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Total Economic Impact™ Of Oracle Universal Content Management

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Executive Summary

In August 2007, Oracle commissioned Forrester Consulting to examine the total economic impact and potential return on investment (ROI) that enterprises may realize by deploying Oracle Universal Content Management. Oracle Universal Content Management is Oracle's enterprise content management solution (ECM). It provides companies with the ability to easily manage and reuse content across the organization and to streamline related business processes. This study illustrates the financial impact of moving from ad hoc content management solutions to a systematic approach of managing structured and unstructured content using Oracle Universal Content Management.

In conducting in-depth interviews covering several divisions within Emerson Process Management, a division of Emerson Electric, Forrester found that the organization achieved significant benefits: some easily measured for this ROI study and others equally valuable that could not be quantified. Specifically, the benefits fall into the following categories: 1) reduced headcount needed to gather, manage, and disseminate content; 2) reduced need to print, publish, or mail documents; 3) reduced external costs for third-party vendors; 4) increased output per worker in specific content management processes; 5) improved user productivity across the organization due to easier and faster access to content and improved business processes; and 6) improved consistency of information resulting in better messaging and branding to customers.

Emerson Process Management was able to provide metrics to quantify components of the first four benefits. For the interviewed customer, Forrester found an anticipated return on investment (ROI) of between 177% and 215% with Oracle Universal Content Management.

Purpose

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Oracle Universal Content Management on their organizations. Forrester's aim is to clearly show all calculations and assumptions used in the analysis. Readers should use this study to better understand and communicate a business case for investing in Oracle Universal Content Management.

Methodology

Oracle selected Forrester for this project because of its industry expertise in enterprise content management and Forrester's Total Economic Impact™ (TEI) methodology. TEI not only measures costs and cost reduction (areas that are typically accounted for within IT), but it also weighs the enabling value of a technology in increasing the effectiveness of overall business processes.

For this study, Forrester employed four fundamental elements of TEI in modeling Oracle Universal Content Management:

1. Costs and cost reduction.
2. Benefits to the entire organization.
3. Risk.
4. Flexibility.

Given the increasing sophistication that enterprises have regarding cost analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

Approach

Forrester used a four-step approach for this study:

1. Forrester gathered data from existing Forrester research relative to Oracle Universal Content Management and the ECM market in general.

2. Forrester interviewed Oracle marketing and sales personnel to fully understand the potential (or intended) value proposition of Oracle Universal Content Management.

3. Forrester conducted a series of in-depth interviews with one organization currently using Oracle Universal Content Management.

4. Forrester constructed a financial model representative of the interviews. This model can be found in the TEI Framework section below.

Key Findings

Forrester's study yielded the following key findings:

- **ROI.** Based on the interviews with an existing customer, Forrester constructed a TEI framework and the associated ROI analysis illustrating the financial impact areas. As seen in Table 1, the risk-adjusted ROI for this company is 177% with a breakeven point (payback period) of twelve months after deployment.

- **Benefits.** As discussed previously, some of the benefits associated with Oracle Universal Content Management were difficult to quantify for this study. For the purposes of the ROI analysis, only benefits associated with headcount reduction; reduced printing, publishing and distribution; external cost savings; and some specifically documented productivity gains were quantified. The risk-adjusted, present value of the benefits for the composite organization amount to $5,177,744 over a four-year period.

- **Costs.** Emerson Process Management's approach to Oracle Universal Content Management was to start small and grow as the business needed. The costs shown in this study reflect this approach. The majority of the costs are comprised of license fees, maintenance fees, and professional services. The risk-adjusted, present value of the costs for the composite organization amount to $1,872,055 over a four-year period.

Table 1 illustrates the original and risk-adjusted financial results for Emerson Process Management based on data and characteristics obtained during the interview process. Forrester risk-adjusts these values to take into account the potential uncertainty that exists in estimating the costs and benefits of a technology investment. The risk-adjusted value is meant to provide a conservative estimation, incorporating any potential risk factors that may later impact the original cost and benefit estimates. For a more in-depth explanation of risk and risk adjustments used in this study, please see the Risk section.

Table 1: Company ROI, Original And Risk-Adjusted

Summary financial results	Unadjusted (Best case)	Risk-adjusted
ROI — four-year	215%	177%
Payback	11 months	12 months
Total four-year costs (PV)	$1,819,463	$1,872,055
Total four-year benefits (PV)	$5,722,944	$5,177,744
Total four-year net savings (NPV)	$3,903,480	$3,305,689

Source: Forrester Research, Inc.

Disclosures

The reader should be aware of the following:

- The study is commissioned by Oracle and delivered by Forrester Consulting.
- Oracle reviewed and provided feedback to Forrester, but Forrester maintained editorial control over the study and its findings and did not accept changes to the study that contradicted Forrester's findings or obscured the meaning of the study.
- The customer name for the interviews was provided by Oracle.
- Forrester makes no assumptions as to the potential return on investment that other organizations will receive. Forrester strongly advises that readers should use their own estimates within the framework provided in the study to determine the appropriateness of an investment in Oracle Universal Content Management.
- This study is not meant to be used as a competitive product analysis.

Oracle Universal Content Management: Overview

According to Oracle Corporation, Oracle Universal Content Management, formerly Stellent Universal Content Management, turns content into assets by making unstructured or dynamic content easier to find, access, and reuse within an organization. Oracle Universal Content Management supports the content lifecycle, applying the appropriate amount of control and adding support for users during each lifecycle phase. Content is managed during creation, capture, and storage. Additional features can be applied, such as version control, indexing for search, and metadata and security. Services can be added to help distribute, publish, classify and retain, expire, and delete content.

Oracle Universal Content Management is an enterprise content management solution, offering Web Content Management, Document and Imaging Management, Digital Asset Management and Conversion, and Retention Management modules — on a single, unified platform. This architecture allows customers to leverage content management investments across the organization and

throughout various applications. Oracle Universal Content Management's single-architecture approach also allows all managed content and services to be accessed from a common user and administration interface.

Oracle Universal Content Management's approach to ECM offers organizations a single layer of integration and a common set of Application Program Interfaces APIs. Users can reuse content and integrate hundreds of documented Oracle Universal Content Management services — such as checking in content, performing a search, returning search results, or approving an item in workflow — using standard integration methods such as Web services, Java, Java EE, JavaServer Pages tags, command line utilities, Microsoft Component Object Model scripting, and Web-based distributed authoring and versioning.

Analysis

As stated in the Executive Summary, Forrester took this multistep approach to evaluate the effect that implementing Oracle Universal Content Management can have on an organization:

- Interviews with Oracle marketing and sales personnel.
- In-depth interviews with one organization currently using Oracle Universal Content Management.
- Construction of a financial framework for the implementation of Oracle Universal Content Management.

Emerson Process Management's implementation began in 1998. To simplify this study, eight years of effort have been condensed into a four-year timeframe. This condensed model accurately reflects Emerson Process Management's "start small" approach and the total costs and benefits.

Interview Highlights: Emerson Process Management

The customer interviewed for the TEI study was Emerson Process Management, an Emerson Electric business unit. This study highlights results from the Valve Division as well as several other divisions within Emerson Process Management that utilize the Valve Division's solution. The remaining divisions may have separate instances of Oracle Universal Content Management or other solutions that were not included in this study.

Emerson Electric is a diversified global technology company that provides products and services for a wide range of industries, commercial markets, and end-users, including consumers. Emerson Process Management provides devices, systems, and services that create a comprehensive solution for a plant's efficient automation and asset management.

Emerson Process Management initially implemented Oracle Universal Content Management in 1998. It began as a grassroots effort led by three end-users to utilize content management for a specific need. They wanted to have easy, global search and retrieval capability for Engineering and Quality Documentation. By doing this, they hoped to eliminate millions of pages of documents that were being printed each year. One of the main criteria was that all functionality, publishing, management, and retrieval be Web-based. The solution quickly became a mission-critical application, with manufacturing plants around the world relying on Oracle Universal Content Management to retrieve manufacturing specifications on a real-time basis.

From this initial use, the Oracle Universal Content Management implementation grew rapidly. The content management team developed solutions for various divisions upon request and based on business benefit prioritization. There are now more than 200 applications tied into the Oracle Universal Content Management solution that use workflow to improve business processes. Mark Heindselman, Manager of Information Services for the Valve Division and content management service provider for various process divisions, says that they "have a flexible system based on users' needs and requirements" that can easily grow and adapt as needed.

The interviews uncovered the following relevant points:

- The greatest challenge in successfully rolling out content management is deciding how to properly organize and manage content. It is especially important to consider the security aspects of managing content.

- Once the Oracle Universal Content Management solution was in place, it was very easy to roll out new uses. Typically, it takes Emerson Process Management one to two months to define additional requirements and integrate another content repository.

- Benefits were realized almost immediately for the "low-hanging fruit," replacing paper with electronic content. Uses that involved changing business processes had a longer learning curve, but benefits were still realized quickly.

- Emerson Process Management uses most ECM components of the Oracle Universal Content Management offering. It does not currently use Records Management but is considering a pilot of Universal Records Management.

- All content is maintained in native format and resides in the underlying repositories. Most content is also automatically converted to a Web-viewable PDF upon addition to the repository.

- Prior to implementing Oracle Universal Content Management, content was published to each Web site separately. This was a manually-intensive process. Now, content can be easily repurposed for multiple internal and external Web sites. This reduces costs, ensures brand and information consistency, and eliminates versioning difficulties.

- According to Marc Heindselman, "Bad pains drive change. Examples of these are too much effort to manage content, unable to find the content, content is out of compliance, there are redundant copies and version control issues, and business processes are not streamlined."

- Having a robust content management solution in place allowed Emerson Process Management to "change the business while running the business." It was able to improve business processes without keeping employees from completing their daily responsibilities.

TEI Framework

Introduction

From the information provided in the in-depth interviews, Forrester has constructed a TEI framework for those organizations considering implementation of Oracle Universal Content

Management. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that impact the investment decision. All monetary values are rounded to the nearest dollar.

Framework Assumptions

Table 2 lists the discount rate used in the present value (PV) and net present value (NPV) calculations and the time horizon used for the financial modeling.

Table 2: General Assumptions

Ref.	General assumptions	Value
A1	Discount rate	10%
A2	Length of analysis	Four years

Source: Forrester Research, Inc.

Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with finance to determine the most appropriate discount rate to use within their own organizations.

In addition to the financial assumptions used to construct the cash flow analysis, Table 3 provides salary assumptions used within this analysis.

Table 3: Salary Assumptions

Ref.	Metric	Calculation	Value
B1	Fully burdened salary* per IT employee (Year 1)	[Increases yearly by 5%]	$69,971
B2	Work days per year		200
B3	Fully burdened daily cost per IT employee (Year 1)	(B1/B2)	$349.86
B4	Fully burdened salary* per content business owner (Year 1)	[Increases yearly by 5%]	$65,651
B5	Fully burdened salary* per generic employee** (Year 1)	[Increases yearly by 5%]	$53,000

*Includes salary, variable compensation, and all direct benefits (e.g., health insurance)

**For the benefits calculations, specific examples of headcount reduction were used. Different roles had different costs. To simplify the model, an average salary was calculated.

Source: Forrester Research, Inc.

Costs

This section describes the overall costs to initially implement Oracle Universal Content Management, costs to further rollout Oracle Universal Content Management, and the costs to maintain the solution.

Initial Internal Implementation Costs

Emerson Process Management's initial Oracle Universal Content Management implementation efforts were modest; the company made engineering and quality documentation available online. (The previous method of sharing this documentation was to physically mail updates to 65 locations around the world.) This project was implemented by three end-users and was completed quickly.

License and hardware fees associated with this initial implementation are covered in the relevant cost sections below. Between the three individuals working on this implementation, one full-time equivalent (FTE) worked on this. The duration was 40 work days, or approximately two months. The fully burdened salary per IT employee in Year 1 of the study was $350 per day. The resulting initial implementation internal labor cost is equal to 1 FTE x $350 per day x 40 days, or $14,000.

Table 4: Initial Implementation Internal Labor Costs, Non-Risk-Adjusted

Ref.	Metric	Calculation	Initial
C1	Number of FTEs		1
C2	Daily fully burdened salary	(= B3)	$350
C3	Days of effort		40
Ct	Initial internal implementation costs	(E1 * E2 * E3)	$14,000

Source: Forrester Research, Inc.

Internal Labor Costs — IT

The Oracle Universal Content Management solution is managed by the Content Management Services team, which has responsibility for internal and external content across the entire business unit. In Year 1, only one FTE was dedicated to managing the solution. This increased to two FTEs by Year 3. These individuals maintain the software and roll out new services based on business user requests. Because the team is small, it relies on third-party services, which is discussed in a later section.

Table 5: Internal Labor Costs — IT, Non-Risk-Adjusted

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4
D1	Number of IT FTEs			1.0	1.5	2.0	2.0
D2	Annual fully burdened salary	(=B1)		$69,971	$73,470	$77,144	$81,000
Dt	Internal labor costs — IT	(D1 * D2)		$69,971	$110,205	$154,288	$162,000

Source: Forrester Research, Inc.

Internal Labor Costs — Business

Business users and/or content owners are involved in the requirements definition and rollout of additional solutions based on the Oracle Universal Content Management platform. Once an additional solution is implemented, the effort to manage the content is equal to or less than it was previously, i.e., storage on shared drives. Therefore, these cost calculations only include the incremental costs of defining and rolling out new solutions.

Table 6: Internal Labor Costs — Business, Non-Risk-Adjusted

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4
E1	Number of business FTEs		0.0	0.5	1.0	1.5	2.0
E2	Annual fully burdened salary	(= B4)	$65,651	$68,934	$72,381	$76,000	$79,800
Et	Internal labor costs — business	(E1 * E2)	$ -	$34,467	$72,381	$114,000	$159,600

Source: Forrester Research, Inc.

Software Licenses And Maintenance

The software license total value used in this study reflects what a new customer using a similar amount of Oracle Universal Content Management licenses as Emerson Process Management would expect to pay. This may not be the same that Emerson Process Management actually paid. The licenses were phased in to reflect how Emerson Process Management implemented Oracle Universal Content Management, starting slow and ramping up.

Table 7: Software Licenses And Maintenance, Non-Risk-Adjusted

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4
F1	License fees		$25,000	$65,000	$200,000	$120,000	$90,000
F2	Maintenance %		22%	22%	22%	22%	22%
F3	Maintenance fees	(F2 * sum F1)	$5,500	$14,300	$63,800	$90,200	$110,000
Ft	Software licenses and maintenance	(F1 + F3)	$30,500	$79,300	$263,800	$210,200	$200,000

Source: Forrester Research, Inc.

Hardware Costs

Because Emerson Process Management started slowly in its rollout of Oracle Universal Content Management, initial hardware requirements were low. Some servers were repurposed for use in the Oracle Universal Content Management installation, reducing the total number of servers that needed to be purchased. Over the course of the study, the price of servers went down. This is due primarily to a general reduction in hardware costs over the years.

Table 8: Hardware Costs, Non-Risk-Adjusted

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4
G1	Cost per server		$20,000	$20,000	$15,000	$10,000	$8,000
G2	Number of servers		1	1	4	3	3
Gt	Hardware costs	(G1 * G2)	$20,000	$20,000	$60,000	$30,000	$24,000

Source: Forrester Research, Inc.

Professional Service Fees

Because the content management team at Emerson Process Management is small, it uses a significant amount of professional services to roll out new projects as well as for system maintenance at times when it is short staffed. In Year 2 of the study, Emerson Process Management changed to a lower cost professional service provider.

Table 9: Professional Service Fees, Non-Risk-Adjusted

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4
H1	Hourly consulting rate		$200	$200	$130	$135	$150
H2	Number of hours		40	300	600	800	900
Ht	Professional service fees	(H1 * H2)	$8,000	$60,000	$78,000	$108,000	$135,000

Source: Forrester Research, Inc.

Document Scanning Costs

Emerson Process Management did not need to do any back scanning of paper documents. Nearly all of the documents for the early projects existed in electronic format on shared drives. Beginning in Year 3, it began scanning some documents for new content management projects.

To accomplish this, it was necessary to purchase scanning hardware and software. Per page document scanning costs vary widely depending on volume, outsourcing versus in-house, type of documents to be scanned, etc. For this study, Forrester estimated that the total activity cost of scanning was 50 cents per page.

Emerson Process Management also back scanned microforms that were used for replacement parts ordering. The corresponding time-savings benefit was very small. However, this greatly improved customer service by reducing replacement part ordering time for older product from several days to several minutes. This benefit is not included in the ROI calculations.

Table 10: Document Scanning Costs, Non-Risk-Adjusted

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4
I1	Scanner equipment costs					10,000	
I2	Scanning software licenses					10,000	
I3	Maintenance percentage					15%	15%
I4	Software maintenance	(I3 * I2[total])				$1,500	$1,500
I5	No. of pages scanned					38,000	44,000
I6	Cost per page scanned					$0.50	$0.50
I7	Document scanning costs	(I5 * I6)				$19,000	$22,000
I8	No. of microforms scanned					400,000	600,000
I9	Cost per microform scanned					$0.07	$0.07
I10	Microform scanning costs					$28,000	$42,000
It	Document and microform scanning	(I1 + I2 + I4 + I7 + I10)				$68,500	$65,500

Source: Forrester Research, Inc.

Total Costs

Table 11 summarizes Emerson Process Management's costs associated with its implementation of Oracle Universal Content Management.

Table 11: Total Costs Of Oracle Universal Content Management, Non-Risk-Adjusted

Ref.	Costs	Initial	Year 1	Year 2	Year 3	Year 4	Total	Present value
Ct	Initial internal implementation costs	$14,000					$14,000	**$14,000**
Dt	Internal labor costs — IT		$69,971	$110,205	$154,288	$162,000	$496,464	**$381,256**
Et	Internal labor costs — business		$34,467	$72,381	$114,000	$159,600	$380,448	**$285,811**
Ft	Software licenses and maintenance	$30,500	$79,300	$263,800	$210,200	$200,000	$783,800	**$615,137**
Gt	Hardware costs	$20,000	$20,000	$60,000	$30,000	$24,000	$154,000	**$126,700**
Ht	Professional service fees	$8,000	$60,000	$78,000	$108,000	$135,000	$389,000	**$300,357**
It	Document scanning				$68,500	$65,500	$134,000	**$96,202**
	Total	**$72,500**	**$263,738**	**$584,386**	**$684,988**	**$746,100**	**$2,351,712**	**$1,819,463**

Source: Forrester Research, Inc.

Benefits

Not all the benefits that Emerson Process Management realized are easily quantified in this ROI analysis. Therefore, the first half of this section details the benefit calculations that go into the ROI analysis, and the second half describes qualitative benefits that are not included in the ROI analysis. In many respects, the qualitative benefits are as valuable as the quantitative ones and should be taken into consideration when analyzing the total return on investment offered by Oracle Universal Content Management.

Report Printing Savings

Prior to implementing Oracle Universal Content Management, Emerson Process Management printed an enormous number of reports. Some reports were run weekly and some monthly. Each report was sent to 65 locations around the world. The underlying data was taken from mainframe and PC-based applications. This resulted in printing millions of pages a year. (Employee effort required to print the reports is included in the Reduction In Headcount benefit above.)

Table 12: Report Printing Savings, Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4
J1	Number of pages not printed		833,750	3,239,375	5,039,375	5,539,375
J2	Print cost per page		$0.04	$0.04	$0.04	$0.04
Jt	Report printing savings	(J1 * J2)	$33,350	$129,575	$201,575	$221,575

Source: Forrester Research, Inc.

Brochure Publishing Savings

Emerson Process Management received hundreds of thousands of requests every year to send brochures and other expensive printed materials. These requests came from distributors, end customers, and others in the industry. Since Emerson Process Management has made all of these materials available online, the vast majority of these requests are handled as document downloads.

This benefit category captures reduced publishing in two ways. First, within the valve division, there was a reduction in the number of brochures and materials that were printed in the past and would have to be updated. Secondly, there was a reduction in additional publishing that would have been sent upon request.

Table 13: Brochure Publishing Savings, Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4
K1	No. of brochures (valve division)			136,000	160,000	160,000
K2	No. of brochures (other areas)				500,000	600,000
K3	Cost per brochure			$2.20	$2.20	$2.20
Kt	Brochure publishing savings	((K1 + K2) * K3)		$299,200	$1,452,000	$1,672,000

Source: Forrester Research, Inc.

Avoided Microfiche Production

Emerson Process Management also produced a significant amount of microfiche, which was distributed to the 65 locations around the world. By using Oracle Universal Content Management, it was able to eliminate all microfiche production. All of this content is now available for review and download online. The number of reports per year would have increased over the life of the study but was left the same for simplicity.

Table 14: Avoided Microfiche Production, Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4
L1	Number of microfiche reports not printed			7,500	7,500	7,500
L2	Cost per microfiche report			$50	$50	$50
Lt	Avoided microfiche production	(L1 * L2)		$375,000	$375,000	$375,000

Source: Forrester Research, Inc.

Reduced Internal Mailing Costs

All of the printed reports and microfiche were sent to the 65 locations around the world via internal mail. The cost per piece was significantly less than that of using the regular postal service. Nonetheless, eliminating these mailings resulted in significant savings.

Table 15: Avoided Internal Mailing Costs, Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4
M1	Number of pieces not mailed		304,444	339,091	360,833	380,714
M2	Average cost (internal) per piece		$0.09	$0.11	$0.12	$0.14
Mt	Reduced internal mailing costs	(M1 * M2)	$27,400	$37,300	$43,300	$53,300

Source: Forrester Research, Inc.

Reduction In Headcount

During the period of this study, Emerson Process Management was able to reduce its total headcount because of the Oracle Universal Content Management implementation. Some of the reductions were an actual decrease in headcount, and others are measured as the avoidance of new hires. Regardless of how the reduction was achieved, the company has saved a significant amount of money on salary and benefits from the total reduced headcount.

Each headcount reduction cited in this study is linked to a specific content management project. The types of roles removed include printing department personnel and individuals involved in content gathering and disseminating processes and document review processes. Salaries varied among individual employees, so an average fully-burdened salary was used to simplify the model.

Table 16: Reduction In Headcount, Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4
N1	Number of reductions		3.0	5.0	8.5	10.5
N2	Yearly fully burdened salary	= B5	$53,000	$55,650	$58,433	$61,355
Nt	Reduction in headcount	(N1 * N2)	$159,000	$278,250	$496,681	$644,228

Source: Forrester Research, Inc.

External Cost Savings

Emerson Process Management incurred costs to external parties that were eliminated as Oracle Universal Content Management usage expanded. This benefit category captures three specific examples.

- Fax lines and printing infrastructure. Emerson Process Management had dedicated telephone lines and network connections in place for faxing and printing, but these were eliminated when these activities ceased.

- Trouble ticketing system. Emerson Process Management was spending $750,000 per year on an outsourced solution to manage PC support and trouble ticketing. When they decided to eliminate this contract, an in-house solution was built based on the Oracle Universal Content Management platform. It took thirty-two hours to build the solution, saving significant time and money that is included in this benefit.

- Mainframe application maintenance. Emerson Process Management used a messaging application solely for disseminating mainframe-based reports around the organization. When mainframe reports were moved into Oracle Universal Content Management, it was able to eliminate this mainframe application and stop paying annual maintenance.

Table 17: External Cost Savings, Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4
O1	Fax lines and printing infrastructure		$3,000	$3,000	$3,000	$3,000
O2	Trouble ticketing system		75,000	$75,000	$75,000	$75,000
O3	Mainframe application maintenance				$80,000	$80,000
Ot	External cost savings	(O1 + O2 + O3)	$78,000	$78,000	$158,000	$158,000

Source: Forrester Research, Inc.

Incremental Output Per Worker

Productivity gains are a soft savings and difficult to accurately quantify. The productivity benefits described in this section are specific to completed Oracle Universal Content Management-based projects that improved the business processes. Examples of these projects include the new job posting process, engineering and quality document handling, product review and certification processes, etc. This benefit calculation does not include a generic savings per employee because of improved content search and availability.

These benefits were realized as the specific projects were completed. Various projects impacted several types of workers with different salaries. To simplify the calculation, an average salary across all of these employees was used. Even though these incremental output improvements are real and linked to specific projects, the value of this benefit was reduced by 50% to reflect that employees do not convert all of their newly available time into productive work.

Table 18: Incremental Output Per Worker, Non-Risk-Adjusted

Ref.	Metric	Calculation	Year 1	Year 2	Year 3	Year 4
P1	Number of hours saved		3,240	4,447	4,447	10,380
P2	Hourly rate per worker	(B5 / 1,767 hours)	$30.00	$31.50	$33.08	$34.73
P3	Percent reduction		50%	50%	50%	50%
Pt	Incremental output per worker	(P1 * P2 * (1 – P3))	$48,600	$70,040	$73,542	$180,248

Source: Forrester Research, Inc.

Total Quantified Benefits

Table 19 summarizes the total quantified benefits Emerson Process Management realized by implementing Oracle Universal Content Management.

Table 19: Total Quantified Benefits, Non-Risk-Adjusted

Ref.	Benefits	Year 1	Year 2	Year 3	Year 4	Total	Present value
Jt	Report printing savings	$33,350	$129,575	$201,575	$221,575	$586,075	**$440,190**
Kt	Brochure publishing savings		$299,200	$1,452,000	$1,672,000	$3,423,200	**$2,480,180**
Lt	Eliminated microfiche prod		$375,000	$375,000	$375,000	$1,125,000	**$847,790**
Mt	Reduced internal mailing costs	$27,400	$37,300	$43,300	$53,300	$161,300	**$124,672**
Nt	Reduction in headcount	$159,000	$278,250	$496,681	$644,228	$1,578,158	**$1,187,684**
Ot	External cost savings	$78,000	$78,000	$158,000	$158,000	$472,000	**$361,996**
Pt	Incremental output per worker	$48,600	$70,040	$73,542	$180,248	$372,431	**$280,432**
	Total	**$346,350**	**$1,267,365**	**$2,800,098**	**$3,304,351**	**$7,718,164**	**$5,722,944**

Source: Forrester Research, Inc.

Litigation Preparation And Retention Compliance

Companies find a growing expense in preparation for lawsuits and the cost of the discovery process. Enterprise content management can help reduce these costs by making the relevant documents easier to find, resulting in a quick dismissal or reduced legal fees. Additionally, an ECM solution can include records management, which will ensure that documents are kept for as long as needed — and no longer — based on retention regulations and policies. This further reduces the cost of litigation preparation as older documents are automatically purged and do not need to be reviewed. It also helps to avoid potential fines and to reduce the cost of purging old documents.

Improved Business Processes And Worker Productivity

ECM is an effective tool for removing business process bottlenecks and generally improving business processes. Making content easily available and searchable improves user self-service and improves overall efficiency. This can result in reduced headcount, better customer service, and the overall ability to do more with less.

Consistent Information And Branding

Version control is a huge problem for today's organizations. With the "same" content available from so many different locations, both internally and externally, it is hard to ensure that the latest version is available company-wide. This is especially important when making content available via external Web sites. Enterprise content management can be used to ensure that every Web site and repository is being populated with the latest content. This removes the risk of re-work being needed because of out-of-date information or customers accidentally accessing the wrong version of important documents. Also, it can help deliver brand consistency across multiple channels.

Risk

Risk is the third component within the TEI model. It is used as a filter to capture the uncertainty surrounding different cost and benefit estimates. If a risk-adjusted ROI still demonstrates a compelling business case, it raises confidence that the investment is likely to succeed because the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers should be taken as "realistic" expectations, since they represent the expected values considering risk. In general, risks affect costs by raising the original estimates, and they affect benefits by reducing the original estimates.

Each benefit and cost is assigned either a "low," "medium," "high," or "none" risk rating. The following benefits and costs were rated as either medium or high risk:

- **Initial internal implementation costs, high risk.** Emerson Process Management adopted a go-slow approach to rolling out Oracle Universal Content Management. This meant their initial implementation costs were potentially lower than those which other companies may experience. Early costs (and benefits) factor more strongly in discounted cash flow analyses because they are not discounted to the same extent.

- **Internal labor costs — IT, medium risk.** Emerson Process Management operates its content management group with limited resources. This is partially offset by the amount of professional services it uses. Nonetheless, other companies may have more internal resources working on content management.

- **Internal labor costs — Business, medium risk.** Emerson Process Management content/business owners may spend less time in rolling out new content management projects than other companies. This can result in a higher total cost of ownership (TCO).

- **Hardware costs, medium risk.** Emerson Process Management's go-slow approach meant it did not need as many servers early on and that it could add repurposed servers as they became available. A more aggressive rollout plan may require that more servers are purchased.

- **Document scanning, high risk.** Emerson Process Management did not need to do back scanning to make hard copy content available in the Oracle Universal Content Management system. Other companies may have a larger amount of content that needs to be back-scanned, resulting in significant up-front costs.

- **Brochure publishing savings, high risk.** Many companies do not publish expensive brochures. If that is the case, these companies would not realize this category of benefits.

- **Avoided microfiche production, medium risk.** Many companies do not use microfiche. If that is the case, these companies would not realize this category of benefit.

For the purpose of this analysis, Forrester risk-adjusts cost and benefit estimates to better reflect the level of uncertainty that exists for each estimate. The TEI model uses a triangular distribution method to calculate risk-adjusted values. To construct the distribution, it is necessary to first estimate the low, most likely, and high values that could occur within the current environment. The risk-adjusted value is the mean of the distribution of those points.

For example, the risk associated with initial internal implementation costs is defined as "high." This risk level was chosen because other companies may spend more time and money on a larger initial implementation. Therefore, a reasonable likelihood exists that someone reading this paper will incur more costs of this nature. The original estimated cost is $14,000. To calculate the risk-adjusted cost, the "most likely" scenario was set at 100% of cost, the "high" scenario was assigned 125% of cost, and the "low" scenario was assigned 100% of cost. The rounded mean of these three values is 108%. The resulting cost used in the risk-adjusted tables is $15,120, or 108% of $14,000.

The following tables show the values used to adjust for uncertainty in cost and benefit estimates. Readers are urged to apply their own risk ranges based upon their own degree of confidence in the cost and benefit estimates.

Table 20: Risk Adjustments To Costs

Ref.	Risk adjustments to costs	Risk scoring	Low	Most likely	High	Risk-adjusted
Q1	Initial internal implementation costs	High	100%	100%	125%	108%
Q2	Internal labor costs — IT	Medium	100%	100%	115%	105%
Q3	Internal labor costs — business	Medium	100%	100%	115%	105%
Q4	Software licenses and maintenance	Low	98%	100%	105%	101%
Q5	Hardware costs	Low	98%	100%	105%	101%
Q6	Professional service fees	Low	98%	100%	105%	101%
Q7	Document scanning	High	100%	100%	125%	108%

Source: Forrester Research, Inc.

Table 21: Risk Adjustments To Benefits

Ref.	Risk adjustments to benefits	Risk scoring	Low	Most likely	High	Risk-adjusted
R1	Report printing savings	Low	90%	100%	105%	98%
R2	Brochure publishing savings	High	50%	100%	95%	82%
R3	Avoided microfiche production	Medium	80%	100%	102%	94%
R4	Reduced internal mailing costs	Low	90%	100%	105%	98%
R5	Reduction in headcount	Low	90%	100%	105%	98%
R6	External cost savings	Low	90%	100%	105%	98%
R7	Incremental output per worker	Low	90%	100%	105%	98%

Source: Forrester Research, Inc.

Flexibility

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be converted into business benefit for some additional future investment. Flexibility would also be quantified when evaluated as part of a specific project (Please see Appendix A for more detail).

Oracle includes Document and Imaging Management, Document-centric Collaboration, Digital Asset Management and Conversion, Web Content Management, and Retention Management modules in its Universal Content Management licenses. Universal Records Management is bundled in some license packages, but not Emerson's. Emerson has the flexibility of adding this module, which is something they are considering. However, no benefits associated with this flexibility have been quantified in this study.

Emerson Process Management found that its Oracle Universal Content Management solution created a significant amount of flexibility by making it easy to implement a new repository or a project improving a business process. According to Mark Heindselman, "there is not a lot of work to this. Once you do it once, you can leverage it over and over again." Therefore, there is a flexibility benefit because a small incremental investment in rolling out another project can result in significant benefits. For this study, these benefits were not quantified in the ROI analysis.

TEI Framework: Summary

Considering the financial framework constructed above, the results of the costs, benefits, and risk sections can be used to determine a return on investment, net present value, and payback period. Table 22 and Table 23, below, show the risk-adjusted cost and benefit values, applying the risk-adjustment method indicated in the Risks section and the values from Table 20 and Table 21 to the numbers in Table 11 and Table 19, respectively.

Table 22: Risk-Adjusted Costs

Ref.	Costs	Initial	Year 1	Year 2	Year 3	Year 4	Total	Present value
S1	Initial internal implementation costs	$15,120					$15,120	**$15,120**
S2	Internal labor costs — IT		$73,470	$115,715	$162,002	$170,100	$521,287	**$400,318**
S3	Internal labor costs — business		$36,190	$76,000	$119,700	$167,580	$399,470	**$300,102**
S4	Software licenses and maintenance	$30,805	$80,093	$266,438	$212,302	$202,000	$791,638	**$621,288**
S5	Hardware costs	$20,200	$20,200	$60,600	$30,300	$24,240	$155,540	**$127,967**
S6	Professional service fees	$8,080	$60,600	$78,780	$109,080	$136,350	$392,890	**$303,361**
S7	Document scanning				$73,980	$70,740	$144,720	**$103,899**
	Total	**$74,205**	**$270,553**	**$597,533**	**$707,364**	**$771,010**	**$2,420,666**	**$1,872,055**

Source: Forrester Research, Inc.

Table 23: Risk-Adjusted Benefits

Ref.	Benefits	Year 1	Year 2	Year 3	Year 4	Total	Present value
T1	Report printing savings	$32,683	$126,984	$197,544	$217,144	$574,354	**$431,386**
T2	Brochure publishing savings		$245,344	$1,190,640	$1,371,040	$2,807,024	**$2,033,748**
T3	Avoided microfiche prod.		$352,500	$352,500	$352,500	$1,057,500	**$796,923**
T4	Reduced internal mailing costs	$26,852	$36,554	$42,434	$52,234	$158,074	**$122,179**
T5	Reduction in headcount	$155,820	$272,685	$486,747	$631,343	$1,546,595	**$1,163,930**
T6	External cost savings	$76,440	$76,440	$154,840	$154,840	$462,560	**$354,756**
T7	Incremental output per worker	$47,628	$68,639	$72,071	$176,643	$364,982	**$274,823**
	Total	**$339,423**	**$1,179,146**	**$2,496,776**	**$2,955,743**	**$6,971,088**	**$5,177,744**

Source: Forrester Research, Inc.

The values used throughout the TEI Framework are based on in-depth interviews with one organization. Forrester makes no assumptions as to the potential return that other organizations will receive within their own environment. Forrester strongly advises that readers use their own estimates within the framework provided in this study to determine the expected financial impact of implementing Oracle Universal Content Management.

Study Conclusions

Forrester's in-depth interviews with Emerson Process Management business unit yielded several important observations:

- Emerson Process Management realized benefits in three general ways: 1) reduced time to market for information; 2) reduced existing costs and avoiding future costs; and 3) improved the quality and consistency of information.
- Oracle Universal Content Management provided a flexible framework in which Emerson Process Management could rapidly rollout additional projects, resulting in a more flexible organization and delivering business benefits.
- Emerson Process Management utilized Oracle Universal Content Management to streamline general business processes, not just content creation and management processes.

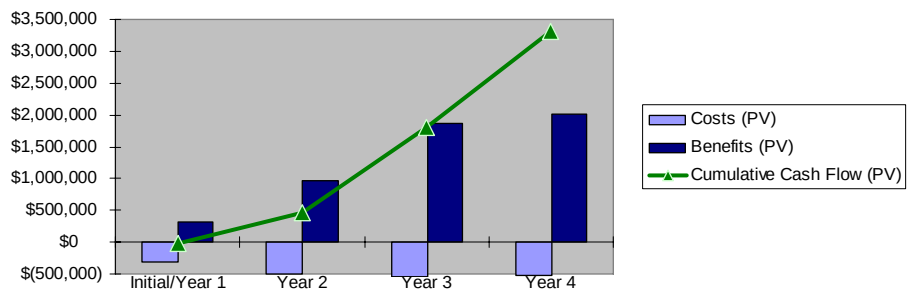
The financial analysis provided in this study illustrates the potential way in which an organization can evaluate the value proposition of the Oracle Universal Content Management solution. Based on information collected in in-depth interviews with Emerson Process Management, Forrester calculated a four-year risk-adjusted ROI of 177% with a payback period 12 months. All final estimates are risk-adjusted to incorporate potential uncertainty in the calculation of costs and benefits.

Table 24: ROI, Original And Risk-Adjusted

Summary financial results	Unadjusted (Best case)	Risk-adjusted
ROI — four-year	215%	177%
Payback	11 months	12 months
Total four-year costs (PV)	$1,819,463	$1,872,055
Total four-year benefits (PV)	$5,722,944	$5,177,744
Total four-year net savings (NPV)	$3,903,480	$3,305,689

Source: Forrester Research, Inc.

Figure 1: Summary Financial Results, Risk-Adjusted



Source: Forrester Research, Inc.

Appendix A: Total Economic Impact Overview

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

The TEI methodology consists of four components to evaluate investment value: benefits, costs, risks, and flexibility. For the purpose of this analysis, the impact of flexibility was not quantified.

Benefits

Benefits represent the value delivered to the user organization — IT and/or business units — by the proposed product or project. Often product or project justification exercises focus just on IT cost and cost reduction, leaving little room to analyze the effect of the technology on the entire organization. The TEI methodology and the resulting financial model place equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization. Calculation of benefit estimates involves a clear dialogue with the user organization to understand the specific value that is created. In addition, Forrester also requires that there be a clear line of accountability established between the measurement and justification of benefit estimates after the project has been completed. This ensures that benefit estimates tie back directly to the bottom line.

Costs

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs in the forms of fully burdened labor, subcontractors, or materials. Costs consider all the investments and expenses necessary to deliver the proposed value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing costs associated with the solution. All costs must be tied to the benefits that are created.

Risk

Risk measures the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: the likelihood that the cost and benefit estimates will meet the original projections and the likelihood that the estimates will be measured and tracked over time. TEI applies a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the underlying range around each cost and benefit.

Flexibility

Within the TEI methodology, direct benefits represent one part of the investment value. While direct benefits can typically be the primary way to justify a project, Forrester believes that organizations should be able to measure the strategic value of an investment. Flexibility represents the value that can be obtained for some future additional investment building on top of the initial investment already made. For instance, an investment in an enterprisewide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, an embedded collaboration feature may translate to greater worker productivity if activated. The collaboration can only be used with additional investment in training at some future point in time. However, having the ability to capture that benefit has a present value that can be estimated. The flexibility component of TEI captures that value.

Appendix B: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Although the Federal Reserve Bank sets a discount rate, companies often set a discount rate based on their business and investment environment. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult their organization to determine the most appropriate discount rate to use in their own environment.

Net present value (NPV): The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

Present value (PV): The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total net present value of cash flows.

Payback period: The payback period is the breakeven point for an investment — the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Return on investment (ROI): A measure of a project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.

A Note On Cash Flow Tables

The following is a note on the cash flow tables used in this study (see the Example Table below). The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1. Those costs are not discounted. All other cash flows in Years 1 through 3 are discounted using the discount rate shown in [Table 2] at the end of the year. Present value (PV) calculations are calculated for each total cost and benefit estimate. Net present value (NPV) calculations are not calculated until the summary tables and are the sum of the initial investment and the discounted cash flows in each year.

Example Table

Ref.	Category	Calculation	Initial cost	Year 1	Year 2	Year 3	Total

Source: Forrester Research, Inc.