements took time to develop before implementation.

Direct observation revealed that beginning 2010, a number of new cinema complexes with several theatres and larger sitting capacities have been installed in Dar es Salaam, Mwanza and Arusha. Meanwhile, some of the early theatres in Tanga and Zanzibar have been refurbished and are now operating. The following table illustrates the regions, cinema complexes/theatres that are currently found and operational and the specific locations where they are found in Tanzania.

^{2 2} <https://www.dcimovies.com/>

Table 1: Cinema complexes and theatres that are operating on Tanzania Mainland and Zanzibar

#	Region	Cinema Complex/Theatres	Specific Location	Total
1.	Dar es Salaam	Century Cinema (Mlimani City)	Mwenge, Sam Nujoma Road	5
		Century Cinema (Aura Mall)	Posta, Morogoro Road	
		Century Cinema (Dar Free Market)	Ali Hassan Mwinyi Road	
		Century Cinema (Mkuki House)	Keko, Julius K Nyerere Road	
		Suncrest Cinema (Quality Center Mall)	Julius K Nyerere Road	
2.	Mwanza	Misterious Sinematix	Rock City Mall	1
3.	Arusha	Regalz Cinemaxx (Njiro Shopping Complex)	Njiro Road	3
		Regalz Cinemaxx (AIM Mall)	Majengo Street	
		Arusha Theatre	Njiro Road	
4.	Tanga	New Majestic Cinema	Mkwakwani Road	1
5.	Zanzibar	Rumaisa & Zan Cinema	Malawi Road	1

Source: Field Data (2021)

Film industries across nations underwent a partial shift from traditional celluloid projections of cinema to digital cinema projectors. In developed countries such as the US, digital cinema projection started as early as 1999

with the projection of *Star Wars: The Phantom Menace* in four US-based theatres (Belton 2004). In Tanzania, the shift was only possible from 2014 with the installation of new digital projectors and with Century cinema based in Dar es Salaam leading the way. The total replacement of celluloid film projectors entailed the completely installation of new digital cinema projectors. After all, “the heart of the digital projector is a three digital light processing chips known as Digital Micro-mirror Device or DMD” (Belton 2004, p. 909). In this regard, a technician at the Century cinema (Mlimani City) observed that DMD converts digital electronic input into a digital light, which is then projected to the screen. To some of the cinema complexes, to make a shift to digital, they opted for an attachment of a Digital Light Processor (DLP), which is a picture head mounted on a theatre projection lamp house, to the previously installed projectors.

Meanwhile, with digital cinema projections came the 3D glasses and 3D formatted movies. 3D glasses were promoted for new experiences of watching “big concept” cinemas that are made digitally and based partially or completely on Computer Generated Images (CGI). Respondents argued that 3D glasses have enticed the old and new generations of cinemagoers back to cinema. As Belton (2004) has emphasised, “for it to be truly digital, it must be digital for the audience as well” (p. 906). It emerged that cinemagoers in Tanzania find interests in the blockbuster movies that are formatted into 3D. This is one aspect about digital cinema in Tanzania that has been utilised effectively. Notably, the inventions developed to enhance the experience of digital cinema such as iMAX high-resolution format in projection of films have yet to be adopted in Tanzania. Other innovations that are not diffused yet include Virtual Reality (VR), which gives the audience an interactive experience during cinema screenings (Friedberg 2004; Ganz & Khatib 2006; Pardo 2012; Mitchel 2018).

Another key development in the digital cinema era is the satellite delivery of the cinema that uses the encryption technique. In Tanzania, according to the respondents, this is a technological development that is not yet adopted. While most of the films which weigh up to 100 gigabytes are brought using hard drives, the use of Satellite could eliminate the transportation challenge. Therefore, digital video technology has

eliminated the risk for damages of the 35 mm reels. The move to adopt the use of Satellite and Internet has enhanced the speed of delivery of films for cinema exhibition. With this mechanism, once the film is put to digital format, it is uploaded and encrypted by the distributors such as Walt Disney (the exhibitor in Tanzania pays for the right to exhibit the films). Once the payment is done then a de-encryption key is provided to them for downloading the film. The film remains in the distributors' server who retains the capacity to delete it after the exhibition period expires.

Digital cinema interface (DCI) is another technological development in Tanzania's cinemas. The experiences of Tanzanian filmmakers with interests to screen their films in cinema, such as Century Cinema, identify DCI format as a requirement. Filmmakers interviewed maintained that they are asked to convert their video based films into DCI formats to be screened in the new cinema complexes. Apart from being a standard for cinema, DCI ensures maximum projections of the quality of picture resolution in cinemas. The representatives of cinema complexes pointed out that the number of locally produced films that are exhibited in Tanzania cinemas is minimal owing to a number of factors. One of the factors echoed is lack of quality in the films that are released. This contradicts the assumption that "all rules of cinema (celluloid film) are out of the window, as the digital cameras now produce enough resolution that even theatrical projection is possible" (Debjani 2014, p.110). The Filmmakers contended that there is minimum investment in the production of the films in Tanzania, which undermines the artistic and most significantly the technical value anticipated by the cinemagoers. The other reason for poor quality of films pointed out is the use of low-end equipment and the use of non-professional and inexperienced camera and sound operators. The representatives of cinema complexes identified specific cases of films that have done well in cinema are those that have had an investment ranging from \$50,000 to \$200,000. Such films include *Aisha* (2014), *Homecoming* (2016), *T-Junction* (2018) and *Bahasha* (2018).

Amidst the novel corona virus (COVID-19) pandemic, the global cinema industry suffered grossly and lost billions of dollars in revenue. Tanzania tried to circumvent the social distancing and lockdown and, instead, implemented fewer measures such as 14 days mandatory quarantine

during COVID-19. Even with such partial measures, the exhibitions of films suffered and resulted in the closing of cinema businesses. Century Cinema closed its cinema complexes from 1st of April for an unidentified period of time. Century cinema launched back to business on 26th June 2020 opening only the Mlimani City cinema complexes. The closing was due to dwindling audience cinema attendance owing to COVID-19.

With the closing of cinema, I observed the revamping of the efforts to promote online movie streaming apps during the COVID-19. Swahiliflix, for example, posted a promotional graphic advertisement, '*Burudika na filamu ukiwa nyumbani kupitia Swahiliflix kuepuka kusambaa kwa Virusi vya Corona*' which literally translates as 'watch and enjoy films while at home on Swahiliflix as a way to stop the spread of Corona Virus'. Other movie streaming apps observed to be utilised by film fans in Tanzania during the pandemic were Netflix, MPTV and Azam Max. Arguably, the COVID-19 pandemic has reaffirmed the importance of new technologies such as Internet-based online streaming platforms are in the circumstances where physical distribution of films is impossible. The situation in Tanzania was no different to that of the rest of the world where the pandemic had hit hard. Kim (2020) established that the "short-run effect of social distancing due to the COVID-19 outbreak on movie demand and box-office revenue on Korean Theatres" indicated a "34 percent decrease in sales". While the scale could be different, the online streaming platforms such as Netflix and its local hybrid Swahiliflix demonstrated how much online movie streaming services are increasingly gaining attention of the producers and consumers in Tanzania.

All the specific changes in technological attributes of cinema discussed in response to digitalization demonstrate that cinema in Tanzania, "a popular form of entertainment for almost a century, has been dramatically transformed" (Friedberg 2004, p. 914). Digitalization has transformed it into a complete different tier in terms of its technical essence and operations. Therefore, the findings demonstrate that, "the development of cinema has been intimately linked to technological progress" (Bisschoff & Overbergh 2012, p. 114). In other words, the Tanzania cinema landscape and history have recorded immense changes in response to digitalization.

Conclusion

The aim of this paper was to examine the effects of digitalization on the three-tier structure of the Tanzania film industry particularly between the period of 1990 and 2020. Digitalization elicits and enhances specific changes on the three tier (production, distribution and exhibition) structure of Tanzania film industry. In terms of production, changes have occurred in the technological attributes and paradigm implied on production of films in Tanzania. As a result of digitalization that has occurred, digital video cameras and NLE systems in Tanzania are ubiquitous. From the production of films to production and broadcasting of TV programmes and online and on-demand content, digital video is the medium of the media industry in Tanzania. In terms of film distribution Internet-based online movie streaming and VOD platforms has offered film audience immediate, democratized and global as well as open access to a diversity of films and TV programming. It differs from the use of optical discs to distribute films that relied on particular release windows, distribution rights and industrial hegemony or monopoly of the film studios. In terms of exhibition of films, from early 2010 the country appears to have witnessed an incredible revival of cinema experiences through newly-established and refurbished digital based cinema complexes in Dar es Salaam, Mwanza, Arusha, Tanga and Zanzibar. Digital cinema has eliminated the time needed to ship, load and reload the films. Meanwhile, high resolutions of pictures and sound and enhancements such as 3D glasses and 3D movies have enticed cinema viewers, both first and timers. In general, the implication of digital video and Internet technologies as an all pervading choice of technology in the currently functioning three-tier structure of the Tanzania film industry is investigated. Due to the effects of digitalization on its three-tier structure, the Tanzania film industry has morphed into a functional film industry. With the digital video and Internet technologies, the industry is continually experiencing changes in the way it operates and in the interest of its stakeholders. Overall, the differences in its effectiveness and purposes that are grounded in issues of contexts notwithstanding, digitalization is more important than other determinants such as capital

formation in impacting on the transformation of the three-tier structure of the Tanzania film industry.

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