

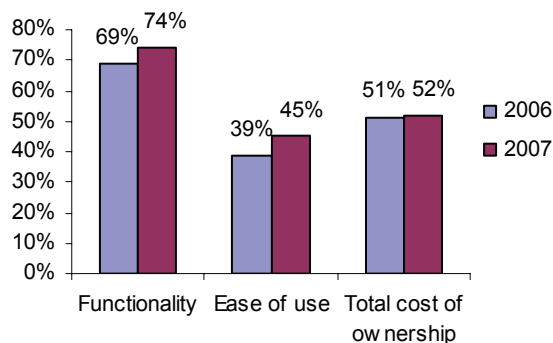
The Total Cost of ERP Ownership in Mid-Size Companies

Total Cost of Ownership (TCO) remains a significant factor that influences Enterprise Resource Planning (ERP) strategies and decisions. While “total” costs can and should include a wide range of factors, recent Aberdeen research has shown that the cost of software, services, and maintenance are those which are most often measured and considered when evaluating software or measuring the Return on Investment (ROI) of ERP implementations. Costs vary significantly as companies grow in size. What can the average mid-size company with revenues between \$50 million and \$1 billion expect to pay for the business benefits that can be derived from ERP?

Who Cares?

In June and July of 2007, Aberdeen surveyed over **1,680 companies of all sizes to benchmark ERP in Manufacturing, including 645 companies** with annual revenues between \$50 million and \$1 billion. Functionality, ease of use, and TCO were clearly the top three selection criteria in ERP software decisions (Figure 1). In comparison to a similar study published in [August 2006](#), the importance of all three of these criteria increased year-over-year.

Figure 1: ERP Software Selection Criteria in Mid-Size Companies



Source: Aberdeen Group, July 2007

The [2007 ERP in Manufacturing](#) study measured the average number of ERP users, as well as the cost of ERP in terms of software, services, and maintenance of mid-size customers. This was done for six different ERP solution providers and was subsequently compared to the averages across all mid-size companies.

Aberdeen TCO Series

The Total Cost of ERP Ownership in Mid-Size Companies is influenced by a variety of factors, including:

- √ company size
- √ number of ERP users
- √ depth and breadth of functionality deployed
- √ business benefits gained from ERP deployment
- √ other factors

This Sector Insight is one in a series of reports exploring the Total Cost of ERP Ownership. Please refer to Related Research identified at the conclusion of this report for further analysis.

Calculation of Averages

The 2006 ERP in Manufacturing survey asked respondents to enter numerical values for actual costs. In order to improve response rates, the 2007 ERP in Manufacturing study respondents were provided with data ranges to choose from. Actual averages were calculated using the midpoint of each range. While this method is not as precise, it improved both the quality and quantity of data used.

Costs Scale with Company Size

One would naturally expect a correlation between the size of the ERP deployment and costs. Because Aberdeen's definition of mid-size companies spans such a broad range, and because companies at the low end of the scale can be very different from those at the top end, we capture company size in finer granularity within the full range of mid-size companies. As a company grows, the number of users goes up, along with the total cost of software and services. This expectation was generally proven to be true, as shown in Table I.

Table I: Average Costs by Company Size

Company Size	Average # of Users	Average Software \$'s ¹	Average Service \$'s	Average SW & Service \$'s	Average Maint. %age	Average 3 Year Maint. \$'s	Average Total Costs
Under \$50 million	38	\$176,597	\$126,022	\$278,642	15.3%	\$81,676	\$384,295
\$50 million to \$100 million	92	\$482,941	\$351,374	\$833,537	16.1%	\$247,554	\$1,081,869
\$100 million to \$250 million	195	\$695,395	\$581,090	\$1,347,887	16.6%	\$443,066	\$1,719,551
\$250 million to \$500 million	344	\$985,714	\$655,263	\$1,677,143	14.7%	\$346,639	\$1,987,616
\$500 million to \$1 billion	475	\$1,364,286	\$1,110,000	\$2,513,750	16.4%	\$617,735	\$3,092,021
\$1 billion to \$5 billion	2187	\$2,360,577	\$2,081,000	\$4,792,857	17.9%	\$1,479,208	\$5,920,785
Over \$5 billion	3365	\$2,652,500	\$2,102,778	\$4,659,375	16.0%	\$1,163,531	\$5,918,809

Source: Aberdeen Group, July 2007

However, the average cost of maintenance did not grow in such a linear fashion. Research shows the average cost of three years of maintenance drop in the \$250 to \$500 million range, even though the average number of users grew by 76%. This resulted from a drop in the average maintenance rate. The cost of maintenance is typically calculated as a percentage of software license fees. Aberdeen asked survey respondents for actual software costs and the percentage of software license fees spent on maintenance each year. Note that Aberdeen applied this percentage to the software cost in the calculation of maintenance costs. However, the method actually used by vendors to calculate maintenance does vary. Some will apply the percentage to the actual cost of the software (which may have been discounted) and some will apply it to the current list price of the software. In this latter case, users will actually pay **more than** the average Aberdeen used in its calculations.

Costs per User

As the costs per installation rises as company size grows, one would also expect the average software costs **per user** to go down, since volume discounts are standard fare in ERP pricing and licensing. This too was observed, but only in step fashion in certain bracketed segments (Table 2). For example, companies with annual revenues in the range of \$0 to \$250 million reported very similar

For Comparative Purposes...

Many survey participants indicated two or more ERP packages were implemented across the enterprise. But, for purposes of vendor comparison, only those responses where participants clearly identified a single ERP vendor were used. This reduced the sample size to 830 responses, 316 of which were from mid-size companies.

software costs per user. Significant volume discounts were not achieved until the number of users topped 200. In fact, the software cost per user actually increased as we progressed from small (under \$50 million), to mid-size, and through the first two mid-size brackets. However, we also saw a jump in the number of modules implemented as companies passed the \$50 million mark. This progression implies that as companies grow, the ERP solution becomes more comprehensive. Aberdeen observed a similar phenomenon occurring in the range of annual revenue of \$250 million to \$1 billion, within the range of 200 to 500 users.

Table 2: Average Costs per User by Company Size

Company Size	Average Number of Users	Average # of ERP Modules Implemented	Average Software \$'s per User	Average SW & Service \$'s per User	Average Total Costs per User
Under \$50 million	38	9.9	\$6,680	\$10,651	\$13,854
\$50 million to \$100 million	92	11.1	\$6,784	\$11,973	\$15,304
\$100 million to \$250 million	195	10.9	\$6,933	\$13,002	\$18,157
\$250 million to \$500 million	344	10.8	\$3,954	\$6,518	\$7,738
\$500 million to \$1 billion	475	11.8	\$3,556	\$6,459	\$8,712
\$1 billion to \$5 billion	2187	12.3	\$2,616	\$4,711	\$6,025
Over \$5 billion	3365	13.7	\$799	\$1,707	\$2,068

Source: Aberdeen Group, July 2007

While the software price per user rose marginally as companies grew from \$50 million to \$250 million, the rise in the cost of services rose more steeply. This can result from a combination of factors. First, as implied by the increased module count, implementations can become more complex once the \$50 million and \$100 million thresholds are reached successively. Secondly, companies less than \$50 million in revenue are more likely to have tighter purse strings and therefore are more likely to attempt to implement by engaging fewer outside resources. Findings indicate that small companies are 58% more likely than their mid-size counterparts to achieve their first “go-live” milestone in six months or less.

Costs Vary by Vendors

Because of the correlation between size and cost, for the purposes of this Sector Insight, only mid-size companies were included in the side-by-side comparison of vendors. Table 3 shows the comparison between the average number of users of all survey respondents using a specific vendor versus the average number of users of survey respondents in mid-size companies only.

Vendor Selection

Vendors were selected based on the sample size available from our pool of survey respondents. Samples ranged from 41 to 275. Where a sample size was less than 100, vendors were only included if responses were uniform and consistent.

Table 3: Average Size of Implementations by Vendor

ERP Vendor	All Survey Respondents		Survey Respondents from Mid-Size Companies	
	Average # of Users	Average # of ERP Modules Implemented	Average # of Users	Average # of ERP Modules Implemented
Epicor	62	10.4	131	11.9
Lawson	128	10.6	147	10.8
QAD	304	10.4	192	10.2
Infor	120	10.0	196	11.0
Oracle	834	11.3	319	11.5
SAP	1365	12.4	409	11.9
All Others	94	10.3	175	10.6

Source: Aberdeen Group, July 2007

Table 4 lists the average software costs, the average number of users, and the average number of modules implemented for the selected vendors. The average across all other vendors as well as all mid-size companies is also shown. With the exception of “All Others” and “All Mid-Size Companies,” vendors appear in sequence of lowest average software cost, to highest. With the exception of SAP and Oracle, the other vendors have very similar costs – Infor demonstrating the lowest even with an average number of users under 200.

Table 4: Software Costs by Vendor

ERP Vendor	Average # of Users	Average # of ERP Modules Implemented	Average Software \$'s	Average Software \$ per User
Infor	196	11.0	\$703,261	\$5,206
Lawson	147	10.8	\$482,500	\$5,261
QAD	192	10.2	\$633,871	\$5,271
Epicor	131	11.9	\$397,222	\$5,366
SAP	409	11.9	\$1,276,667	\$6,111
Oracle	382	11.5	\$1,929,167	\$7,361
All Others	175	10.6	\$392,241	\$5,314
All Mid-Size Companies	220	11.0	\$695,750	\$5,523

Source: Aberdeen Group, July 2007

Service Costs

Dollars spent on external professional services (including training but not including software or internal headcount) are a significant portion of the total ERP investment. Table 5 lists average service costs side-by-side to average

“Our focus now is on implementing functionality that we own but don’t use. We recently hired someone to champion the installation of those modules, and we’re currently discovering what’s available and what we want to start using. We think that implementing MRP, and using capacity planning, will be the most important – and we plan to implement that this year. Our number one opportunity right now is efficiency in the plant – demand is high right now, and so we want to learn how to be the most efficient that we can to get the most product out of our shop. That will have a direct impact on the bottom line.”

~Michael Bodinger, Director of Information Technology, Hackney Ladish, Inc.

software costs, since very often the ratio of services to software costs is indicative of both ease of use and ease of implementation. Therefore, the vendors are listed by this average ratio, in ascending order. Infor customers have the lowest ratio and typically spend \$0.70 for every dollar spent on software. Average service costs per module implemented is displayed in the table as well, since the more extensive the implementation, the more services may be required. However, this metric is seldom used in cost comparisons and therefore is not used for sequencing purposes.

Table 5: Software and Service Costs by Vendor

ERP Vendor	Average Software \$'s	Average Service \$'s	Average Service \$'s Spent for Each \$1 Spent on Software	Average # of ERP Modules Implemented	Average Service \$'s per Module Implemented
Infor	\$703,261	\$494,444	\$0.70	11.0	\$897
Epicor	\$397,222	\$286,842	\$0.72	11.9	\$748
QAD	\$633,871	\$463,158	\$0.73	10.2	\$957
SAP	\$1,276,667	\$1,115,323	\$0.87	11.9	\$960
Oracle	\$1,929,167	\$1,694,231	\$0.88	11.5	\$1,473
Lawson	\$482,500	\$455,556	\$0.94	10.8	\$971
All Others	\$392,241	\$290,179	\$0.74	10.6	\$916
All Mid-Size Companies	\$695,750	\$560,377	\$0.81	11.0	\$934

Source: Aberdeen Group, July 2007

Total Costs by Vendor

Table 6 combines all costs measured and displays them on a per-user basis. While several vendors were quite close in cost per user and service to software ratios, in combining all costs, we see more distinction. The average percentage of software costs paid for maintenance are remarkably similar across all vendors, with the exception of Oracle users and "All Other" vendors, which pay 2.9 and 1.4 percentage points more than the average of all mid-size companies. Using this metric, Epicor has the lowest average total cost per user.

Table 6: Total Costs per User by Vendor

ERP Vendor	Average Number of Users	Average Maintenance %age	Average Software & Services \$'s per User	Average 3 Years of Maintenance per User	Average Total Costs \$'s per User
Epicor	131	16.7%	\$8,883	\$2,287	\$9,644
Lawson	147	16.8%	\$10,521	\$2,798	\$11,826
QAD	192	16.8%	\$9,741	\$2,421	\$12,161
Infor	196	16.9%	\$9,843	\$2,688	\$12,773
SAP	409	16.8%	\$11,381	\$2,920	\$15,067
Oracle	319	17.4%	\$16,882	\$4,101	\$20,983

ERP Vendor	Average Number of Users	Average Maintenance %age	Average Software & Services \$'s per User	Average 3 Years of Maintenance per User	Average Total Costs \$'s per User
All Others	220	17.2%	\$9,708	\$2,670	\$12,719
All Mid-Size Companies	175	16.9%	\$10,274	\$2,581	\$13,010

Source: Aberdeen Group, July 2007

The Cost of Achieving Business Benefit

Aberdeen believes the success of an ERP implementation is not only based on cost and time to implement, but also on the business benefits achieved through its use. In benchmarking ERP in Manufacturing, Aberdeen determined Best-in-Class using the following metrics:

- reduced levels of inventory
- inventory accuracy
- manufacturing schedule compliance
- percent on-time and complete shipments
- number of days needed to close a month

In addition to the metrics used to determine Best-in-Class, the following improvements were measured:

- reduction of manufacturing operational costs
- reduction in administrative costs
- improvement in manufacturing schedule compliance
- improvement in complete and on-time shipments

Therefore, for one final measure of TCO, Aberdeen calculated the cost of each percentage point of improvement gained from the deployment of ERP implementations of each of the six vendors (Table 7).

“Solutions have matured in the past 10 years, so we are hoping that we’ll find a solution that meets our needs. The software is more user-friendly, and we expect that the implementation will be more cost effective. Before, the maintenance of the software and all of the associated files was too expensive. Now ERP software is mature. It’s also cheaper, easier to install, and has less overall associated maintenance.”

~ Chief Technical Officer,
mid-size industrial equipment
manufacturer in the midst of
ERP selection

Table 7: Cost of Performance Improvement by Vendor

Metric	Lawson	Epicor	Infor	QAD	SAP	Oracle	All Others	Mid-Size Companies
Reduction in inventory costs	25.0%	17.0%	17.5%	14.8%	16.5%	13.4%	18.9%	17.2%
Reduction in manufacturing operational costs	18.1%	14.2%	12.7%	11.0%	14.0%	11.4%	13.6%	13.1%
Reduction of administrative costs	21.4%	13.1%	12.2%	12.1%	13.9%	9.3%	14.4%	13.3%
Improved complete and on-time shipments	28.8%	18.4%	16.7%	12.8%	17.1%	14.3%	18.9%	16.9%

Metric	Lawson	Epicor	Infor	QAD	SAP	Oracle	All Others	Mid-Size Companies
Improved mfg schedule compliance	21.3%	18.0%	19.5%	15.2%	16.2%	17.5%	17.2%	17.2%
Average	22.9%	16.1%	15.7%	13.2%	15.6%	13.2%	16.6%	14.8%
Total cost per user per %age point of improvement	\$516	\$598	\$813	\$925	\$969	\$1,791	\$766	\$1,469

Source: Aberdeen Group, July 2007

The sequence of vendors, from left to right, is from least to most total cost per user per percentage point of improvement. Lawson and Epicor had significantly lower costs per average percentage point of improvement, but for different reasons. While Epicor’s placement here is more directly attributable to its lower cost per user, Lawson’s lead here is based on its users achieving significantly more reductions in costs and improvements in schedules and complete and on-time deliveries. While Lawson’s services to software ratio was actually the highest of all vendors, this is partly attributable to its lower software cost, but this added expense appears to be money well spent, particularly given Lawson’s overall average improvement was almost 55% more than the average improvement across all mid-size companies, and was 23% to 70% more than the average improvement of all mid-size companies in the individual metrics.

Aberdeen Conclusions

We see from these results a variety of levels of achievement in terms of general improvement, and also a range of costs associated with each percentage point gained. However, what we do not see is a direct correlation between spending and benefits achieved. Significant benefits can be achieved from all six of these vendors and also other ERP vendors.

We saw different vendors leading in each of the following TCO categories:

- Software cost per user: Infor is #1
- Cost of software and services per user: Epicor is #1
- Least average service dollars spent for each dollar spent on software: Infor is #1
- Total costs per user: Epicor is #1
- Highest number of modules used: SAP and Epicor tied as #1
- Best average performance improvement: Lawson is #1
- Cost per percentage point of performance improvement gains: Lawson is #1

While benefits can be achieved from ERP by all companies, recent Aberdeen research has shown that those which pay the closest attention to the Return on Investment (ROI) reap far more rewards. Yet, few demonstrate the discipline to closely monitor this level of payback and performance.

While TCO has proven to be a significant factor in software selection, it is important to keep both costs and benefits in mind throughout the life of an ERP implementation and beyond. Aberdeen's [Realize the Returns from Enterprise Management Applications](#) found that Best-in-Class are on average 88% more likely to estimate ROI before initiating projects and are 130% more likely to measure ROI after project completion. As a result, these best performing companies produce, on average, 93% more improvement across a variety of metrics such as cost reductions, schedule performance, headcount reduction or redeployment, and quality improvements. This finding, along with recommended actions from the [2007 ERP in Manufacturing Benchmark](#), lead Aberdeen to strongly recommend considering all costs associated with ERP, estimating ROI prior to embarking on major ERP projects, and calculating ROI upon completion.

For more information on this or other research topics, please visit www.aberdeen.com.

¹To the astute reader, "Software \$'s per User" does not equal "Average Software \$'s" divided by "Average Users" for the following reason: Not all survey respondents answered both "Cost of - Software \$'s" and "# of Users Installed" survey questions. Subsequently, "Average Software \$'s" is based upon all respondents who answered the said survey question, as is the same for "Average Users." However, "Software \$'s per User" is based only upon averaging individual responses where respondents answered both said questions. The above also holds true for "Services," "Software + Services," and "Total Costs."

Related Research

<i>The Total Cost of ERP Functionality; July 2007</i>	<i>The 2007 ERP in Manufacturing Benchmark Report; July 2007</i>
<i>The Total Cost of ERP Ownership in Small Companies; July 2007</i>	The Total Cost of ERP Ownership; October 2006
<i>The Total Cost of ERP Ownership in Large Companies; July 2007</i>	The 2006 ERP in Manufacturing Benchmark Report; August 2006

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