Implications of: Paid Closed Source, Free Closed Source, and Free Open Source Software

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Abstract:

This report aims to assist modern organisations in selecting the most ideal software for their organisation. This report will consider the technical, cost, and business implications of paid closed source, free closed source, and free open source as the main factors influencing the organisation's decision. A well-selected software by an organisation can help minimise the total cost of ownership of a software in the long run. No specific cost numbers have been provided as the numbers provided would vary too much in different environments. Instead general cost impacts are stated. It also is important to understand there are many other factors not discussed in this report that may influence the selection.

1.0 Introduction

Software plays a crucial part in maximising productivity and performance for modern organisations. The software adopted by an organisation may be a paid closed source, free closed source, or a free open source. All three of these software choices have various technical, business, and cost implications associated with them. Therefore, in order for an organisation to select the most ideal software, the implications must also be considered. An incorrect software selection may lead to costly issues arising in the future.

2.0 Paid Closed Source Software

Paid closed source software, also called a paid proprietary software, is a non-free software that is the intellectual property of the developer [1]. Since, proprietary software is the property of the developer, the software's condition of use will ultimate be determined by the developer [2]. The typical conditions for a closed source software are no modifications allowed, no reverse engineering added, and no further redistributions [3]. The main characteristic identifying a paid proprietary software is that the source code is unavailable to be viewed by regular users [4]. Thus, the program structure inside the software is not revealed. A paid closed source software is assumed to be mature, ready to use, and with reliable customer service [5]. Adobe Photoshop is a perfect example of a paid closed source software; most graphic designers use this software [29]. Adobe systems, the organisation that owns Adobe Photoshop, is able to update the software continually to meet the needs of users due to their sustained revenue from their paid closed source business model. The closed source nature of their software restricts and makes it impossible for competitors to steal their code and use it in their alternative software [10].

2.1 Technical, Cost Implication & Business Implications

One implication that advocates the adoption of a paid closed source software is the ongoing customer support provided by people selected by the providers [6]. This feature is typically available for paid software and is most useful for organisations that don't have a specialised IT worker. The customer support offered to an organisation may include phone-based communication or web-based communication [7]. Therefore, the free customer support can be an alternative to hiring a dedicated IT worker, thus saving money. Also, the custom support offered by software providers tends to be more reliable, as the people answering the questions have links to the developers in case a major bug was to be reported by client [3].

Another implication for having a paid closed source software is that the training cost will be cheaper or free [1]. When an organisation adopts a new software, employees will often need to learn how to use the software [8]. The time it takes a train an employee to use the new software adequately may cost the organisation thousands [9]. A paid closed source software will most likely provide comprehensive documentation or videos to assist in employee training [4]. Therefore, by adopting a paid closed source software, the cost of training the employees will be reduced.

An implication that goes against adopting a paid closed source software is the potential lack of adaptability for a paid closed source software [6]. Software adaptability is defined as the extent to which a software can be adapted to a changing environment [12]. Organisations may sometimes implement business changes to keep up with the changing market, and as a result, the software used to carry out their business processes may need to be modified [12]. Since it's a closed source software, the organisation has to contact the provider and hope they agree to implement the modifications. There is potential that the provider denies the modification, which means the organisation would have to purchase a new software or pay the provider a large sum of money to incentivise them to do it.

3.0 Free Closed Source Software

A free closed source software, commonly called freeware, is a software that is free, but it has strict copyright permissions attached with it [22], meaning the source code can't be viewed or modified by the public with no granted permissions [22]. Often, a free closed source software is a taster for their larger paid closed source software. The result of allowing a taster is it enhances overall market reputation and brand buzz [22]. In comparison with the other two software – Free Open Source Software and Paid Closed source software, it can be argued that the Free Closed Software is the least viable for a modern organisation [23]. This is due to the closed source nature and the software being free, meaning the developers don't get paid unless through advertisement or donations.

3.1 Technical, Cost Implication & Business Implications

One issue with free closed software is the potential security and vulnerabilities threats. A vulnerability in a software is a serious issue. It could be exploited and used to steal personal information kept in the software's database or, even worse, the computer's database [28]. The occurrence of this scenario is not uncommon; a recent data breach with the Uber app resulted in 57 million user's personal information being exposed [26]. This led to the value of Uber dropping by approximately ten billion [26]! Therefore, because of the potential cost ramification of vulnerabilities in software, companies and organisation will often spend millions to make their software as secure as possible [27]. Unfortunately, most free software providers don't have the luxury of spending millions to make their software secure, thus increasing the chance of potential vulnerabilities arising.

The closed software nature of the free program also assists in the rise of program vulnerabilities and security threats. One benefit of open source is there could be millions of programmers looking over a software's source code, which increases the chance of bugs and vulnerabilities being found [21]. However, since the program is closed source and free, there would be less people and workers viewing and assisting in the discovery of bugs and vulnerabilities [21].

4.0 Free Open Source Software

The use of free open source software for organisations has been booming over the past years; a survey from "2016 Future of Open Source" stated approximately 65% of respondents had increased their use of open source software in the past year [13]. A free open source software is defined as a software that allows the source code to be viewed, shared, modified, and distributed by other organisations and users for zero cost [4]. This flexible copyright permission for a software is granted by the copyright holder [14]. The process in which an open source software is developed is known as open source development or collaborative development [15]. Programmers may choose to write free open source software for various reasons; the reasons range from programming is a hobby to gaining experience to increasing programming reputation [16].

4.1 Technical, Cost Implication & Business Implications

When an organisation decides to adopt a free open source software, the organisation gets the benefit of not being vendor locked in [17]. Organisations that are not vendor locked in will have more freedom and power compared to an organisation that is vendor locked it. An organisation that is vendor locked in is dependent on the provider, and any modification to the software needs to be done through the provider. That's why free open source software is popular, as any modification needed can be done by employees in your organisation and without the need of permission from the provider [25]. But this benefit can also be seen as a negative. Since, the provider is not providing customer service, the organisation would need to have employees who know about the software and have some awareness on how to modify software. If an organisation does not have these types of employees, then they would most likely have to hire them, which may be costly.

Another benefit for an organisation to use free open source software is for better adaptability of their software. The adaptability of a software relates to how fast a software can be adapted to changed circumstances [19]. An open source software generally has better adaptability than a closed source software, given the nature of being open source [20]. The only way for a closed source software to be changed is by sending a request to the vendor and having him approve the modification. The open source nature of a software eliminates the need for this. Given the organisation has capable workers, the organisation can modify and change their software at any given time to adapt to circumstances faster. However, the downfall for faster adaptability with the software is that it may not pass the strict security needs that a large corporation would have [21].

5.0 Conclusion

In conclusion, for a modern organisation to make a sensible decision on the type of software they should adopt, they must be aware of the associated technical, business, and cost implications of the software. This report outlines the technical, business, and cost implications of paid closed source software, free closed source software, and free open source software to assist with the difficult decision. A failure in selecting the correct software can lead to organisations spending unnecessary funds in the long run to fix issues with the software.

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