

FLOSS Communities Cost Structure and Funding Sources

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Course Open Source and Intellectual Property in Digital Society

23 January 2018

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Introduction

New technologies have been developed through collaboration by programmers and engineers from the beginning of the computers. The concept of open source has followed this development as a direct response to the private manufacturing. An advantage of using open source is that by removing the barriers of the traditional approach between innovators, free exchange of ideas is stimulated and thereby drives to more creative outcomes (big commerce, n.d.).

The definition of free and open-source software (FOSS), quoted from opensource.com and technopedia.com is:

'Free and open-source software (FOSS) allows users and programmers to edit, modify or reuse the software's source code. "Source code" is the part of software that most computer users don't ever see; it's the code computer programmers can manipulate to change how a piece of software—a "program" or "application"—works. Programmers who have access to a computer program's source code can improve that program by adding features to it or fixing parts that don't always work correctly (opensource.com, n.d.).

The term "free" indicates that the software does not have constraints on copyrights. The term "open source" indicates the software is in its project form, enabling easy software development from expert developers collaborating worldwide without any need for reverse engineering (technopedia, n.d.).

Whilst many people believe that open-source software actually means that the product is *free*, this is not necessarily the case. The developers of the open-source software are entitled to sell their work. However, due to the licence the developers are not allowed to patent the work, or keep the code secret. For this reason, people can continue on the existing work and improve it, for free.

This however, does not mean that open source itself is free of charge. Programmers can charge either for creating or contributing to the open source software. A totally different way to earn money with open source is not by charging for the software itself, but charging for the software services and support(opensource.com, n.d.).

The main purpose of this report is to **research and explain the cost structure of FLOSS communities and the corresponding funding sources**. This will be done by comparing and analyzing financial reports from open source companies, thorough research in scientific literature about open source, consulting online forums used by FLOSS users and reviewing FLOSS conferences related to the cost structure of the organisations.

Research

As mentioned in the introduction of this report, the main purpose of this report is to research and explain the cost structure of FLOSS communities and the corresponding funding sources. In this chapter the following questions, as stated below, will be researched.

- What does the cost structure of FLOSS communities look like?
- How are the programmers of FLOSS communities able to make money?
- Which are the most important found sources?

The results of this research can be found on the Free Libre Open Source Communities chapter, on each community section and in the conclusion chapter.

Cost structure of FLOSS communities

In order to understand why people participate in FLOSS activities, it's important to take a better look at the cost structure. This is also necessary to understand why open source exists in the first place. First, the motivation and of the programmer will be reviewed. Then the ways how programmers can make money using FLOSS software will be covered. And after that, several business models that are used in FLOSS communities will be discussed.

The reason a programmer would want to take part in an (open source) project, is only if the net benefit from the activity is positive. The net benefit equals the immediate payoff plus the delayed payoff. Meaning, there's a variety of costs and benefits in each project and if a programmer chooses to work on a certain project, the programmer won't be able to engage in other programming activities. Hence losing a compensation that would be received when working for a commercial institution. It doesn't matter if the return in efforts are immediate or in the long run, the only thing that matters is whether the payoffs outweigh the costs(Juntunen et al., n.d.).

So, since in FLOSS communities there it is quite regular that a programmer won't receive any financial compensation for its work, there must be other positive outcomes in taking part. Benefits that programmers *can* get from working on an open source project, are either intrinsically motivated or career concerned incentives. Intrinsic motivation basically means that an activity is done for the sole purpose of natural satisfaction and not for some distinguishable result. The challenge of an activity is what draws the programmer to take part instead of a reward or some sort of pressure. So in the intrinsically motivated cases the reason why a programmer would take part in contributing it is about learning and exploring(Juntunen et al., n.d.).

A totally different motivation for taking part in FLOSS projects is the extrinsic motivation. These are also regarded to as external factors. Some of these are: using FLOSS projects as a way to improve the skills of the programmer, marketing opportunities, gaining a better status or as an investment in the future(Juntunen et al., n.d.).

Both the intrinsically and extrinsically incentives are stronger when the performance of the programmer is more visible to the desired audience of the programmer and when the performance is more attributable to the programmer(Lerner et al., 2000).

However, the most common source of motivation for this is, as usually, money. This is striking as programming in open-source software is a business that isn't known to have a lot of money involved. But times are changing, and nowadays it is definitely possible for programmers to receive a paycheck every month when actively taking part in open-source projects. In the chapter below the way programmers will actually be able to make money with open-source projects will be analyzed(Juntunen et al., n.d.).

Funding of FLOSS programmers

In contrary to some people's belief, which is that open source software means that every programmer contributes for free, it actually is possible for (some) driven programmers to make money with open-source software.

Programmers getting paid by a company

The most simple and obvious way for a programmer to earn money is to be paid by a company. This is not something a lot of the open-source companies do, but a few examples are Red Hat, IBM and distributors of Linux operating system. These distributors pay the programmers to keep the updating process of the software constant. So these developers using Linux for example do have costs but these costs are much less than they would be if the developers would be using a Windows operating system for example.

So, in this case the companies are willing to pay for a programmer that is able to solve the problem that occurs with the software they use. The companies somehow use the open-source software for their own profit and therefore benefit from it working accordingly. An example could be a company that sells computers that run with Linux (The Windows Club, n.d.).

Programmers getting paid by creating extras

Programmers can also earn money by being hired by companies that are using open source software. The companies will hire the programmers that are involved in the project to create special plugins, add-ons or extras. Because they have already worked on the desired open source software that the companies need expertise on, the programmers have knowledge of how the code works. An obvious benefit for the companies that hire these programmers is that it's a lot cheaper for them to hire a programmer that already has experience with the software. For example, hiring a professional who has no experience with the software would be much more expensive. Or having their own employees try to create the same extras, which is much more time consuming(The Windows Club, n.d.).

Programmers getting paid for customizing code

This method is comparable to the case above, but the difference here is that the companies that are using the open source software hire the programmers to edit the code according to the needs of the company. So in this method the programmers/developers aren't adding anything extra, they are just making some small changes to the code. Also, as the method above it is more profitable for the companies to hire programmers that are familiar with the software instead of paying their own employees to study and edit the code, which is much more expensive. Hiring a programmer with experience is also a favorable option when time is of the essence, which it usually is in open source projects. A professional who has already worked on the code will be able to get the job done in much less time(The Windows Club, n.d.).

Programmers getting paid for providing support

The last way programmers can earn money is by providing support to users who have difficulty with the open source software. Not all of the software is as easy to install and use as others. Companies can pay experienced programmers to train their employees and to provide support when problems occur.

Some open-source software is deliberately created seeming as free software but has a big hidden part. For this part installation and training is required, where programmers can then charge and therefore earn money with(The Windows Club, n.d.).

For the programmers that are actively trying to earn money with (one of) the methods discussed above, it is important for them to remain active in the field of the open source software to be noticed by the companies that require one of those services from them. They can, for example, choose to leave their names or contact details in for example the comment section of the source code. This will enable them to be reached in case their services are in demand.

Funding of FLOSS companies

The difference between commercial and open-source software companies is that in the latter case, a return on investment is not expected or needed for the investors. A lot of projects were created solely because the developers needed a solution just for themselves. Then afterwards the code has been released as open-source material. Another reason why projects can begin is for an educational reason, or even as a hobby. So, an open coded piece of software is created, but without any link to a business plan(Gewirtz,2016).

However, there are open source projects that are driven by economic business models. The most important ways how companies can acquire their funds with open-source software will be discussed below.

Community model

In the community model usually a company releases a product as an open-source product. The company doesn't invest in any support resources, this is from then onward the 'responsibility' of the users.

The cost structure of this model is based on installation and support. Additional features can sometimes also be used as a form of extra income(Gewirtz,2016).

Users can choose to pay for these services when they don't want to do all the hard work. This includes training, technical support and consulting. So in this approach it's not about earning from the software itself(Germain,2013).

Freemium model

The freemium model works as follows: the product itself is free of charge, but there is a charge (premium) for the additional features and/or services. This can also be a free product with commercial add-ons. The benefit of using this model is that prospective customers can use the product with no upfront costs(Gewirtz,2016).

Open core model

The open core model is a variety of the freemium model, where users can download and evaluate a free version of the software. The idea of this model is, if they like the open-source software they will also want to buy the extended proprietary version(Turner, 2015).

Time delayed open-sourcing

The idea of using this model is that this software only has a limited period of commercial viability. A company will provide the latest versions only to paying customers and afterwards some or all of the code will be made open and released in the same license as the rest of the software codebase(Turner, 2015).

Proprietary re-licensing

If a piece of open-source software consist of a free permissive software licence, a way to make money out of this is to re-licence the the software that comes out of this. This will be

done by using a proprietary licence and it will then be sold *without* the source code. Important with this method is that the vendor should *add* extra value to the original software/code(Turner, 2015)(Montage,2013)

Selling of proprietary update systems

As a variant of the proprietary relicensing method, selling the proprietary update systems works as follows: all the new versions will remain as a free open-source licence, yet the updates will be refrained from the users. So the users can still keep on using the software, but in order to use the new version they need to either export the data, install the new version again and then import all the data again. Or they can switch to using the proprietary update system(Turner, 2015).

Selling professional services

When a company sells a professional service this often involves using custom practices to match the need of the customers. For example, the company could combine two separate types of software and integrate them as a service. This service naturally comes for a fee(Turner, 2015).

Voluntary donations

In this case it is donations by users that make the development of the software possible. It is usually a one-time based action. Donors will feel more connected to an organization if they receive updates about projects and they will feel like they are making more of a difference. This can in the future lead to more funding from the same donors(Turner, 2015).

Partnership with funding organisations

Another ways to acquire financial funding is to partner up with other companies. This can for example with the government or an university. They can develop in-house modifications internally and then the code can be released under an open-source licence(Turner, 2015).

Crowdsourcing

In the crowdsourcing business model a developer can choose to fund open-source projects by explaining what they wish to achieve. People then decide if it has an added-value for them individually and if it is they can encourage this financially. In this model the investors usually expect to be able to give feedback on the open-source project(Turner, 2015).

Bounties

When many people who use the same software encounter the same problem/bug in the software and want it fixed, they can set a value for someone fixing it. This will lead to development of the software and is also important in identifying what the most common or important problems are in the software according to the market. It works as follows, the users of the same kind of software collect their money into an open-source bounty and if the bug/crash/error is fixed the bounty can be collected. This is also a way for developers to make a living by collecting the bounties(Evers, 2005)(Turner, 2015).

Using advertisements in the software

Many companies have moved towards advertising-supported software. An example of this would be AdBlock Plus, which is paid by Google to let acceptable advertisement get past the adblocker(Callaham, 2013).

Sources of FLOSS funding

Derived from the information that is mentioned in the 'Funding of FLOSS companies' chapter above, the sources of the funding can be determined. Funding not only comes from the programmers who have to pay for services, updates or any other extras. These programmers can also fund the FLOSS community as a donor or a crowdsourcer, therefore not paying for a service per se but for the possibility of development of the software/organisation.

Funding can also come from other sources, such as other companies who wish to enter into cooperation with the FLOSS developing company. And lastly, an important source can be funding that can be derived from advertisements.

Free Libre Open Source Software (FLOSS) Communities

In this chapter we are going to analyse in details 6 FLOSS companies community driven: Wikimedia Foundation, Fedora Project, Eclipse Foundation, Debian, Software Freedom Conservancy and Fsfe.

To answer the key questions of our paper, we are going to look into Wiki page of each project, organization website and more specifically into the yearly report of each organization mentioned above. The research is based only in the information published online and what is available for the readers or non-members of the organizations.

Wikimedia





Wikimedia Community

"The <u>Wikimedia Foundation</u>, Inc. is a <u>nonprofit</u> charitable organization <u>dedicated</u> to encouraging the growth, development and distribution of <u>free</u>, multilingual, educational content, and to providing the full content of these <u>wiki</u>-based projects to the public free of charge. The Wikimedia Foundation operates some of the <u>largest collaboratively edited</u> <u>reference projects</u> in the world, including <u>Wikipedia</u>, a top-ten internet property. Imagine a world in which every single human being can freely share in the sum of all knowledge. That's our commitment."^[12]

"The **Wikimedia movement**, or simply **Wikimedia**, is the global community of contributors to <u>Wikimedia Foundation</u> projects. The movement was created around <u>Wikipedia's community</u>, and has since expanded to the other Wikimedia projects, including the commons projects <u>Wikimedia Commons</u> and <u>Wikidata</u>, and volunteer software developers contributing to <u>MediaWiki</u>. These volunteers are supported by numerous organizations around the world, including the Wikimedia Foundation, related chapters, thematic organizations, and user groups."^[12]

The ultimatum authority is Board of Trustees.^[13] It recognises models of affiliations within the Wikimedia movement, which are:^[14]

- Chapters independent organizations to support and promote Wikimedia projects that operate within a specified geographic region^[15]
- Thematic organizations
- User Groups

WF Funding Sources

The Foundation is a 501(c)(3) charity funded mainly by donations and contributions.^[16] (section: (a)Organization and Purpose, page 5, September 27, 2017) The Foundation has a Fundraising page for donations.^[17]

Contributions can be unrestricted, temporarily restricted and permanently restricted. Therefore, in the Financial Statement Presentation, financial position and activities are categorised according to three classes of net assets:

- Unrestricted Net Assets include unrestricted resources and temporarily restricted resources*
- Temporarily Restricted Net Assets
- Permanently Restricted Net Assets include contributions to be held forever as defined by the donor.

*Temporarily restricted resources are used by the Foundation according to the donors requirements. These resources are expired within the time, or when the requirements are completed by the Foundation.

"Expenditures from equipment, plant and property with useful lives of one year or more are capitalized and recorded at cost. The estimated useful life of furniture is five years, while the estimated useful lives of computer equipment and software is three years."^[16] (Notes to Financial Statement, section: Property, Plant, and Equipment, page 7)

WF Cost Structure

In the **Figure 1** and **2**, are presented, respectively functional allocation of expenses for year 2017 and 2016.

Expenses are focused on three main initiatives:

- 1) building the technological and operating platform
- 2) strengthening, growing, and increasing diversity of the Wikimedia communities
- accelerating impact by investing in key geographic areas, mobile application development, and bottom-up innovation, to support Wikipedia and other wiki-based projects.^[16] (Notes to Financial Statement, section: Functional Allocation of Expenses, page 13)

Awarding Grants program is created by the Foundation to support Affiliates, Chapters, User Groups, and individuals in projects that assist the mission of the Foundation.

The majority of the projects are carried out by an international network of volunteers, whose activity is not reflected in the financial activities.

In the **Chart 1.1** and **1.2** is calculated the percentage of each voice towards the total budget, where we can see clearly differences in figures from year 2016 to year 2017. It is noticed an increasing in Awards and Grants, Depreciation and Amortization, Travel and Conferences.

			20	17	
		Programs	General and administrative	Fund-raising	Total
Salaries and wages		25,873,873	5,058,508	2,798,708	33,731,089
Awards and grants		11,114,959	100,000		11,214,959
Internet hosting		2,169,861			2,169,861
In-kind service expenses		214,581			214,581
Donation processing expenses				3,809,286	3,809,286
Professional service expenses		4,624,338	1,241,905	1,105,805	6,972,048
Other operating expenses		3,615,447	2,423,798	268,742	6,307,987
Travel and conferences		1,665,350	172,985	116,437	1,954,772
Depreciation and amortization	_	2,108,341	653,834	<u></u>	2,762,175
	\$	51,386,750	9,651,030	8,098,978	69,136,758

Figure 1: Financial Statements July 1, 2016 to June 30, 2017 (Wikimedia Foundation Inc., September 27, 2017, page 13)

		2016						
	-		_	_	Programs	General and administrative	Fund-raising	Total
Salaries and wages		24,189,343	4,917,307	2,607,311	31,713,961			
Awards and grants		11,354,612	_	_	11,354,612			
Internet hosting		2,069,572	<u> </u>	—	2,069,572			
In-kind service expenses		1,065,523		—	1,065,523			
Donation processing expenses			(i <u></u>)	3,604,682	3,604,682			
Professional service expenses		2,802,355	2,184,942	1,045,875	6,033,172			
Other operating expenses		2,066,977	2,464,818	245,408	4,777,203			
Travel and conferences		1,972,719	207,518	116,355	2,296,592			
Depreciation and amortization		2,031,182	689,653		2,720,835			
Special event expense, net		311,313			311,313			
	\$_	47,863,596	10,464,238	7,619,631	65,947,465			

Figure 2: Financial Statements July 1, 2016 to June 30, 2017 (Wikimedia Foundation Inc., September 27, 2017, page 14) **Chart 1.1**



Total Year 2016 Wikimedia Foundation

Total Year 2017 Wikimedia Foundation



Fedora



"**The Fedora Project** is a community of people working together to build a free and open source software platform and to collaborate on and share user-focused solutions built on that platform. Or, in plain English, we make an operating system and we make it easy for you do useful stuff with it.

The Fedora community includes thousands of individuals with different views and approaches, but together we share some common values. We call these the "**Four Foundations**": Freedom, Friends, Features, and First." ^[18]

Fedora Funding Sources and Cost Structure

Fedora Project Contributors are separated into 4 regions according to which country they live in. The regions are: *Asia-Pacific*; *Europe*, *Middle East and Africa*; *Latin America*; *North America*. Each region has its own ambassadors, who maintain the activities of the region. Each region has its own budget divided into these three categories:

- I. Events
- II. Swag (free merchandise)
- III. Shipping (of swag and media).

The budget is approved in advance for the period of one year, starting in March and ending in February, e.g March 2015 to February 2016. The budget is sponsored by <u>RedHat</u> and it is spread over the following 4 periods:

- 1. Q1, includes months March to May
- 2. Q2, includes months June to August
- 3. Q3, includes months September to November
- 4. Q4, includes months December to February

According to Jona Azizaj, Fedora Ambassador in Albania, the members of the respective regions update the planned budgets. Which means, they decide by discussing and voting on the whole amount approved for each category, is going to be spent all. By recalculating and voting, they calculate Adjusted Budgets. When the end of the fiscal year comes, again each region calculates the amount that was spent, and produce the Actual Budget. (Jona Azizaj, Online communication, January 11, 2017)^[19]

From the collected data, we calculated for each region the total budget for each category and in sum (presented in table 2.1 and table 2.2).

For a better understanding and for comparison with other FLOSS communities, we have calculated the percentage of the categories: Events, Swag and Shipping from the total Actual Budget.

Fedora Community - EMEA

Budget 2015	Planned	Adjusted	Actual
Events	\$26,500	\$20,883	\$11,235
Swag	\$9,800	\$7,722	\$4,918
Shipping	\$4,300	\$3,388	\$432
Total	\$40,600	\$31,993	\$16,585

Table 2.1

Table 2.2

Budget 2016	2016 Planned Adjusted		Actual
Events	\$22,770	\$20,265.30	\$8,613.40
Swag	\$9,200	\$8,188.00	\$5,878.30
Shipping	\$3,700	\$3,293	\$434.03
Total	\$35,670	\$31,746	\$14,925.73

Chart 2.1

Actual Budget 2015



Chart 2.2



For the three other Fedora communities - APA, LATAM, NA - only the total Planned Budget for Q1, Q2, Q3, Q4, and not other details like the amount spent for Events, Swag and Shipping, is documented.

Since this paper is not focused on figures those budgets have not been attached.

As noticed in the EMEA budget (Chart 2.1 and Chart 2.2), more than 67% is spent on events for the year 2015 and for the year 2016 are spent more than 57%. Instead, for the Swag category and Shipping costs are spent more money in 2016 than in 2015. Events category includes main yearly conferences like Flock (~\$80,000 Planned Budget), FUDCon Beijing, FUDCon and other events related to Women, Diversity, Release Party, Fedora booth in different Open Source related conferences (Fosdem, OSCAL ...), etc.

Eclipse



Eclipse is a trademark of the Eclipse Foundation, Inc.

"Eclipse is a community for individuals and organizations who wish to collaborate on commercially-friendly open source software. Its projects are focused on building an open development platform comprised of extensible frameworks, tools and runtimes for building, deploying and managing software across the lifecycle. The Eclipse Foundation is a not-for-profit, member supported corporation that hosts the <u>Eclipse projects</u> and helps cultivate both an open source community and an ecosystem of complementary products and services. "^[24]

"The Foundation employs a full-time <u>professional staff</u> to provide services to the community but does not employ the open source developers, called committers, which actually work on the Eclipse projects. Eclipse committers are typically employed by organizations or are independent developers that volunteer their time to work on an open source project. "^[24] (section "What is Eclipse and the Eclipse Foundation", paragraph 3)

Four services are provided to the Eclipse Community by the Foundation:(eclipse.org/org, section 1, paragraph 4)

- 1. IT Infrastructure
- 2. IP Management
- 3. Development Process
- 4. Ecosystem Development

Community contributions are made under the Eclipse Public License -EPL.(eclipse.org/org, section 3, paragraph 2)

EF Funding Sources

Since 2015, the funding source of the Foundation are **corporate donations**, including direct donations. Another main source is the donation program **Friends of Eclipse**. About direct donations, corporates may decide for which priorities go there donations. EF have to assure that this donations go to the priorities decided by the corporations, whether or not they are the same as the Foundation priorities.^[28] (section: Program Summary, Note)

Searching into the archives of Eclipse Foundation^[25], is documented a suggested plan on 2006 Budget^[27], which is before the corporate donations started. For this year, is not known clear how the funding were collected.

From what we have searched online, could not find detailed Financial Report based on the cost structure of Eclipse Community.

EF Cost Structure

The sources from corporate donations were spent for the period: late of the year 2015 to Q1 2016 for the purposes:^[26]

- I. Hiring developers as part of the professional staff to work on the Eclipse IDE platform
- II. Funding additional development on the Eclipse IDE platform
- III. Implementing a community-driven Friends of Eclipse Enhancement Program FEEP

2006 Budget

Before analysing the financial report, should be mentioned that the planned budget published for this year, is not a final report.^[27]

According to this report, community budget was spent in two directions:

- I. Committers and Projects
- II. Membership and Ecosystem

If there is enough budget, is suggested Marketing as a third direction.

For the first direction, this is the list to be considered in the budget split:

- Facilitate project-oriented and topic oriented technical symposiums
- Facilitate project meetings
- Approach new project members
- Continue to evolve and improve development tools
- Promote best practice development processes in all project
- Schedule committers meetings in one of the locations: Boston, Ottawa, San Francisco, Portland, Toronto
- Committer Code Camps
- Committer Community development

Second direction:

- Have a stock of Eclipse logoware
- Provide an Eclipse community portal for plug-ins
- Develop and execute a series of seminars for growing awareness within the user development community, targeted in North America
- Develop and execute webinars on Java and embedded topic areas
- Raise the profile of Eclipse Foundation on Europe
- Jointly fund ongoing market research on the growth of Eclipse installed base and ecosystem
- Arrange for booths and stuffing for members to exhibits at events such as JavaOne, LinuxWorld and Embedded Systems. EF presence at OSCON conference
- Develop and execute a program inspired by the Google Summer of Code
- Develop public collateral documents illustrating the various business models

Aiming to develop Eclipse Ecosystem, EF organizes meetings, events with Member companies, community conferences, community members and other activities to promote Eclipse Community.^[24] (section: Ecosystem Development)

Friends of Eclipse Enhancement Program - FEEP

FEEP is created in 2015, as mentioned above, and the function of this program is to make a good use of the fundings, collected from Friends of Eclipse program, by improving Eclipse IDE Platform.^[28]

The amount of money spent for development depends on the amount of money donated through Friends of Eclipse program.

The budget is decided after collecting the donations from a previous half year, therefore is known the amount that will be spent on the upcoming year, for development.¹(section: Budget)

In the same section of the source, is mentioned that a total budget of \$120.000 was donated by Friends of Eclipse program in the year 2014.

The unallocated development budget in a current year, or any unreleased funds are added to the budget of the next Development cycle.^[28] (section: 2. Established Budget and Select Approved Development Efforts, Note)

The most relevant finding related to the budget is presented in the table of Figure 3. This is a general financial report, we could not find a more descriptive report regarding the cost structure.

In the **Figure 3** are shown the funds (Revenue), Expenses and the profit (Net Income) corresponded for the listed years.^[29] This is documented as part of Yearly Reports, together with more data related to the progress of the community, Eclipse projects and the Foundation itself, e.g. the amount of work done by the developers per project, new members etc.

In US \$ millions	2014	2015	2016	2017 Budget
Revenue	4.3	4.9	5.4	6.3
Expenses	4.7	4.0	5.6	6.8
Net Income	(0.4)	0.0	(0.2)	(0.5)

Figure 3: 2017 Annual Eclipse Community Report

(eclipse.org/org/foundation/reports/annual_report.php June 2017)

Debian



"The <u>Debian Project</u> is an association of individuals who have made common cause to create a <u>free</u> operating system. This operating system that we have created is called **Debian**.

Debian systems currently use the Linux kernel or the FreeBSD kernel.

It is produced by almost a thousand active <u>developers</u> spread <u>around the world</u> who volunteer in their spare time. Communication is done primarily through e-mail (mailing lists at lists.debian.org) and IRC (#debian channel at irc.debian.org).

The Debian Project has a carefully organized structure.

Debian was begun in August 1993 by Ian Murdock, as a new distribution which would be made openly, in the spirit of Linux and GNU."^[30]

The organizational structure consists of 6 formal decision- making bodies:

- 1. The Project Leader
- 2. The Technical Committee and/or its Chair
- 3. The Developers
- 4. Delegates appointed by the Project Leader for specific tasks
- 5. The Project Leader Secretary

The Project Leader appoints Delegates or decision to the Technical Committee.^[31] A main task of Project Leader is managing Debian cost structure.^[32]

As a FLOSS community, developers or individuals are not being paid for doing Debian-related work.

Debian Cost Structure

- I. Maintaining the infrastructure up and running
- II. Buying and replacing machines
- III. Buying hardware or other resources used to realise a Debian purpose
- IV. Sponsoring sprints (developers meetings)
- V. Sponsoring Debian representative at attending conferences or events with a specific role
- VI. Other money expenditure being Debian intentions related^[33]

"The financial structure is supported by Trusted Organizations, as Debian is not a legal entity that could hold assets. Have been several attempts to produce a financial yearly report, but without success. It is difficult to gather data from Trusted Organizations, due to mixing several accounts and/or non transparent communication with the Debian Treasurer Team." ^[34](Email, Héctor Orón Martínez 17.01.2018)

Debian Funding Sources

As researched on Debian Donations online documentation, the only financial source of the project are donors.

According to the type of donation the sponsor organizations are categorised in three groups:

- I. Hosting and hardware sponsors, such as HP, Bytemark, CSAIL at MIT, UBC-ECE (British Columbia University)
- II. Mirror services from University Network, CDN services from Fastly and Amazon CloudFront.
- III. Development and service partners like Gandi, Conova Communications, Rackspace, etc.

The main conference of the Community is DebConf, which has its Sponsors, awarded as:[35]

- Platinum Sponsors
- Gold Sponsors
- Silver Sponsors
- Bronze Sponsors
- Supporter Sponsors

Based on the documentation online, the financial reports we could find where for some specific events and not yearly breakdown. Hence, we can not determine what percentage is spent on each category mentioned in the cost structure above.

Software Freedom Conservancy



"Software Freedom Conservancy, Inc. is a 501(c)(3) not-for-profit organization incorporated in New York. Software Freedom Conservancy helps promote, improve, develop, and defend Free, Libre, and Open Source Software (FLOSS) projects. Conservancy provides a non-profit home and infrastructure for FLOSS projects. This allows FLOSS developers to focus on what they do best — writing and improving FLOSS for the general public — while Conservancy takes care of the projects' needs that do not relate directly to software development and documentation."^[37]

SFC Funding Program

"Donate to Conservancy!"^[38] is their funding program. Supporters or Donor can make donations in a monthly period, yearly or one time donation.

For the Member Projects^[39] are maintained directed donation programs.^[38] (section: Donate to Our Projects; Published under *Creative Commons Attribution-ShareAlike 3.0 Unported License*)

Based on the "Software Freedom Conservancy, Inc. Financial Statement February 29, 2016"^[40], donors can sign their donations for a specific FLOSS project. The Organisation should provide fiscal oversight and make use of the funds for improving itself and in accordance with Organization's 501(c)(3) mission to promote, defend and advance software freedom.

The organization can hold other assets and titles, if the Project Leader of the Member Project decide so.

Contributions, in the same as at Wikimedia Foundation, can be unrestricted, temporarily restricted and permanently restricted.

Therefore, in the Financial Statement Presentation, financial position and activities are categorised according to three classes of net assets:

- Unrestricted Net Assets
- Temporarily Restricted Net Assets
- Permanently Restricted Net Assets

SFC Cost Structure

From the Financial Statement Presentation, we chose to include in our paper the expenses presented in the table of Figure 4, which we think are connected more directly to the Community costs of the Organization.

In the **Figure 4**, is presented the cost structure for Program Services, Support Services, Direct Conference expenses and the total budget for the years 2015 and 2016. Total year budget is calculated by the sum of Program Services costs and Supporting Services costs (General and Administrative costs & Fund-raising).

In the **Chart 3.1, 3.2, 3.3, 3.4** are presented the percentage of each voice towards the total budget. For Direct Conference expenses, we see that are added some more costs to Materials, Venue Rental, Travel, meals and lodgings, and some new costs for Badges, T-shirts, Honoraria. Overall, the total budget of 2016 is higher than in 2015.

		Program Services	Supporting Services						
			Adı	General and ministrative	Ē	und-raising	F	Total Year Ended Sebruary 29, <u>2016</u>	Year Ended February 28, <u>2015</u>
Salaries and wages	\$	172,467	\$	77,380	\$	31,188	\$	281,035	\$ 287,360
Employee benefits		55,264		23,279		10,260		88,803	87.658
Payroll taxes		14,264		6.382		2,556		23,202	23.874
Internships		261,250		-		-		261,250	-
Bank charges and other fees		-		10,545				10,545	4,315
Copyright license enforcement		14.363		-		-		14,363	11.042
Technology expenses		4.847		6.582		-		11,429	16,593
Office supplies and other		2.355		1.824		3,704		7.883	1.059
Mentoring student software developers		5,000		-		-		5.000	15,250
Travel, meals and lodging		-		214		2,991		3,205	9.003
Trademark registration & enforcement		2 2 2 9		-				2 2 2 9	3 382
Insurance		-		1 687		-		1,687	1 687
Payroll processing fees		674		292		107		1.073	1 020
Taxes and government assessments		734		17		-		751	234
Occupancy		233		351		-		584	252
Membershin		99		350		-		449	475
Grants		200		-		-		200	200
Bad debt expenses		200		_		-		-	373
Professional services									0,0
Software development and design		45 865				-		45 865	39 994
Accounting and audit		40,000		11 800		-		11 800	10,500
Promotional		1 212		11,000		999		2 211	1 501
Non-license enforcement legal fees		603		261		96		960	919
Granhic design		000		201		20		20	3 505
Oraphic design	-	581.659		140,964		51,921		774.544	 520,286
	_								
Direct conference expenses:									
Travel, meals and lodging		253,757		-		-		253,757	92,042
Venue rental		62,060		14		-		62,060	34,124
Audio / video		37,312) 		() ,		37,312	19,579
Bank charges and other fees		7,762						7,762	3,106
Services		10,340		-		-		10,340	2,917
Materials		9,188				-		9,188	2,741
Registration service fees		66		-		-		66	625
Badges		1,449				-		1,449	80
Honoraria		1,500		-		-		1,500	-
T-shirts		3,270		8		-		3,270	-
Other conference expenses		-		-		-		-	 -
		386,704		*				386,704	155,214

Figure 4: Statement of Functional Expenses, Year Ended February 29, 2016 (Gary S. Eisenkraft, January 12, 2017, page 4)

Chart 3.1

Year Ended February 29, 2016 SFC



Chart 3.2

Year Ended February 29, 2016 SFC - Direct Conference expenses



Chart 3.3





Year Ended February 28, 2015 SFC - Direct Conference expenses

Fsfe



"Free Software Foundation Europe is a charity that empowers users to control technology. Software is deeply involved in all aspects of our lives; and it is important that this technology empowers rather than restricts us. <u>Free Software</u> gives everybody the rights to use, understand, adapt and share software. These rights help support other fundamental freedoms like freedom of speech, press and privacy."^[42]

FSFE community consists of a group of volunteers, Fellows and donors. As a non-profit, non-governmental organization, their only funding source to continue supporting Free Software and Open Standards in society, law, politics and business, is through donations.

Fsfe Funding Sources

They provide mainly two ways of donations:

- 1. Joining the organization -> contributing monthly ($\in 10 \le 0$) or yearly ($\in 60 \le 0$)
- 2. Making a one time donation^[43]

Their donors are supporting financially and through infrastructure donations^[44]. Financially supporters are rewarded through the ranking below:^[45]

- A. Gold Donors, donating €1000 or more per month
- B. Silver Donors, donating €200 or more per month
- C. Bronze Donors, donating €40 or more per month
- D. Other Donors

Fsfe Cost Structure

The question that comes next is, how are this donations spent?

Through our research, we found published online the total income and total expenses from the foundation year, 2001 until 2016. This is shown below in the **Figure 5**.

The Cash Flow table, does not respond to one of the questions our paper raise. It is shown how much money come in and how much money are spent, but is not shown how or in what are this money spent within the community. For the years 2001 to 2017 we do not have this information documented online.

However, we know that the community

- I. creates and manages different campaigns^[46]
- II. organizes events to connect the community and discuss for future actions
- III. participates in Free and Open Source related conferences via talks, booth, group discussions^[47]
- IV. produces fsfe and FLOSS related merchandise^[48]

Therefore, we can make the assumption that a considerable amount of money is spent in the categories mentioned above.

Cash Flow

Your donations allow us to operate. We would like you to be able to see how the money has been used over the years.

Year	Income (€)	Expenses (€)
2016	649,194.75	473,595.46
2015	445,998.83	436,086.40
2014	387,139.12	378,251.92
2013	418,259.73	399,555.22
2012	343,377.52	371,167.82
2011	332,514.52	285,446.67
2010	297,700.31	288,535.09
2009	201,539.90	264,178.80
2008	383,221.44	303,419.19
2007	284,983.36	305,330.31
2006	240,175.09	223,259.89
2005	124,124.11	124,120.40
2004	80,857.38	81,380.99
2003	59,853.59	50,635.82
2002	58,740.83	51,082.47
2001	17,255.87	12,507.71

Figure 5: Cash Flow (FSFE's Funds https://fsfe.org/about/funds/funds.en.html)

For the year 2017, it is documented that a budget of €2000 is assigned to the Coordinators Team, which include the coordinators of all FSFE local groups. This amount is to be spent for local activities and the team is responsible to decide on the use of this budget.^[50]

Additional, a Planned Budget of 2018^[51] is published in the Team Council Budget site. (<u>https://wiki.fsfe.org/Teams/Council/Budget/2018</u>)

Also, shown below in the **Figure 6.** You will find the figures and the total budget below, followed by the **Chart 4.1**, which presents what percentage of the total budget is spent in different categories.

	Teams/Cou	ncil/Budget/2018			
Туре	Description		Aprox. date	Amount	Notes
PERSONELL	81xxx - Salaries for paid staff		01-12	279000.0	
PERSONELL	81xxx - Room for salary increases for	FY18 (ca 4%)	01-12	10000.0	
PERSONELL	81000 - Renumeration of interns		01-12	25000.0	Up from 22k in 2016; actual costs have risen
OTHER	82001 - Berlin office rent		01-12	21000.0	
COORD	2504 - Staff meetings and internal trav	el	01-12	8000.0	
COORD	2505 - General Assembly, travel, acco	mmodation	09-11	6000.0	Likely in Berlin, twice due to need for extraordinary assembly
OTHER	2507 - Lawyers and tax consultant		01-12	4000.0	
OTHER	2508 - Bank and Paypal fees		01-12	10000.0	
OTHER	2509 - Fundraising and donors manage	ment	01-12	3000.0	Supporter patches, stickerc, etc
OTHER	2506 - Technical services (mail accour	ts)	01-12	1000.0	
OTHER	2506 - Technical contractors		01-12	15000 0	TBD
EVENT	2527 - Volunteer summit		4-8	5000.0	TBC w/ Erik
EVENT	2526 - Local events and meetings		01-12	10000 0	TBC w/ coordinators
EVENT	2513 - International events and meeting	ngs	01-12	10000.0	TBC
OTHER	2514 - Information material		01-12	6000.0	TBC w/ Ulrike and Erik
OTHER	2515 - Campaign: I love Free Software		01-03	1000.0	TBC w/ Max
EVENT	2535 - Legal and Licensing Workshop		04	57000 0	TBC w/ Polina
OTHER	2545 - Campaign: Public Money, Public	Code	01-12	25000.0	TBC w/ MK
MEETING	2543 - Policy meetings		01-12	2000.0	
OTHER	8154 - Merchandise: new/restock items	5	01-12	20000.0	TBC w/ Ulrike
OTHER 8159 -	Merchandise: packing, shipments 01-1	.2 3000.0 TBC w/ Ulrike			
	Total	521000.0			

Teams/Council/Budget/2018 (last edited 2017-11-21 14:03:04 by jonas)

Figure 6: Teams/Council/Budget/2018 (FSFE

https://wiki.fsfe.org/Teams/Council/Budget/2018)

Chart 4.1

Budget 2018 fsfe



Based on the **Chart 4.1**, we can say that the total cost spent for the community purpose is **28.7%** of the total budget, (included: Information materials, Campaigns, Events, Merchandise, Policy Meetings).

Conclusions + Recommendations

In this paper the cost structure of FLOSS companies has been analyzed. To conclude these findings very briefly, first it's important to understand the general motivation for programmers. This motivation is only there if the payoffs of the effort outweighs the costs. These benefits can for example be either intrinsically motivated or career concerned incentives.

Because this paper is focussed more on the financial aspect than the psychological one, only the funding of the FLOSS programmers, as the most important part of the FLOSS Communities, has been researched. The possible ways for programmers to make money with FLOSS programming are:

- Getting paid by a company
- Getting paid by creating extras
- Getting paid by customizing code
- Getting paid by providing support

Companies themselves can also acquire their funds with open-source software project that are driven by economic business models. These models are:

- The community model
- The freemium model
- The open core model
- Time delayed open-sourcing
- Proprietary re-licensing
- Selling of proprietary update systems
- Selling of professional services
- Voluntary donations
- Partnership with funding organisations
- Crowdsourcing
- Bounties
- Using advertisements in the software

To substantiate these findings, some financial reports of the following FLOSS companies have been looked into

- 1. Wikimedia Foundation
- 2. Fedora Project
- 3. Eclipse Foundation
- 4. Debian
- 5. Software Freedom Conservancy
- 6. Fsfe

It was difficult to find the information that we wanted. Most of the organisations do not have documented online their financial yearly report. Some, like Eclipse have made public only the total Revenue, Expenses and Net Income. Other organisations with less funding sources, like Debian do not have a financial yearly report, for reasons mentioned above.

Wikimedia, SFC and Fedora are the most transparent organizations. Wikimedia and SFC have the same Financial Statement. Fedora misses a detailed report for some regional communities, like LA, NA, AP.

When it comes to the funding model of Wikimedia, Fedora, Eclipse, Debian, Software Freedom Conservancy and Fsfe communities, are applied **community model**, **voluntary donations**, **partnership with funding organisations** and **crowdsourcing**.

About the cost structure, the community activities vary from one free libre open source organization to the other.

Based on our research, we can conclude that the expenses that are spent by the community are mostly on

- I. Hardware, Software and different Equipment
- II. Projects
- III. Events
- IV. Sprints
- V. Conferences
- VI. Meetings
- VII. Awarding Grants
- VIII. Travel, meal, lodgings
 - IX. Swag
 - X. T-shirt

On the Charts of each community you can see what percentage for each of the above categories is occupied on the total budget of the organization.

Volunteers are a huge support for continuing and developing FLOSS communities and organisations. Their work is not paid financially, but they are supported and motivated in different ways. Hence, volunteers contributions are not reflected in financial reports of the organizations.

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"Denisa Ruçaj:

Edhe dicka tjeter, aprovimi i buxhetit behet nje vit me pare?

Jona Open Labs:

vendoset nje x shume nga Red Hat qe fedora ta harxhoje per y vit fiskal nga marsi 2017 psh deri ne shkurt 2018...pastaj secili grup mendon se si do ta menaxhoje buxhetin qe ka ne dispozicion, ne baze te propozimeve qe kane behet votim ne mbledhje nese psh 200 EUR do ti harxhojne per swag apo jo dhe nese aprovohet atehere harxhohet buxheti

gjthm ne fund ndodh qe harxhohet me pak sesa jepet buxhet

ne rastet qe duhen me shume leke ia kerkojme council

varet nga cdo subproject ne fakt"

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[34] Email Communication, Héctor Orón Martínez 17.01.2018

"Subject: Re: Debian financial yearly Reports To: Denisa <rucaj.d@gmail.com> Cc: Brian Gupta <brian.gupta@brandorr.com>, hug@debian.org, treasurer@debian.org, Debian Project Leader <leader@debian.org>, Martin Michlmayr <tbm@debian.org> Content-Type: text/plain; charset="UTF-8" Content-Transfer-Encoding: quoted-printable

Hello Denisa,

Please see replies inlined below

On Wed, Jan 17, 2018 at 10:34 AM, Denisa <rucaj.d@gmail.com> wrote: > Hello

~ 11

> I am Denisa Rucaj, a student of Technische Universitat Berlin.

>

> I am doing a subject "Open Source and Intellectual Property in Digital

> Society", in which I and another student have to write a term paper about

> FLOSS Communities cost structure and funding sources.

I would love to read that paper either to proof read it or once it's ready, so please notify me :-)

> We are including also Debian in our paper. I have found some general

> information in debian.org website, like for what are the money spent and

> which are the doners, but I would want more information on how was the to= tal

> budget and how much was spent in for example buying hardware, sponsoring
> sprints, sponsoring conferences.

>

> Financial yearlyreports are going to answer my question. We are calculati= ng

> for the chosen FLOSS Communities, the percentage of the amount of money
> spent for different category.

>

> Do you have documented online financial yearly reports (e.g Budget 2015, > 2016)?

Debian financial structure is supported by trusted organizations as Debian itself is not a legal entity that could hold assets. There has been attempts in the past to improve financial information, however up to date we have been failing to produce any outputs. I am currently trying to get a yearly financial report out, for that we are planning a sprint in February 5th in Brussels, just after FOSDEM, you are welcome to join if you are around.

As a preview, I can tell you that it is being quite hard to get data out from several of our trusted organizations, either because they have a big mess by mixing several accounts or because they do not comunicate with us very well. At some point we might need to work around those.

> If so can you please provide a link for that? Otherwise, I just need to k= now

> that this information is not public.

Sadly, I have no link, the information is just not there, but it should really be public. I can give you a link to the next sprint https://wiki.debian.org/Sprints/2018/TreasurerSprint The good news, I can give you an update few days after we have had the sprint, but I think we'll still lack some numbers.

> I would really appreciate your help!

Please, let's keep working together.

> Thank you in advance and best regards!

Thanks for your interest!

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Logos

1. TU Berlin

By The original uploader was F13T35 at German Wikipedia - Vektordaten: http://www.pressestelle.tu-berlin.de/fileadmin/a70100710/News-Anhaenge/Kluge_Koepfe_1_ .pdfFarbe:

http://www.pressestelle.tu-berlin.de/fileadmin/a70100710/Dokumentationen/Imagematerial/T U-Logos/tu-logo_2d_rot.gif, Public Domain,

https://commons.wikimedia.org/w/index.php?curid=14982401

2. Wikimedia Foundation

By Logo and trademark of the Wikimedia foundation, designed by Wikipedia user "<a href="https://en.wikipedia.org/wiki/User:Neolux" class="extiw"

title="en:User:Neolux">Neolux" (SVG version created by <a

href="//commons.wikimedia.org/wiki/User:DarkEvil" title="User:DarkEvil">DarkEvil,

revised by <a href="https://en.wikipedia.org/wiki/User:Sakurambo" class="extiw"

title="en:User:Sakurambo">Philip Ronan and optimized by Zscout370 and Artem Karimov) - Wikimedia Foundation website logo converted to SVG., Public Domain, Link

3. Wikimedia Community

By real name: Artur Jan Fijałkowskipl.wiki: WarXcommons: WarXmail: [1]jabber: WarX@jabber.orgirc: [2] - Own work, Public Domain,

https://commons.wikimedia.org/w/index.php?curid=1491210

4. Fedora Project

By Wondigoma - Own work, Public Domain,

https://commons.wikimedia.org/w/index.php?curid=8620045

5. Debian Project

Source <u>debian.org/logos/</u> Published under Creative Commons Attribution-ShareAlike 3.0 Unported License

6. Software Freedom Conservancy Organization

By Software Freedom Conservancy - http://sfconservancy.org/about/license/ (direct), CC BY-SA 3.0, <u>https://commons.wikimedia.org/w/index.php?curid=25978778</u>

7. Fsfe

By http://fsfe.org/about/graphics/graphics.html, Fair use, https://en.wikipedia.org/w/index.php?curid=35057528