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**CHALLENGES OF COPYRIGHT PROTECTION IN THE DIGITAL AGE:
THE NIGERIAN PERSPECTIVE**

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Abstract

Copyright is one of the several intellectual property rights that accrues to authors of literary and creative works at the point of creation. Several legal frameworks such as the Berne Convention, WIPO Copyright Treaty (WCT) and the Nigeria Copyright Act have all been enacted for the purpose of recognizing and protecting these rights both at the international and local scene. Unfortunately, with the emergence of digital age, characterized by digital technologies such the internet, scanner, digital cameras smartphones, smart televisions, e-book, social media etc., has cause strain in copyright protection due to the relative ease of replication, manipulation, reproduction and dissemination of copyrighted materials in digital formats within the digital space. This paper, identified the following as the major challenges confronting copyright protection in the digital age; the ease in reproduction of copyrighted material, the ease in sharing & distribution of copyrighted, the availability of compact storage devices, and the challenge of detecting or tracing the sources of such infringement due to the apparent similarity between the original and the duplicate copies. The paper acknowledges the legislative response from international scene as well as local scene in addressing this social menace, particularly the WCT, WTTP and Copyright (Optical Disc Plant) Regulation.

However, it was noted that current local copyright regime is inadequate to address the challenge. This paper recommends that authors and creators of creative media content in Nigeria should in addition to these legal frameworks, adopt independent modern technological measures such as block chain and watermarking technology to protect their work and prevent undue exploitation.

Keywords: Copyright Protection, Digital Technology, Piracy, Literary and Creative Work

INTRODUCTION

The emergency of digital technology has been instrumental to societal advancement through information availability and accessibility. Digital technology and electronic networks present opportunity to advance public interest by promoting access to e-resources for academic, research and for leisure purposes. Additionally, this technology, enhances and accommodates the simultaneous use of online materials available on the internet by multiple users at the same time, as well as encourage remote search link capacity, rendering irrelevant territorial and geographical boundaries in accessing information Oyewunmi, (2018). However, this innovation has exposed copyright holder to new and peculiar challenges with regards to enabling unauthorized upload and dissemination of copyrighted works without the necessary license, authorization or lawful justification.

Copyright is one of the several intellectual property rights that accrues to authors of literary and creative works at the point of creation. According to the Berne Convention, this right inures whether or not the work is published, so long it meets the basic requirements of originality, fixation and reciprocity. However, in Nigeria an additional requirement is that such work must have requisite connection to country. In essence, the requirement of originality is understandable as an author is required to expend sufficient effort, skill and judgement to claim

ownership (Section 1(2) of Copyright Act) in addition, such works are required to be expressed in a definite form capable of being perceived. The implication is that creative works or ideas expressed in or converted to digital format are eligible for protection so long they can be perceived, reproduced or communicated with technological device. It seems to me that this provision resolves the controversy of whether the Copyright Act recognises digital technology. It is pertinent to state that digital technology through its unique features makes it easier for people to manipulate, reproduce and disseminate copyrighted materials within the digital space without due license or authorization from the owner.

Unfortunately, detecting such infringement is usually difficult. More worrisome, is the fact that it threatens the economic benefit and livelihood of the rights owner as well as discourages more creative works in that space.

Copyright: Meaning and Description

Several scholars have offered different definitions for the term copyright. However, before examining these definitions, it is apt to put forward the interpretation of principal enactment. Particularly, section 6 and 51 of the Copyright Act. While section 51 defined copyright to simply mean “copyright under the Act” section 6 made it clear that copyright is the exclusive right to control, to do and authorize the doing of certain reserved acts listed in paragraphs (a)-(c) with respect to literary, musical, artistic and works of cinematography. Ike cited in Fabunmi, (2007) aver that copyright protects the intellectual creation of an individual against all unauthorized usage.

Oyewunmi, (2018) defines copyright as the bundle of rights including economic and moral rights which authors derive from their literary and artistic works. The Economic rights aim at securing the financial or pecuniary interest of the author by conferment of an exclusive right to exploit the work commercially, on the other hand, the moral right protects the author's honor

and reputation in regards to the work. By way of juxtaposition, copyright law may be regarded as the body of laws, conventions and treaties which seeks to protect the intellectual property right of an author of an original work, by highlighting the scope of protection, the exceptions, together with the penalty for infringement of such right. Copyright protection is available to both published and unpublished intellectual work (Aidonojie, Okuonghae, Agbale & Idahosa, 2022).

The principal legal regime on copyright in Nigeria is the Copyright Act Cap C28 Laws of the Federation of Nigeria 2004. Closely linked to the Act is the Copyright (Optical Disc Plants) Regulations, 2006. Basically, the objectives of these regimes are to protect the authors and content creators from unjustifiable exploitation and to encourage the creation of more intellectual work Fabunmi, (2007). It must be pointed out that copyright laws are not intended to limit the access to information by the public but to guarantee free access of such information, without any corresponding damage to the rights of the author (especially loss of revenue) thereby encouraging more creativity in that industry. Francisca & Abioye, (2017).

Historical Development of Copyright Protection

As printing trade exploded through the Gutenberg printing Technology in 1439, it became very easy to produce manuscript at cheaper rate. As noted by Gurry (2013), the promulgation of the Statute of Anne as the history of copyright law cannot be told without a deliberate reference to the Statute of Anne and rightly the Statute is a significant reference point to the legal expression of copyright but in reality copyright predates the Statute of Anne and has a longer historical origin than 1710. The Declaration by King Diarmund while passing judgment in respect of the dispute between Finnanin and Columcille in the 6th century in Ireland is said to have ushered copyright into the world.

The development of copyright began as a direct response to the changes brought about by printing technology in the 15th century. This Technological innovation at the time, revolutionized the means of duplicating literary work. A significant implication, was the ability of the machine to churn out mass publication or reproduction within a short time as against the laborious manual method of production by hand. With this technology, Karapapa and McDonagh (2019) opined that texts were swiftly and mechanically reproduced and the ideas contained therein became readily available to the public for the first time. According to Karapapa & McDonagh (2019), with the invention of Gutenberg printing machine, the Queen of England, using royal prerogative, granted charter to the stationers' company in London. The Stationers' Company, as a craft guild, possessed and played supervisory roles over its members to the extent that before a book is printed, a license had to be first obtained. License were only granted to company's members, who accordingly had the exclusive right to produce and distribute books. In addition, the company was also granted the power to search out and dispose of any books produced or printed contrary to law.

The technology of printing machines in trying to solve a problem of slow method of hand reproduction of books, gave rise to the issue of copyright protection and piracy, accordingly, this resulted to intensive lobbying for by the publishers for a legislature to deal with the problem.

The remedy to this problem, came in form of legislative enacted in 1709 to curb the scourge of piracy and other forms of exploitations. It was at this time the famous Copyright Act of 1709 also known as the Statute of Anne (the Act derived it name from Queen Anne of England because it was passed during her reign) is generally recognised as the world's first copyright law enacted in England in 1710. The Act is credited for introducing the concept which stipulates that an author of a work is the owner of its copyright. The second is that, it laid out the idea that a copyright protection should be for a fixed term. It conferred on authors the

exclusive right and authority of printing books for a period of 14 years from first publication, with a further term of 14 years being available if the author was still alive at the end of the first term of protection. After which the material will fall into public domain. For books already in print before the enactment of the Act, the period of protection was extended to 21 years without more. Under the Act, contrary to the Licensing of the Press Act 1662, the authors rather than the publishers were for the first time vested with the copyright. Similarly, another notable provision in the Act, was the requirement for all copyrighted works to be deposited at designated libraries and registered at Stationers' Hall. However, one major shortfall with this enactment was that it failed to recognise and protect unpublished works.

It is instructive to note however, that the Statute of Anne had tremendous influence on the provision and establishment of copyright laws in other jurisdictions, such as the United States through the enactment of its Copyright Act in 1790. Prior 1886, copyright legislations at the international scene was at its infancy. However, with the introduction of Berne Convention for the Protection of Literary and Artistic Works in 1886 (“Berne Convention” or “the Convention”) copyright received a booster as it introduced international standards for copyright protection as well as provide mutual recognition for copyright protection between nation states. The Convention also jettison the need to register copyrighted material separately in each individual country. Berne Convention has been adopted and domesticated by all members nation including non-member nations (over 140 of the approximately 190 nation states of the world). Following Nigeria’s and United States of America’s adoption of the treaty on 14th of September, 1993 and 16th November, 1988 respectively, the convention now covers almost all major countries of the world. The Berne pact although with minor modifications, remains in force to this day, and continues to provide the basis for international copyright law. Scholars have noted that one of the major innovations introduced by the adoption of the Berne Convention was to extend copyright protection to unpublished works, as well as remove the

requirement for registration. What this means to the contracting States is that an individual (or the organization they are working for) owns the copyright of any work they produce as soon as it is recorded or fixed in a recognized or communicable way, be it by writing, drawing, filming, etc.

The Digital Age and Its Characteristics

This is otherwise referred to as the Information Age, a historic period in the 21st century characterized by the rapid shift from traditional industry that the Industrial Revolution brought through industrialization, to an economy based on information technology. It refers to the time-period in which personal computers and other subsequent technologies were introduced to provide users the ability to easily and rapidly transfer information. Tucci, (2014) The Digital Age as noted by (Spacy, 2020) is characterized by global widespread and unprecedented proliferation of information in human history.

The Justification for Copyright Protection in the Digital Age.

The digitization of literary and artistic material, is the new normal for storing and transmitting resources. Often times, one is confronted with the question why should an author have copyright in the work he creates. The justification offered are often expressed through several competing theory such as Economic theory; labor theory and reward/Incentive Theory

i. Economic Theory

The economic theory also known as the Utilitarian theory holds way in the United States of America, as a capitalist society. According to Landes & Posner (1989) the proponents of this view, the advent of modern technology has increased the need for copyright protection because it has reduced the time needed to make copies as well as enabling more perfect copies to be made within the shortest possible time. Furthermore, the proponent of this view perceives the provisions of copyright as an attempt to promote economic efficiency by matching the

consequences of enhanced protection against the desire to encourage greater creativity. The theory therefore, justifies the conferment of exclusive rights for limited periods on right holders, during which time others are precluded from utilizing or exploiting the works for commercial purposes. During the period of exclusivity, such holders may avail themselves of market opportunities to manufacture, sell import and license or otherwise exploit their rights and thereby recover their capacity outlay.

ii. Labor (or Natural Law) Theory

The theory was put forward by the English thinker John Locke who argues that the product of the intellects of a person belong to them, in the same manner as any tangible artefact they have laboured to create out of 'the common' Karapap & McDonald, (2019). Also, considering the possibility of sustaining injuries (movies stars sustaining injuries on set) or losing one's lives in the process as well as funds expended on the entire process of creativity which makes it necessary that the author/creator be allowed to receive their dividends if creativity must be sustained. This is in line with the divine injunction to mankind which gave the assurance to man, that a man should eat the fruit of his labour.

iii. Reward/ Incentive Theory

This theory is based on the underlying principle that society has a moral obligation to compensate and reward the creativity exhibited by authors of intellectual work. Given the enormous advantage and society in general, inventors and creators expect a certain level of protection from their society to enhance the creativity excise and to further encourage other who may desire to undertake similar venture. The truth is that nobody want to engage in an

excise that will produce little or nothing at the end. Especially when huge resources and time have been expended on the work. Creations of intellectual work has the capacity to promote socio-economic development to the country if properly manage. This benefit can be maximising by appropriate laws to regulate the relationship between the society and the author.

The Effect of Digital Technology on Copyrighted Work

Digital technologies have played a key role in transforming the world, however, like a two-edge sword, it comes with a price to the owners of intellectual properties whose creative works in digital environment are under serious threat Dawar, Sudarshan & Chitra, (2021). Writers have noted the progressive impact of technology on development of copyright started with the invention of Printing Press and the introduction of recording & broadcast technologies. However, it has been further noted that non-poses the greatest challenge to copyright protection like the current digital age, due to the scale at which copyright violations are carried out by user Gachago, (2011). On the other hand, Peters (2006) and Atanasova (2019) identified four elements of digital technologies which have affected copyright protection. According to them, ease of reproduction, ease in dissemination or sharing of media contents, the expanded storage capability of digital devices and the inexpensive process of duplication of copyrighted work is also another impact of digital technology on copyright.

Ease of Reproduction: Unlike other formats, once a work is made in digital forms, it can be reproduced rapidly, with little or no cost without loss of quality. Each copy in turn can be further reproduced again without loss of quality, in this way, a single copy of work in digital form can supply the needs of millions of users.

Ease of Dissemination: Another notable characteristic of the digital technology is the rapid manner in which information are disseminated across digital network. Thus, a single individual may cause an information to go viral within the shortest possible time in respective of the fact

whether the information is correct or not. This viral effect, couple with the ease of duplicating a document or piece of information, means with a copy of digital material, one can make multiple copies which could be distributed to various users around the globe within few minutes.

Cheap Storage Devices: this is another interesting feature of digital technology, the ability of digital storage devices to store large document within a small space. Thus, a large document may be stored as a few kilobytes. Digital storage devices get denser with the passing of each year, making possible for individuals to store large quantities of materials in small space. For instance, an entire library collection can be stored in a single or multiple folder within a personal computer. IPod, MP3 music file, satellite networks, and PDF document are some common example of digitalization of creative work, making it possible for music to be compressed and repackage without loss of sound quality. This, has indeed revolutionized the music industry.

Again, it is common to find people use and share copyrighted work with others without any form of consideration or restraint. To them, work found in the internet is free and belong to nobody. In Nigeria, this misconception is prevalent among the youth or are dominant user of the internet and so they engage in such immoral act of infringement. The following are forms and nature of copyright violations in digital domain in Nigeria.

- i. Downloads: this may involve download of e-books, pictures, video, song etc. from the internet with the license, permission or acknowledgement.
- ii. Uploading copyrighted content on Personal Blogs: the use of copyrighted work must be with the permission of the owner, especially when such use may result to personal benefit inform heavy traffic to the user blog.

- iii. Reposting copyrighted document, video or other multimedia work on the internet or the social media.
- iv. Sharing of copyrighted e-books in form of PDF or music to friends, group of friends via social media platforms (Telegram, WhatsApp or Facebook)
- v. Hot-Linking: is a system in websites that allows a person to redirect a user to another a by clicking on a button on a previous site. This action may also lead to copyright violation
- vi. Engaging in circumvention practices of digitally protected work.
- vii. to use digital resources without proper acknowledgement and citation
- viii. unauthorized use of proprietary software and databases without pay
- ix. duplicating CD contents for commercial purpose Atanasova, (2019)

Defenses to Copyright Infringement within Digital Environment

1. Public domain: In line with most copyright laws particularly the World Copyright Treaty, the period of protection for any work in the digital space is 50 years. At the expiration of this right, the work falls into the public domain for use.
2. Fair dealing: A use is considered to be fair where it is undertaken for purpose of research, private use, criticism or review as well as reporting current events. However, it must be noted that the user must acknowledge the title and author.
3. Educational use: here most legislations on copyright including Nigeria Copyright Act admit of such an exception to facilitate learning where such act takes place in an approved educational institution, for educational purpose of the Institution, it becomes a defense against an action for infringement (Oyewunmi, 2018)
4. Public interest uses by government, public libraries and non-commercial documentation centers: This is one of the acts exempted from copyright control, where

the use is in public interest, no revenue is derived from it or fee charged Babafemi, (2006).

5. Creative common license: the creative common license allows the public to use and distribute a copyrighted work. Any person who engages with such work in a non-commercial manner cannot be held for copyright infringement as long they comply with the terms and conditions so stated in the license.
6. Direct licensing: this is simply the right a licensee has over a copyright work for which the author has given him the permission to use. They licensee must time is expected to abide by the condition of the license.
7. Independence Creation: a defendant in an action for copyright infringement can rely on the defence of independence creation. Situation of coincidence abound where the work of the plaintiff and the defendant are unusually similar both in content and form, yet they may have been a product of individual ingenuity. This situation was illustrated in the case of *Mag Jewelry Co. Inc v Cherokee, Inc. Robert Margolis*

The Challenges of Copyright Protection in Nigeria Digital Space

The major effect of digital technology on copyright is the ease at which copyrighted work are sourced and distributed with the help digital gadgets and viable internet connection. The availability of a simple P.C with the right software application, may be used to duplicate a digital work with the same identical features and undistinguishable from the original. This apparent problem is further compounded with the internet which has facilitated unprecedented large-scale copyright violation by allowing unrestricted sharing of copyrighted content by different users. Thereby causing disservice to the holders of copyright However, peculiar argument in favour of such infringement is that it gives the owners of creative work quick fame through rapid dissemination and distribution of their creative work, the author becomes

instantly famous within the shortest possible time although without corresponding economic benefit due to the infringement of their right in the work.

The copyright community have had to grapple with the present challenge of preserving the authors' and rights holder's incentive to create new work. Some authors have become wary of transforming their work into digital format because of the threat of using new digital technology in sharing and distributing copyrighted material to users and patrons by the infringers.

While focusing on the danger posed by piracy to the right holder, Hill, (2007) suggested that to grasp the reason behind the wide spread piracy, there is need to study the behavior of the user who prefer to intentionally consume pirated goods rather than seek for the original. According to him, Digital piracy may be perceived as an intellectual theft which leaves the owner with inestimable loss at the end of the day. Comparing piracy and shoplifting, he adds that many of those committing the crime of piracy may never attempt to steal from a store a good of similar value. Thus, the question, why is piracy in the digital space as high as opposed to theft of physical goods? To answer this question, three theoretical views are presented to explain this anomaly; theory moral development, the theory of equity and Moral intensity.

Moral Development.

According to Lawrence Kohlberg a renowned developmental psychologist, there are three basic levels of moral development. He called the first level *pre-conventional level* which is characterized by children as well as morally immature adult, in which, the individual moral development is initially frame to avoid punishment, and/or to achieve some level of self-gratification. The second level, he called the *conventional level*, a characteristic of adulthood. At this level, the dominant influence on the individual action is the peer group through peer pressure, his/her decisions are influenced by peer group perception of their person, especially

whether being weak or strong. Lastly, the third level of moral development, is the *post-conventional level*. In this level, Kohlberg reveals that at this point of the adult development, they are more concerned with the general societal effect of their actions. People with this level of maturity seldom runs against social norms, values or laws. The implication here, is that, those who engage in piracy, are those whose moral development may be described as pre-conventional, often time, the young men and women. Hill, (2007) reports that in a study on users carried out by the PEW Internet and American Life Project, the survey revealed that 41% of internet users between the age of 18years and 29 years acknowledged to engage in illegal downloading of digital music, as against 21% of those between 30years and 40 years of age. It is safe to conclude that the absence of adequate punishment and the desire for self-gratification fuel piracy among this dominant class of users. In the same vein with higher risk of detection and punishment the individual may be less likely to engage in this theft.

Equity Theory

The theory of Equity was developed by an influential behavioral and work place psychologist Stacy J. Adams. According his postulation, in order to maximize individuals' rewards, we tend to devise a system to rearrange or reorganized the resources in a way and manner that it can be fairly distributed among members of a group. Thus, the theory tries to explain how individual search for fairness in the distribution of resource. Such that when the individual perceive inequality, they will naturally become distressed and may be forced to take necessary actions to restore equity.

With respect to digital contents and material as a resource, it is observed that those who engages in piracy perceive that the values/charges for digital goods to be too expensive for everyone to afford. In view of this perceived inequality by the pirates, the pirates try to make up the inequality by pirating the works of the holder who they view as successful people benefiting

from the masses. This feeling social injustice, is the major justification for the illegal distribution of digital materials of which the sender expects a form of reciprocity from other.

Moral Intensity

This theory is similar to the moral development theory. According to Jones (1991) cited in Hill (2007), moral intensity is the major factor affecting the display of unethical actions. He further argues that moral intensity is a multi-dimensional construct determined by the following characteristics; *the magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity and consecration of effect.*

The magnitude of consequences refers to the harm done to victim of the moral act. Social consensus refers to the social agreement that an act is unethical. The probability of effect refers to the probability that an act will cause harm. Temporal immediacy is the length of time between the present and the onset of harmful consequences. Proximity is the feeling of nearness that an individual has to those harmed by an unethical act. Concentration effect is an inverse function of the number of people impacted by an act of a given moral intensity. Jones position is that each of these constructs is positively correlated with greater moral intensity, and thus higher levels of moral decision making and moral behavior.

International Response to Copyright Infringement in the Digital Age

While digitalization has made the world a global village through the unprecedented rise in information sources and utilization, it has presented a challenge that, if not addressed speedily, has the effect of plundering the world civilization and economic activities through piracy and all forms infringement of intellectual property rights.

The first international response to the protection of Copyright in literary and artistic work was the Berne Convention for the Protection of Literary and Artistic Works of 1886. The convention which was signed by only ten-member States and was revised at Paris in 1896, at Brussel in 1948, at Stockholm in 1967 and in 1971 at Paris. Fabunmi, (2007). The Convention which proposed a minimum rather than absolute standards for the protection of copyright. Having has its key element principle of national treatment and the rule of no formality such as registration. The principle of national treatment states that an author of one contracting State is entitled to the same protection in another contracting State as the authors of the latter receive. While the principle no formality is that contracting States may not impose any formality such as registration as a precondition of protection. Interestingly the Convention failed to make provision for infringement of copyright within the cyberspace. The advent of the internet has facilitated the widespread illegal reproduction and dissemination of intellectual works such as videos, audio recording, pictures, short stories, new item, articles etc. without due acknowledgement or compensation to the proprietors. Due to the inability of the Berne Convention to address piracy within the digital domain, necessitated the amendment of the existing framework to salvage the issue of intellectual theft. Thus, birthing the World Intellectual Property Organization Copyright Treaty (WCT), and World Intellectual Property Organization Performances and Phonograms Treaty (WPPT) which was established to secure the right of authors and content creators within the digital space.

World Intellectual Property Organization Copyright Treaty (WCT) 1996

The WCT is a special agreement made to complement the provision of Berne Convention. Actually, the focus of this supplemental Treaty, was to address the issue of copyright protection within digital environment, primarily to protect the distribution of digital content on the internet. Hence it is colloquial referred to as the “internet treaty.” This legal framework, requires member nations to prioritize certain selected right planned for activities that take place

over the digital communication space. Prominent among these rights, is that the authors of creative work are granted the right to communicate exclusively his work to the public, the right of rental, and the right of reproduction such as enabling downloads from an internet website. Peter, (2006) posits that while many existing copyright laws provide for such right, in forms of right of reproduction or performance, the WCT through it specific provision made it abundantly clear that such right in whatever form, should be as a necessity be granted to authors. Similarly, the WCT in line with most copyright laws, granted protection for any work in the digital space for a period of 50 years

Furthermore, the WCT further advocate that member states must develop an effective legal remedy to guide against the circumvention of technological procedures put in place by the authors to safeguard their rights. Other counter measure advocated are, remedy against persons who delete or alter right management information attached by the copyright owner to the work. The effect and position of WCT represent the reality of the impracticality of protecting copyrighted work by technological measures alone as a result of advancement in science and technology. Hence the need to back up such measures with active legal remedy. This is due to the fact that technical devices can be manipulated or maneuvered by someone with the right technical expertise. In other words, while the framework of existing property right continues to appropriate, the meaningful exercise of these rights in the context of new Users, such as those on the internet requires supplementing them with legal rules that prohibits the compromise of their technology.

Interestingly, the treaty also considers two other subject matter requiring copyright protection; Computer programs and compilation of database.

World Intellectual Property Organization Performance of Phonogram Treaty (WPPT)

1996

The WPPT like the WCT was set out to supplement the provision of Rome Convention for the Protection of Performers, Producers of Phonogram and Broadcasting and as such, was particularly focus in securing the right of movies maker, actors, artists and singers who are generally regarded as performers under the Treaty, and creators of audio recordings on digital formats and distributed over the internet. However, According to Peters, (2006), its main focus is in respect of providing protection for rights associated with storage, transmission and distribution of digital performances and phonograms and the anti- circumvention measures. In line with these provisions, the United State of America Congress in 1998, domesticated these provisions through the enactment of the Digital Millennium Copyright Act (DMCA) which among other things, criminalized circumvention practices by copyright violators.

Nigeria's Response to Copyright Protection in Digital Age

Nigeria is a signatory of the Berne Convention and by virtue of section 12 of the 1999 Constitution of the Federal Republic of Nigeria ratified the WCT and WPPT on the 4th of October 2017. The effect of this move is that the relevant provisions of these treaty are applicable in Nigeria and can be relied upon by litigants in court. However, the most profound indigenous legal framework against copyright violation in digital environment is the Copyright (Optical Disc Plants) Regulation 2006.

The Regulation provides the basis for monitoring and control of the production and use of optical disc in Nigeria. The Regulations requires all manufacturer of optical disc or anyone who deal on the production of parts to register with the Nigeria Copyright Commission. Also, anyone intending to carry out business of commercial duplication of optical disc whether for sale or hire is expected to register with the commission prior to the commencement of business.

Most instructive is paragraph which stipulate that each optical disc or each production part of it manufactured in Nigeria to be marked with a code peculiar to the manufacturer as prescribed by the Commission. Consequently, to forge the manufacturer's code or false apply it an optical disc or make a mark that resembles it with the intension to deceive is prohibited. In addition, to sell or offer for sale or to distribute a disc not so marked is prohibit. Paragraph 11 states that any contravention to these provisions is an offence and such person shall be liable on conviction to either imprisonment for a term not exceeding three years or to a fine of 1, 000, 000. 00 or both.

However, despites these lofty provisions, it is worth noting that a significant number of copyright violation these days, has nothing to do with optical disc. Most often than not these violations occur on line or over the internet and the use of optical disc has been phased out. For the avoidance of doubt, optical disc according to paragraph 13 of the Regulation, is defined to mean any medium or device on which a data in digital form, readable by means of an optical scanning mechanism employing a high-density light source as a laser, has been stored or capable of being stored and include; CD, DVD, LD, CVD, SVCD and SACD just to mention a few. While these regulations may be relevant in curbing infringement in this space, it is however is inadequate to address other area of digital innovations. In the light of the obvious lacuna, Oyewunmi, (2018) suggested that relevant provisions in the WCT should be incorporated into the Nigeria Copyright Act. Needless to say, that the Nigeria Copyright Act is outdated and needs amendment.

In sum, the copyright regime in Nigeria is inadequate to address copyright protection in the present digital age. However, reliance can be made to the WCT to bridge the gap prior to a more responsive and comprehensive legal framework.

Technological Measures against Copyright Violation in Digital Environment

Copyright infringements is a threat to creativity and social-economic development of any society, with digital technology this has assume a different dimension, hence the need put in place certain technological counter measures to ensure that the rights and interest of the authors are protected Wagle, (2019). The following are proposed counter measure in safeguarding the right and interest of proprietor in the digital realm.

1. Blockchain Technology

Blockchain technology is a modern digital distributed ledger or infrastructure that allows a person to record peer to peer transaction they occur. This ledger records duplicated works sent through a computer system and are encoded with certain digital codes details, to which is uniquely signed or identified. With the recorded data, a person can trace the history and verify the source of such the media content Bodo, Gervais & Quintais, (2018). This preventive feature distinguishes blockchain from other technologies and has been identified as best way to resolve the problem of copyright in Digital environment Wagle, (2019).

2. Digital Watermarks

According to Le-Tien and Tuan, (2016) and Wagle, (2019) digital water marks is an efficient way to protect the work of a copyright holder as it helps the owner to trace his work and prevent it from duplication. This is particularly important in detecting unauthorised copying as it is often difficult to distinguish between original and duplicate copy. Watermarking is a preventive mechanism by engraving in the original work of the author, his signature or special mark, in way that prevent illegal duplication and to recognise the ownership of the author through the special sign or mark. According to Perwej, Parwej and Perwej, (2012) watermarking is promising solution to copyright violation of multimedia content.

3. Access Control and Copy Control

It is a software which enables a user to check the creator on free or illegal use of his work. Under the WCT anyone who circumvents such technology may be held liable for infringement

Conclusion and Recommendations

Copyright protection in the digital age is a complex issue that requires positive response from government. Like in other jurisdictions, technological counter measures are relevant as well as active, purposeful and suitable legal framework is needed if copyrights are to be protected in Nigeria. In view of the following, it is recommended as follows.

1. That the National Assembly expedite actions to amend the current Copyright Act
2. Relevant stakeholders like the National Library Association as part of their core function, should continue to sensitize members of the public on the need to stop sharing copyrighted content on social media
3. Church leaders should teach that circulating e-material without authorization especially on social media is immoral and illegal as it deprives the author of their benefits.
4. Authors and creators of creative media content in Nigeria should in addition to available legal frameworks should adopt independent modern technological measures such as blockchain and watermarking technology to protect their work and prevent undue exploitation.

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