Open Source: a moderate perspective

Davide Bergamaschi

2019

Abstract

An ethical analysis of the Open Source methodology guided by:

- Utilitarianism
- Professional ethics
- A concrete look at the software industry

What is Open Source Software

OSS is software in which the **source code** is released to the **public** under a permissive license, which allows the software to be freely:

- Run
- Studied
- Changed
- Redistributed

It is an alternative to Proprietary Software, where the source code is instead hidden from the user by means of Intellectual Property laws

Open Source as an engineering practice

*Open source is a **development methodology**; free software is a social movement* (Stallman)

Open Source development can be an efficient way to build high quality, peer-reviewed, secure software

In some applications Open Source is widely considered an engineering standard (e.g. cryptography libraries)

Getting philosophical

In this presentation we intend to analyze the engineering practice of Open Source from a **moral point of view**

Is it a more ethical alternative to Proprietary Software?

Establishing a framework

The Open Source choice:

- Has several practical implications
- Is well-established
- Concerns engineering

We are led to focus on its **consequences**

In a **utilitarian framework**, a moral action is the one that brings the greatest benefits to the largest number of people

It seems the most natural perspective to reason about our problem

OSS vs PS

Let's start by considering a very **general scenario**

A company has just completed the development of a program and is ready to release the first version to the public

What are the **consequences of open sourcing** the program?

- On the users
- On the company and the developers
- On all the other computer professionals

OSS impact on the users

- Virtually **everybody can get a copy** easily and inexpensively
  - Nobody is tempted or compelled to run illegal copies
- Users can get to **know** exactly **what the software does**
  - Experts can check that the code does not contain malicious parts (backdoors, privacy abusing mechanisms, etc.) and...
  - ...inform the rest of the user base

OSS impact on its developers / producing company

- Product quality is showcased by the source code
- Possibly broader market (due to higher accessibility and openness to contribution of platform ports)
- Directly **selling the software** will probably **not** be as **profitable**

OSS impact on other developers

Any other developer will have the possibility to:

- **Learn** from the code
- **Customize** the code and publish modifications
- **Reuse** the code in another project (complying with the license)
- Develop an **interoperable** program

Some further questions

We have shown how an Open Source approach can be more **beneficial for the community** of users and developers as a whole

We still have to address some points:

- Are OSS developers properly rewarded for their labor?
- Is Open Source compatible with the ethics of engineers?
- Can Open Source be a universal choice?

Open Source and rewards

Sometimes actions are driven by motivations different than profit

Many **enthusiasts** contribute to Open Source projects as **volunteers** in their free time

According to E. S. Raymond, the Open Source hacker community is a **gift culture** whose members **compete for prestige** through code

Open Source and rewards

However developing OSS does **not** imply **working for free**

A company can fund an Open Source project in a number of ways:

- Offering services related to the software
- Affiliating with commercial partners and sponsors
- Launching fundraising campaigns
- Selling other products or services

Empirical data suggests that around 50% of all contributions to renowned Open Source projects are paid work now (Riehle et al.)

Open Source and engineers

Organizations like the IEEE and the ACM issue codes of professional ethics for engineers and IT professionals

These codes stress some common important points that Open Source seems to serve particularly well due to its public impact:

- Contributing to the **public welfare**
- Promoting **collaboration among experts**
- Improving the public **understanding of technology**

Open Source and engineers

Furthermore Open Source facilitates large collective efforts and reuse of code, ultimately speeding up innovation

This is in line with the typical engineering ideals of **efficiency** and **technological enthusiasm**

Open Source and universality

We have shown a number of ways to fund Open Source development, however its adoption does **rule out some business models**

In the case of a business that wishes to ***produce software for sale*** [. . .] *Open Source will be a difficult product to monetize* (Perens)

Moreover some argue that **Intellectual Property** can **incentivize innovation** and protect small companies in competitive areas

- Critics such as Stallman and Lessig have nonetheless pointed out controversial effects of current IP mechanisms
- The debate extends beyond the scope of this presentation

Open Source and universality

Under the current economic framework, Open Source may **not always** be a **self-sustainable** model

The most conservative approach is still to **leave the decision** among open or closed source **to companies and developers**

This lets consumers get the best from both worlds and does not put artificial constraints on the industry

Conclusion?

According to P. Kollock's definition, **Open Source programs** can be regarded as **public goods** (indivisible and non-excludable)

In light of this, we argue that the development of useful Open Source Software should be publicly protected and encouraged

Citizens should be educated about the benefits offered by Open Source Software in terms of privacy and security

Public institutions should adopt valid Open Source alternatives whenever they reduce costs and promote interoperability

Conclusion!

Thank you for your attention!

You can find these slides, along with the source code, at:
https://github.com/daberg/oss-presentation

References

- Association for Computing Machinery. *ACM Code of Ethics*. 2018. https://www.acm.org/code-of-ethics
- Eric Steven Raymond. *Homesteading the Noosphere*, version 3.0. http://www.catb.org/esr/writings/homesteading/homesteading/
- Lawrence Lessig. *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*. 2004.
- Open Source Initiative. *Open Source Case for Business*. https://opensource.org/advocacy/case_for_business.php
- Peter Kollock. *The Economies of Online Cooperation: Gifts and Public Goods in Cyberspace.* 1999.

References

- Richard Stallman. *Why "Open Source" Misses the Point of Free Software*. 2018 rev. https://www.gnu.org/philosophy/open-source-misses-the-point
- Richard Stallman. *Why Software Should Be Free*. 2018 rev. https://www.gnu.org/philosophy/shouldbefree.html
- Riehle, Dirk and Riemer, Philipp and Kolassa, Carsten and Schmidt, Michael. *Paid vs. Volunteer Work in Open Source*. Proceedings of the Annual Hawaii International Conference on System Sciences. 2014
- The Institute of Electrical and Electronics Engineers. *IEEE Code Of Ethics*. IEEE Policies, Section 7. 2018

License