

Justifiability of open source software development

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Abstract. *Open source software development has become a large stream in overall software development. In the last couple of years, many open source programs were developed. Open source software is developed by community of programming enthusiasts that seek no financial compensation for their work. Final open source software solutions are compilations of source codes from many individuals.*

The aim of this paper is to discuss justifiability of open source software development. The main questions are, can open source software be as good as software that is developed by professionals? Are computer users actually using open source software and how much? Should people continue to develop that kind of software and are they bringing something new or just making cheap copies of professional software.

Keywords. open source, software, development, justifiability, application comparison

1 Introduction

In recent years there has been rapid development of open source software. This software is developing fast, it is getting better and better and it is noticed by many computer users as good substitute for commercial software.

“Open source” is software-licensing model where source code is available to all computer users and each and every user can contribute in development of this kind of software [1]. Users are allowed to do redistribution and modification of this kind of software.

Final product is work of many people that de-

veloped the software through mutual collaborative efforts. Support, updates, training and other services are provided by many different entities or are non-existing.

“Commercial software” is the model in which commercial entities develop software and that software is licensed for a fee to a customer [1]. These commercial entities provide support, updates and training. The source code is not available to customers, only under special licensing, but in most cases you are not allowed to copy or modify their source code in any way.

Both models have their own advantages and disadvantages. The goal of this paper is to answer to few questions that arise when we talk about these two models of software licensing:

- Are computer users using open source software or are they using commercial software?
- Can open source software compete with commercial software when we talk about price, capabilities, support, community, development and security?

To get an answer on a question how many people use open source software, we conducted a research among IT professionals in order to find out what open source software is being used by regular computer users.

Provided with answer to the first question mentioned the most commonly used open source software is compared with commercial software in order to find out about the quality of open source solution. With these two answers, it is possible to answer to the main question: Is the development of open source software justified?

2 “Open source” issues

There are hundreds of open source projects and thousands of programmers spending their time making this kind of software. The question is; are they doing that because they like to program, just as a hobby, or they really program it to make quality products. They are doing it for free, so the reason why they do it is certainly not money.

Next interesting question is who is using open source software? There are so many open source programs that were developed but is anybody using them? How will people find out about these products? There are many other interesting questions worth mentioning.

Today, piracy is major problem in computer industry. Are computer users using legal or illegal software? Will computer users rather use free open source software then illegal commercial software? What is awareness of people for legal rights about software? Are people skeptical about open source software? Do they think that open source software can be good as commercial software?

If we talk about development, how fast is open source software developed? Can open source software be better and can it be faster developed then commercial software? Can open community of programmers develop fast and good as closed circle of professional programmers?

If we talk about security, is open source software secure enough? The source code of that software is in general public and anybody can examine it and try to find a leak. And it's much easier to find security bug and take advantage of it?

But even if that's true, why most of security problems occur in commercial software? There are advantages and disadvantages on this subject [2]. Is it because open source software is not as popular as commercial software or is it because patches for open source software are developed on daily basis?

Is open source software just a copy of commercial software or there are real original products? If they bring us something new, what are those features and did development of open source software have impact on development of commercial software? In most cases open source software is a copy of commercial software but there is no reason for open source software to be innovative [3].

There are many unanswered question on this subject. We will try answer some of them in this paper

and other will be a part of our further research efforts.

3 Open source/ Commercial solutions comparison

We have conducted a research that involved IT professionals which will give us information in what degree computer users use open source software compared to commercial software, what particular software is used and how are users satisfied with price, capabilities, support, community and development of these two types of software.

Software is grouped in categories; there are always 2 products together, one that is open source and one that is commercial but both have the same purpose.

The questions that we inquired from our participants are:

- For each software that is stated, define in what degree you use that software:
 - Open Office, Microsoft Office
 - 7Zip, WinRAR
 - Thunderbird, Outlook
 - Firefox, Internet Explorer
 - Dia, Visio
 - Gimpshop, Photoshop
 - InfraRecorder , Nero
 - Other programs
- By your own personal experience, define in each category, how are u satisfied with:
 - Price - open source, commercial
 - Capabilities - open source, commercial
 - Support and help - open source, commercial
 - Development - open source, commercial
 - Other category

We gathered data from over 100 users and conducted their analysis. The results are given below.

Open Office is the most popular substitute to Microsoft Office so we will compare the use of these two products. If we look closer at given data, we

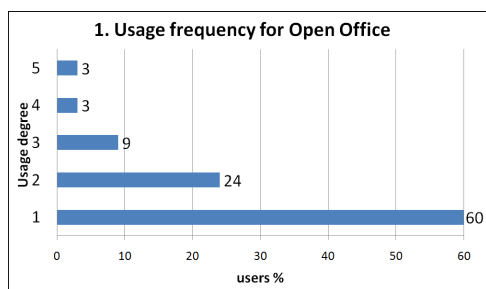


Figure 1: Frequency of use - Open Office

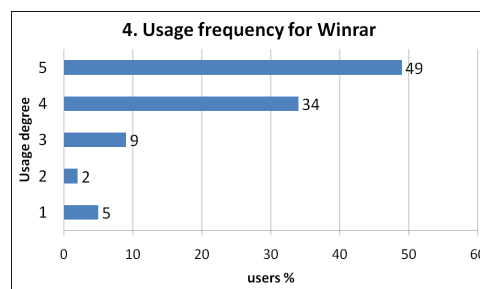


Figure 4: Frequency of use - WinRAR

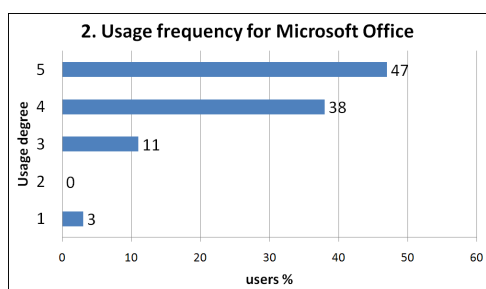


Figure 2: Frequency of use - Microsoft Office

can see that around 40% of users use Open Office. Only 6% use Open Office at high level.

Most of them use it rarely but they still use it and know about it. Around 60% of participant never used Open Office. Around 84% users use Microsoft Office at high level. Only 14% use it sometimes or less. 3% of users never use Microsoft Office, so it is presumable that they use Open Office since nobody mentioned any other software in this category.

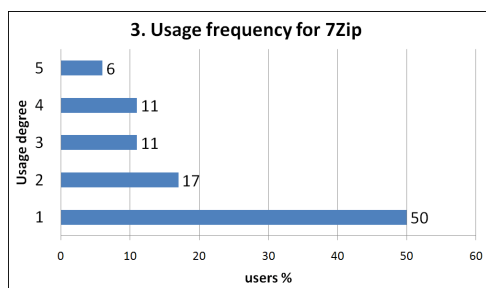


Figure 3: Frequency of use - 7Zip

7Zip is very popular substitute for WinRAR. Advantage of 7Zip is that it has best compression algorithm of all archiving software. Our research results showed that around 50% of all participants never

used 7Zip and 50% used it as some level. But even if 7Zip has the best compression and even if it's free, most of the users still don't use this software at expected degree.

7Zip is not unknown program anymore but we expect to be much more used in the future. WinRAR is much more used; almost 85% of all participants use it at high level. This tells us that even there is better open source software; people still use commercial software in this case.

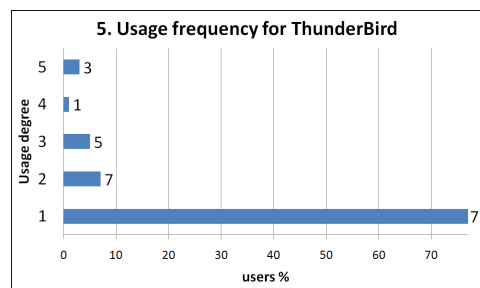


Figure 5: Frequency of use - ThunderBird

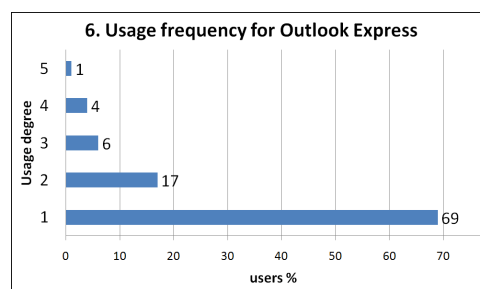


Figure 6: Frequency of use - Outlook Express

This data shows us that both open source software and commercial software and not used so

much anymore. 77% of participants never used Thunderbird and 69% never used Outlook Express. From this data we can conclude that this kind of software is not so popular anymore as it was in the past.

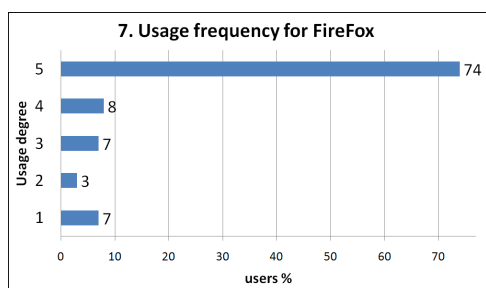


Figure 7: Frequency of use - FireFox

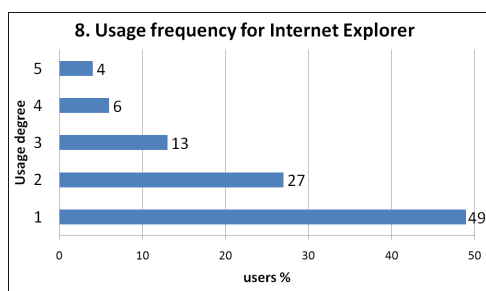


Figure 8: Frequency of use - Internet Explorer

Looking at given data, we can see that 74% of participants always use open source software Firefox. Only 7% of users never used Firefox. If we look data for Internet Explorer, we can see that 49% of users never used Internet Explorer and that is surprising data since Internet Explorer was used more than 50% just few years ago.

Here we have an example where open source alternative pushed commercial product from the market. But even software firms can benefit from open source software, by establishing a successful open source platform [4]. If we look at statistics, we will notice that Firefox got more and more users over few past years and Internet Explorer lost a lot of users. Only 10% of users use Internet Explorer at high level. Some participants use some alternatives of these 2 products, and those are Chrome, Safari and Opera.

From the data that we gathered, at this point,

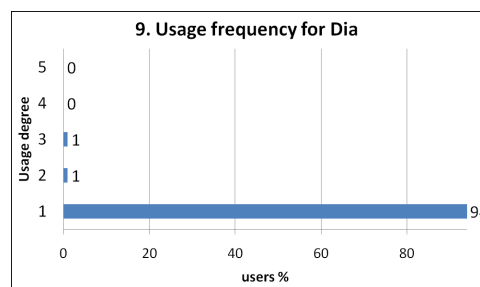


Figure 9: Frequency of use - Dia

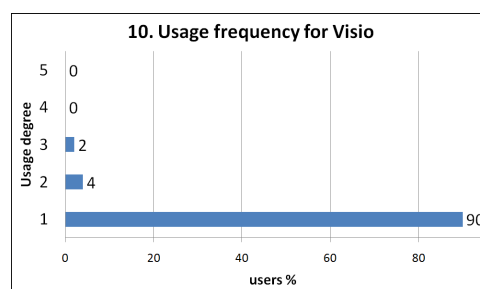


Figure 10: Frequency of use - Visio

we can only conclude that only a small number of participants use software for making diagrams.

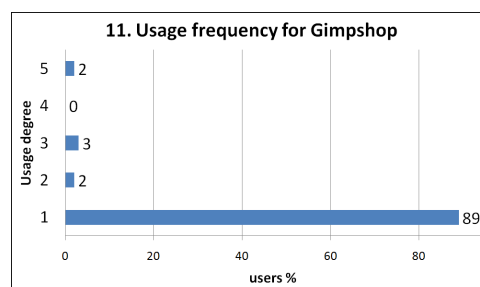


Figure 11: Frequency of use - Gimpshop

Gimpshop is alternative for Adobe Photoshop. Our data shows that only a few users use Gimpshop as alternative for Photoshop. Only 2% of users use only Gimpshop and only 7% of users use Gimpshop at all. 19% of users use only Photoshop but vast majority use Photoshop as software for photo processing.

Gimpshop is getting more and more popular. We predict that in the future Gimpshop will be used much more, since it found many users on the Internet. If we look at capabilities of Gimpshop, we

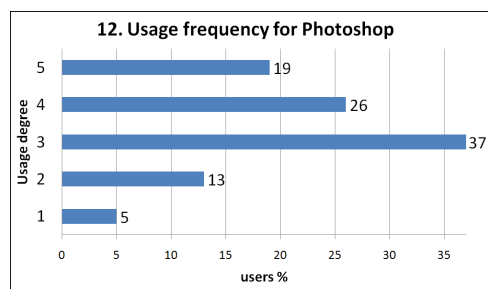


Figure 12: Frequency of use - Photoshop

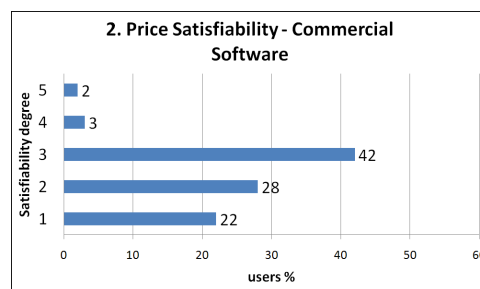


Figure 14: Price satisfiability - Commercial software

can see that lots of tools are missing, but tools that were developed are good as tools from Photoshop.

InfraRecorder is very popular open source substitute for commercial CD/DVD burning software. But in this case, we can see that participants don't use it at expected degree. But even Nero is not used at expected degree. Participants mentioned many other alternatives, commercial and open source software so we can't make decent conclusion in this category.

Next few figures show user satisfiability in different aspects of open source and commercial software. We will compare these two types of software licensing and see if open source software can compete with commercial software. We recognized next few properties as important aspects of software quality: price, features, help and support and development.

source software and the reason for that could be some minor fees for certain open source products, e.g. Red Hat Linux. The inability of vendors to make money using pure open source approaches caused many to change their business model [5].

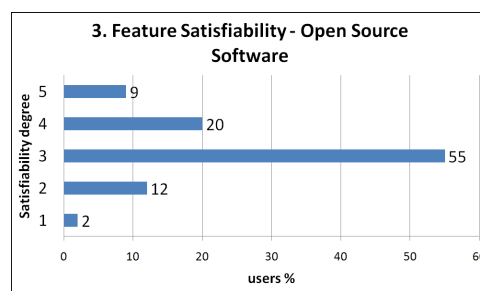


Figure 15: Feature satisfiability - Open source software

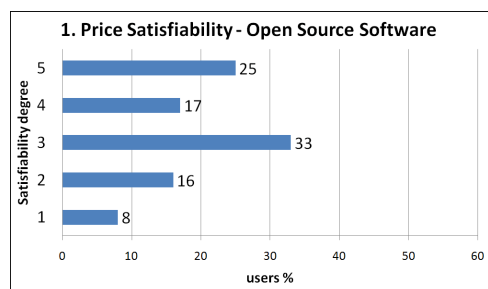


Figure 13: Price satisfiability - Open source software

If we analyze given data, we can see that 42% of participants are very satisfied with open source price, since most of the software is free of any charge. On the other hand, only 5% of users are satisfied with commercial software. Also, there are 8% of users that are not satisfied with price of open

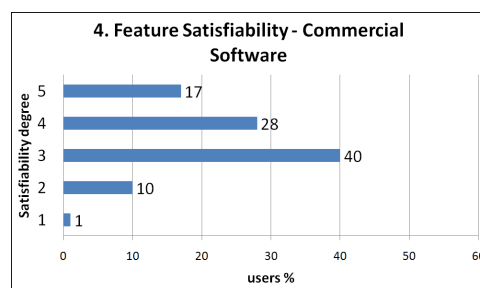


Figure 16: Feature satisfiability - Commercial software

According to our analysis, we can see that distributions for both software classes are similar. Never the less, according to user response, commercial software is still slightly ahead of open source soft-

ware if we talk about features. But we can also see that open source software is not far behind and can compete with commercial software. Open source software develop in different way, but it surely has ability to be quality software [6].

Basic users wouldn't even feel the difference, while advanced users, that are vast minority, will probably notice missing functions.

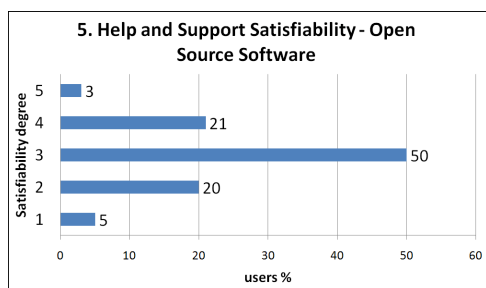


Figure 17: Help and support satisfiability - Open source software

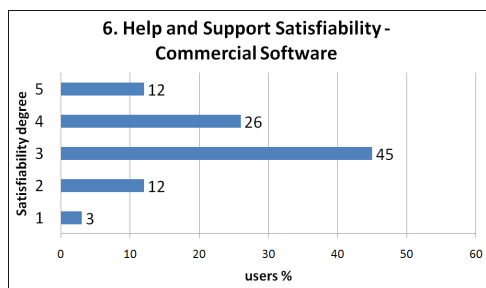


Figure 18: Help and support satisfiability - Commercial software

Open source software is also quite competitive with commercial software in this category. Most of the users are satisfied with both open source and commercial help and support. And again, commercial software is just a bit in the lead. It's surprising how free support can compete with paying support. Even if that's not the software itself, we can see that open source community recognized the importance of help and support. We can see that even open source develop in its natural evolution, with all help and support [7].

When we mention development, we primarily think of how fast the software is developed and later upgraded. The data shows that participants are slightly more satisfied with development of open

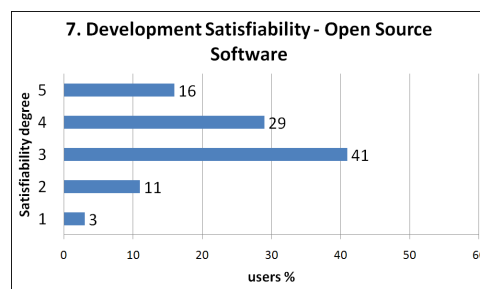


Figure 19: Development satisfiability - open source software

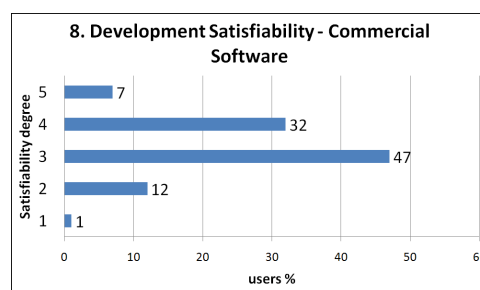


Figure 20: Development satisfiability - commercial software

source software. Considering how many people are involved in open source software development, that is not surprise.

On the other hand, the strict and rigid development process that is used for commercial software is somewhat slower, especially when certain methodology must be used. While commercial software development approximately have always the same lifespan, open source software can vary from case to case, depending on how much people are involved in the process of development [8].

4 Conclusion

If we take a closer look at the analyzed data we will actually see that open source software is used somewhat rarely, except in some special cases, but those that use open source software, more or less, are satisfied in the same way with open source software as they are with commercial software when it comes to price, features, help, support and development.

If open source software can compete, according to users, in these key areas, justifiability is not in

question and open source software is quite a competition to commercial software. So, why is open source software usage degree not higher? Well this question obviously requires further study and research and is a mystery to solve for another paper, but we can hypothesize on it.

One possible reason could be that users are not familiar enough with commercial software counterparts and therefore are “stuck” with commercial software. On the other hand, in today’s world illegal software is easily accessible to anyone with basic computer knowledge and there is possibility that users are satisfying their software needs that way.

In any case it would be definitely interesting to see the results of this survey on companies since they must use legally licensed software. Fees for having illegal software are big, and they must think about alternatives if they want to spare money on software licensing and software is really pricy in some cases. Financial side of software licensing is forcing them to be very well informed about both software licensing models.

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