

The Case for Open Source Software in the Library Market

Solutions based on freely distributed software will give libraries another choice for obtaining the support services that best meet the needs of their users.

by David Dorman

Current Conditions in the Library Software Market

Speaking in general terms, the library software market consists of vendors developing and marketing competitive proprietary software, and services to support that software. The potential market consists of perhaps several hundred thousand libraries around the world, but probably less than one hundred thousand are large enough, or have sufficient funds, to afford most of the software being distributed. In today's world economy, this makes the library software market a niche market.

In some types of markets, competition increases product development efficiency and lowers prices. This is not the case in the library software market. Many library applications are expensive and not responsive enough to the needs of libraries and their users. This is not the fault of libraries or of library software vendors, almost all of which try very hard within the present market conditions to develop good products and services. But current marketing practices serve as a barrier to cost reduction and to the enhancement of product quality that could occur with different marketing practices.

To understand why the library software market is inefficient, we must examine the characteristics of the proprietary software that currently dominates the market. A proprietary software product is, by its nature, legally protected from being used by

anyone without permission of its owner. Anyone who wants to compete with an existing proprietary software product must re-create, in an original manner, all of the functionality of that existing proprietary software in a new way, so as not to infringe on the patents or copyrights held by the owner of the original software. When a market is relatively young and software is relatively simple, such duplication of effort is not all that difficult. As time goes on, the code base of each software product in a given market becomes ever more elaborate and difficult to re-create. After years of code development, the barrier to entry becomes extraordinarily high. It is no accident that no new entrant has succeeded in the market for library management systems for several years. The amount of resources it would take to replicate in new products the functionality of the current market leaders in library management systems is a significant, if not overwhelming, barrier to competition from new suppliers.

It is natural for any niche software applications market based on proprietary software to have fewer and fewer suppliers as the market matures. Mergers and buyouts replace new market entrants when existing suppliers falter or fail. This is certainly the case today in the library management systems market.

Potentially such a situation could lead to an oligopoly, a condition in which a few suppliers control the market and are able to collectively keep prices high. This has not happened as yet in the library management system marketplace and is unlikely to happen, for several reasons. Libraries typically have inadequate resources and cannot easily afford to pay higher prices. And there is still a fierce battle for market share among the existing library management system vendors, so each still seeks to maximize its sales at the expense of its competitors' customer bases.

Although an oligopoly is not an immediate or short-term threat in the library software marketplace, there is a built-in inefficiency in any niche market dominated by a few suppliers selling mature, proprietary software products.

The largest suppliers of library management systems have less than 10,000 customers, and most have significantly less. As technologies advance, functionality proliferates, and as user expectations evolve, it becomes increasingly expensive for each vendor to develop and enhance its products. Yet the cost of development must be spread across a limited and relatively stable base of customers. Inevitably, this gives rise to a situation in which customer expectations increase faster than product development. The economics of the market severely limit the resources that each vendor can put into product development, but it does not similarly limit the growth of customer expectations.

Under these market conditions, an ironic situation occurs in which more competition represents more market inefficiency. Only by replicating the functionality of the competition can a company compete successfully in the market. And since the market is mature, the more suppliers it has, the less revenue each one has, and the greater is the overall combined effort to develop functionality in unique ways. While it is true that such wasteful competition leads to new and better software, it does so relatively slowly and only at the cost of a significant duplication of effort. This is the high price of innovation under the current library market conditions in which suppliers of proprietary software dominate.

An Open Source-Based Alternative to Current Conditions

There is the notion that customers must accept the inherent inefficiencies that come from wasteful product development duplication in order to safeguard the right of software developers to the fruits of their labor, so as to prevent others from effortlessly stealing what they have produced with great amounts of time, effort and talent. If one accepts the idea that creators of good software cannot make a decent living without having a monopoly over the use of the software they develop, then one must also accept the inherent inefficiencies of a market based on proprietary software.

But imagine if it were possible for anyone, whether vendor or library, to freely install, use, modify, adapt and support the best library application software that anyone else had produced. Given the collaborative development strategies made possible by the Internet, think of what innovation and creativity could take place in software development if the best programs were freely distributed. Functionality would not have to be duplicated with new code, but could be provided simply by using existing code, which could then be enhanced and augmented with new functions. Think how much faster new software could be developed. Also imagine how much faster it would be to improve products if any programmer anywhere who wanted to look at and enhance the software could do so.

And finally, imagine that the people who developed and gave away that software could make a decent living by getting adequately paid for their efforts. Many people who might agree with the benefits of free software distribution do not accept the possibility of this last scenario. For some people, however, it is obvious that making a good living by developing software and then freely giving it away is quite possible -- especially in the library market, where commitment to cooperation, open standards, and common communication protocols have long been admired and rewarded. One such company is Index Data, a small software company that has been profitably developing and giving away networked information toolkits and end user products for almost a decade, (and whose US Marketing Manager I have just become).

Many have argued that free software by its nature is not well supported and can be installed and made ready to use only by computer experts. This notion is false. Open Source Software can be branded into a product and supported just as well, if not better than, proprietary software. The fact that this has not generally been done in the library market is due to historical circumstances rather than to anything inherent in the nature of Open Source Software. As soon as a company pledges to stand behind and support

an Open Source Software product, and delivers on that pledge, the idea that using Open Source Software implies taking on a special burden or risk will not only evaporate, but will be replaced by its opposite. It will become obvious that Open Source Software will be better supported, more easily maintained, and more rapidly developed than its proprietary counterparts.

The challenge facing any vendor wanting to build a market in open source library software is to produce a major and useable open source product in an environment where proprietary products are generally quite mature, having had many years of development behind them. A number of non-profit organizations have released open source library management systems, but at this point in time, none of the products can compete in functionality and scalability with the major vendors of proprietary products. Caspr, a company that markets library management software and services to small libraries, will soon be releasing the next version of its Web services-based product, LibraryNet, under an open source license. But for the foreseeable future, no open source library management system will be comparable to the flagship products of the major proprietary vendors in the medium to large library market.

Index Data has been steadily developing a family of free and open source library tools and applications for almost a decade. In that time its developers have produced Z39.50 toolkits and applications, as well as other standards-based software for networked information retrieval. In doing so, they have gained expertise in networked information retrieval, as well as in such technologies as XML, XSLT, HTML/CSS, PHP, Perl, C, C++ and the newly emerging suite of Web service-based information retrieval standards.

In the Fall of 2003, the company won a contract with the Texas State Library and Archives to develop a major component of the Library of Texas, a meta-search service now serving the State's residents. Based on its recent market success, its expertise, and its existing code base, Index Data has announced a suite of Open Source Software

for digital library services. Its functionality will include portal building and management, meta-search services, and content management services. While it may not be practical in the near future for an open source alternative to successfully compete against the major traditional library management system vendors licensing systems to medium and large libraries, it is practical for an open source alternative to do so in the emerging market for digital library services.

Once libraries sense that the potential advantages of Open Source Software are within their practical grasp, and that open source products are the equal of existing proprietary products, they will respond by freely obtaining the software and contracting with vendors for customization and support services, thereby creating a sustainable open source digital library development cycle, allowing producers of open source products, and others who provide support services, to continue to improve the products and extend their functionality.

If this prediction begins to come true, it is only a matter of time before the initial developers of successful open source products will encounter open source-based competition, for where there is economic success, competitive imitation inevitably follows. Competition will come from all of the following sources: established vendors of proprietary software, established consultancies, newly formed companies, and not-for-profit library consortia and cooperatives. There is nothing in the nature of the GNU General Public License, under which much Open Source Software is distributed, that prevents any company or non-profit organization from re-distributing some else's Open Source Software and selling installation and support services around that distribution. The lack of copyright and patent barriers to distributing and enhancing open source library software will greatly hasten the inevitable competition that will follow the first company's successful foray into this alternative form of software distribution.

But competition to provide development and service contracts for open source library

software will be fundamentally different from the competition over the marketing of proprietary products. Whoever competes with Index Data digital library services, for example, will be able to freely adopt the software that Index Data has created. They will be able to build on the labor and expertise that Index Data has put into its products, and will thereby be able to begin competing at an advanced level of software functionality. Many established library software vendors who are potential open source competitors to Index Data already have the in-house expertise, the commitment to quality service, and the trust and loyalty of the library community that will be necessary to compete successfully.

One sign of Open Source Software's success in the library marketplace will be the promotion of that software by vendors that have historically licensed only proprietary software. Under such new market practices, only the best distributors will continue to prosper. No longer will libraries feel bound to a particular vendor's product in order to prevent the trauma of making a radical change in the software they use. In the product areas where Open Source Software is widely adopted, competition will no longer be inhibited and made inefficient by being based on the now commonly accepted practice of preventing one's own proprietary software from being distributed and improved by others. Software will be supported better and developed faster with fewer resources.

An additional point needs to be emphasized: Open Source Software is not, and never will be, without cost. Someone has to pay for software development, for the support services to make the software easily useable, and yes, even for the marketing costs to persuade librarians to use a company's software and services. In a market where open source alternatives are freely distributed, libraries will still need to pay for development, support and marketing activities, and most will choose to do so through contracts for installation, customization, maintenance and development. But in a market with viable open source alternatives to proprietary software, those costs will be less than they are with proprietary software products today, because development, distribution and

maintenance will be significantly more efficient.

In the long term, the use of Open Source Software will also change staffing patterns in libraries. Its use will give a much greater incentive for library managers to have software expertise on staff. Every existing customer base of the proprietary software vendors has libraries with staff that have become expert in using and maintaining its vendor's particular software. But because there are over a dozen radically different such software products spread throughout the library market, and because these experts must, by the very nature of their relationship to the software, have a very limited influence on the vendor's maintenance and development priorities, and an even more limited interaction with the software code itself, the potential benefits of such expertise have not been fully realized.

But imagine if having expertise could mean not having to pay for installation or maintenance, and could even allow a library to make its own modifications to the software code in order to improve services to patrons. A library with sufficient in-house expertise would have the ability to use and even improve the software for very little cash outlay, substituting its own staff expertise for the vendor's. These benefits will, over the long run, tend to increase the desirability of having computer and software experts on the library payroll, and will also make it possible for libraries that have very few monetary resources to still use world-class digital library software.

Having such widespread in-house expertise will also result in librarians and library application programmers giving to the worldwide library community their expertise in the form of code development, documentation, training materials, online help, and other forms of community support, all of which will tend to perpetuate and re-invigorate a sustainable cycle of Open Source Software development and use in libraries--all while promoting the values of information access and cooperation on which modern librarianship is founded. In a market where Open Source Software solutions thrive,

every library will be able to obtain whatever combination of vendor, in-house, and peer support for digital library services that best meets the needs of its users.

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