

A Total Economic Impact™ Analysis of Remedy Change Management: Health Products Manufacturing

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Introduction

In November 2003, Remedy commissioned Forrester Research, Inc. to examine the total economic impact of its Remedy Change Management solution.

Remedy Change Management allows organizations to manage the entire lifecycle of the change process from change request, to approval, through implementation, and review of change effectiveness. It is part of Remedy's IT Service Management Services suite consisting of Asset Management, Change Management, Help Desk and Service-Level Agreements. This document highlights the findings of a single customer, a Global 500 health products manufacturing company, which has implemented Remedy Change Management along with other Remedy products including:

- IT Service Management Suite
 - Asset Management
 - Help Desk
 - Service Level Agreements
- AR System
 - Migrator
 - Dashboards
- Integration Products
 - Distributed Server Option
- Support Services
- Training Services
- Consulting Services

This report focuses solely on the impact of Remedy Change Management and the estimated five-year return on investment (ROI) within the environment.

Purpose. The primary purpose of this report is to provide readers with a guide to model the costs and benefits of implementing Remedy Change Management within their organization. Data contained within this report should be used as a starting point in calculating the costs and benefits of automating IT change management. However, Forrester strongly advocates that organizations apply their own estimates to evaluate the full economic impact of the Remedy Change Management solution.

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Methodology. Forrester was selected for this project because of its Total Economic Impact™ (TEI) analysis methodology, which not only measures costs and cost reduction (areas that are typically accounted for within IT) but also weighs the enabling value of a technology to increase the effectiveness of overall business processes. The four fundamental elements of TEI are used to model the ROI of this health products manufacturing organization:

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

Given the increasing sophistication that enterprises have regarding cost analyses related to IT investments, Forrester's TEI methodology serves an extremely useful purpose by providing a complete picture of the total economic impact of IT purchase decisions.

The reader should be aware of the following disclosures associated with this study:

- The study is commissioned by Remedy and delivered by the Forrester Consulting group.
- Remedy reviewed this document 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 contradict Forrester's findings or obscure the meaning of the study.
- The customer contact was provided to Forrester by Remedy
- Forrester makes no assumptions as to the potential return on investment that other organizations will receive within their own environment. Forrester strongly advises that readers should use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Remedy Change Management.

Customer Goals, Objectives and Context

At the time of the IT investment, the health products manufacturing organization wanted to achieve the following goals and objectives from Remedy Change Management:

- Integrate distributed data and processes around change management: Prior to implementing Remedy Change Management, the organization had multiple processes to collect and track changes within its environment. As a result, the organization did not have a way to clearly relate or track changes to unforeseen problems that would arise.
- Maximize the efficiency of internal support personnel: Having a consolidated change management solution, unsuccessful changes could be minimized resulting in a more efficient IT support staff. In addition, having a clear view of changes within the environment allows business users to better understand the impact of changes. As a result, this would reduce the negative impact of an infrastructure change on employee productivity.
- Maintain high availability of critical systems: One of the goals of the organization was to accurately predict the impact to changes to the infrastructure. In particular, the ability to predict the impact of planned on business critical systems and to minimize disruptions caused as a result of a change.

Prior to the implementation of the Remedy Change Management solution, the organization had the following characteristics:

- A change management staff of 10 full-time employees.
- The number of unsuccessful changes ranged from 100 to 200 per year.
- The total number of change requests ranged between 1,500 and 3,500 per year. After the change management solution was implemented, the total number of documented changes was between 6,000 and 7,000.
- The organization had a distributed network and infrastructure environment with multiple business units located throughout the world.

TEI Framework

This section illustrates the sample financial model created from discussions with the Remedy health products manufacturing client that had deployed Remedy Change Management. This framework will examine the costs incurred to move to the Remedy solution, estimated sample benefits from such a migration, and potential risks that could affect the individual cost and benefit estimates.

For this analysis, the interviewed organization listed several cost and benefit categories which drove their initial ROI analysis of the Remedy Change Management solution. Specific estimates are based on discussions with the health products manufacturing organization and subsequent quantification and projections by Forrester.

Cost

Several different costs were incurred as a result of the migration to Remedy Change Management. These included both internally generated costs as well as costs paid directly to Remedy.

The following cost categories illustrate costs billed directly to Remedy as a result of implementing Remedy Change Management solution:

- **Licensing:** The cost to license Remedy Change Management within the environment.
- **Maintenance and support services:** The cost of support and maintenance billed to Remedy. For the purpose of this analysis, the cost of yearly maintenance constitutes 19 percent of the total licensing cost of the overall solution.
- **Training services:** The cost to train internal IT staff and developers on the configuration and management of the solution.
- **Consulting services:** Services including project management, planning, analysis, design, construction testing, deployment and post deployment support.

The following internal costs were incurred internally as a result of implementing Remedy Change Management:

- **Additional hardware:** The cost of any additional servers to host the Remedy application. For the purpose of this analysis, we assume that the organization will require two additional servers at a total cost of \$16,000.

- **Internal development cost:** The cost to build out custom components for the Remedy Change Management solution. These include specific templates for each department depending on the different types of changes.
- **Internal management:** The additional cost to manage the Remedy solution. These costs include the cost of providing patches or updates to the application as well as vendor management costs around the Remedy Change Management solution.

Total Costs

Table 1 illustrates the total costs during a five year period. It should be noted that the health products manufacturing organization had a challenging implementation and deployment period due to customized user interfaces needed for different parts of the organization. As a result, we assume that implementation costs are incurred within the first three years of analysis. A discount rate of 10 percent was used for the net present value (NPV) calculations throughout this financial analysis.

Table 1: Total Costs

<i>Cost</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Total</i>	<i>NPV</i>
Licensing	\$312,769	\$34,752	\$0	\$0	\$0	\$347,521	\$313,057
Support Services	\$59,426	\$66,029	\$66,029	\$66,029	\$66,029	\$323,542	\$244,299
Training Services	\$2,941	\$327	\$0	\$0	\$0	\$3,268	\$2,944
Consulting Services	\$148,925	\$16,547	\$0	\$0	\$0	\$165,472	\$149,062
Additional Hardware	\$16,000	\$0	\$0	\$0	\$0	\$16,000	\$14,545
Internal development cost	\$125,000	\$98,000	\$45,000	\$0	\$0	\$268,000	\$228,437
Internal Management	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000	\$75,816
Total	\$685,062	\$235,655	\$131,029	\$86,029	\$86,029	\$1,223,804	\$1,028,160

Source: Forrester Research, Inc.

Benefit

For this analysis, the interview uncovered several benefits attributable to both IT as well as to the overall organization. These include:

- Reduction in support calls due to reduction in unsuccessful changes
- Improvement in IT efficiency by reducing the duration and impact of a change
- Reduction in capital costs
- Improvement in internal productivity by reducing the impact from unforeseen change
- Reduced planned business downtime associated with critical changes

To calculate the benefits, a five-year cash flow window was used from the time that the first cost was incurred. The organization noted that there was considerable delay in achieving full benefits due in large part to organization and process issues. In addition, the customization of the solution to meet the organization’s unique needs was more extensive than originally anticipated. As a result, benefits were incurred in the third year of analysis and will ramp up to 100 percent by the fifth year. Table 2 illustrates the ramp up schedule for benefits.

Table 2: Ramp Up Schedule

	Year 2	Year 3	Year 4	Year 5
Ramp up	10%	50%	90%	100%

Source: Forrester Research, Inc.

Reduction in support calls: Table 3 illustrates the steps required to calculate the savings from a reduction in IT support calls. By automating the change management process, users can be notified in advance of planned changes leading to a reduction in calls to internal support.

Table 3: Reduction in Support Calls Due to Reduction in Unsuccessful Changes

Ref		Value	Equation
A1	Target supported employees	10,000	
A2	Percent calls that are change management related	20%	
A3	Percent reduction in change management calls	50%	
A4	Before — number of calls per user per month	1.5	
A5	Number of calls help desk related (monthly)	0.3	A2*A4
A6	After — reduction in help desk calls (monthly)	0.15	A5*A3
A7	After — reduction in help desk calls (yearly)	1.8	A6*12
A8	IT cost per help desk call	\$18	
A9	Total yearly cost reduction	\$324,000	A8*A7*A1

Source: Forrester Research, Inc.

Improvement in IT efficiency: Table 4 illustrates the savings to IT by minimizing the number of unforeseen changes within the environment. The number of unsuccessful changes falls as there is better planning in place to understand the full impact of a change. By reducing the number of unsuccessful changes, IT can devote more resources to increasing the number of successful changes.

Table 4: Improvement in IT Efficiency

Ref		Value	Equation
B1	Current number of unsuccessful changes	37	
B2	Before	135	
B3	Percent decrease	73%	(B2-B1)/B2
B4	FTE resources devoted to change	3	
B5	Cost per resource (daily)	\$240	
B6	Average time to perform change (days)	2	
B7	Average cost per unsuccessful change (before)	\$1,440	B4*B5*B6
B8	Yearly savings	\$141,120	B7*(B2-B1)

Source: Forrester Research, Inc.

Reduction in capital costs: Table 5 illustrates the potential capital cost reduction as the organization automates their change management environment. By automating the change management process, the organization can move away from a paper-based system leading to a reduction in change-related forms production and distribution costs.

Table 5: Reduction in Capital Costs

Ref		Value	Equation
C1	Cost to produce change management form	\$3	
C2	Cost to distribute	\$1	
C3	Number of forms produced	10,000	
C4	Yearly savings	\$40,000	$(C1+C2)*C3$

Source: Forrester Research, Inc.

In addition to IT benefits, the impact of automating the change management process has a positive impact of the entire organization. In particular, the interviewed organization mentioned two positive impacts to its end-user environment: reduction in internal lost productivity due to an unforeseen change, and minimizing downtime of business critical systems.

Reduction in internal lost productivity due to change related failures: Table 6 illustrates the yearly value achieved as a result of implementing Remedy Change Management. The health products manufacturing client experienced a reduction in lost productivity due to a reduction in change-related failures. To calculate this benefit, Forrester does not assume that a given user within the organization that does not have access to the network is completely unproductive. For the purpose of this analysis, we assume a user that loses an hour of network connectivity is only 23 percent less productive as illustrated by D7. This variable allows for more accurate modeling of the productivity gained resulting from the change management solution.

Table 6: Reduction in Internal Lost Productivity From Unforeseen Change

Ref		Value	Equation
D1	Target population	10,000	
D2	Yearly end-user salary	\$80,000	
D3	Number of hours	2,080	
D4	Hourly cost	\$38	$D2/D3$
D5	Number of hours lost per unforeseen change	1.5	
D6	number of unforeseen changes per user	2	
D7	Productivity per hour	23%	
D8	Total yearly savings	\$265,385	$D1*D4*D5*D6*D7$

Source: Forrester Research, Inc.

Minimizing downtime to business critical systems: In addition to enhancing end-user productivity, another area of benefit mentioned by the interviewed organization was being able to minimize the impact of overall downtime to business critical systems. Table 7 illustrates the steps taken to calculate this value.

Table 7: Downtime to Business-Critical Changes

Ref		Value	Equation
E1	Loss per day of business critical functions	\$5,000,000	
E2	Revenue regained	90%	
E3	Lost revenue	\$500,000	$E1*(1-E2)$
E4	Margin (cost of goods sold)	15%	
E5	Lost yearly profit	\$425,000	$E3*(1-E4)$

Source: Forrester Research, Inc.

Total Benefits: Table 8 illustrates the total benefits to the organization. As stated earlier, we have assumed that benefits will not start to accrue until the third year of analysis and the benefits ramp up to year five.

Table 8: Total Benefits to the Organization

Benefit	Percentage Breakdown	Year 1	Year 2	Year 3	Year 4	Year 5	Total	NPV
IT	60%							
IT - operational	90%	\$0	\$46,512	\$232,560	\$418,608	\$465,120	\$1,162,800	787,883
IT - capital	10%	\$0	\$4,000	\$20,000	\$36,000	\$40,000	\$100,000	67,757
Business	40%							
Internal	60%	\$0	\$26,538	\$132,692	\$238,846	\$265,385	\$663,462	449,544
External	40%	\$0	\$42,500	\$212,500	\$382,500	\$425,000	\$1,062,500	719,923
Total		\$0	\$119,550	\$597,752	\$1,075,954	\$1,195,505	\$2,988,762	\$2,025,108

Source: Forrester Research, Inc.

Risk

Risk is an estimate of the level of uncertainty around cost and benefit estimates. Risk-adjusted and non-risk adjusted ROI are both discussed in this study. The assessment of risks provides a range of possible outcomes, based on the risks associated with IT projects in general and specific risks relative to system management projects.

Risk factors are used in TEI to widen the possible outcomes of the costs and benefits (and resulting savings) associated with a project. Since the future cannot be accurately predicted, there is risk inherent in any project. TEI captures risk in the form of risks-to-benefits and risks-to-costs.

The following *general* risks were considered in this report:

- Lack of corporate discipline in creating processes and procedures to best take advantage of the capabilities of the solution
- Lack of appropriate training for IT and end-user personnel who will be responsible for achieving and optimizing the benefits from automated change management
- Increase in variability around benefit estimates over time

Summary and Conclusions

Table 9 illustrates the cash flow resulting from implementing the Remedy Change Management solution within the health care manufacturing organization.

Table 9: Resulting Cash Flow

Cash Flow	Year 1	Year 2	Year 3	Year 4	Year 5	Total	NPV
Cost	\$685,062	\$235,655	\$131,029	\$86,029	\$86,029	\$1,223,804	\$1,028,160
Benefit	\$0	\$119,550	\$597,752	\$1,075,954	\$1,195,505	\$2,988,762	\$2,025,108
Cash Flow	-\$685,062	-\$116,105	\$466,723	\$989,925	\$1,109,476	\$1,764,958	\$996,948
Payback							41 Months
ROI							97%

Source: Forrester Research, Inc.

The risk-adjusted cash flow appears in Table 10.

Table 10: Risk-Adjusted Cash Flow

Cash Flow	Year 1	Year 2	Year 3	Year 4	Year 5	Total	NPV
Cost	\$696,479	\$239,583	\$133,213	\$87,463	\$87,463	\$1,244,200	\$1,045,296
Benefit	\$0	\$117,558	\$587,790	\$1,058,022	\$1,175,580	\$2,938,949	\$1,991,356
Cash Flow	-\$696,479	-\$122,025	\$454,577	\$970,559	\$1,088,117	\$1,694,748	\$946,060
Payback							41 Months
ROI							91%

Source: Forrester Research, Inc.

These findings illustrate the five-year return for the interviewed organization.

The financial returns indicate that the use of Remedy Change Management within the representative organization drives efficiency savings within the organization, leading to a positive return on the IT investment. While the overall cash flow was positive, it should be noted that the time it took for benefits to accrue was lengthened in part due to organizational and process issues to implement the solution.

Glossary of Financial Terms

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.

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 NPV's.

Payback period: The break even 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 expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.