

OPEN-SOURCE SOFTWARE LICENSING: A CONSIDERATION OF ITS APPLICABILITY VIS-À-VIS PROPRIETARY SOFTWARE



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OPEN-SOURCE SOFTWARE LICENSING: A CONSIDERATION OF ITS APPLICABILITY VIS-À-VIS PROPRIETARY SOFTWARE

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1.0 INTRODUCTION

Intellectual Property encompasses a broad spectrum of intangible assets, including inventions, literary and artistic works, designs, symbols, names, and images used in commerce. Given the intrinsic value and importance of such assets to individuals, businesses, and society as a whole, the prevailing practice has been to protect any and all Intellectual Property from third-party interference. Thus, the practice of Intellectual Property protection exists to safeguard creations of the mind from unauthorised use or reproduction by third parties.

To this end, various legal mechanisms and frameworks have been established to ensure the effective protection of the different classes of Intellectual Property rights (copyrights, patents, trademarks, and industrial designs). Each of these classes of protection offer distinct avenues for safeguarding different types of intellectual creations, thereby providing creators and innovators with the necessary legal tools to prevent unauthorized use, reproduction, distribution, or exploitation of their intellectual assets by third parties.

However, an exception to the prevailing practice of safeguarding Intellectual Property from unauthorized third parties exists in the realm of Open-Source software programming. Open-Source Codes are readily and legally available for free to third-party and end-users to alter, share and reuse as they see fit. This is an antithesis of the attitude commonly displayed with other intellectual property works.

Open-Source programming lacks the jealous protection other works of intellectual property are subject to from their creators and instead adopts an almost community-like approach encouraging the end-users to interface with the source codes for the purposes of learning, sharing, duplication, or otherwise.

From the perspective of Intellectual Property rights, this raises the question of what protection Open-Source software are afforded given their collaborative nature and to what extent those rights are protectable.

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2.0 OPEN-SOURCE SOFTWARE

Generally, a software contains code that is only legally accessible to the person, team, or organisation that created it. The creator(s) maintains exclusive control over the source code, and only they can modify it. This type of software is referred to as 'Proprietary Software.'¹

'Open Source' refers to software released through a specific license that makes its source code legally available to end-users² to copy, inspect, modify, learn from, and share. It offers no restriction against manipulation and alteration by the end-users, whether the end-user is a programmer or not. Access to the source code is free even though the software or program may be at a cost.

Open-source software promotes collaboration by permitting third parties to modify the source code to improve or alter the program or incorporate those codes into their projects.³ They encourage programmers to access and modify the source code as they like.

'Source code' refers to the code that forms the building block of any program and enables them to run as intended. It is the list of human-readable instructions that a programmer writes when developing a program.⁴

It is important to note that, like proprietary software, open-source softwares have licensing agreements that the end user must agree to before running the program. The difference is in the substance of the agreement. While proprietary software licenses prohibit unauthorised sharing, duplication, or alteration, open-source software works to enable such activities. These licenses used by Open-Source software are usually referred to as 'copyleft' licenses.

Copyleft⁵ is the legal technique of granting certain freedoms over the use of copyrighted works with the caveat that the same rights be preserved in works derived from such use. Richard Stallman invented the concept of copyleft licenses.⁶ In 1985⁷ he founded the 'Free Software Foundation'⁷ as a non-profit to promote computer user freedom.

There are two broad classes of copyleft licenses, and they are; Permissive licenses and Restrictive licenses. The Restrictive copyleft licenses ensure that any program derived from open-source material is also released and distributed under the same conditions as the original copyleft license. This has a viral effect that extends to derivative works. This means that all derivative and aggregate

¹ Gartner Glossary, 'Proprietary Software' (Gartner Glossary) < <https://www.gartner.com/en/information-technology/glossary/proprietarysoftware#:~:text=Proprietary%20software%20is%20owned%20by,easier%20to%20transmit%20these%20programs.>>

² 'What is open source software?' (Red Hat, 11 may, 2022) <<https://www.redhat.com/en/topics/open-source/what-is-open-source-software>>

³ Opensource.com, 'What is open source?' (Opensource) <<https://opensource.com/resources/what-open-source>>

⁴ David Bolton, 'Definition of Source Code' (Thoughtco. 3 July, 2019) <<https://www.thoughtco.com/source-code-definition-958200>>

⁵ Friedman, Ken. 'copyleft' (Encyclopedia Britannica, 13 July, 2016) <<https://www.britannica.com/topic/copyleft>> Accessed 30 May 2023.

⁶ 'Richard Stallman' (cs.mcgill.ca) <https://www.cs.mcgill.ca/~rwest/wikispeedia/wpcd/wp/r/Richard_Stallman.htm#:~:text=In%201985%2C%20Stallman%20invented%20and,redistribution%20rights%20for%20free%20software.>

⁷ Fsf.org



works must also be released under the same license. However, permissive licenses offer the right to develop proprietary derivative works. These are neither persistent nor viral; derivative and aggregate works can be published under a different license.

Some of the most popular open-source licenses include;

1. The GNU General Public License
2. The MIT Public License
3. The Apache Software Foundation Public License
4. Mozilla Public License

Open-Source software are often mistaken to be the same as public domain software.⁸ This is inaccurate as public domain software are those for which the creator has voluntarily surrendered all proprietary rights. There are no licenses required for the use of public domain software. Open-Source software are licensed, but the license permits unrestricted use.

Open-Source software has the benefit of often being available for free. Some also believe open-source software to be better than proprietary software and more secure due to the large number of developers making improvements and modifications to the software.⁹

However, the risk of intellectual property infringement increases because the software is developed without the usual safeguards and controls present in the commercial software development process. If a programmer downloads a code to which a previous programmer has added infringing code, the programmer could be exposed to liability.¹⁰

3.0 ORIGINS OF OPEN-SOURCE SOFTWARE PROGRAMMING

In the early days of computing, programmers shared software and learned from each other to develop their skills and products. Eventually, this practice gave way to the commercialisation of software in the 70s and 80s. However, some academics such as Richard Stallman, Donald Knuth and Eric Raymond continued to develop software collaboratively. The latter published his essay '*The Cathedral and the Bazaar*'¹¹ in 1997,¹² which garnered acclaim and contributed to Netscape Communications Corporation's decision to release their then popular 'Netscape Communicator'¹³ Internet suite as free software.¹⁴ This source code went on to become the basis behind such programs as Mozilla Firefox and KompoZer.

⁸ 'Public Domain: Everything you need to know' (upcounsel) <upcounsel.com/public-domain>

⁹ Victoria Lee and Mark Radcliffe, 'Intellectual Property Basics for Startups: open Source Software' (DLA Piper) <<https://www.dlapiperaccelerate.com/knowledge/2017/intellectual-property-basics-for-startups-open-source-software.html>>

¹⁰ Ibid.

¹¹ Eric S. Raymond the Cathedral and the Bazaar (O'Reilly Media 1999)

¹² The essay was later adopted into a book of the same title published in 1999.

¹³ Margaret Rouse, 'Netscape Communicator' (Techopedia, November 2, 2011) <<https://www.techopedia.com/definition/8539/netscape-communicator>>

¹⁴ Free software was a precursor to Open source software.



Netscape's decision galvanised these intellectuals to push free software ideals and the perceived benefits to the commercial software industry. They rebranded free software into open-source software to emphasise the business potential of collaborating on software development.¹⁵ The 'Open Source Initiative' was founded in 1998 to encourage the adoption of the new term and evangelise open source principles.¹⁶

Commercial software vendors were initially opposed to the idea of open source software with then Microsoft executive Jim Allchin going so far as to declare that “open source is an intellectual property destroyer. I can't imagine something that could be worse than this for the software business and the intellectual property business.”¹⁷ However, there has been a shift in corporate ideology regarding open-source software amongst corporate giants. Google has developed and contributed to numerous open-source projects, including the Android operating system, Chrome browser, and many others. Google is known for its extensive support and contributions to the open-source community.

Facebook has released several open-source projects that have gained popularity. Notable projects include React (JavaScript library for building user interfaces), React Native (framework for building cross-platform mobile apps) and PyTorch (deep learning framework).

Even Microsoft has significantly shifted towards open-source in recent years and embraced open-source projects across various domains. They have open-sourced their .NET framework, Visual Studio Code (code editor), TypeScript (programming language), and PowerShell (automation framework), among others.

These corporations and many more actively contribute to the open-source ecosystem and encourage open-source initiatives.

4.0 OPEN-SOURCE PROGRAMMING AND INTELLECTUAL PROPERTY RIGHTS

Given that the reason for creating free and open-source software is to make available free and adaptable source code for anyone interested in using it and enable collaborative programming efforts, open-source software developers are usually not particular about intellectual property protection. Open-Source software creators often refuse to abide by the general principles of copyrights,

¹⁵ Karl Fogel, Producing Open Source Software (Version: 2.3295 19 Dec 2022 producingoss.com)

¹⁶ 'History of the OSI' (open source initiative) < <https://opensource.org/history/> >

¹⁷ Ben Charny, 'Microsoft raps open-source approach' (CNET 2 January, 2002) < <https://www.cnet.com/tech/tech-industry/microsoft-raps-open-source-approach/> >



patents and market secrecy to ensure that the source code is accessible and the software is fully reproducible.¹⁸ This flies in the face of the very concept of copyright and intellectual property protection.

A recorded work generally necessitates copyright protection,¹⁹ and this includes software. This enables the creator to profit from the distribution of copies of the software, gives the creator a right to decide who is permitted to adapt, copy, and distribute the work and grants him the right to institute action against anyone who does so without permission.²⁰ Creators of Open-Source software are averse to this practice and, as such, are not protected by the usual copyright provisions. Creators of open-source works earn profits by selling their expertise through offering support services and consulting as opposed to selling copies of the software because they lack the monopoly and the copyleft licenses often prohibit selling open-source codes for profit.

The intellectual property licenses of open-source software, rather than protect against modification, duplication and unauthorised distribution, work to enforce those very same activities to ensure availability and adaptability for all programmers. Resource sharing is an ideal for open-source developers.

The copyleft licenses ensure that any program derived from open-source material is also released and distributed under the same conditions as the original copyleft license. This has a viral effect which extends to aggregate works. This means that not only must all derivative works be released under the same license, but all aggregate works must also be released under the same license.

The exception to the above is permissive licenses. These are neither persistent nor viral; as such, derivative and aggregate works can be published under a different license.²¹

However, open-source licenses are still intellectual property licenses and breach of the conditions of the license is still a violation of the intellectual property rights of the originator. Although relatively rare, such breaches can still lead to lawsuits to enforce and protect the intellectual property rights of the originator. The Software Freedom Law Center (SFLC) has been involved in various legal actions related to open source, including cases against alleged GNU General Public License violators. BusyBox, a collection of Unix utilities released as open source, has been at the center of multiple infringement suits. The Software Freedom Conservancy has filed lawsuits on behalf of BusyBox

¹⁸ 'Intellectual Property and Open Source: Everything You Need to Know' (Upcounsel 2 November, 2020) < <https://www.upcounsel.com/intellectual-property-and-open-source> >

¹⁹ Ibid.

²⁰ Ibid.

²¹ Petteri Kivimäki, 'Understanding Open Source License Types' (Levelup.gitconnected, 13 October, 2019) < <https://levelup.gitconnected.com/understanding-open-source-license-types-5a577c4a09d5> >



against companies that failed to comply with the GPL. Also, Oracle America Inc. v. Google Inc. is a high profile case involving open-source elements.

Unfortunately, there is a dearth of legislation both locally and internationally on the subject matter; however, non-contradictory intellectual property laws apply to open-source. It is also worthy of note that the international community has shown an openness to open-source programming. The United Kingdom Government's Open-Source Software policy encourages government organisations to consider and use open-source software when procuring software solutions and the United States government's Federal Source Code policy promotes the use of open-source software within federal agencies.

Advantages of Open-source Software over Proprietary Software

As stated earlier in this article, licensed software can either be open-source or proprietary. These classes of software have several marked differences between them.

1. **Accessibility:** The source code is readily accessible to the public without any special permissions or payments. The code is accessible to programmers and non-programmers alike. Millions of people can view, enhance and utilise open-source codes.
2. **Fewer Restrictions:** Proprietary software restricts control to only the creators or other persons granted special permission to do so, whereas open-source software permits any interested developer to examine and edit the source code as they see fit.²² This leads to greater adaptability, fosters programmer collaboration, and enables non-programmers to benefit from open collaboration.
3. **Increased Adaptability:** Anyone with the necessary skills can add or alter features to the code to make it perform better or correct flaws in the original code. The code can also be tailored to the requirements of the end user.
4. **Reproduction/Distribution:** Besides being modifiable, the code and the software can be reproduced and distributed under the same copyleft license as the original, thus ensuring the product's availability to the public without cost.

²² Wazobia technologies, 'Open Source Vs. Proprietary Software: Pros, Cons, Examples and Differences' (Linkedin 13 September, 2022) <<https://www.linkedin.com/pulse/open-source-vs-proprietary-software-pros-cons-examples->>



5. **Free Assistance:** The members of the programming community that utilise open-source codes are constantly available to answer questions, solve problems and give advice. Programming communities often create forums to discuss programming and provide comprehensive documentation on their programming exploits.²³

Disadvantages of Open-source Software

1. **Errors by amateurs:** The code is available to programmers and non-programmers alike, regardless of skill level. An amateur programmer or non-programmer will likely input errors if/when editing the code. If shared, such flawed code could cause damage.
2. **Malicious Manipulation:** Because the code is alterable and distributable by anyone, there is no guarantee that malicious code or malware will not be inserted into the software. Such code could do damage before being discovered by another programmer.
3. **Fragmentation:** The open-source ecosystem often leads to the proliferation of multiple similar Projects working on similar objectives. This fragmentation can result in a fragmented user base and developer community. Consequently, resources and efforts can get distributed across different projects, leading to duplication of work and a lack of focused development.
4. **Complexity:** Open source software can be complex, especially for non-technical users. The lack of a unified design or user interface can make navigating and configuring the software challenging. This complexity can be a barrier to adoption for individuals or organisations without the necessary technical expertise.
5. **Compatibility Issues:** Interoperability and compatibility can be a concern with open-source software. Different projects may use varying standards or file formats, making it difficult to integrate them with existing proprietary software or hardware seamlessly. This can create challenges when attempting to collaborate or exchange data with systems that rely on proprietary software.
6. **Earning difficulties:** Due to the licensing terms, programmers cannot typically earn from the sale of their source code or profit from granting paid access to the source code as is obtainable with proprietary software.

²³ Ibid.



5.0 EARNING FROM OPEN-SOURCE

In light of the constraints open-source licenses place on programmer's ability to earn via sale of their code, there are other ways in which open-source programmers can earn. They include;

1. Offering support and consulting services to businesses and individuals that require assistance with open-source software implementations, customisation, and maintenance.
2. Providing customisation and extensions or creating premium extensions or plugins to businesses that require tailored solutions specific to their needs. This approach provides additional value to your users and helps build a customer base.
3. Creating a crowdfunding campaign or promoting a donation-based model can encourage users to contribute to developing and maintaining your software.
4. Creating a dual-license model where the core software remains open source, but a paid version with additional features is available.
5. Developing premium add-ons, plugins, or themes that enhance the functionality of the open-source software and charge for their usage.
6. Sponsorships from and Partnerships with businesses that have a vested interest in the software. Companies may sponsor the project or collaborate with the programmer on development, which can provide financial support or resources to help sustain and grow the software.
7. If the programmer is established as an expert in the field, this can lead to opportunities such as speaking engagements, partnerships, or job offers that generate income indirectly.

6.0 APPLICABILITY OF OPEN-SOURCE PROGRAMMING IN NIGERIA

As the resurgence of Open-Source programming gains momentum and garners broader acceptance and utilization worldwide, it becomes pertinent to explore its potential adoption in Nigeria and its prospective impacts on Nigerian society. The application of open-source programming in Nigeria has the potential to significantly impact various sectors of the economy and society, fostering

³⁴ Mergers & Acquisitions: Hostile takeovers and defense strategies against them: School of business, economics and Law, Gothenburg; 2011

³⁵ The respective powers of the members in general meeting and the board of directors shall be determined by the company's articles.

³⁶ Ibid, Note 13

³⁷ Ibid, Note 2

³⁸ Richard S. Ruback, 'An Overview of Takeover Defences' in Alan Jung, 'Growth, Corporate Profitability and Value Creation' (2002) 58 Financial Analysts Journal 56, 65.

³⁹ Ibid, Note 2

⁴⁰ Ibid, Note 13



innovation, collaboration, and economic development. Such impacts could come in the way of;

1. **Entrepreneurship and Innovation:** Open-source programming fosters a culture of innovation and entrepreneurship by providing a foundation for startups and tech companies to build upon. Nigerian entrepreneurs can leverage open-source platforms and frameworks to develop innovative products and services tailored to local market needs, driving economic growth and job creation.
2. **Education and Skill Development:** Open-source software provides a cost-effective and accessible platform for teaching programming skills and computer science concepts in Nigerian schools. By leveraging open-source programming languages and tools, educators can equip students with the necessary technical skills to pursue careers in technology and contribute to the global open-source community.
3. **Government and Public Services:** Following the lead of the United States and the United Kingdom as earlier mentioned in this article, Open-source software can be used to develop and deploy digital solutions for Nigerian government services and agencies. By adopting open-source technologies, Nigerian government agencies can reduce software licensing costs, customize solutions to local needs, and facilitate collaboration among different government departments.
4. **Community Development and Network Building:** Open-source projects encourage collaboration and knowledge sharing among developers, researchers, and technologists, both locally and globally. Nigerian developers can contribute to open-source projects, participate in international hackathons and coding competitions, and collaborate with peers from around the world, thereby expanding their skills, networks, and opportunities.

7.0 CONCLUSION

By its very nature, open-source software is opposed to the ordinary form of intellectual property protection. The reason for its existence as a form of programming is to foster community programming endeavours and to make software and source code available to the masses, and as such, copyright protection is an antithesis of what it was created to be. Copyright laws do not protect open-source works by design, as they directly oppose intellectual property protection in the programming community.



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