Open source ERP business model framework

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\begin{abstract}
ERP systems became popular with large organizations in the 1990s. In the 21st Century, these products were expanded by addition of supply chain management (SCM) and customer relationship management (CRM), as well as access through the Web, creating the ERP II concept. Efforts to increase the market led vendors to serve not only large organizations, but also focus more on small-to-medium sized enterprises (SMEs).

Open source software has become a player in the field of enterprise resource planning (ERP) systems. While it is still unclear to what extent it has diffused among organizations, it is clear that opportunities exist. New ways of delivering ERP software, such as software as a service (SaaS) have appeared. Some smaller vendors utilized a free distribution system (Free/Open Source ERP, FOS-ERP) for their source code, relying on various business models for corporate success. There also have been attempts to generate FOS-ERP components found on sites such as SourceForge.com that are not only distributed freely, but also were developed through community participation much as Linux has been developed. Some ERP vendors use community developed components for various purposes to support their proprietary software. Thus one dimension of ERP systems is based upon who directs the development process. Proprietary ERP refers to systems with closely held intellectual property rights, such as the leading market products by SAP and Oracle as well as many smaller proprietary competitors. FOS-ERP can be community based, or sponsored by some organization.

In this paper we present a framework that aims at analyzing FOS-ERP business models. Goals include discussing the differences between FOS-ERP and their proprietary equivalents (P-ERP) in terms of business models, selection, customization, and evolution. We will discuss challenges and opportunities that they offer to adopters and vendors.

\end{abstract}

1. Introduction

Open source software (OSS) has existed for several years. However, it can be stated that OSS impact is just beginning in many areas. One such area is enterprise resource planning (ERPs) systems. It can be stated that open source ERP systems have experienced increased interest, but it is still unclear to what extent its use has diffused among organizations [1]. What is clear is that ERP systems became popular with large organizations in the 1990s. In the 21st Century, these products were expanded by addition of supply chain management (SCM) and customer relationship management (CRM), as well as access through the Web, creating the ERP II concept. Efforts to increase the market led vendors to serve not only large organizations, but also focus more on small-to-medium sized enterprises (SMEs). At the same time, new ways of delivering ERP software, such as software as a service (SaaS) appeared. Some smaller vendors utilized a free distribution system (Free/Open Source ERP, FOS-ERP) for their source code, relying on various business models for corporate success. There also have been attempts to generate FOS-ERP components found on sites such as SourceForge.com that are not only distributed freely, but also were developed through community participation much as Linux has been developed. Some ERP vendors use community developed components for various purposes to support their proprietary software. Thus one dimension of ERP systems is based upon who directs the development process. Proprietary ERP refers to systems with closely held intellectual property rights, such as the leading market products by SAP and Oracle as well as many smaller proprietary competitors. FOS-ERP can be community based, or sponsored by some organization.

In this paper our purpose is to present a framework for analyzing FOS-ERP business models. Goals include discussing the differences between FOS-ERP and their proprietary equivalents (P-ERP) in terms of business models, selection, customization, and evolution. We will discuss challenges and opportunities that they offer to adopters and vendors.

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differences between FOS-ERP and their proprietary equivalents (P-ERP) in terms of business models, selection, customization, and evolution. This can be of use to academics as well as practitioners. We will discuss challenges and opportunities that they offer to adopters and vendors. The focus of the paper is on providing a business model framework for analyzing open source ERP systems.

2. Defining ERPs, proprietary versus open source

ERP systems have provided a great deal of benefit to business operations by integrating legacy systems, providing greater accuracy through combining databases, efficiencies through business process reengineering, and providing platforms to which added functionality can be linked [3]. The goal of ERP is to integrate and consolidate all the systems across an organization into a one system that can meet and serve each department's unique needs and tasks. While we recognize that rarely are all systems integrated, ERP installation moves toward more centralization of organizational computer support. Therefore, every aspect of an organization's business process need to have a unified application interface, which provides high competitiveness in the market – or at least makes the organization compete in equal terms to their competitors that also uses such a system. Enterprises have invested heavily in ERP acquisition while small businesses or entrepreneurs often could not see how they could afford such systems mainly due to its high upfront prices and resources required to deploy and maintain the system. To attack this niche market of ERP in the SME sector, vendors have transformed ERPs by adopting the information technologies that can reduce adoption costs, such as Web-based modules, as well as created simplified versions of their systems. FOS-ERP in general has become a viable alternative [4]. Cereola et al. [5] reported that while large enterprises primarily utilize proprietary ERP systems that are unlikely to migrate to open-source solutions, SMEs are suitable candidates for open-source ERP due to their agility and flexibility. Commercial open source ERP allows modifications to source code enabling firms to exploit their unique business processes and retain competitive advantages. Johansson and Sudzina [1] noted that open-source ERP system interest has exploded, appearing to target SMEs. Pobanzaou and Raymond [6] gave two cases of open-source ERP lowering risk for SMEs.

Strategies of ERP development include software as a service (SaaS), open-source software (OSS) and Service Oriented Architectures (SOA), as well as hybrids of these. SaaS offers ERP as a service that clients can access via the Internet. Smaller companies have spared the expenses associated with software installation, maintenance and upgrades [7].

2.1. The open source software paradigm

As a reaction on proprietary software development open source software (OSS) development started as voluntary participation of individuals linked by the Internet to develop code. OSS has become a viable means of software creation. The most commonly understood open source success is the Linux operating system, used by Dell, Compaq, and IBM as well as many other firms. MySQL is an open source database management system. Sun Microsystems have long viewed OSS as a means to develop long-range market strength [8], although this effort was insufficient to avoid short-term failure. Other firms, however, have been able to make OSS work, to include Dell computers [9]. RedHat [10] claims that OSS can save businesses money by:

1. Enabling use of commodity hardware rather than proprietary machines;
2. Avoidance of expensive maintenance contracts;
3. Obtaining greater functionality, reliability, and performance;
4. Increasing productivity through a faster learning curve and availability of support tools;
5. Avoidance of vendor lock-in;
6. Reduction of the need for specialized security consultants and tools.

Real competition between proprietary vendor products and OSS include Microsoft’s IIS software vs. OSS Apache in the Web server software market, MySQL vs. traditional database vendors such as Oracle and Microsoft, and Intuit’s Quicken and Microsoft’s Money vs. the OSS GNU Cash [11].

Open source software may thus become a viable alternative to proprietary software, with an obvious cost advantage. There are risks, in that one cannot expect the same level of service with OSS as with proprietary alternatives. However, support for many OSS products is available, from such organizations as IBM and Red Hat. Contemporary software selection thus requires considering the tradeoffs between OSS and proprietary software.

Weber [12] reviewed industry surveys seeking to identify why participants gave their time to open source endeavors. The underlying philosophy of OSS is to enhance software reliability and quality through independent peer review and rapid evolution of source code. With OSS, developers and users are free to utilize and modify OSS by accessing open code [11]. OSS projects have become popular since developers and adopters are able to implement OSS easily and give feedback promptly.

2.2. Open source software vs. proprietary software

Watson et al. [13] described four models on the spectrum of ways in which software can be developed. In Proprietary and Open Communities, software programmers tended to freely exchange codes. Proprietary firms came to take over, carefully protecting their programs by selling executable versions, having a closed approach to software development. The proprietary model dominated the market, leading to firms hiring their own software.

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