

## The Growth of Open Source Software in Organizations

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### Executive Summary

This research report is based on survey data collected from an online poll distributed to more than 40,000 information technology and business professionals. The results show that open source software adoption and usage is on the climb in small to large organizations, and that there is clear proof of its cost savings and overall value:

- ◆ A clear majority of U.S. companies and government institutions are turning to open source software instead of using commercial software packages. Some 87% of the 512 companies we surveyed are using open source software. Bigger companies are more likely to be open source users: *all* of the 156 companies with at least \$50 million in annual revenue were using open source.
- ◆ Companies and government institutions use open source for three primary reasons: to reduce IT costs, deliver systems faster, and make systems more secure.
- ◆ Organizations are saving millions of dollars on IT by using open source software. In 2004, open source software saved large companies (with annual revenue of over \$1 billion) an average of \$3.3 million. Medium-sized companies (between \$50 million and \$1 billion in annual revenue) saved an average \$1.1 million. Firms with revenues under \$50 million saved an average \$520,000. Asked to categorize all the benefits (cost savings and other) from open source, most companies said they were moderate or major. Some 70% of large firms are seeing moderate or major benefits from open source. Of the companies under \$1 billion in revenue, 59% are seeing major benefits.
- ◆ Increasingly, after years of using open source software at the lower levels of the "software stack" – i.e., operating systems (e.g., Linux) and Web server software – more and more companies are using open source software for business applications to reduce the substantial costs of commercial versions of such software.
- ◆ Despite proving the value of open source software, many companies face tall barriers in cutting costs through open source. Four barriers loom larger than any others: executives lacking knowledge about the benefits of open source and harboring fears about quality and support; legal and licensing issues; corporate cost allocation policies that don't provide incentives to business functions to reduce the cost of commercial software and thus diminish their interest in open source alternatives; and the difficulty of procuring open source systems that will be supported after installation.
- ◆ Once organizations start using open source software, their usage increases. Companies expect their usage of open source software over the next several years to increase dramatically. Organizations also expect to decrease the amount of commercial software they use and increase both open source and custom software initiatives.

### About OPTAROS <http://www.optaros.com>

Optaros is a consulting and systems integration firm that helps enterprises solve IT business problems by providing services and solutions that maximize the benefits of open source software. Bringing together experts in creating enterprise IT solutions and experts in the power of open source, Optaros plans and builds business systems that give you better value today and increased control in the future.

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## Study Background

Open source software has maintained a stealth profile in many companies. It's no surprise. Eyebrows are raised over software developed *not* by software companies but rather by legions of independent programmers who collaborate over the Internet and offer the fruits of their labor for free. Concerns heighten every time someone claims that open source software invites legal problems, creates a future support problem (that there won't be a software vendor to fix bugs, add new features, and do other upgrades), and generates computer code that could be prone to errors and hackers.

Nonetheless, an Optaros, Inc. study conducted in August to September 2005 has found that these beliefs are largely myths. First, the study found that open source software has become a popular subject in corporate America. Once the preserve of a small number of computer-savvy researchers, engineers and other technology professionals, open source software has rapidly gained the interest and respect of IT professionals across industries. Even finance and other business executives are starting to ask about how open source software could help them reduce burgeoning IT costs, gain clout over commercial software vendors, and build better information systems more quickly.

Our research was driven by four sets of questions:

- ◆ Just how prevalent is open source software in U.S. companies? Where are they using the software in their businesses besides the place where open source began more than a decade ago: in operating systems (e.g., Linux)?
- ◆ What has been the impact of open source— in reducing the cost of software, giving companies more control over the direction of their software, and in building new systems?
- ◆ What key barriers do companies face in using open source technology, and how are they addressing them?
- ◆ Do companies plan to use more or less open source software in the future? If they plan to use more, in which parts of their business and for what systems? And if they plan to curtail their use of open source, why and where?

To answer these and other questions, Optaros conducted two streams of research: an online survey with *InformationWeek* magazine of IT professionals in 512 U.S. companies and in-depth case study interviews with six organizations that have deployed open source software with varying amounts of success.

In this study, we disclose the results of our research and their implications for organizations. We provide significant data that shows that open source software is in wide usage across industries, is generating significant financial and other benefits

in many companies, and yet is hampered by major obstacles. Ironically, these obstacles are less about the viability of the technology and more about how the technology is perceived by the executives who hold the IT purse strings: the CIO and other senior business executives.

**Beyond Linux: Open Source Rises from Operating Systems to Key Departmental Applications Software**

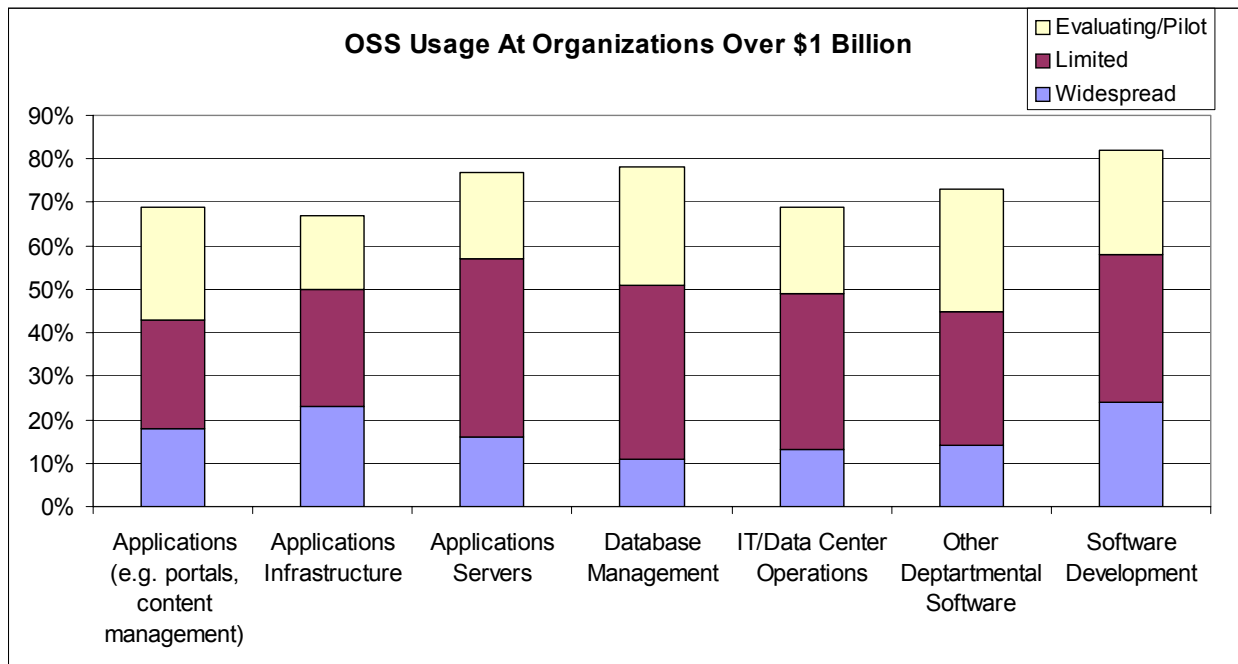
Open source software has rapidly moved up the so-called "software stack" over the last decade. Open source projects focusing on lower ends of the stack such as operating systems (e.g., Linus Torvald's now-famous Linux initiative) are more and more focusing at the top of the stack: applications software, both for the desktop (e.g., OpenOffice, Firefox) and whole corporate departments or functions. Today, thousands of open source systems are in use for everything from computer operating systems to departmental applications software that manage online content and customer relationships.

While open source software applications and database management systems are increasingly supporting business departments such as sales, finance, marketing, or accounting, we came across fewer open source systems that were used across multiple functions, so-called "enterprise systems," than were being used to support single functions. The data suggests that this cross-function arena will be the next domain of open source applications and database software.

Among mid-size and large organizations, those with revenue over \$50 million, both open source software operating systems and Web browsers have wide usage. Nearly three-quarters of the respondents (74%) have the Linux operating system, while 70% were using, either in a limited or widespread basis, open source Web browsers such as Firefox.

At large organizations (See Figure 1 – OSS Usage at Large Organizations Over \$1 billion) a smaller number of companies – although a slight majority of the respondents (51%) – had open source database management systems in production serving a single business function or department. Another 27% of these same companies were evaluating or piloting open source database management systems. A majority (58%) were using open source versions of software development tools. And over half (57%) the companies were using an open source applications server within a single department.

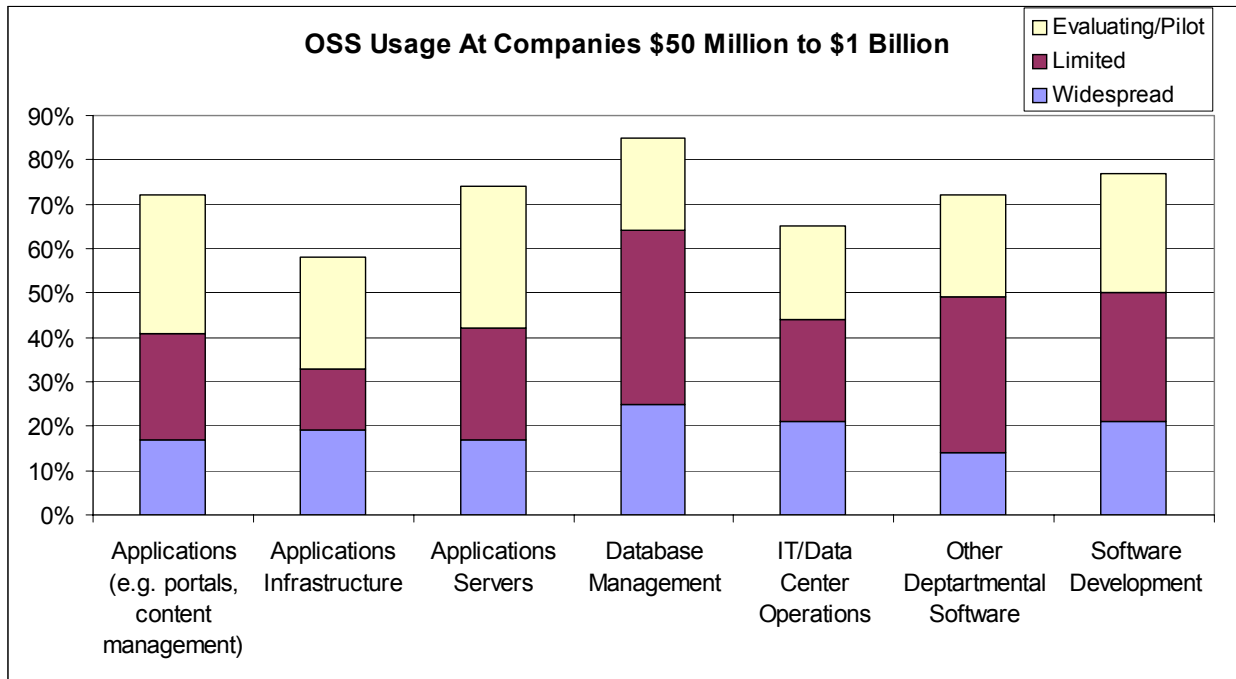
**Figure 1 – OSS Usage at Large Organizations Over \$1 billion**



A smaller percentage of companies were using open source software for more complex business applications. While 43% of the companies were using open source applications such as portals and content management systems to support a single

department, only 7% were using open source customer relationship management systems (CRM). However, over the next three years the number of companies using open source CRM was expected to double, to 19%.

**Figure 2 – OSS Usage at Mid-Size Orgs \$50 million - \$1 billion**



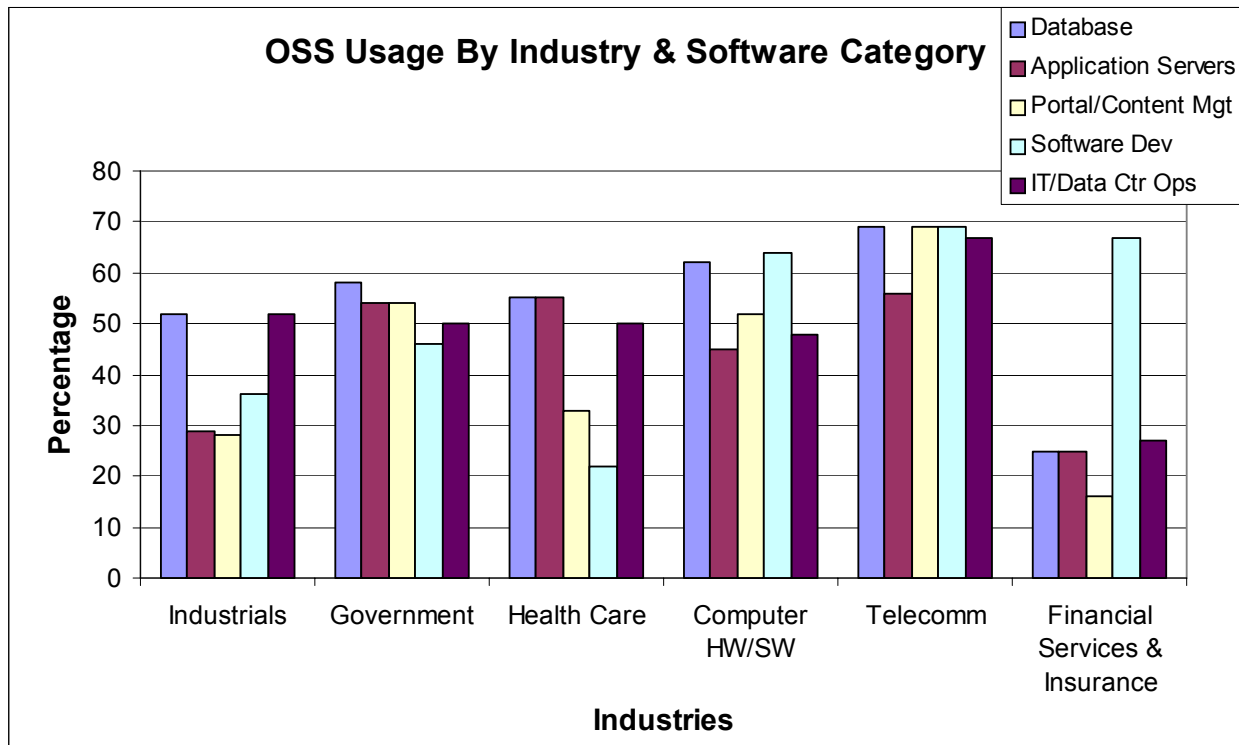
Some organizations were, in fact, using open source software that supported multiple business functions. Open source databases that supported more than one department are found in 42% of the large organizations.

While large organizations are adopting open source at a healthy rate, mid-size organizations (See Figure 2 – OSS Usage at Mid-Size Orgs \$50 million - \$1 billion) are using it at a roughly equivalent rate. While open source database usage is higher at mid-size organizations, large organizations lead in adoption of open source software development tools and applications infrastructure.

**Open Source Software Widely Spread**

Of the 512 respondents to our survey, the clear majority (87%) were using open source software. All of the large companies (\$1 billion and more) were using open source, perhaps reflecting a greater number of in-house IT professionals who could support the software.

Only 13% of all the companies surveyed were not using open source. The biggest reason for not using the software was concerns about support. Of the companies not using open source, 60% cited concerns about who would maintain, upgrade, and support any open source systems in their organizations. Some 42% were worried about intellectual property, licensing and related legal issues, and 39% felt that they lacked knowledge about viable open source software alternatives to commercial software. Some 38% lacked expertise to plan, customize, and deploy open source solutions. Even with these concerns stopping them today, over half of this group (54%) said that they expected to be using open source software within the next three years.

**Figure 3 – OSS Usage by Industry and Software Category**

While open source software is omnipresent in U.S. companies, in certain industries, sized \$50 million and up, there is significantly greater adoption (See Figure 3 – OSS Usage by Industry and Software). The telecommunications business (both service and equipment) leads all other segments that we studied in open source adoption, with a higher percentage of companies using open source databases, applications servers, portals/content management systems, software development tools, and data center operations tools. In contrast, financial services and insurance companies had the lowest adoption rates for open source software in all but open source development tools. However, the three-year plans by financial services and insurance firms show a strong planned adoption indicating that while today's production numbers are lower, perhaps it is only a matter of time until this sector also has high production usage.

#### **Key Drivers of Open Source Usage: Reducing IT Costs and Vendor Dependence**

The most frequent reasons cited for using open source were ones of cost reduction. Three quarters of the respondents see open source as a way to cut the costs of commercial software; two-thirds like its potential to cut the cost of developing custom systems. Nearly half the respondents see open source as a way to reduce software maintenance and support fees.

The benefits of open source software are clear and irresistible to many U.S. companies: cutting their IT costs and reducing their dependence on software companies. Some 61% of the companies under \$1 billion in annual revenue said they were using open source software to reduce their IT support costs, while 53% of the companies over \$1 billion had the same driver.

More than half the companies with less than \$1 billion in revenue (58%) and 42% of the larger companies with over \$1 billion in revenue were using open source software to reduce their dependence on commercial software vendors.

Table 1 provides a snapshot of the top drivers that both mid-size and large organizations are seeing for using open source software. Reducing specific line item costs of commercial software, including software acquisition costs and maintenance costs, are the most popular reasons for using open source software.

**Table 1 – Why Organizations are Using Open Source Software****Why Large and Mid-Size Organizations Using Are Open Source Software**

(Percentage of companies \$50 million+ using open source software stating their reasons for using the software)

Reason	Percentage
Reduce cost of commercial packaged software	74%
Reduce cost of custom software	66%
Lower support and maintenance costs of commercial packaged software	49%
Higher-quality, more secure software	47%
Reduce computer hardware costs	44%
Reduce dependence on commercial packaged software	44%
Build custom systems faster	38%
Create software standards across departments, functions, and/or business units or divisions	38%
Need for functions not available in commercial packaged software	37%
Interest by technologists in gaining new knowledge and skills	32%

These percentages are not surprising. As IT has become more critical to the way companies across every business conduct their operations, the cost of IT has been growing steadily. Software costs are a major component of total IT costs – especially initial software license costs. The initial purchase of a software package also commits a company to buy more software from the vendor for upgrades, support, and other services. Two areas drive commercial software costs higher over time for IT departments: support and maintenance costs, and increased usage.

Long-term support and maintenance contracts, typically 20% of the initial product price each and every year, are an almost uncontrollable cost for most IT departments. Each year, companies must pay their software support and maintenance bill; rarely do software vendors reduce these costs given that they are a major source of recurring income. Increased usage of applications drives hardware upgrades – both bigger “boxes” and a larger number of boxes – and new licenses have to be purchased for each new system. Each new system requires additional support contracts, which increases the costs of the installed based of IT even further. IT costs, as a result, grow at essentially a compounded rate, consuming a greater portion of the IT budget.

**Case Study - Plastics Company Regains Control Over Internal System with Open Source**

This mid-sized industrial company has been using open source software to expand the scope and lower the cost of custom software development. The firm developed a Web-based front end to its custom-developed enterprise resource planning (ERP) system. It built the front end using a first generation of Microsoft active server pages (ASP) technology. When Microsoft introduced its ASP.NET system, the software vendor announced it would retire original ASP software and would no longer support it.

To get on the new software platform that Microsoft would support, the company would have to dedicate development dollars and engineering time, but they would not get any increased functionality for the investment. As the IT director said, “When we had developed our original applications, we had followed Microsoft-recommended practices. Microsoft then changed its mind about how its recommended practices should work. They were trying to move us to the ASP.NET platform. There was no direct migration path from the ASP stuff we had written to the .NET platform, so it was really a rewrite proposition. We were upgrading our software to keep up with their development and marketing cycles instead of doing things in a way that was best for us.”

Given that scenario, the plastics company began looking for open source alternatives to its commercial software. “We said that if we had to rewrite our ASP to ASP.NET, we should do a rewrite of the stuff. Why not rewrite it to

something else? At that point we had an intern look into open source options, and we decided to go that route.” They moved to the open source programming language PHP and its related components.

The result has been a software rewrite that allows the company to provide the software functionality that is required on its own schedule. The end users, who use a browser-based application, haven’t seen any changes to the back-end system.

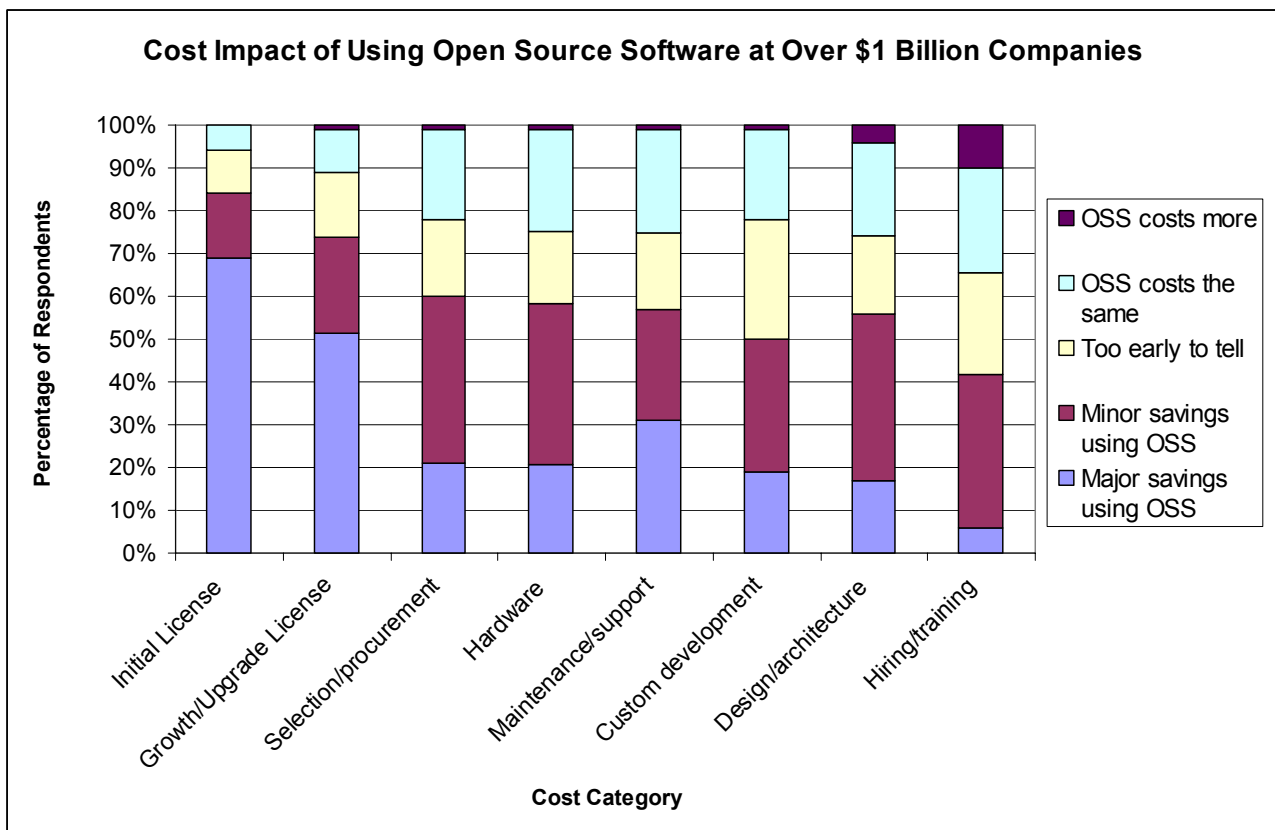
The company believes that another advantage of open source is the control it has given it over the direction of its software. “We’re no longer being driven so much by Microsoft, but more by what we need,” said the IT director. “The latest version of the programming language PHP is out there, and we haven’t embraced it yet because we’re not ready. Plus, the carpet is not being pulled out from under us and forcing us to move to it, and we’re happy with that. Eventually, we will upgrade to PHP 5, but on our schedule, not when some vendor says we have to.”

The IT director explained the end result. “What’s actually happened is that as we move applications over to PHP, not only have we rewritten them to provide existing functionality, we’ve actually enhanced the functionality, so the users are thrilled. They have no idea that PHP instead of ASP is now on the back end. They just see this new whiz-bang application that’s got features in it that they never thought about, and they’re pretty excited about it.”

**Show Me the Money: The Cost Savings and Other Benefits of Open Source**

As the previous sections explain, there is widespread adoption of open source software at U.S. companies and government institutions. Cost savings is the primary attraction of open source. But, in fact, is open source delivering on its promise of cost savings and other benefits?

**Figure 4 – Cost Impact of Open Source at Large Organizations**



Our survey respondents indicate the answer is yes. Of the companies over \$1 billion in revenue, slightly more than half (55%) said open source reduced their IT costs. The percentage was much higher in companies between \$50 million and \$1 billion. Some 71% of these organizations said open source had cut IT costs. In organizations under \$50 million, cost reductions were reported by 86% of respondents.

Open source software (see Figure 4 – Cost Impact of Open Source at Large Organizations) is providing major cost savings in several key areas, most notably in the software licensing area, both for initial purchase and later growth/upgrade license purchases. Other cost savings, in roughly 60% of the large firms, are seen in the procurement process, hardware purchases, and maintenance and support. Only in the hiring and training area did a double-digit number of people see that open source software costs more – and in this case it was just 10%.

How much are companies saving from using open source software? We asked respondents to tell us how much they were saving on IT costs (if they were saving anything). Our finding: the bigger the company, the greater the cost savings. For organizations that reported cost savings, the average was \$3.3 million for companies over \$1 billion in revenue; \$1.1 million for companies between \$50 million and \$1 billion; and \$520,000 for companies less than \$50 million (See Table 2 – 2004 Open Source Cost Savings).

**Table 2 – 2004 Open Source Cost Savings**

Company Size	Average 2004 Open Source Cost Savings
Large (over \$1 billion)	\$3.3 million
Midsize (between \$ 50 million and \$1 billion)	\$1.1 million
Small (under \$50 million)	\$520,000

#### **Case Study - Semiconductor Manufacturer Reduces Cost of Hardware and Increases Performance**

This mid-size semiconductor firm has moved many applications from proprietary Unix systems to the Linux operating system. That has enabled the company to reduce the cost of computer hardware and buy higher-performing systems.

The company began using open source software three years ago by running the Linux operating system on its production servers. Over time, especially as it has proven its reliability, Linux usage has expanded as new Linux-based servers are brought into the data center and older Unix servers are retired.

What prompted the company to start using open source software? It wasn't according to a plan. "It snuck in the back door before it got approved," said the data center manager with whom we spoke. "In fact, that's how it got approved. Someone was running it and said, 'Look how much faster it is.' That led people to say, 'Let's bring it in through the front door.'"

In the company, Linux has become the standard for servers, replacing two other proprietary Unix systems. "Now that it has been successful at the server, we have been replacing engineering workstations with Linux desktops and now have over 500 Linux desktops."

The main impact has been reducing the cost of computer hardware purchases. "We used to be budget-constrained for the servers and now we can get three or four for the price of one. So we get more, and everything runs faster."

On a company-by-company basis, we saw some significant cost reductions from open source: one technology firm said it saved \$20 million last year from using open source software; three companies in the telecom sector each saved \$10 million; and a financial services firm saved \$10 million (See Table 3 – Representative Savings).



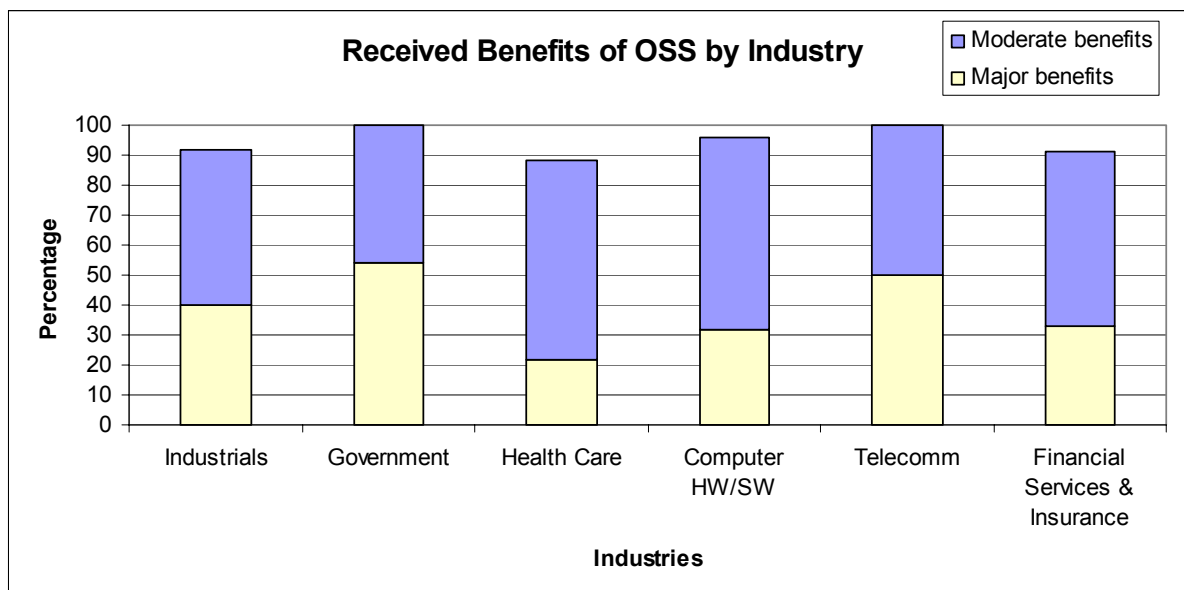
**Table 3 – Representative Savings**

<b>Representative 2004 Cost Savings from OSS In Selected Companies of at Least \$1 Billion in Annual Revenue</b>	
<b>Company Industry Type</b>	<b>Cost Savings</b>
Technology company	\$20 million
Telecommunications company	\$10 million
Financial services company	\$10 million
Telecommunications company	\$10 million
Telecommunications company	\$10 million
Financial services company	\$5 million
Industrial company	\$3 million
Financial services company	\$2 million
Industrial company	\$2 million
Pharmaceutical company	\$1 million

We also asked respondents to indicate the overall benefits they achieved through open source software – cost savings, quality improvements, faster systems development times, and others. They were able to classify such overall benefits as “none,” “minor,” “moderate,” and “major.” Across the 448 organizations that use open source software, only 4% had no benefits. The majority (52%) had major benefits. Another 44% had minor benefits.

Companies under \$1 billion were much more likely to generate major benefits than larger companies. Of the large companies (over \$1 billion), 71% reported moderate benefits while 24% had major benefits. Of the mid-sized companies (\$50 million to \$1 billion in revenue), 49% had major benefits while 46% had moderate benefits.

What industries are getting the greatest benefits from open source software? While asking respondents whether they are getting no, minor, moderate or major benefits does not allow for a fully quantitative comparison, it does show some interesting trends (see Figure 5 – Benefits by Industry). Telecommunications and government organizations were much more likely to cite major benefits from open source (with about half of their respondents saying this was the case). Health care and financial institutions were less likely to report major benefits, although a sizable percentage (at least 20% of the health care companies and more than 30% of the financial institutions) reported major benefits from open source.

**Figure 5 – Benefits by Industry**

While cost savings represent the most easily measured benefit of using open source software, there are other benefits. An interesting finding in the research is that the benefits often show a level of correlation, that is if an organization receives one benefit it receives another. This was clearly seen in the case of the time savings benefit around developing and implementing new systems. Among large organizations, revenue over \$1 billion, 44% have seen open source software reduce the time it takes to develop and implement new systems. Table 4 shows that those who have seen reduced development time have much greater major savings in several categories of cost savings than those that haven't reduced the development time – including that 72% of the those who cut development time have had major cost savings in software licensing costs for upgrades and 88% have had major cost savings in the initial software license costs. These are dramatically higher rates of major cost savings, by 37% and 33% respectively, than seen by those without faster development time.

**Table 4 – OSS Reduced Development Time and Costs**

<b>Open Source Software Reduces Development Time &amp; Costs</b>			
% of companies with revenues over \$1 billion that are using open source			
Cost savings from using OSS vs. commercial or custom software - % who answered "major savings"	Has open source software reduced the time it takes to develop and implement new systems?		
	OSS has reduced time (%)	OSS has NOT reduced time (%)	Difference in Percentage
<b>Software licensing costs related to application usage growth or other upgrade</b>	72	35	37
<b>Software evaluation, selection, and procurement costs</b>	41	5	36
<b>Software licensing costs for initial purchase</b>	88	55	33
<b>Application design and architecture costs</b>	31	5	26
<b>Costs of developing custom applications</b>	34	8	26
<b>Costs for software maintenance and support</b>	41	22	19
<b>Software developer hiring and training costs</b>	12	0	12

#### **Case Study - Open Source Improves the Technology of a Social Services Agency**

In 2004 at a 250-employee social services agency in the Northeast U.S., a new CIO brought in an ambitious IT agenda. Moving from a sophisticated corporate IT environment, the CIO found an antiquated technology infrastructure and the opportunity to start from scratch. However, he lacked the large IT budget he was accustomed to in the corporate world.

Given the budget available and the desire to put resources into social services, the CIO was instructed to keep technology costs low. He saw open source software as the means of delivering critical information systems but at very low cost. He then built a complete open source-based technology infrastructure: databases, applications, helpdesk software, remote access, instant messaging and other systems that were all based on open source software.

One year after deployment, the initiative has been a significant success. "The stability of the software has been tremendous," he said, adding that the agency was planning to use a vendor to support the software but as they are approaching the first anniversary of entering production, it hasn't had to do so. "Every problem we've had with open source software has been resolved without external support."

The savings have been significant: Open source software has cost the agency at least 80% less than the cost of the same functionality with commercial software. The agency is now looking for additional open source software to

handle its growing administrative needs and to meet its technology budget.

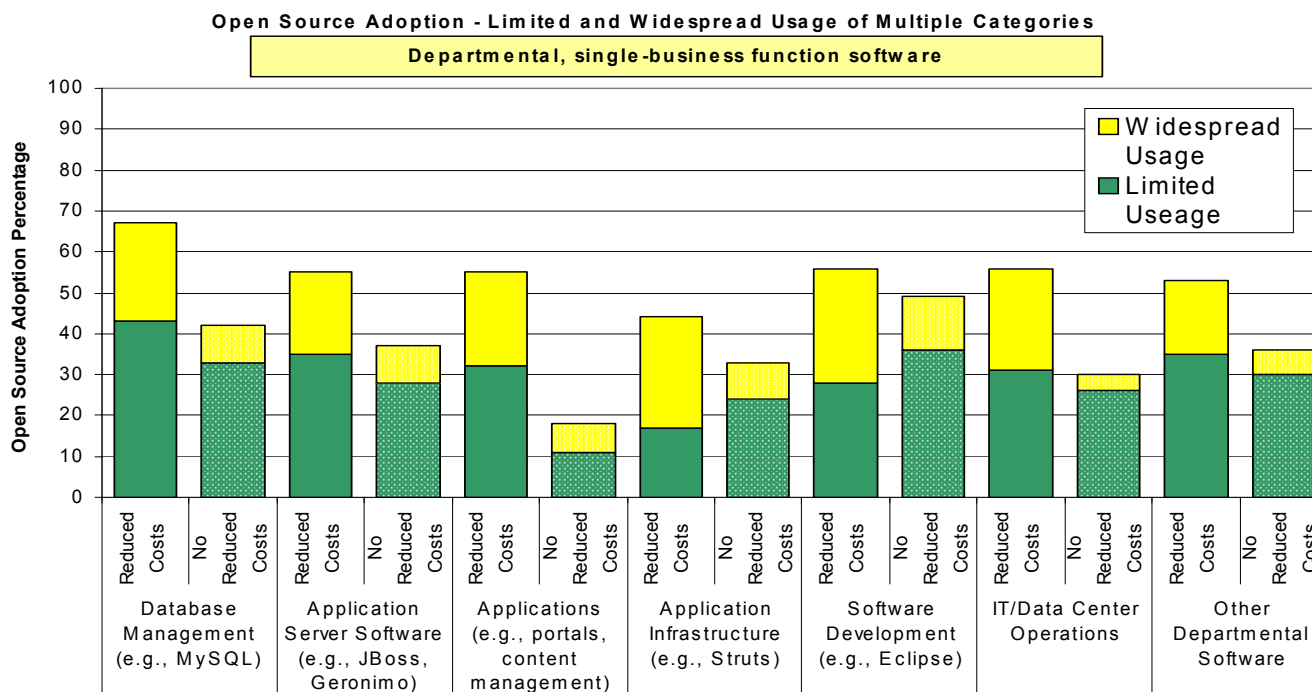
### Keys to Cutting IT Costs Through Open Source: Overcoming Four Key Barriers

Our study showed that the benefits of open source software increase substantially when a company uses more. Cost savings was measured by asking companies the question, "Has open source software reduced your organization's technology costs?" By software category, Figure 6 shows where organizations are reducing costs through open source software. In each category, the level of "limited usage" is roughly for those who have and haven't reduced costs. The level of "widespread usage" varies dramatically in every category between those who have reported cost savings and those without reduced costs. The more extensively an organization uses open source software, the more its IT costs are cut. This is consistent across a wide number of software categories that we studied.

Why are larger companies more reluctant to use many types of open source software than smaller companies? The bigger the company, the more rules it is likely to have about what software is and is not acceptable for corporate use. Open source software is no exception. A greater number of larger firms said internal policies and procedures were a barrier to open source adoption (42%), compared with smaller companies (only 11%). Legal issues, as well, are more likely to be on the minds of bigger companies than smaller firms. Nearly half the larger companies said legal concerns were a barrier to using open source software (41%) vs. only 14% of the smaller companies.

Our data shows that bigger companies have more concerns – about support, legal, and other issues – as well as more policies in place that preclude open source initiatives from taking root. Concerns about who will support the software are much greater in large companies, which often have dedicated internal support organizations that maintain only heavily-used software. Open source most often starts with a limited penetration and often with no official internal support. Two-thirds of larger companies that weren't using open source software (66%) cited support concerns while only 42% of the smaller companies cited such concerns. Larger companies are also more worried about legal issues around open source. Nearly a third (35%) pointed to legal issues vs. only 20% of the smaller companies.

**Figure 6 – Widespread Adoption Drives Cost Savings**



All of these barriers are substantial. Nonetheless, our case study research and consulting experience show none is insurmountable.

### **Case Study - Cost Savings Spur Open Source Adoption at a Major Telco Company**

A Fortune 100 telecommunications services company's usage of open source software has been expanding across a range of IT projects. Cost savings have been substantial – especially in avoiding the licensing costs of installing the same software on multiple computers. "The ability to load open source systems on any number of machines with any number of processors without having to worry about how many licenses you have is a great benefit," said an IT manager who has overseen several open source initiatives in the firm.

Hearing about the cost savings from that open source software, several executives at the company have encouraged the usage of more open source software. However, widespread adoption of open source technology has been hindered by the way in which the firm measures and budgets software development and support.

The company's IT professionals have used a number of open source software development and infrastructure tools for years, including Eclipse, Apache, Perl, OpenSSL, and CVS. Supporting that software wasn't an issue; IT decided it could enhance, maintain, and troubleshoot the software itself. However, the issue of who will support open source software that is used in functions beyond IT is a major issue that has slowed down adoption in the company.

The company recently announced it would increase its use of standard open source software. It expanded its "approved software list." While this has been positive, the firm's software support organization still isn't staffed adequately to handle many open source tools. This leads to a "Catch-22," according to the IT manager with whom we spoke. "The company says we must have enough projects using open source software before they'll support it, but we can't get more people using it if they don't have the support."

Without support from the central IT group, each project team must support or pay for the support of the open source software they use. Essentially, they are "double-taxed" when they use open source software. The software support function doesn't charge individual projects for support services. However, if they don't support a product, the project must pay for support itself. Today, open source software generally isn't supported by the technology support group so individual projects must pay for any support as well as for support overhead allocation.

The company is planning on using more open source software. However, its adoption rate is being slowed more by support and budgeting issues than by the issues related to functionality and reliability provided by open source software.

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### **Barrier #1: Combating Executive Fear and Ignorance of Open Source**

Open source software is regarded by many non-technologists not only as a new technology but one developed and "sold" in a manner that is truly foreign to them. A bunch of independent programmers, none of who work for the same company, built the system? Whom do you go after if the software doesn't work? And if the software developers who built it are working for nothing, how good can it be especially if the system is free? And you're on your own to maintain it?

No wonder open source software draws both puzzled and concerned looks from business executives – and even from many IT executives who have never seen it work. Our survey solidly confirms that executive fears about open source restrict its widespread adoption, even in companies whose IT professionals are using it. If open source software is used only in the IT department -- to develop other software and run data center operations -- its ability to reduce the costs of other software will be severely curtailed. In these companies, open source software is not likely to replace applications packages for CRM, supply chain management, ERP, accounting or other business functions. It isn't likely to replace costly proprietary database management systems.

Our survey suggests that many business (and some IT) executives are hesitant about letting their organizations adopt open source on a widespread basis. The differences in the way two sets of survey respondents answered our questions about the barriers to adopting open source software – those that achieved cost savings and those that didn't achieve cost savings – were revealing. Three barriers were especially difficult for companies that didn't cut costs through open source (see Table 5 – Cost Savings Reduce Barriers to OSS Adoption). They were not big barriers for the companies that did cut costs through open source. As a result, these can be seen as some of the biggest barriers to getting benefits from open source software:

1. Getting the backing of the CEO or business unit president to use open source software in the organization
2. Addressing managers' fears of legal problems with open source software
3. Getting the backing of functional managers (heads of sales, marketing, finance, etc.) to use open source in their departments

**Table 5 – Cost Savings Reduce Barriers to OSS Adoption**

**Barriers to OSS Usage Differ Where OSS is Seen to Cut Costs**

% of companies with revenues over \$1 billion that are using open source

Rate the following items in terms of the degree to which they have hindered your organization from using and maximizing the business value you could get from open source software.	OSS has NOT cut costs (%)	OSS has cut costs (%)	Difference in Barrier (%)
Finding internal or external resources to maintain and enhance your open source systems	47	7	40
Addressing managers' fears of legal problems with open source software	60	27	33
Finding internal or external resources to develop and install systems that use open source software	40	10	30
Determining which existing commercial or custom software in your organization can be replaced by open source versions, over what timeframes, and how to plan the migration	46	20	26
Getting the CEO/business unit president's backing to use open source software	50	28	22
Getting the backing of functional managers (e.g., heads of sales, marketing) to use open source software in their functions	41	25	16
Understanding how to work with software developers in open source communities	25	10	15
Established policies and procedures that hinder your ability to use open source software	50	37	13
Understanding what specific open source systems can meet your specific requirements	25	14	11
Lack of open source software that meets your needs	25	14	11
Documenting the cost savings and other benefits of open source software so that others will approve its use in the organization	28	25	3
Getting senior IT management's backing to use open source software	41	42	-1

The companies that did not cite these as issues were not only more likely to have generated cost savings from open source software. They were more likely to have used open source beyond the IT department and data center – i.e., for business applications software such as CRM or content management systems supporting business functions; for database management systems used by a single business function or several functions; for applications servers supporting the work of a business function or functions.

Since open source is a fairly new area for corporations, everyone started at the same knowledge level. It is reasonable to assume that the differences in views on open source barriers are related to experience with the software. Therefore, we believe, these barriers can be overcome with a concerted effort around education.

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## **Barrier #2: Understanding Intellectual Property, Licensing, and Legal Issues**

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Open source software has been covered by many press reports and articles as an area with intellectual proprietary, licensing, and legal risks. Part of this stems from the high profile “SCO Group vs. IBM Linux” legal action, part from a lack of understanding of how open source is licensed and that there is a license, and part from the discussion of “viral” and “must share” open source license variants. While these three concerns are understandable and widely held, they also are largely resolved through experience and education.

The SCO Group lawsuit is actually a dispute about copyright misappropriation between two vendors. Intellectual property conflicts are most often issues among competing vendors, not between vendors and customers. As part of their dispute with IBM the SCO Group filed further litigation against two of IBM’s enterprise customers, and while it has generated a great deal of press coverage, it has largely failed as a legal tactic. An enterprise runs a greater risk of being sued by a proprietary vendor over license counting issues than from any sort of open source intellectual property risk.

Free and open source licensing, as with commercial software licensing, is based on copyright law. While there are a myriad of such licenses that meet the definition of “open source software” set out by the Open Source Initiative (see <http://www.opensource.org>), most can be placed in one of three families of license. There is a class of historical licenses that came originally out of the research and academic arena (e.g. BSD, MIT), the Free Software Foundation’s General Public Licenses (GPL), and a class of more corporate licenses that started with the Mozilla license. All of these licenses enable enterprises easily to use the software in binary form.

Some licenses (notably the GPL) place requirements on the user if they modify or use the source code of the software. Such requirements, however, are only triggered on distribution of the software, and even then do not force a company to publish its own property if they choose not to do so. While one needs to understand how one might use the source code with such licensing terms, many companies use such software in their businesses, addressing the requirements of the licenses properly and without exposing their own differentiating software.

### **Case Study - Open Source Confined to the Data Center at a Top 10 American Bank**

The IT function of one of the 10 largest U.S. banks uses open source software extensively for systems that run the “inner workings” of their IT operation. However, open source software has gone no further at the bank. The bank’s business operations – customer service, sales, marketing, finance and others – have rarely used open source software. The reason: fears about who would maintain, fix, and otherwise support the systems.

The bank’s IT department has already generated major savings from open source software – shifting from expensive hardware (computers and servers) to less expensive computers by adopting the Linux operating system (and moving away from commercial Unix operating systems). For instance, the bank has replaced servers and server operating systems priced around \$250,000 per server to less expensive servers running Linux and costing about \$50,000 – an 80% cost reduction. As more of the bank’s Oracle database management software moves to the Linux operating system, Oracle continues to support its database. Thus, the bank’s internal computer support organization is comfortable accepting this type of open source.

But the bank's IT managers believe that their next step could be replacing Oracle's commercial database software with an open source database, MySQL. Said an IT executive with whom we spoke: "These software licenses and database servers are costing us in the hundreds of thousands of dollars for each new system. A couple of those systems come by and move successfully to open source, the savings pay for a couple of people. If you can do it for \$20,000 on Intel hardware and get iron-clad support with MySQL, that's an enormous cost savings."

According to the IT executive we spoke with, "It all comes down to support and the fact that we're willing to have all this money diverted to IBM and Oracle for support." In his mind, the MySQL software is proven. "I've been using it for four or five years. Now it's mostly a training issue. If they have people in their group that would support it, I'm pretty sure that we could have that as an option." Getting comfort that the software will be supported is next.

Recently the business group purchased an application built using many open source tools with the application provider as the main support channel. "As long as they [the 3<sup>rd</sup> party] deal with support, it's OK" to use open source software, says the IT manager. "If we [internal support] have to deal with it, they get nervous."

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**Barrier #3: The Cost Allocation or "Free to Me" Problem: If Commercial Software is Free to a Business Unit, Why Should They Use Open Source Software?**

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There is no debate about whether open source software can save companies substantial amounts in their IT budgets. However, who in an organization pays for IT – the IT department, corporate center or individual business functions – appears to determine whether open source software takes hold beyond the data center.

Here's why: In many companies, the costs of an IT initiative are not borne by an individual department such as marketing or finance. They are borne by either the IT group or aggregated at a business unit or corporate level. This is particularly true when an IT initiative crosses functional boundaries – for example, an ERP system that hooks up manufacturing, procurement, finance, and distribution functions. The cost of the system is either spread across those budgets or put in a corporate IT budget.

When a functional manager doesn't have any visibility or responsibility for the price of the software, that software appears "free to me." If the corporation has a corporate agreement or service "tax", individual projects or applications might not be charged for buying a new piece of software. For example, a new commercial database license might cost \$15,000 while an open source alternative might be free. However, if the new project or some function isn't paying for the software, why choose an open source alternative? Why not choose the "safe" choice – a software package from an established vendor?

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**Barrier #4: The Where-to-Buy Problem: Determining Where to Find the Right Open Source Solution**

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When companies buy commercial software packages, they know where to go: the dozens of companies that are in the business of developing and supporting packaged software. There are plenty of ways to understand the viability of these vendors and their software: research firms such as Gartner and Forrester, the IT managers of other companies, and so on.

Procurement of open source software and related support services can be an entirely different and confusing buying experience. There are dozens, if not hundreds, of companies offering a variety of options, ranging from their own open source products complete with service (e.g., MySQL and SugarCRM), support and integration testing (e.g., SpikeSource) to stand-alone support for open source systems developed in open source "communities" (e.g., Covalent for Apache). There are hundreds of open source communities developing systems. But they don't have marketing budgets, don't advertise their "products," don't take out trade show booths, and don't hire public relations agencies to promote their wares. All of that makes it difficult for organizations to know what open source software is available.

The difficulty of companies to procure and evaluate open source software was a key barrier to success with open source technology. Finding internal or external parties that can develop, install, maintain, and enhance open source software was

a major barrier for companies that had generated no benefits from their use of open source software. These barriers were not nearly as significant for the organizations that had cut costs through open source software.

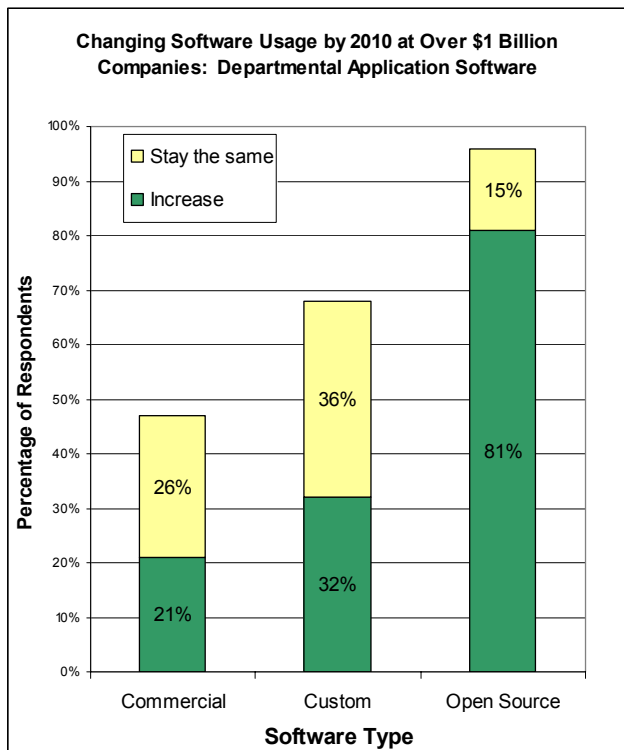
### The Bright Future of Open Source

While open source software is already prevalent, the organizations we surveyed said they had even bigger plans for it over the next three years. We asked respondents to indicate their usage of open source by specific types of applications software by 2008. The top types of applications that users are planning to evaluate open source alternatives to commercial software are:

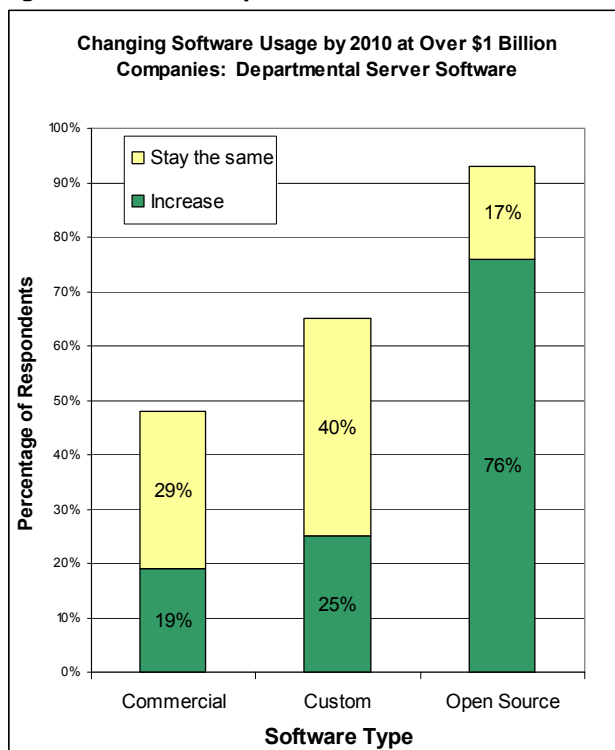
1. Software development tools – 82%
2. Database management systems – 67%
3. IT data center/operations management – 58%
4. Content management or portals – 54%

Another set of questions looked at how companies plan to change their software portfolio. How will their mix of open source, custom, and commercial software change over the next five years in three areas: departmental servers, departmental applications, and cross department/enterprise applications? Figures 7A-C show that about half the large companies plan to decrease their use of commercial software and 70% to 80% plan to increase their use of open source software across all three arenas. Custom software increases or stays the same as a part of the portfolio. We believe part of that is because open source lowers the cost and increases the flexibility of custom solutions.

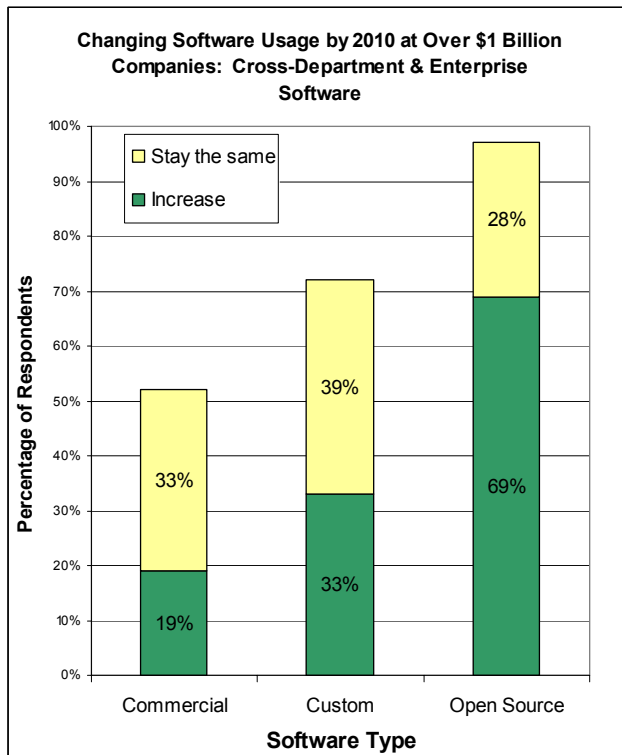
**Figure 7a – 2010 Departmental Apps**



**Figure 7b – 2010 Dept. Server**





**Figure 7c – 2010 Cross Dept Apps**

**Figures 7A-C show that about half the large companies plan to decrease their use of commercial software and 70% to 80% plan to increase their use of open source software across all three arenas. Custom software increases or stays the same as a part of the portfolio**

## Study Demographics

Survey data for this research was collected in August and September 2005 using an online poll developed by Optaros in conjunction with *InformationWeek*. *InformationWeek* promoted this survey in their *InformationWeek Daily* e-mail newsletter, which is distributed to more than 40,000 information technology and business professionals. 512 people completed the online survey.

### The report was developed by:

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Most recently, Stephen was an advocate for open source at Microsoft, where he was focused on "shared source" business strategies and was responsible for technical implementation of open source-related community projects (i.e., creating a business model at Microsoft to engage in the open source community). Stephen was a business development manager in the Windows Platform team, where he operated in the space between community development, standards, and intellectual property concerns.

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Bruno von Rotz is the country manager for Switzerland at Optaros. He has more than 20 years of IT consulting and system integration experience. In his career he worked with financial institutions companies, transportation companies, retail organizations, but also in other industries. He also is a well known speaker and has published dozens of articles on a variety of topics, including content management, customer relationship management and knowledge management.

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**Acknowledgements**

The authors want to thank research partners *Information Week* magazine and **The Bloom Group LLC**, Ed Hastings & Bob Buday, for their help in creating this report.

**ABOUT OPTAROS** <http://www.optaros.com>

Optaros is a consulting and systems integration firm that helps enterprises solve IT business problems by providing services and solutions that maximize the benefits of open source software. Bringing together experts in creating enterprise IT solutions and experts in the power of open source, Optaros plans and builds business systems that give you better value today and increased control in the future.

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