

Cost/Benefit Analysis for Implementing ECM, BPM Systems

Determining the ROI for a significant investment, such as adopting an ECM or BPM system, is no easy task.

Doug Allen, CRM, CDIA+

The adoption of enterprise content management (ECM) and business process management (BPM) systems is often spurred by regulatory and compliance concerns. As Thomas Hogan, Vignette president and chief executive officer, told *Computerworld*, the move to adopt ECM technology is driven by “two fundamental business catalysts”:

1. How to render more value in terms of greater revenues or stronger loyalty
2. The need to understand how information flows within the enterprise because of compliance requirements

While these concerns underlie the value-driven

At the Core

This article

- ▶ Discusses the importance of developing a return on investment (ROI) model for large technology investments
- ▶ Examines factors to include in any cost comparison
- ▶ Provides a sample cost/benefit analysis





Enterprise Content Management vs. Business Process Management Solutions

While enterprise content management (ECM) and business process management (BPM) software solutions have similarities, their focus is different, and they are seen by analysts, such as the Gartner Group, as being distinctly different.

ECM is based upon a number of technologies that promise to allow organizations to capture, manage, store, and provide content and documents to their employees, customers, and other key stakeholders. ECM solutions may include the following: document imaging, electronic forms management, web content management, e-mail management, digital asset management, and workflow technologies.

BPM focuses more on active and complex business processes than on managing specific elements of content. BPM systems often rely on the same content components as ECM, such as digital imaging, digital asset management, and e-mail management, but their primary mission is to help organizations measure and optimize specific strategic processes. Examples include loan processing for financial institutions, policy approval or claims processing for insurance firms, and approval processes for pharmaceutical organizations.

The primary difference between the two is that while ECM solutions focus on managing repositories of information, BPM solutions focus first on the business process involved and make use of content management tools within the context of those business processes.

Justifications for the adoption of ECM and BPM technologies, they do not address the financial impact of their implementation.

Executives who understand the level of investment involved with implementing ECM or BPM systems focus significant attention on their potential return on investment (ROI). This is especially the case in the initial implementation of such technologies, specifically in labor- and process-intensive applications. For some decision-makers, ROI is assumed, while for others, it is measured prior to system selection and acquisition. For the most sophisticated enterprises, ROI assumptions and projections are measured again after system implementation. Whatever the circumstance, evaluating the ROI between a digital and either a paper- or microfilm-based environment is an exercise worth pursuing prior to making an initial investment.

Developing effective ROI models should include the impact of implementing such solutions on both costs and revenues. While it may be challenging to project the revenue impact, systems that enhance an organization's ability to provide improved customer service or that enable it to manage increased numbers of customer

transactions are those that are likely to have the highest return. Certainly, for financial services organizations like banks, insurance companies, and mortgage lenders, gaining competitive advantage and increasing revenues often are key factors in deciding to move forward with ECM or BPM solutions.

Cost factors involve both operational and capital expenses. Cost comparisons should span all costs, including for

- Employees
- Space
- Copying and media
- Supplies
- Information routing or distribution
- Equipment
- Communications

If they are to be considered verifiable and trustworthy, each category of costs should be traceable to the organization's overall budget and should not exceed budget line items.

Revenue projections are more challenging to develop, but where the potential impact on increasing an organization's capacity to do business is concerned, such revenue estimates can be a very real factor in an ROI model.

Comparative Cost Data

In order to evaluate cost factors, the following should be included in any comparison:

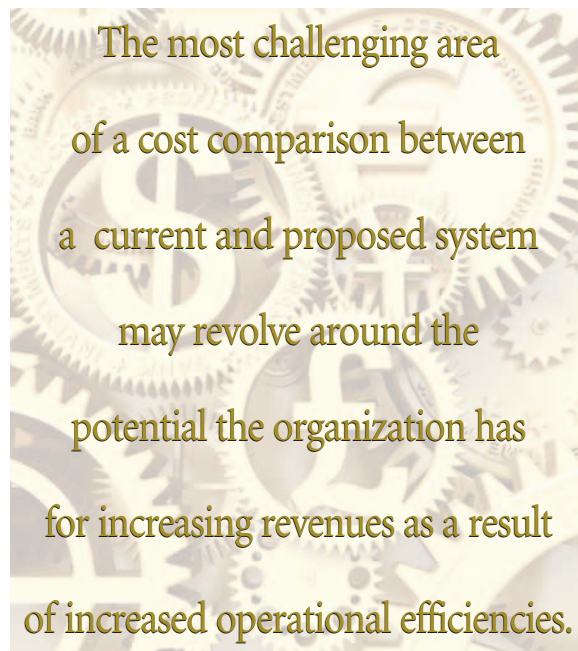
- *Key Corporate Data:* Understanding an organization's key statistical information is important for determining how attractive an investment might be. Understanding the burden rate (the benefit rate that can be applied to employee salaries), projecting an inflation rate, knowing the organization's tax rate (federal and any applicable state tax), and understanding an organization's investment interest rate (what the firm could receive by investing the same funds elsewhere), as well as the firm's specific method of calculating the rate of return on an investment, can be critical.
- *Employee Costs:* Include full documentation for job titles, fully burdened hourly costs, and determination of the total full-time employees involved in the process or area being measured. Projected productivity savings must be included, as well as the costs associated with ECM or BPM systems support and administration. Document capture support and administration should also be fully quantified. To ensure relevance over

time, these comparative costs should be summarized over a three- or five-year time span and should include any assumed inflation rates and transaction or file growth factors.

- *Process Time Statistics:* Whether it involves human resource, accounting, or any other type of record, processing is involved. Gathering information regarding the time required to process, issue, or pay an invoice, approve a permit, or process a customer order will be relevant for establishing how an ECM or BPM system can help expand the organization's capacity to manage greater numbers of transactions without expanding its staff size.

- *File Space Savings:* How much space an electronic system can save may also play a role in determining its overall ROI. Calculate how much space is required in primary offices and in any secondary storage locations, as well as the costs associated with offsite storage. In some cases, it may be necessary to include any "permanent out-file" costs to ensure that the cost comparison is complete.

- *Copy Cost Savings:* If comparisons are being drawn to either paper- or microfilm-based solutions, incorporate copy cost savings into the comparison. It is important to include any copying costs that may be reduced or eliminated, but also to avoid underestimating the potential copying costs associated with the implementation of the



ECM or BPM system.

- *Supply Savings:* Depending on the environment and the sophistication of paper-based solutions, compare the supply costs for each system. Include file folder, pre-printed forms, paper, and other file-room supplies.
- *Microfilm/Microfiche or Other Repository Savings:* In some cases, ECM or BPM solutions may be replacing the use of microfilm or microfiche as at least one source (repository) of information. The costs for generating microfilm or microfiche should be accounted for, as should any equipment and supplies associated with the use of such systems. If there is a plan to convert any electronic repositories to a new ECM or BPM repository, then costs for maintaining the existing repository and the cost of conversion must be included in order to provide an accurate determination of ROI.
- *Information Routing and Distribution:* In those organizations that have multiple repositories of information – paper, microfilm, or electronic – that are designed to serve a geographically dispersed organization, the centralized management of content

offered by ECM or BPM solutions may offer cost savings. Mailing and/or courier costs should be evaluated in such cases. As an example, one state's courier fees for the transfer of child support case files exceeded \$1 million per year.

- **Communications Costs:** When responding to inquiries that require the retrieval of records, communications costs can be an important point of comparison. Wherever a new system can eliminate the need for telephone calls to be returned or for manually sending faxes, cost savings can be achieved. A comparison of existing versus projected communications costs should be made part of the cost comparison. In a highly active environment, the communications costs can be substantial and, likewise, the potential for cost savings can be significant.
- **Office Relocation Costs:** In some cases, office locations may be changed, or scheduled for future change, based upon the expiration of leases, the need for additional space, or other factors. Thus, those office relocation costs that can be anticipated can also be captured in the ROI analysis.
- **Equipment Savings:** All offices require some equipment in order to function. The comparison may incorporate ongoing increases for filing equipment, fax machines, computer hardware, and office cubicles. Current costs should be captured, as should the projected costs for any new ECM or BPM system.
- **Other Financial Costs:** Other costs may be a challenge to fully quantify, but often there are specific or demonstrable costs that are associated with lost or misplaced files, reconstruction of files (wherever that can be accomplished), compliance, or penalties associated with the lack of timely access to records.

Statistical information from a variety of external sources may prove helpful in documenting such costs, but be wary of using such generalities – assumptions regarding out-of-file or misfile percentages and the projected costs for locating or losing such files can prove treacherous. For example, making an assumption that a misplaced or lost file costs \$120 per file, or \$60 per file, and that 6 percent of all files may be lost or out-of-file can result in misleading ROI conclusions and undermine the credibility of the projected return, particularly if such numbers result in costs that exceed the organization's current budget.

Also, for areas that deal with accounts-receivable records, the inclusion of any write-offs or allowances for bad debts should be

captured. Any lost discounts or overpayments associated with accounts-payable operations may be captured as well. Other financial costs might include the lost time associated with activities that must be postponed due to the unavailability of information. Typically, these costs are more challenging to fully document because evidence of those costs may be anecdotal in nature. However, they can contribute to a valid cost comparison and thus are worthy of additional investigation.

- **Increased Revenue Projections:** The most challenging area of a cost comparison between a current and proposed system may revolve around the potential the organization has for increasing revenues as a result of increased operational efficiencies. Obtaining revenue projections from internal sources may prove daunting, but if such projections are an important criterion for executives, then marketing or sales groups should provide input based on the impact of improved customer service, improved turn-around times for customers, and increased organizational capacity.
- **Project Costs:** This is an area of particular interest in that these costs may be overlooked or underestimated. Any transition from existing systems to an ECM or BPM system will incur costs in a number of areas, including:

- New hardware
- New software
- Microfilm, paper, or other media conversion
- Integration services (all internal and vendor-provided professional services)
- Electronic forms development
- Training
- Development and IT support
- Annual maintenance
- Predictable upgrades
- Supplies
- Identified start-up expenses

These costs should be projected over time, but they are important to include if the projected ROI is to maintain its credibility over time.

Once the comparative cost information is captured, it will be possible to develop a consolidated cost summary and ROI calculation. A complete calculation of ROI should include hardware depreciation, staff savings, and any assumptions and constraints state-

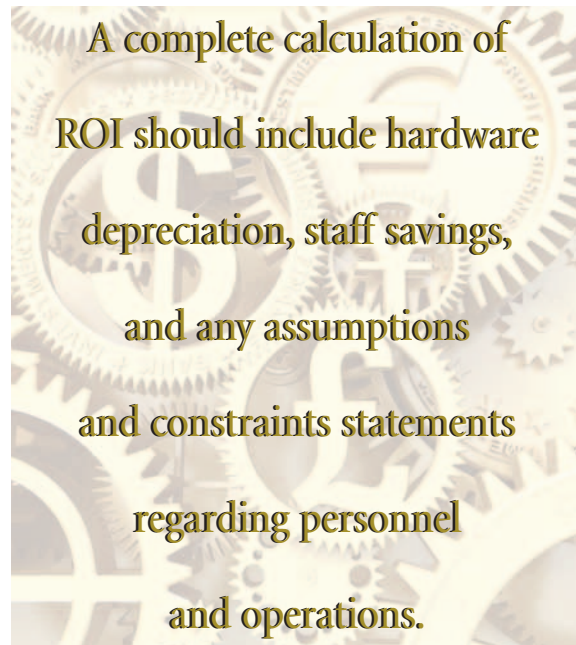


Figure 1: Sample Cost/Benefit Analysis

<i>Major Oil Company Example</i>		COST/BENEFIT ANALYSIS						<i>PAGE 1</i>
EXPENSE SUMMARY		Present	Year 1	Year 2	Year 3	Year 4	Year 5	Total Year 1-5
WITHOUT ECM/BPM Solution								
Personnel	27,332,500.00	28,425,800.00	29,562,832.00	30,745,345.28	31,975,159.09	33,254,165.45		153,963,301.83
Operations	121,890.00	122,734.50	123,621.23	124,552.29	125,529.90	126,556.40		622,994.31
Space Charges	18,667.00	18,667.00	18,667.00	18,667.00	18,667.00	18,667.00		93,335.00
TOTAL	27,473,057.00	28,567,201.50	29,705,120.23	30,888,564.57	32,119,355.99	33,399,388.85		154,679,631.13
WITH ECM Solution								
		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
Personnel			27,845,870.00	28,959,704.80	30,118,092.99	31,322,816.71	32,575,729.38	150,822,213.88
Operations			15,513.45	15,539.12	15,566.08	15,594.38	15,624.10	77,837.14
Space Charges			3,583.60	3,250.20	2,916.80	2,583.40	2,250.00	14,584.00
<i>(Other Expenses)</i>								
Annual Maintenance			54,344.00	108,687.00	108,687.00	108,687.00	108,687.00	489,092.00
Conversion			0.00	0.00	0.00	0.00	0.00	0.00
TOTAL			27,919,311.05	29,087,181.12	30,245,262.87	31,449,681.49	32,702,290.48	151,403,727.02
<i>Total Net Benefit</i>			647,890.45	617,939.10	643,301.70	669,674.50	697,098.37	3,275,904.11
<i>Less Depreciation Expense</i>			93,001.80	93,001.80	93,001.80	93,001.80	93,001.80	
<i>Net Benefit Before Taxes</i>			554,888.65	524,937.30	550,299.90	576,672.70	604,096.57	
<i>Taxes @ rate -></i>	39.0%		-216,406.57	-204,725.55	-214,616.96	-224,902.35	-235,597.66	
<i>Net Benefit After Taxes</i>			338,482.08	320,211.75	335,682.94	351,770.35	368,498.91	1,714,646.02
<i>Add Back Depreciation</i>			93,001.80	93,001.80	93,001.80	93,001.80	93,001.80	461,500.71
							<i>Initial Cost</i>	465,009.00
Less Investments								
Hardware	186,553.00	0.00	0.00	0.00	0.00	0.00	0.00	186,553.00
Software	278,456.00	0.00	0.00	0.00	0.00	0.00	0.00	278,456.00
Workstations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Conversion Services	30,000.00	0.00	0.00	0.00	0.00	0.00	0.00	30,000.00
Integration Services	94,600.00	0.00	0.00	0.00	0.00	0.00	0.00	94,600.00
Training (included)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consulting Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Developer Support	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Supplies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Support Start-Up	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Terminal/Cubicle Costs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
File Cabinets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<i>Cost</i> 589,609.00
<i>After Tax Cash Flow</i>	(589,609.00)	431,483.88	413,213.55	428,684.74	444,772.15	461,500.71		2,179,655.02
<i>Net After Tax Cash Flow</i>	(589,609.00)	(158,125.12)	255,088.43	683,773.17	1,128,545.31	1,590,046.02		3,499,327.81
INTERNAL RATE OF RETURN		67.23%		PAYBACK PERIOD		1.4 Years		
RETURN ON INVESTMENT		269.68%						

The Calculations

Return on Investment (ROI) is calculated by dividing the cumulative total of after tax cash flow by the initial investment. On the illustration, these numbers are:

\$1,590,046 Net After Tax Cash Flow
 \$ 589,609 After Tax Cash Flow
 (actually the sum of investments) = 269.68%

Internal Rate of Return is the interest rate that equates the present value of future returns to the investment outlay – in other words, what is the percentage of return that the company will get on its initial investment over the next five years? In the example, the total investment of \$589,609 is divided by the cash flow for each year. The resulting number, called a **Present Value Interest Factor (PVIF)** can be looked up on tables that show the corresponding interest percentage. In the example, interest percentages for each year were approximately as follows:

Year	Cash Flow	PVIF	Interest Rate
1	\$431,484	1.366	≈25%
2	\$413,214	1.4	19%
3	\$428,685	1.375	11%
4	\$444,772	1.32	7%
5	\$461,501	1.27	5%
		Total:	67%

ments regarding personnel and operations. As part of the ROI assessment, it should be possible to compare costs per transaction and the time required to complete such transactions (cycle time).

After completing the cost comparison and ROI determination, conduct a final check against budget allocations. Costs for labor, current equipment, supply, or space should not exceed actual spending, if they are to be credible.

Sample Cost/Benefit Analysis

The cost comparison chart in Figure 1 illustrates a cost/benefit analysis for an ECM/BPM solution. The internal rate of return, shown at 67.3 percent, and an ROI of 269.68 percent over the anticipated lifetime of the project show a dramatic return on the initial investment.

The cost analysis captures total current costs – elements that should be readily verifiable – as well as projected costs for the new system, which are certainly more challenging to verify. Costs for the current paper-based system (the section titled “Without ECM/BPM Solution”) are summarized into categories of personnel, operations, and space. The section titled “With ECM Solution” shows what personnel, operations, and space costs would be after implementation of an ECM system. All the detailed

factors described previously have been consolidated into the three key cost components. Initial startup costs – hardware, software, data conversion services, and integration costs – appear in the section titled “Less Investments.”

The cost/benefit analysis has several areas worthy of further investigation. In this particular cost analysis, there were no significant paper-to-digital or microfilm conversion costs. Additionally, no significant needs for desktop replacements, consulting services, developer support, or start-up support were projected as being needed. With any change in technology, it is likely that there will be increased internal project management costs. There are certainly internal costs for training time, and vendor support may well be required to ensure a successful transition to the new technology.

ROI and RIM

Determining the ROI for a significant outlay like ECM or BPM technology can be a complex task. Ensuring that all variables have been captured accurately, validating current costs against existing budget data, and accurately projecting the costs of new technology require diligence. Once developed, cost/benefit analysis should be probed thoroughly to determine how valid the underlying assumptions are.

However, it is possible to measure and compare specific costs, to make rational assumptions regarding the potential impact of a new system, and to provide an educated, projected ROI for evaluation. Records and information managers can often lead or contribute to such studies by providing appropriate measures for employee salaries, space, copying, supplies, routing, equipment, and other financial costs for existing systems, and they can work to ensure that no key items or factors are left out of the cost analysis for proposed ECM or BPM systems.

As organizations determine their key motivators for investing in ECM or BPM solutions, compliance will certainly play a key role. However, based on the level of investment, developing a sound ROI model and conducting a thorough cost comparison can provide great value. ■

Doug Allen, CRM, CDIA+, is a business development manager for Global 360's Information Outsource Division. His 33-year career has included work in the areas of forms management, records center management, retention schedules, microfilm, imaging, document management, and business process management systems. He may be contacted at doug.allen@global360.com.

References

Hoffman, Thomas. “Q&A: Vignette CEO Calls Content Management ‘A Strategic Priority.’” *Computerworld.com*, 7 September 2005. Available www.computerworld.com/databasetopics/data/story/0,10801,104445,00.html?source=NLT_PM&nid=104445 (accessed 5 April, 2007).