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Copyright and Piracy of Computer Programmes: An Appraisal

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Abstract:

The Nigerian copyright law permits the holder of a copyrighted work to reproduce the work in any material form. This paper examined the copyright and piracy of computer programmes, decompilation of computer programme, internet piracy, and etcetera. It is a desk-based research which relies on both primary and secondary sources. This study reveals that copyright breach and piracy and threat to originality, creativity and brain-economy. It concludes by proffering practical solutions together with recommendations.

Keywords: Copyright, piracy, computer, copying

1. Introduction

The word computer is not capable of precise definition. According to David Bambridge,¹ 'Computer software is a phrase which like many phrases in the computer industry, is incapable of precise definition but is usually taken to include computer programs and associated documentation such as manuals for users of the programs and for persons who have to maintain the programs'.

Copyright law protects computer programme in Nigeria.² Computer program shall be examined and the extent and scope of copyright protection for them. The same prerequisites of originality and qualification must be present as with other forms of literary works for a computer programme to be subject matter of copyright.

2. Copyright Protection for Computer Programmes

At one time, up till relatively recently, it was not all clear whether computer programme was protected by copyright. In United Kingdom, the Copyright Act, 1956 made no mention of computers or computer programs³.

However, copyright subsists in computer programmes as a form of literary work by section 3(1) (b) of the Copyright, Designs and Patents Act, 1988. In spite of the omission of computer programs from the 1956 Act, many writers considered that they were protected as literary works and also qualifies for copyright protection.⁴

The issue may have been fairly straight forward and uncontroversial in the case of computer programs which had been printed out, that is listed on paper. After all, if copyright had been extended to books of telegraphic codes as early as 1884, why should copyright be refused for computer programs printed out on paper?⁵ However, if the view was accepted, it did not give any assistance in terms of computer programs which were stored in a computer, especially is these programs were in object code having been compiled from source code programs.⁶ A Committee, known as a Whitford Committee after its Chairman Whitford J, was set up to examine copyright law generally and its report was published in 1977 at a time when the problems of unauthorized copying of computer programs were beginning to be perceived. The report recognized that copyright law was unsatisfactory as regard computer programs and the Committee made recommendations to improve the law in this area and to put it beyond doubt that computer programs and works produced with the aid of a computer were protected by copyright. A Green paper was published in 1981 covering copyright and related matters and included recommendations that copyright law be amended to expressly afford protection for computer programs.⁷

Copyright law remained unchanged after the Whitford Committee Report and during the first few years of the 1980s, the problem of Computer software piracy become a major concern for the computer industry with the loss

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¹David Bainbridge *Intellectual Property Law*, 1sted. P. 158

²Copyright Act, Cap 68, Laws of the Federation 1990

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⁴Laddie, H., Prescott and Vinton M, *The Modern Law of Copyrights* (London: Butterworths, 1980) 93

⁵David Bainbridge *Supra* 159

⁶A source code program may be written in a computer programming language COBOL or BASIC, which is fairly easy for computer programmers to understand and write programmes in, this source code version will usually be written down on paper or printed out. The source will then be converted into the language of the computer, that is, compiled into object code so that it can be run on computer. The object code will, if printed out in that form, be an apparently meaningless collection of numbers and letters. An unmodified print out of object code program is sometimes referred to as 'dump' and is usually in hexadecimal notation.

⁷Reform of the Law Relating to Copyright, Designs and Patents' protection Cmnd *302 (London: HSC0, 1981) Cl. 2

attributable to piracy being estimated at some £150 million.⁸ There were a handful of interlocutory actions brought alleging infringement of copyright subsisting in computer programs, these actions invariably proceeded on the basis that computer programs were protected by copyright and interlocutory relief was invariably granted.

For example, in *Sega Enterprises Ltd v Richards*⁹ the plaintiff owned a computer called 'FROGGER' which was affected by means of computer programs.

The defendant produced a similar program, admitting that it was based on the plaintiff's program. The defendant argued that he had done much work on the program and that in any case, copyright did not subsist in computer programs under English Law.

The industry's fears appeared to be justified when, in 1984, the large and successful Apple Computer Corporation sued in Australia an importer of 'Clones' of their computers. Appropriately enough, the clones were called 'WOMBATS'. At first instance, in *Apple Computer Inc. v Computer Edge Pty Ltd*.¹⁰ It was held that literary copying did not subsist in the computer program in question i.e., the object code programs in the ROM chips in the Apple II computer.¹¹

A great deal of reliance was placed by the judge on the old English case of *Hollinrake v Truswell* H¹² in which Darvey LJ said that a literary work is one intended to afford either information and instruction or pleasure, in the form of literary enjoyment.

Although the appeal by the plaintiff to the Federal Court of Australia was allowed, reversing the decision at first instance, on the basis that the object code programme were adaptations of the source code programs, the dissenting judgment by Shepherd J was the most elegant and well argued¹³. He said that an adaptation of a literary work should be capable of being seen or heard. To put the matter beyond doubt, the Australia Parliament very quickly enacted the Australian Copyright Amendment Act, 1984.

The Apple case had serious repercussions for the United Kingdom as Australia Copyright Law was at that time, very similar to United Kingdom Law.

Whilst in the United State of America the issue was the scope of the protection offered by copyright, in the United Kingdom doubts about whether copyright could subsist in a computer program whatever its form increased.

Eventually, after vociferous outburst by a worried but powerful industry, amending legislation was passed in the United Kingdom by way of a Private Member's Bill. The Copyright (Computer Software) Amendment Act 1985 made it quite clear that computer programs were protected by copyright as literary works. When it was passed, this piece of legislation was seen as being a temporary measure and did not directly deal with some of the copyright issues related to computer technology such as the ownership of works produced by or with the aid of a programmed computer. One reason for the brevity and lack of consideration given to the amending legislation was that a wholesale review of copyright and decision law was contemplated. That reviews took place and culminated in the white paper.

Intellectual property and innovation, published in 1986¹⁴. Many of the recommendations contained in the white paper found their way into the copyright designs and patents Act, 1988.¹⁵

3. Copying Computer Programs

The Copyright, Designs and Patents Act, 1988 does not attempt to define 'Computer Program'. This is probably sensible and, at least, allows the courts to develop the meaning of the phrase in the light of future technological change. It may, sometimes be difficult to distinguish between 'hardware' and 'software' such as where a computer program is permanently hard wired in a microprocessor in the form of 'microcode' or 'microprograms'. In *NEC Corp v Intel Corp*¹⁶, it was held that, even though the computer programs were permanently stored in 'read-only memory' (ROM). In a later hearing between the parties in 1989¹⁷, an argument that the micro embedded within a microprocessor was a defining element of a computer and could not. In the United Kingdom, it is certain that microcode will be considered to be a computer program and will be protected by copyright.

The two most important acts restricted by copyright in relation to computer program are those of copying and making an adaptation. Other acts may be relevant in the context of a computer program such as issuing to the public and the secondary infringement. Following the uncertainty as to the copyright protection of computer programs which was finally put to rest by the Copyright (computer software) Amendment Act, 1985). As a result, innovation and competition within the computer software industry could be unjustifiably inhibited. The problem of discovery a balance between contradictory interests has taxed the European Community in its search for a balanced Directive on copyright protection.¹⁸

⁸ The estimate was produced in 1984 by the Federation Against Software Theft (FAST)

⁹ Ibid.

¹⁰ (1984) FRS 246

¹¹ A ROM chip is a read-only-memory integrated circuit which contains typically operating system programs. The defendant attacked the copyright in Apple II programs after it was shown that the names of some of the programmers of the Apple II computer were present in the defendant's computer. This raised an almost irrefutable presumption of copying.

¹² (1984) 3 Ch, 420. For another recent case in which *Hollinrake v Truswell* was approved, see *Exxon Corporation v Exxon Insurance Consultants International Ltd* (1981) All E.R. 241

¹³ (1984) FRS 481

¹⁴ CMND 9712 (London HMSO, 1986)

¹⁵ David Bainbridge (supra) 160

¹⁶ 645 F. sup 1485 (D Minn 1985)

¹⁷ *NEC Corp v Intel Corp* (1989) WUSPQ24

¹⁸ David Bainbridge supra, 161

Just as with any other literary work, the copyright program is infringed if someone makes a copy of the computer program or a substantial part of it. Substantiality is an issue of quality and, therefore, the copyright subsisting in a computer program can be infringed if the essence of the program is copied, even if the part copied is 'relatively small quantity. In relation to literary works, 'copyright' is defined by section 17 as a reproduction in any material form, this includes storage in any medium by electronic and making copies which are transient or incidental to some other use of the work. Because of the wide definition of 'electronic' in section 178 there should not be any difficulties concerning existing and future media in or on which computer program is stored.

Copyright has a long duration and, for computer programs, copyright protection subsists until the end of the period of 50 years from the end of the calendar year.¹⁹ This can only be reconciled with the interests of the public at large by limiting the strength of protection. By implication the actual idea being a work is not protected by copyright law and a well-established expression of an idea but not the idea itself.²⁰

3.1. Literal Copying

A copy of a computer programme may be an exact duplicate of such where a disk-to-disk copy is made. The original and copy will be identical. The question of infringement of copyright will be limited to an inquiry as to whether the first program is protected by copyright.²¹ Almost all computer programs will be subject to copyright as the basic requirements for copyright subsistence usually will be present.

As long as the first program is original in the sense that it originates from its author and is non-trivial and the qualification provisions are satisfied (or reciprocal protection if afforded through the international conventions) then the program will be protected.

Sometimes a person copying a computer program will do further work on the program. This might be to disguise the origin of the program or to improve it, or both. Difficulties and questions may arise in the following areas: 1. whether copyright subsists 2. whether the defendant copied parts of it. 3. whether parts copied embody a substantial part of the plaintiff's program or not.

In practice, the answer to the first question will rarely be in the negative. The second question is more difficult and depends, inter alia, on the objective similarities and inferences that can be drawn from them. It is further complicated if the same person has been involved in the writing of both programs. The third question, as we have seen, is concerned with the quality of the part taken rather than its overall size relative to the whole. Indeed, it is arguable that even a tiny part of a computer could be significant as the program may 'crash' without it. These issues were considered in the following cases. In *IBCOS Computer v Barclays Merchantile Highland Finance Ltd*,²² wrote a suite of programs for agricultural machinery dealers. He further developed this software for the plaintiff. On this latter point, Mr. Justice Jacob disagreed with Judge Paul Berker who said in *Total Information Processing Systems Ltd v Dama Ltd*,²³ that linking several complexities of software products.²⁴

3.2. Non-Literal Copying

Copyright does not guarantee a monopoly in ideas. It only prevents a person from copying. A literal copy of a computer program invades copyright if made without the consent of the copyright owner. Nevertheless, expression goes beyond the immediate literal form. For example, in the United Kingdom case of *Glyn v Weston Feature Film Co.*,²⁵ in which it was argued (unsuccessfully) that a film encroached on the copyright in a novel. It was acknowledged that copyright can extend the literal text of a book. In *Whelan Associates Inc. v Jaslow*,²⁶ the programs being compared were designed to assist with the administration of dental laboratories.

4. Exceptions to Copyright Infringement

In the classification of computer programs as literary works, the usual exception to copyright infringement applied.²⁷ Some aspects of the United Kingdom law were somewhat unclear and ill-defined. It was decided to tighten up some of the exceptions to copyright infringement, the necessary changes to the 1988 Act being made by the Copyright Regulations 1992. Three particular issues were addressed:

- 'decompiling' and existing computer program for interoperability;
- Making necessary back-up copies;
- Copying and adapting including error correction.

The previous law probably covered the above acts in most circumstances. For example, fair-dealing for research purposes might have allowed decompilation to achieve interoperability and implied licenses might have been appropriate in some cases involving error correction and back-up copies. One further point is that, in addition to statutory defences to

¹⁹ The European Commission's proposal for a Council Directive on the Legal Protection of Computer Programs suggests a term of protection of 50 years from the date of creation. OJ (1989) C9/05, Article 7. However, the Directive as issued corresponds with the present United Kingdom measures: OJ (1991) L122/42 Article 8

²⁰ David Bainbridge *supra*-162

²¹ David I Bainbridge, Introduction to Computer Law 3rd ed. Pitman Publishing, 24.

²² (1994) FRS 275

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²⁵ (1916) 1 Ch. 261

²⁶ (1987) FRS 1

²⁷ David Bainbridge *Introduction to Computer Law. Ibid*, 38

copyright infringement, there is a defence of public interest- for example, if it is in the public interest that a program listing is published. This might apply to code used by 'hackers' to penetrate computer systems because publication would assist managers of computer installations in their attempts to combat computer hacking.

5. Decompilation of Computer Programs

'Decompilation' defined in section 50B, is used in a wide sense as converting a copy of a computer program expressed in a higher-level language. By section 50B (1), being a person having a right under a license, section 50A (2), may decompile the program is necessary to get the information essential to attain the interoperability of any independently created program with the decompiled²⁸. This form of compatibility is certainly desirable and concern free unless the spreadsheet company was hoping to make its own compatibility word processor in the future.

6. Back-Up Copies Computer Programs

It is essential that backup copies of computer programs will be needed if the original copy of the computer program becomes damaged or corrupted. The original file may be physically damaged or the magnetic impulses on the disk representing the program may be destroyed or altered by exposure to a magnetic field. The original may be corrupted with computer 'virus'.

7. Miscellaneous Exception and Error Correction

A lawful user is granted the permission to copy the computer program for his lawful use. This is as per section 50(C). Even though a licensee agreement may prohibit error correction by the license or a third party. The common law principle of non-derogation from grant was used in *British Leyland Motors v Armstrong Patents Co Ltd*²⁹ to stop British Leyland enforcing its copyright. The same argument holds true for computer programs.

8. The Growth of Internet Piracy

The truth is no one can accurately measure the scope of piracy on the internet. The International Intellectual Property Alliance contends that global piracy, exclusive of Internet Piracy resulted in losses of over \$84 billion dollars in 2001.³⁰ According to Professor Doris Estelle Long³¹ 'Internet' Piracy is estimated to exceed these amounts, but is largely incapable of accurate measurement because it is so ubiquitous and clandestine. There is no doubt however, that the problem is increasing, both in scope and frequency. As technology advances, so apparently does piracy. No category of work is safe. Movies, songs, poems, books, photography, software, quitting patterns, novels....anything that can be digitally reproduced can be pirated'

Countless factors have contributed to this increasing problem. Consequently, engaging in peer-to-peer file sharing and providing potentially hundreds of copies of a favourite song to strangers does not adversely affect the ability of the helpful pirate to continue to enjoy that song. Unlike the old days, a helpful pirate does not even have to relinquish physical possession of his favourite CD (however temporarily) for others to copy the songs they desire. With modern technology, one can literally have one's song and pirate it too with no inconvenience whatsoever. Digital piracy is also relatively inexpensive.

Further fueling global internet piracy is an increasing disconnect in 'end users' minds and website owners' minds between physical theft and electronic theft. People who would never engage in shop lifting have no apparent compunction in making and distributing illegal downloads of copyrighted songs.

Unfortunately, although technology has created the 'problem' of piracy, it has not created its solution. There is currently no fool proof copy code or encryption technique that has been developed to keep pirates from illegally copying songs from music CDs to the contrary given the widespread existence of pirate music on the internet, there does not appear to be even a mildly effective copy protection technique.

According to Professor Doris Estelle Long,³² the absence of a current technical solution to piracy is coupled with a growing perception that 'fair use' is a right not merely an occasional exception to a copyright owner's right, such fair use right is rapidly being transformed into a right to make a copy of a work from the internet 'just because you want to'. Thus, even when copyright owners attempt to protect their works, they face an increasingly organized public interest against such enforcement. Such organized opposition has led to the introduction of developments, to grant end users a virtual compulsory license to download songs from the internet.

Also, engaging in digital piracy is generally risk free. End users are rarely prosecuted under the theory that they are 'potential customers'. Even those who operate commercial pirate sites rarely face litigation to end their activities.

9. Suggested Solutions to Computer Piracy

Professor Long went on to proffer potential solutions: these solutions are discussed below. According to her, realistically, solutions to the problem of digital piracy can be briefly categorized into three areas. They are:

²⁸ (1989) 2 WLR 400

²⁹ Bainbridge, D. 'Introduction to Computer Law' Third Edition. Pitman Publishing, 42.

³⁰ Doris, E. L. (2003): 'E- Business Solutions to Internet Piracy: A practical Guide', In Practising Law Institute, March - May 2003.

³¹ Doris, E. L. (2003): 'E-Business Solutions to Internet Piracy: A Practical Guide. In Practising Law Institute March-May 2003

³² Doris Estelle Long: 'E-Business Solutions to Internet Piracy: A Practical Guide. In Practising Law Institute Patents, Copyrights, Trademarks and Literacy Property Course Hand book series March-May 2003

- Business solutions
- Technological solutions
- Legal solutions

The choice of which solution(s) may be appropriate in a given business transaction will depend on the subject of the deal, as well as the nature of the 'work and the anticipated level and type of pirate activity. In reality, the most successful solutions combine aspects of all three.

10. Business Solutions

10.1. Do Nothing

Like bootleg aping of whiskey during prohibition, some consider digital piracy to be inevitable. Instead of spending business assets combating digital piracy, they contend, such assets should be used in other more economically fruitful ways. This argument assumes that the costs of any anti-piracy programme necessarily outweigh its benefits. While the scope and size of any anti-piracy programme, like any other business decision, should be based on a cost-benefit analysis, doing nothing is not a cost-free activity. To the contrary, piracy is like a rock rolling downhill. Without any technological or legal brakes, the rock rolls down faster, the option of doing nothing may be acceptable where copyrighted assets do not form a substantial product base for a company. It may be economic suicide; however, if the company's major assets consist largely of copyrightable works.

10.2. Alter the Business Model

One of the greatest excuses for digital piracy offered by its consumer practitioners in the high cost of acquiring legitimate products. Quite bluntly, why pay \$20 for a music CD, when I can get it for free. Internet is the source of problematic pirated copies, but to state the obvious, it also offers opportunities for developing new distribution methods that take advantage of its economies of scale and access. The Intellectual Property Organization are only one example of the global recognition of the business opportunities the Net offer. The secret however, is to develop business models that take advantage of these opportunities while applying the common-sense learning of the bricks and mortar world. Because of its ability to permit rapid and relatively inexpensive reproduction and distribution of copyrighted works, the internet provides a variety of options for combining traditional distribution and marketing techniques with digital technology. Among the types of business models that various copyright industries utilize to combine traditional techniques and Internet opportunities are the following:

- Offering works over the internet for free or markedly reduced prices in order to promote hard goods sales of the works. (Internet promotion Model)
- Offering copyrighted works over the internet through digital ordering or subscription services (Internet Distribution Model)
- Creating Value-added products in the hard goods world that make pirate versions less desirable (Value Added Model)

10.3. Internet Promotion Model

Under the internet promotion model, web-based versions of copyrighted works may be full length versions of the original version which have been tailored to meet the perceived needs or interests of Internet end users, or excerpted copies which provide teaser copies of the original and allow access to full versions only upon payment of a subscription fee. The most common examples of such models arise in the periodic publishing industry. Thus, for example the New York Times Website (www.NYTimes.com) offers a modified version of its newspaper while the Economist (www.Economist.com) offers a modified version of its magazines. Under this limited access model key articles may only be accessed by payment of a fee-based subscription.

10.4. Internet Distribution Model

As opposed to website such as Amazon.com which are primarily hard goods ordering sites, many copyright industries are exploring the desirability of developing innovative digital distribution models. Such models include digital subscription for music, films, and software. The development of a workable Internet Distribution Model, however, often raises direct conflicts with traditional hard goods distribution systems. In industries such as music and publishing, bricks and mortar distribution centre are well established and may serve as direct competitors with digital distribution and subscription services. This competitive netting raises perplexing business issues regarding the interrelationship between hard goods and cyber goods, including the extent to which the same products should be offered in both locations and the types of discount offers that should be developed on each channel of the distribution stream.

One of the legacies of Internet piracy is a grown resistance to paying for copyrighted works that can be obtained relatively easily from pirate sites on the net. Once customers have become used to free music (for example), it is more difficult to develop a digital subscription service that will meet the demands of these customers, while maintaining acceptable profit levels for content providers. At a minimum, customers for digital subscription services generally appear to want access to the most recent songs (access to last month's hit is insufficient). They also appear to want the right to download songs into diverse media so that these songs can be accessed at will and played in various formats, including on computers, and CD and MP3 players.

11. Value Added Products

In order to combat piracy, some companies are designing hard goods, product that have sufficient additional value to make pirated products less desirable. Such additional value may include product-based enhancements (such as extended linear notes) or warranty or technical support services. To achieve desired objective, these value-added attributes must be well published and must be perceived as commercially desirable for consumers.³³

12. Technical Solutions

Although technological solutions to internet piracy remain largely ineffective, business solutions without the necessary technological support to limit unauthorized use are unworkable. Unbreakable codes are pipe dreams. But there are many technological solutions that can support legal and business efforts to reduce internal piracy. Some of these are:

- Increasingly sophisticated copy protection and encryption techniques. Encryption of software makes it difficult for pirates to gain access to copyright materials. The use of code can reduce incidents of illegal copying;
- Use of water marks and other digital identification techniques. Even if copy cannot be fully protected against illicit copying, digital identification techniques can provide useful evidence in suits and criminal prosecutions against pirates and other copying infringers. While many pirates have the know-how to break copy protection technologies, they often pay little attention to digital identification markers. This eases the burden of proof on copyright owners and assists in securing quick temporary restraint measures when illicit websites are located.³⁴
- Copyright management information: this is similar to digital watermarking and its insertion provides another method of tracking and proving piracy. Although technology is constantly improving, technology alone cannot provide a complete solution to internet piracy. In an effort to give 'teeth' to technological protection measures for preventing the unauthorized distribution of copyrighted works on the internet, United States Law currently provides legal protection for such technological measures.

13. Practical Recommendations

Copyright protection appropriate to the level of exposure of these relevant business assets should be developed and applied. Copyright protection measures are still useful for deterring some people from engaging in internet piracy and may help to reduce enforcement costs. Among the types of protection measures that should be considered are technological locks, coded use tolls and encryption.

Copyright management information, including copyright notices, should be on all publicly distributed copies. While notices are not required under United States Law, such notices provide a useful method of warning end users that the work they are copying is copyright protected. Such notices provide useful contact information for end users who wish to obtain a license to utilize the work in question.

Also, for copies which are distributed digitally, copyright management information and other digital markers may assist enforcement personnel in tracking pirated copies thereby reducing enforcement costs.³⁵

Given the international nature of internet, domestic enforcement activities may be insufficient to fully protect the copyright assets of the business while every country is a potential source of piracy activity, for purposes of developing and funding a viable enforcement programme, it is preferable to identify those countries which warrant major enforcement effort. Such countries may include major markets or potential markets for copyright assets, or a major sources of pirate sites.

14. Conclusion

Since piracy of copyright software is a major cause of financial loss to copyright owners, no amount is too much to invest in the fight against piracy of products. Owners can form trade associations which can pool resources together to fight piracy. Government can also help not only making laws to prevent piracy but also to implement those laws to the letter. A pirate is a criminal and should be treated as such. Imposition of strict penal terms against pirates can deter would-be pirates and help reduce their nefarious activities.

Cooperation with other nations is necessary to fight piracy of computer products. The customs and other security agencies should be empowered to curb the activities of pirates. Basic surveillance equipment and machinery should be provided for our security agencies to aid their work.

Although technology has created the problem of piracy, it has not created its solution. There is currently no fool proof copy code or encryption technique that has been developed to keep pirates from illegally copying copyrighted works, more effects should still be made in this direction to reduce piracy. This may be achieved by a combination of factors such as business technology and even legal methods.

Proper 'protocol' on the internet can help reduce, if not, eliminate piracy, by properly prosecuting pirates of computer software. The copyright commission can increase their campaign against piracy on the mass media as well as on the internet.

People should be discouraged from reaping where they did not sow. Thus, pirates and end users would be discouraged from their illegal activities which result in huge economic loss to owners of copyrighted works.

³³Dorris Estelle Long, 'E-Business Solutions to Internet Piracy: A Practical Guide'

³⁴*Ibid*

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