The Role of OSS in Development of Software Industry in Developing Countries with Weak Intellectual Property Rights

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ABSTRACT

One of the areas of significant importance in the growth of Information Technology (IT) in the world is the issue of open source software. The movement of open source software has led to considerable advancement and transformation in the world’s IT industry. It is considered as one of the hotly-debated issues today. In Iran, open source software has recently received remarkable attention due to its many advantages. In this study, the problems of software industry in Iran, the opportunities created by using open source software, and the impacts and advantages of producing local open source operating system have been addressed through semi-structured interviews with the producers of local operating system and experts of open source software. Solving security problems, attending international markets, creating the spirit of cooperation and team work and flourishing the software business are some of the main impacts of producing open source software in Iran.

KEYWORDS

Developing Country, Intellectual Property Right (IPR), OSS, Xamin

1. INTRODUCTION

Various advantages of open source software (OSS), such as creativity, decreasing digital divide, transferring technology and reducing dependence have led to the rapid adoption of this software in the world, particularly in developing countries. OSS have more applications such as GIS (Neteler and Mitasova, 2013), PACS (Ratib, et. Al. 2011) and its applications (Duffard, et. Al., 2014). In Iran, OSS has recently received attention, due to its many advantages, and it is hoped to mitigate the problems of the software industry in this country as a developing country (Saghafi, 2009).

So far, extensive studies have been conducted on the problems of software and IT systems in the world, but the most important and practical study is that of Heeks (2002). It classifies these problems in developing countries into seven main categories of Information, Technology, Processes, Objectives and motivations, Skills, Management Systems, human resources, and other resources, which is known as ITPOMOSO model. Also, in a study conducted by the Majlis research centre in Iran (Research Centre of IPI, 2010), after comparative study of different countries, the challenges of software industry were classified into nine groups: (1) Lack of expert and skilled human resources; (2) cultural challenges; (3) education, research and development; (4) lack of appropriate laws and
regulations for the intellectual property of software; (5) shortage of financial resources for investment in software industry; (6) existence of high risks in this sector; (7) management of challenges including lack of a single administrator in software industry and presence of several managers with different and sometime opposing views, lack of sufficient infrastructures such as Internet network for offering network-based software; (8) environmental problems of Iranian companies in entering software markets of the region, and (9) lack of standards and software confirming licenses. Investigations of the licenses of practical software products, such as Windows, indicate that the usage of this software in the sanctioned countries is forbidden and the user does not receive any security and practical support.

In a research conducted by Iran Telecommunication research centre (ITRC, 2011), the challenges of software industry, especially in the area of OSS, were collected and presented through reviewing the literature, interviews, and brainstorming sessions. This report is in line with the two studies mentioned above emphasizing the lack of government’s sustainable support of software development, opposition of the proposed institute(s) with government policies, lack of participation of influential institutes, and challenges caused by sanctions.

The sanctions against Iran can be addressed from different aspects in relation to software industry. Seizing supports of the software, especially in the case of key and infrastructural software, such as operating system, can lead to systems breakdown in the country. Limitations in accessing specialized software in the area of modern technologies can pose problems for the advancement of technology. The opportunities for attending international markets for selling produced software and interacting with foreign producers can somewhat solve this problem. However, this factor, associated with some other internal factors affecting foreign policies, such as international interactions, and instability of foreign policies in this area on the one hand, and presence of strong rivals in the region on the other hand, can be regarded as a threat to Iran’s software industry.

Sanctions, from both internal and external aspects, affect the economy of Iran. While the external aspect is detrimental to the Iranian economy, from an internal aspect, there must be some changes in economic and technological priorities to make it possible for the country to move through the sanctions. Experts of the software industry in Iran believe that appealing to OSS can mitigate the pressure of sanctions in software industry and pave the way for attending international arenas (ITRC, 2011). The recent orientation of Iran government, as realization of the prices and removing subsidies, along with other policies such as privatization, economic modification, preparation for membership in WTO1(Qureshi, 2015), and encouraging foreign investment indicate the beginning of the economic transformation process. This has created an appropriate condition for the experts of technology development to trace the impacts of these transformations on the development process of new technologies in Iran as a sanctioned country pursuing the procedure of internal growth and development of innovation and technological learning (Miremadi, 2011). Through proper planning and policy-making in technology development in the sanctioned country, the sanctions not only do not weaken the economy and production in the country, but also can improve the position of the country regarding strategic cooperation and contribution in international markets. Using OSS prepares the ground for expansive use of software despite international sanctions, which in turn, leads the country toward achieving fundamental knowledge in the field of software.

One of the barriers of developing countries in entering into the group of member countries in WTO is failure to comply with intellectual property rights of the product, because most of these countries (such as Iran) have a weak intellectual property system. By developing and employing OSS, due to their innate legal freedom in intellectual property right, it becomes possible to remove this barrier, at least in the field of software. Using these capabilities can protect the country against crisis resulting from the sanctions and problems caused by lack of access to proprietary software. The knowledge produced in the evolution of free/OSS can be useful in promoting the technology level of production and application of software in the country. The freedom in the publication of knowledge resources of OSS, flexibility, localizability, freedom of action (Santos et. Al., 2013), and license have created some opportunities for strengthening knowledge-based industries, especially the software industry.