



About this research note:

Strategy & Planning notes define the critical decisions and actions surrounding successful adoption of a specific technology, tool, or process.

First Steps to Electronic Document Management: An ROI Calculator

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Enterprises interested in Electronic Document Management (EDM) should perform a Return on Investment (ROI) analysis before and after making a purchase. Develop ROI calculations that estimate how an EDM solution can impact business processes before deployment and calculate the actual ROI of the selected solution after deployment.

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Executive Summary

Before making an investment in an Electronic Document Management (EDM) solution, enterprises should estimate the potential impact on business processes with a Return on Investment (ROI) analysis. After making the purchase, enterprises should track the value of the investment with ongoing ROI calculations.

This research note provides:

- Examples of common ROI metrics for EDM.
- Sample templates for key ROI calculations.
- An overview of more complex ROI measures.

Use this note in combination with the EDM ROI Calculator to understand how to project the ROI of an EDM solution before deployment and calculate the ROI of the selected solution after deployment.



Strategy Point

A common way to project the ROI of an Electronic Document Management (EDM) solution is to compare costs associated with a set of document-driven processes before deployment with projected costs related to the same set of processes after deployment.

Some processes are more difficult to quantify than others. For example, while solid EDM solutions can help enterprises improve compliance and litigation related practices, the potential cost savings are contingent on the unique nature of infrequent tasks (e.g. gathering of records specific to particular government audits) and as such are difficult to represent as a valuable ROI measure.

Key Considerations

The following sections provide examples of common ROI calculations. The first section demonstrates how enterprises can calculate existing document management expenses. The second provides a template that enterprises can use to tabulate investment costs for the selected EDM solution.

The third section provides examples of best-case and worst-case projections for post-deployment document management costs. The fourth offers examples that illustrate how enterprises can quantify overall cost savings and calculate the potential ROI. Finally, the fifth section briefly discusses ROI measures that are more difficult to include in typical ROI calculations.

I. Pre-Deployment Costs

Note, or estimate, costs associated with existing document administration processes. For example, quantify monthly expenses related to employee labor, document copying, storage, and distribution.

Tables 1 to 6 provide examples of common pre-deployment cost calculations for a small office with 10 employees. The presented task times and cost values are recommendations. Feel free to change the sample numbers to better reflect organizational demands. For all cost calculations, assume employees work an 8-hour workday, 22 days a month.

Table 1. Pre-Deployment Costs: Labor for Electronic Content Administration

Labor Costs for Electronic Content Administration	Example	Monthly Calculation
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Number of people that use network shares and local PCs to locate, retrieve, and store electronic content (FTEs)	10	Cost of an FTE minute, per day, per month: = (\$15/hour x 22 days x 10 FTEs)/60 = \$55
Average hourly salary of staff that manages electronic content	\$15/hour	
Time spent retrieving electronic content (in minutes, per user, per day)	10 minutes	= 10 minutes x \$55 = \$550
Time spent sorting through various versions of duplicate electronic files (in minutes, per user, per day)	10 minutes	= 10 minutes x \$55 = \$550
Time spent recreating electronic content that has been deleted or cannot be located (in minutes, per user, per day)	10 minutes	= 10 minutes x \$55 = \$550
Time spent recreating information that already exists elsewhere (in minutes, per user, per day)	10 minutes	= 10 minutes x \$55 = \$550
Total Labor Costs		\$2,200

Use Table 1 in conjunction with Table 2 to calculate total labor costs in the existing document environment.

Table 2. Pre-Deployment Costs: Labor for Paper Content Administration

Labor Costs for Paper Content Administration	Example	Monthly Calculation
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Number of people that manage paper content (FTEs)	10	Cost of an FTE minute, per day, per month: = (\$15/hour x 22 days x 10 FTEs)/60 = \$55
Average hourly salary of staff that manages paper content	\$15/hour	
Time spent retrieving paper content (in minutes, per user, per day)	30 minutes	= 30 minutes x \$55 = \$1,650
Time spent filing paper content (in minutes, per user, per day)	30 minutes	= 30 minutes x \$55 = \$1,650
Time spent making copies (in minutes, per user, per day)	20 minutes	= 20 minutes x \$55 = \$1,100
Time spent recreating paper based information that already exists elsewhere (in minutes, per user, per day)	20 minutes	= 20 minutes x \$55 = \$1,100
Time spent faxing (in minutes, per user, per day)	5 minutes	= 5 minutes x \$55 = \$275
Total Labor Costs		\$5,775

Use Table 2 in conjunction with Table 1 to calculate total labor costs in the existing document environment.

Table 3. Pre-Deployment Costs: Copying

Copying Costs	Example	Monthly Calculation
Number of paper copies generated each day (pages)	200	= 200/day x 22 days x \$0.015/copy = \$66
Cost per copy (paper, toner, ink)	\$0.015	



Total Copying Costs	\$66
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Use Table 3 to quantify total copying costs in the existing document environment.

Table 4. Pre-Deployment Costs: On-Site Storage

On-Site Storage Costs	Example	Monthly Calculation
Number of on-site filing cabinets	10	= (10 x 3.5sq.ft.) x \$13.50/sq.ft. = \$472.50
Amount of floor space consumed by on-site file cabinet (per square foot/ meter)	3.5sq.ft.	
Monthly lease rate (per square foot/meter) for floor space consumed by cabinet	\$13.50/sq.ft.	
Amount spent on filing supplies	\$60	= \$60
Total Storage Costs		\$ 532.50

Use Tables 4 and 5 to measure total storage costs in the existing document environment.

Table 5. Pre-Deployment Costs: Off-Site Storage

On-Site Storage Costs	Example	Monthly Calculation
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Number of off-site filing cabinets	5	= (5 x 5sq.ft.) x \$13/sq.ft. = \$325
Amount of floor space consumed by off-site file cabinet (per square foot/ meter)	5sq.ft.	
Monthly lease rate (per square foot/meter) for off-site storage space	\$13/sq.ft.	
Number of people that access off-site storage	2	= (2 x \$15/hour) x 2 hours = \$60
Average hourly salary of staff that accesses off-site storage	\$15/hour	
Hours spent accessing offsite storage (per month)	2 hours	
Total Storage Costs		\$385

Use Tables 4 and 5 to calculate total storage costs in the existing document environment.

Table 6. Pre-Deployment Costs: Distribution

Distribution Costs	Example	Monthly Calculation
Amount spent on overnight delivery services and postage (per month)	\$150	= \$150
Number of fax pages sent (per day)	20	= 20/day x 22 days x \$0.15 = \$66
Cost per fax page	\$0.15	
Total Distribution Costs		\$216



Use Table 6 to determine total distribution costs in the existing document environment.

II. Investment Costs

- Outline the costs associated with the deployment of a document management solution. These costs will vary significantly from company to company, especially in the area of conversion expenses (i.e. document imaging required to convert paper documents into digital files).

Table 7. Investment Costs

Investment Costs	Calculation
Software cost	
Hardware cost	
Implementation cost	
Training expenses	
Consulting expenses	
Conversion expenses (one-time or ongoing)	
Total Investment Costs	

Use Table 7 to calculate total investment costs for the selected EDM solution.

III. Projected Post-Deployment Costs

Estimate how a well-implemented EDM solution might impact the existing document administration tasks. For each cost item featured in the pre-deployment calculations above, estimate how much of a reduction the enterprise can expect to achieve with an EDM system.

Think realistically about the effect that the new system will have on enterprise operations. To build some sensitivity analysis into the calculations, account for best-case and worst-case deployment scenarios in each calculation. Tables 8 to 13 provide some examples.

For all cost calculations, assume employees work an 8-hour workday, 22 days a month.

Table 8. Projected Post-Deployment Costs: Labor for Electronic Content Administration



Labor Costs for Electronic Content Administration	Example	Monthly Calculation for Best-Case and Worst-Case Deployment Scenarios	
Number of people that use network shares and local PCs to locate, retrieve, and store electronic content (FTEs)	10	Cost of an FTE minute, per day, per month: = (\$15/hour x 22 days x 10 FTEs)/60 = \$55	
Average hourly salary of staff that manages electronic content	\$15/hour		
Time spent retrieving electronic content (in minutes, per user, per day)	10 minutes	Best-Case: 50% = 10(.5) minutes x \$55 = \$275	Worst-Case: 30% = 10(.7) minutes x \$55 = \$385
Time spent sorting through various versions of duplicate electronic files (in minutes, per user, per day)	10 minutes	Best-Case: 50% = 10(.5) minutes x \$55 = \$275	Worst-Case: 30% = 10(.7) minutes x \$55 = \$385
Time spent recreating electronic content that has been deleted or cannot be located (in minutes, per user, per day)	10 minutes	Best-Case: 50% = 10(.5) minutes x \$55 = \$275	Worst-Case: 30% = 10(.7) minutes x \$55 = \$385
Time spent recreating electronic information that already exists elsewhere (in minutes, per user, per day)	10 minutes	Best-Case: 50% = 10(.5) minutes x \$55 = \$275	Worst-Case: 30% = 10(.7) minutes x \$55 = \$385
Total Labor Costs		\$1,100	\$1,540

Use Table 8 in conjunction with Table 9 to estimate total post-deployment labor costs.



Table 9. Projected Post-Deployment Costs: Labor for Paper Content Administration

Labor Costs for Paper Content Administration	Example	Monthly Calculation for Best-Case and Worst-Case Deployment Scenarios	
Number of people that manage paper content (FTEs)	10	Cost of an FTE minute, per day, per month: = (\$15/hour x 22 days x 10 FTEs)/60 = \$55	
Average hourly salary of staff that manages paper content	\$15/hour		
Time spent retrieving paper content (in minutes, per user, per day)	30 minutes	Best-Case: 75% = 30(.25) minutes x \$55 = \$412.50	Worst-Case: 50% = 30(.5) minutes x \$55 = \$825
Time spent filing paper content (in minutes, per user, per day)	30 minutes	Best-Case: 75% = 30(.25) minutes x \$55 = \$412.50	Worst-Case: 50% = 30(.5) minutes x \$55 = \$825
Time spent making copies (in minutes, per user, per day)	20 minutes	Best-Case: 50% = 20(.5) minutes x \$55 = \$550	Worst-Case: 25% = 20(.75) minutes x \$55 = \$825
Time spent recreating paper based information that already exists elsewhere (in minutes, per user, per day)	20 minutes	Best-Case: 90% = 20(.1) minutes x \$55 = \$110	Worst-Case: 75% = 20(.25) minutes x \$55 = \$275
Time spent faxing (in minutes, per user, per day)	5 minutes	Best-Case: 50% = 5(.5) minutes x \$55 = \$137.50	Worst-Case: 25% = 5(.75) minutes x \$55 = \$206.25
Total Labor Costs		\$1,622.50	\$2,956.25

Use Table 9 in conjunction with Table 8 to estimate total post-deployment labor costs.



Table 10. Projected Post-Deployment Costs: Copying

Copying Costs	Example	Monthly Calculation for Best-Case and Worst-Case Deployment Scenarios	
Number of paper copies generated each day (pages)	200	Best-Case: 50% = 200/day(.5) x 22 days x \$0.015/copy = \$33	Worst-Case: 25% = 200/day(.75) x 22 days x \$0.015/copy = \$50
Cost per copy (paper, toner, ink)	\$0.015		
Total Copying Costs		\$33	\$50

Use Table 10 to quantify projected post-deployment copying costs.

Table 11. Projected Post-Deployment Costs: On-Site Storage

Storage Costs	Example	Monthly Calculation for Best-Case and Worst-Case Deployment Scenarios	
Number of on-site filing cabinets	10	Best-Case: 75% reduction in number of on-site filing cabinets = 10(.25) x 3.5sq.ft. x \$13.5/sq.ft. = \$118.13	Worst-Case: 50% reduction in number of on-site filing cabinets = 10(.5) x 3.5sq.ft. x \$13.5/sq.ft. = \$236.25
Amount of floor space consumed by on-site file cabinet (per square foot/ meter)	3.5sq.ft.		
Monthly lease rate (per square foot/ meter) for floor space consumed by cabinet	\$13.50/sq.ft.		
Amount spent on filing supplies	\$60	Best-Case: 50% = \$60(.5) = \$30	Worst-Case: 25% = \$60(.75) = \$45



Total Storage Costs	\$198.44	\$407.50
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Use Tables 11 and 12 to project post-deployment storage costs.

Table 12. Projected Post-Deployment Costs: Off-Site Storage

Storage Costs	Example	Monthly Calculation for Best-Case and Worst-Case Deployment Scenarios	
Number of off-site filing cabinets	5	Best-Case: 75% reduction in number of off-site filing cabinets = $5(.25) \times 5\text{sq.ft.} \times \$13/\text{sq.ft.}$ = \$81	Worst-Case: 50% reduction in number of off-site filing cabinets = $5(.5) \times 5\text{sq.ft.} \times \$13/\text{sq.ft.}$ = \$163
Amount of floor space consumed by off-site file cabinet (per square foot/ meter)	5sq.ft.		
Monthly lease rate (per square foot/ meter) for off-site storage space	\$13/sq.ft.		
Number of people that access off-site storage	2	Best Case: 50% reduction in hours spent accessing off-site storage = $2 \times \$15/\text{hour} \times 2(.5)$ = \$30	Worst Case: 25% reduction in hours spent accessing off-site storage = $2 \times \$15/\text{hour} \times 2(.75)$ = \$45
Average hourly salary of staff that accesses off-site storage	\$15/hour		
Hours spent accessing off-site storage (per month)	2 hours		
Total Storage Costs		\$111	\$208

Use Tables 12 alongside Table 11 to estimate post-deployment storage costs.



Table 13. Projected Post-Deployment Costs: Distribution

Distribution Costs	Example	Monthly Calculation for Best-Case and Worst-Case Deployment Scenarios	
Amount spent on overnight delivery services and postage (per month)	\$150	Best-Case: 50% = \$150(.5) = \$75	Worst-Case: 25% = \$150(.75) = \$113
Number of fax pages sent (per day)	20	Best-Case: 50% = 20/day(.5) x 22 days x \$0.15 = \$33	Worst-Case: 25% = 20/day(.75) x 22 days x \$0.15 = \$50
Cost per fax page	\$0.15		
Total Distribution Costs		\$108	\$163

Use Table 13 to estimate post-deployment distribution costs.

IV. ROI Calculations

Calculate the best-case and worst-case cost savings to project the ROI (see Tables 14 and 15). The return on investment should be the net annualized cost savings divided by the total investment costs, as a percentage. Use the best-case and worst-case scenarios to arrive at a high and low estimate for the ROI.

Table 14. Cost Savings

Costs		Best-Case Cost Savings	Worst-Case Cost Savings
Labor	Electronic Content	= \$2,200 - \$1,100 = \$1,100	= \$2,200 - \$1,540 = \$660
	Paper Content	= \$5,775 - \$1,622.50 = \$4,152.50	= \$5,775 - \$2,956.25 = \$2,818.75
Copying		= \$66 - \$33 = \$33	= \$66 - \$50 = \$16



Storage	On-Site	= \$532.50 - \$198.44 = \$334.06	= \$532.50 - \$407.50 = \$125
	Off-Site	= \$385 - \$111 = \$274	= \$385 - \$208 = \$177
Distribution		= \$216 - \$108 = \$108	= \$216 - \$163 = \$53
Total Monthly Cost Savings		\$6,001.56	\$3,849.75
Annualized Cost Savings		\$72,018.72	\$46,197

Use Table 14 to compare pre-deployment costs with post-deployment cost estimates and calculate the potential cost savings.

Table 15. Best-Case and Worst-Case ROI Calculations

Best-Case	Worst-Case
$\frac{\text{(Annualized Cost Savings – Total Investment Costs)}}{\text{Total Investment Costs}} \times 100 = \text{ROI\%}$	

Use Table 15 to calculate the potential ROI of the selected EDM solution. Some of the investment costs will depreciate annually (i.e. hardware, software, implementation, training costs). Where applicable, ROI projections for subsequent years should include declining values for total investment costs.

V. Additional Calculations

The ROI calculations outlined above are based on measurable business benefits. Successful EDM deployments often yield other cost savings that are more difficult to quantify. Whenever possible, include the following categories alongside the standard calculations described above.

- **Regulatory compliance.** Many enterprises are regulated by government standards that provide strict guidelines for document storage and retrieval (e.g. Sarbanes-Oxley [SOX], Payment Card Industry Data Standard [PCI], and Health Insurance Portability and Accountability Act [HIPAA]). EDM solutions help enterprises comply with government regulations in a timely manner with fewer resources.



- Contrast the time it takes employees to process compliance-related tasks under existing conditions with an estimate of how long it would take staff to complete the same processes with a document management solution. Ensure time estimates account for best-case and worst-case scenarios.
- **Communication and collaboration.** Enhanced document accessibility facilitates improved employee collaboration. Solid solutions allow employees to collaborate remotely without traveling to meet in person. Authorized employees can view documents from different locations at the same time and make controlled edits to shared documents on a one-at-a-time basis.
 - Improved accessibility to information can help advance employee productivity, but this is difficult to measure. If relevant, one way to measure the benefits of improved communication and collaboration is to estimate cost savings from reduced travel expenses for remote workers.
- **Project management.** Strong information-exchange can shorten project cycle times and improve teamwork.
 - Compare time statistics for projects completed without a document management solution with time projections for projects completed with a solid solution. Account for best-case and worst-case scenarios.
- **Security and access control.** Document management solutions enable enterprises to implement security rules that control access rights to sensitive information.
 - A solid document management solution provides a form of insurance against information theft. If possible, quantify the cost savings gleaned from improving security-related processes with a document management system.
- **Disaster recovery planning.** Digital archives are easier to back up and send to offsite locations. Also, digital documents are less likely to be lost or misplaced.
 - Compare the cost of offsite storage for paper records and unmanaged digital records with the anticipated cost of offsite storage for digital records in a document management system.

Recommendations

1. **Assess existing document management costs.** Begin with simple ROI measures like labor and storage costs for common document-driven business processes, and expand to include other more complex measures when possible.
2. **Track investment costs.** Note all costs associated with the EDM deployment (i.e. software, hardware, installation, training, and consulting costs, etc.).
3. **Project post-deployment costs.** Estimate potential costs savings for all document-driven business processes identified in step one.



4. **Calculate the potential ROI.** Use the existing document management costs, investment costs, and projected post-deployment costs to estimate the ROI of the selected EDM solution before deployment.
5. **Calculate the actual ROI.** Substitute the best-case and worst-case projections with real data after deployment to develop actual ROI calculations.

Bottom Line

Enterprises interested in EDM should perform an ROI analysis before and after making a purchase. Develop ROI calculations that estimate how an EDM solution can impact business processes before deployment and calculate the actual ROI of the selected solution after deployment.