

# Free & Open Source Software (FOSS) in Website Designing



Amit Sinha, Dharmesh Kumar Niranjana, Alka Singh

**Abstract:** People want website to be fast, user-friendly, secure & free to use. Web sites have become a critical part of business, and the tools to create and deploy Web sites are becoming more flexible and easier to use. This paper talks about the role of FOSS in Website Designing. FOSS proves to be a boon for website developers in the way that they are secure, robust and free to use & modify. The open source tools available in the market facilitate the tool -box of a website developer. The use of FOSS increases the productivity, provide a secure Environment & also save a website developer of getting screwed under the copyright act. This paper talks about the technologies which FOSS world currently offers to the website developers and also the revolution which is awaiting to flourish the market. It also incorporates a study of the recent developments & the way market is becoming more dependent on FOSS. For example, PHP is the basic element of the most famous social networking website today, the Facebook. Also, GMAIL is entirely based on the open source language, Python.

**Keywords:** Free & Open Source Software, Website Designing, Open Source, GNU Public License

## I. INTRODUCTION

Today, websites have become an integral part of our life. We cannot imagine a world without them. It hardly matters, what your purpose is, websites offer everything. People want websites to be very user friendly, secure, reliable & free to use. This is the reason why, free & open source software is preferred over proprietary software. Free & Open Source Software (FOSS) is software that is accompanied by such a license that it allows its users to completely modify & publish it. It is available free of cost, both for personal & commercial use. Also, its source code is available free of cost for download. Users not liking few features of the software can modify the code to change those features. If users are, for example, willing to interchange the positions of the widgets on left & on right, then they can easily do it by modifying the code.

Revised Manuscript Received on October 30, 2019.

\* Correspondence Author

Amit Sinha\*, Department of IT, ABES Engineering College, Ghaziabad, India. Email: [amit.sinha@abes.ac.in](mailto:amit.sinha@abes.ac.in)

Dharmesh Kumar Niranjana, Department of CSE, Vishveshwarya Group of Institutions, Gr. Noida, India. Email: [dharmesh.niranjana@gmail.com](mailto:dharmesh.niranjana@gmail.com)

Alka Singh, Department of IT, Noida Institute of Engineering & Technology. Gr. Noida, India. Email: [alkaa.singh523@gmail.com](mailto:alkaa.singh523@gmail.com)

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

## II. USE OF FOSS

### A. Reliability

Broadly, we can take it to mean the absence of defects which cause incorrect operation, data loss or sudden failures, perhaps what many people would mean when they use the term 'bug'. Since, most of the open source software are maintained by a community, there are very few chances of bug in them.

### B. Audibility

The closed-source software forces its users to trust the vendor when claims are made for qualities such as security, freedom from backdoors, adherence to standards and flexibility in the face of future changes. If the source code is not available those claims remain simply claims. By publishing the source code, authors make it possible for users of the software to have confidence that there is a basis for those claims. At present the industry does not insist on third party inspection or certification, but it's possible that as open source models become more popular than expectations of audits will rise.

### C. Cost

This is one of the major advantages of using open source software. For some companies, especially the start-ups, cost factor is a major concern. Spending on proprietary software, when more efficient & secure open source software is available free of cost, makes no sense. For example, OpenOffice.org by Oracle is a substitute for Microsoft Office. Believe it or not, OpenOffice.org has far better features than what MS-Office offers.

Investigation'.

### D. Freedom

Any Users of open source software get full freedom to modify it as per the convenience. This freedom increases the usability of the software for various organizations involved in software development. With proprietary software, a customer is bound to use the product in its original form, while in the case of FOSS he can modify the product as per his liking & convenience. In the case, user is a lay man, he can post his suggestions in the support forums. A good technical suggestion will definitely find space in the next upgrade.

### E. Support

The open source software is usually developed & maintained by communities. That is why there is no upper limit on the number of people providing support for the software.

Proprietary software would be supported by the no. of personnel as hired by the developing organization. On the other hand, open source communities are open to Human Resource. Any person, skilled in a particular technology can be a part of the support community.

### III. REVIEW CRITERIA

The author [1] mentioned the general legal queries raised by FOSS licenses and various license models, like inventive Commons. The legal queries raised by FOSS associate degreed different various licenses are the topic of an intense international conversation. The Courts in several jurisdictions have confirmed that the core options of FOSS licenses are compliant with the several applicable laws and so enforceable within the several jurisdictions. They conjointly bestowed a general report on FOSS licenses and various license models to determine footing and alter comparison between jurisdictions. FOSS is rapidly gaining popularity on the home desktop [2]. The authors discussed various mathematical and educational tools that are applied in daily working. OpenOffice.org is a robust office suite, featuring a word processor, spreadsheet, presentation software, database software and graphics. It uses OASIS approved standard OpenDocument format and is compatible with many proprietary formats as well. Maxima is an open source descendant of the computer algebra system. It provides much of the functionality as Maple for the calculus and linear algebra classrooms. 2D & 3D plotting, arbitrary precision arithmetic and symbolic manipulation are supported. Here the authors [3] explained that the geospatial distribution of land-use and land-cover (LULC) is of most interest in each analysis and urban/regional designing. LULC is often one in every of the input parameters of models applied to many domains, e.g. environmental observation, multi-hazard risk & disaster modelling, urban & regional designing, natural resources management. As such, efforts and resources spent in making LULC maps square measure well even by official mapping agencies in addition as scientific researchers World Health Organization perpetually request higher detail and quality at lower price. Although ancient approaches to come up with LULC knowledge square measure typically supported aerial or satellite imagination classification, recent technology developments permit alternative choices supported new knowledge acquisition strategies. Specially, developments on citizen-science, geo-crowdsourcing, and Web 2.0 based mostly applications change the creation, dissemination and update of volunteered geographic data (VGI). These permit the event of recent approaches envisaging the derivation of LULC maps or their validation.

### IV. FOSS IN WEBSITE

Various open source technologies help website developers to create reliable, secure & robust websites. Besides,

providing a low cost solution, these technologies provide website developers, freedom to modify the coding, as per the convenience. Some of the open source technologies available for website development are as follows:

**PHP: Hypertext Pre-processor** – PHP is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. PHP provides far secure application than its counterpart ASP.NET. PHP is widely used today in the website designing world. World's leading social networking website Facebook is also coded in PHP.

**Python** – Python is another open source server side scripting language. World's leading search engine Google is the largest promoter of Python. Gmail is entirely coded in Python. Also many other applications of Google are coded in Python.

**Apache HTTP Server** – Apache Server is an open source web server which is widely recognized all over the www. In 2009 it became the first web server software to surpass the 100 million website milestone. It provides far better access to files than its closed-source counterpart – IIS

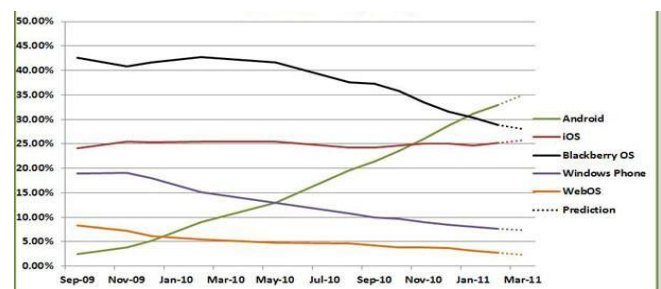
**Content Management Systems** – Content Management Systems are another mile stones in the field of Open Source Technologies. They help website developers create interactive websites quickly & efficiently, without applying much effort in coding. Some of the famous content management systems are:

**Drupal** - Drupal is a free software package that allows anyone to easily publish, manage and organize a wide variety of content on a website. Hundreds of thousands of people and organizations are using Drupal to power an endless variety of sites.

**Joomla** - Joomla is an award-winning content management system (CMS), which enables you to build Web sites and powerful online applications. Many aspects, including its ease -of-use and extensibility, have made Joomla the most popular Web site software available. Best of all, Joomla is an open source solution that is freely available to everyone.

**WordPress** – WordPress is the most popular open source blogging platform available on the internet today. It is widely used by people for publishing their blogs over www.

**Android** - Android is a software stack for mobile devices that includes an operating system, middleware and key applications. It is an open source technology recently launched by Google. Following graph shows the analysis of mobile operating systems market from Sep '09 to Mar '11.



**Figure 1: Increasing market of Android OS**

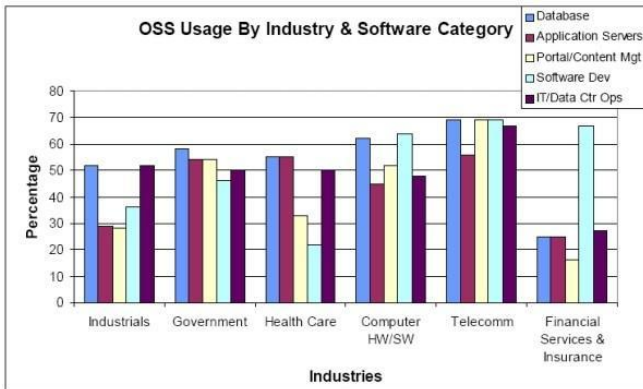


It is clearly depicted from the Graph that the usage of Android OS has increased over the time, while all other OS available in the market have witnessed downfall in their sales.

**V. RESEARCH ANALYSIS**

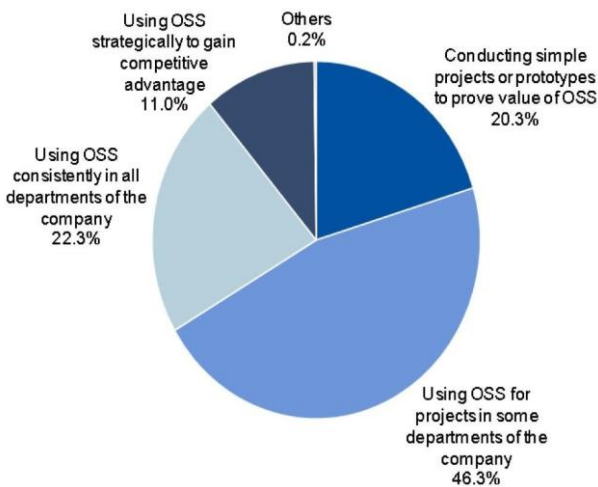
The usage of open source technologies has increased over time. People are adopting open source technologies at a very rapid pace. Companies making their technologies open source are getting success earlier than their counterparts working entirely on closed-source technologies. Following graph shows the market share of open source technologies in various sectors. It clearly depicts the domination of Open Source Technologies in the market, especially in the field of Telecom & Financial Services software development. Industries have already adopted Open Source Technologies to a good level, thus proving its credibility.

The Open Networking Automation Platform (ONAP) is an open-source networking project hosted by the Linux Foundation Networking (LFN), with the objective of developing a widely-used platform for orchestrating and automating physical and virtual network elements, with full lifecycle management.



**Figure 2: OSS Usage by Industry & S/w category**

Following pie-chart shows the level of adoption of Open Source Technologies in organizations:



**Figure 3: Adaption of Open Source Technologies**

**VI. FUTURE SCOPE**

The acceptance of Open Source Technologies in routine tasks is certain. The Organizations will migrate to the model of Open Source Technologies for sustainable development.

The world would see revolution in the IT Industry once the big cats of IT Industry adopt this model. This will provide good opportunity to start up organizations to compete with already established ones, thus increasing their chances of success. Overall, Open Source Technologies field will witness huge adoption in the near future. One significant development in the open source technologies can be the development of a Content Management System (CMS) for social networking websites.

**VII. CONCLUSION**

The analysis clearly proves that Open Source Technologies play an important role in IT industry today and also their market share is continuously increasing. Few industries on their way to solely depend on FOSS. Sooner or later, all the software companies will feel the need to make their software open source & free of cost, to stay in the competitive world. Also, companies presently working in the field of FOSS are growing rapidly than their counterparts who are working on the closed-source software.

**ACKNOWLEDGMENT**

We would like to thank the all library media specialists for their participation in the survey who supported our work and helped us get results of better quality. We are also grateful to our colleagues for their cooperation in overcoming numerous obstacles we have been facing through our research. We would like to thank my fellow master students for their feedback and cooperation. Nevertheless, we are also grateful to our college management and director for sharing their views and thoughts regarding this paper.

**REFERENCES**

1. Metzger, Axel, ed. *Free and Open Source Software (FOSS) and Other Alternative License Models: A Comparative Analysis*. Vol. 12. Springer, 2015.
2. Wick, D. "Free and open-source software applications for mathematics and education." *Proceedings of the twenty-first annual international conference on technology in collegiate mathematics*. Louisiana New Orleans, 2009.
3. Patriarca, J., et al. "Automatic conversion of OSM data into LULC maps: comparing FOSS4G based approaches towards an enhanced performance." *Open Geospatial Data, Software and Standards* 4.1 (2019).
4. Bowker, Lynne. *Computer-aided translation technology: A practical introduction*. University of Ottawa Press, 2002.
5. Bowker, Lynne, Cheryl McBride, and Elizabeth Marshman. "Getting more than you paid for? Consideration in integrating free and low-cost technologies into translator training programs." (2008).
6. Cánovas, Marcos, and Richard Samson. "Dos ejemplos de aplicación del software libre en la docencia de la traducción." *Traducir (con) software libre*. Granada: Comares (2008): 193-210.
7. Da Rosa, Fernando, and Federico Heinz. *Guía práctica sobre Software Libre: Su selección y aplicación local en América Latina y el Caribe*. Montevideo: UNESCO, 2007.
8. Pérez, Rocío Anguiano. "Oscar Diaz Fouces y Marta García González,(eds), Traducir (con) software libre, Granada, Editorial Comares, 2008, 216 pp." *Hermeneus: Revista de la Facultad de Traducción e Interpretación de Soria* 12 (2010): 274-274.
9. Flórez, Silvia, and Amparo Alcina. "Free/Open-source software for the translation classroom: A catalogue of available tools." *The Interpreter and Translator Trainer* 5.2 (2011): 325-357.
10. Sarfraz, Huda, et al. "Urdu Localization of Open Source Software." *Image 2* (2012): 11.



## AUTHORS PROFILE



**Dr. Amit Sinha** is a professor and head of department of IT at ABES Engineering College, Ghaziabad. He has twenty years of teaching and research experience. He has more than twenty five papers in national and international journals. He has authored three books and two book chapters in Scopus indexed book series.

Dr. Amit Sinha He is also working on a project funded by state government. He is a corporate member of Institution of Engineers, India. He received Improved Teaching Director Award for three consecutive years. He has also honored by ICT Academy, A Govt. of India initiative, for the best active member and performer 2019. He is the reviewers for many journals and International conferences. Presently, three scholars are doing their PhD under his supervision.



**Dharmesh Kumar Niranjani** is an Assistant Professor in Department of Computer Science & Engineering at Vishveshwarya Group of Institutions, Gr. Noida. He has more than twelve years of teaching and research experience. He is involved in various academic activities such as Academic Advisory Board of the

Institutions, participating several funded FDPs of different nature, publishing paper in journals. Dharmesh received the best teaching award twice during 2009-10 at his working place. He is always keen to take latest and advanced course for teaching. His area of interest is Computer Networks and Web Mining.



**Alka Singh** is an Assistant Professor in the Department of Information Technology at Noida Institute of Engineering and Technology, Gr. Noida [NAAC 'A', NIRF (2016) Ranking-99 UG-IT NBA Accredited]. She is M. Tech in Computer Science Engineering from IEC College of Engineering (AKTU, Lucknow). She has completed

B-Level (equivalent to MCA) from National Institute of Electronics & Information Technology (NIELIT), New Delhi in year 2012 and A-Level from DOEACC Society, New Delhi in year 2007. She passed her Bachelor degree from Gorakhpur University. She has thirteen years of teaching experience and has eight research paper under her name in reputed international journals.