The Total Economic Impact™ Of SAS Customer Intelligence Solutions — Real-Time Decision Manager

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Table Of Contents

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Executive Summary

In May 2014, SAS commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying SAS Real-Time Decision Manager.

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Real-Time Decision Manager (RTDM) on their organizations. To better understand the benefits, costs, and risks, Forrester interviewed an existing customer — a retail bank — with more than a year of experience using RTDM.

The bank's goal was to build an integrated platform for CRM and Risk Management that would allow it to launch preapproved, cross-selling campaigns. Specifically, the bank wanted to pursue new, low-income customer segments for offering small-amount credit products. "We integrated a decision machine (SAS RTDM) with our CRM solutions and scoring application to create a powerful and flexible instrument," said the chief of the bank's credit strategies division.

Using SAS Real-Time Decision Manager, the bank improves its ability to target desirable customers and streamline the process for approving loans.

By implementing SAS RTDM, the bank:

- **Issues 25% more loans with the same staff: valued at more than $5.4 million.**
- **Eliminates IT development requirements: valued at $242,250.**

As a result of using SAS RTDM, the bank is able to target lower risk consumers with significantly greater accuracy. Improved customer targeting combined with automated business rules reduces time required to approve loans — and allows the bank to adjust its strategy every month. Using RTDM keeps the bank on the forefront of consumer trends and sustains a level of issuing loans that is 25% higher than before using RTDM.

SAS RTDM ENABLES BANK TO INCREASE LOAN VOLUME BY 25%

Our interview with an existing customer and subsequent financial analysis found that the bank experienced the risk-adjusted ROI, benefits, and costs shown in Figure 1. The analysis points to benefits of more than $4.6 million versus costs of $1.6 million, adding up to a net present value (NPV) of more than $2.9 million. The most significant benefit is that the bank is able to boost the volume of loans processed annually by 25%, which results in increasing the overall loan portfolio from $300 million to more than $478 million over three years.

FIGURE 1
Three-Year Risk-Adjusted ROI

Return on investment: 178%	**NPV benefit: $2,989,842**	**Payback period: 6.3 months**	**Increase in loans: 25%**

Source: Forrester Research, Inc.

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> **Benefits.** The organization experienced the following risk-adjusted benefits:

- **Increased volume of loans processed.** The bank processes 25% more loans using automated and flexible business rules using SAS RTDM. Before using RTDM, the bank had a portfolio of consumer loans of $300 million growing at 13% per year. After implementing RTDM, the bank boosts its loan volume by 25%, resulting in an impact of more than $255 million in new loans and $5.4 million in net profit over three years.

- **Reduced cost of IT staffing.** Reducing the cost for IT staff to code business rules by one full-time equivalent (FTE), saving the bank $242,250 over three years.

> **Costs.** The organization experienced the following risk-adjusted costs:

- **Servers, licenses, and maintenance fees.** The bank pays a total of $726,023 over three years in licenses fees, maintenance costs, servers, and professional services costs.

- **Implementation and configuration costs.** An initial team of 12 staff planned and implemented SAS RTDM over three months. A team of three professionals handled ongoing configuration changes and managed the ongoing changes to business rules, resulting in cost over three years of more than $1.1 million.

Disclosures

The reader should be aware of the following:

> The study is commissioned by SAS and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

> Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in SAS Real-Time Decision Manager.

> SAS reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

> SAS provided the customer names for the interviews but did not participate in the interviews.

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TEI Framework And Methodology

INTRODUCTION

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing SAS Real-Time Decision Manager. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision.

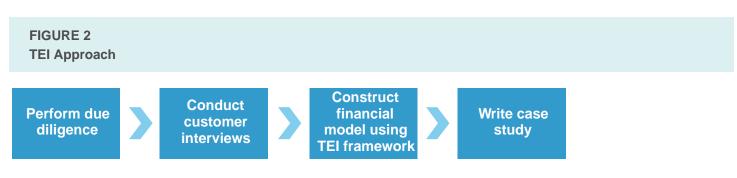**APPROACH AND METHODOLOGY**

Forrester took a multistep approach to evaluate the impact that SAS RTDM can have on an organization (see Figure 2). Specifically, Forrester:

› Interviewed SAS marketing personnel, along with Forrester analysts, to gather data relative to RTDM and the marketplace for business rule automation.

› Interviewed an organization currently using SAS RTDM to obtain data with respect to costs, benefits, and risks.

› Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interviews as applied to the bank.

Risk adjustment is a key part of the TEI methodology. While the interviewed organization provided cost and benefit estimates, some categories included a broad range of responses or had a number of outside forces that might have affected the results. For that reason, some cost and benefit totals have been risk-adjusted, and is detailed in each relevant section.

Forrester employed four fundamental elements of TEI in modeling SAS RTDM: benefits, costs, flexibility, and risks.

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

FIGURE 2
TEI Approach

Source: Forrester Research, Inc.

Analysis

INTERVIEW HIGHLIGHTS

Forrester interviewed a consumer bank located in Eastern Europe.

Situation

Before adopting SAS Real-Time Decision Manager, the bank:

› Targeted new, low-income customer segments for offering small-amount credit products.

› Compared a number of platforms and standalone products based on efficiency, cost, and market success.

Solution

Prior to purchasing RTDM, the bank compared a number of platforms based on performance, efficiency, and cost. The bank purchased SAS Real-Time Decision Manger. The implementation project lasted four months. The bank uses SAS products for marketing automation (campaign management) and risk management to build an integrated platform for launching preapproved, cross-selling campaigns. The chief of credit strategies told Forrester, "We combined a decision machine (RTDM) and scoring solution (SAS Credit Scoring for Banking) into a single platform and realized a powerful and flexible solution."

Results

Forrester's interview revealed that by using SAS Real-Time Decision Manager, the bank was able to:

› **Launch numerous strategies depending on products, clients, and partners.** By integrating systems, the bank is able to segment customers using a more complex set of inputs than would be possible with traditional segmentation, and business rules would have to be followed and enforced manually by loan officers.

› **Increase the capacity to process loans with the same staff by 25%.** Automation reduced the average time to approve a loan by 50%. When combined with lower-risk customers applying for loans and a 30% reduced time for testing new business rules, the same bank staff is able to process 25% more loans in the same amount of time.

> *"The integration and automation between CM and RTDM lets us launch campaigns without any human intervention."*
>
> ~Director, CRM and customer analytics

› **Reduce the time required to implement new business rules and strategies.** The bank changes its business rules on a nearly continuous basis in an effort to improve customer targeting and the quality of the loan product offered. Using RTDM shifted the business rules away from custom coding by IT professionals to a user-friendly interface, reducing the need for IT support staff by 30%.

› **Standardize on a single platform for making decisions and launching campaigns.** The director of CRM and customer analytics told Forrester, "Because interactions with campaign management and risk management systems are fully automated, the integration and automation between campaign management (CM) and RTDM lets us launch campaigns without any human intervention."

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BENEFITS

The organization experienced quantified benefits in this case study of:

› Increased volume of loans processed by 25%.

› Reduced cost of IT staffing to code business rules by 30%.

✪ Increased Volume Of Loans Processed

Using RTDM, the bank processes 25% more loans with the same staff. With dramatically improved customer segmentation and targeting, automation of business rules, and a 50% shorter time required to approve loans, the bank is able to grow its portfolio of loans more quickly. Before using RTDM, the bank had a portfolio of consumer loans of $300 million growing at 13% per year. After implementing RTDM, the bank boosts its loan volume by 25%.

The combined growth of the local market of 13% plus the growth enabled by RTDM compounded over three years to increase the bank's loan portfolio from $300 million to more than $478 million. At a 2.5% profit margin, the increase in revenue provides more than $6.1 million in profit to the bank's bottom line over three years.

Because the financial impact may differ for other companies reading this study — especially companies that are not in operating in a market growing at 13% per year — Forrester adjusts the benefit down by 15% to account for the risk that other organizations might experience a smaller financial impact. The risk-adjusted benefit is more than $5.4 million over three years.

TABLE 1					
Increased Volume Of Loans Processed					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
A1	Total loan growth without SAS RTDM	13% growth	$300,000,000	$339,000,000	$383,070,000
A2	Boost in loans using SAS RTDM	25%	$75,000,000	$84,750,000	$95,767,500
At	Net profit from increased loan volume	A2*2.5%	$1,875,000	$2,118,750	$2,394,188
	Risk adjustment		↓ 15%		
Atr	Net profit from increased loan volume (risk-adjusted)		$1,593,750	$1,800,938	$2,035,059

Source: Forrester Research, Inc.

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✪ Reduced Cost Of IT Staffing

By using RTDM, the bank simplified its previous methods of automating business rules, which required IT staff to create custom code. The consumer loan business unit reduced the cost that it paid for the internal IT group for support staff. In total, the bank reduced its need for one full-time equivalent (FTE) employee. Forrester uses a fully burdened salary of $85,000 for each of the three years. To risk-adjust the reduced cost of IT staffing, Forrester lowers the benefit down by 5% to a risk-adjusted benefit of $80,750 per year for a total of $242,250 over three years.

TABLE 2
Reduced Cost Of IT Staffing

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B1	Reduced IT staffing by 30%	1 FTE*$85K	$85,000	$85,000	$85,000
Bt	Reduced cost of IT staffing		$85,000	$85,000	$85,000
	Risk adjustment		↓ 5%		
Btr	Reduced cost of IT staffing (risk-adjusted)		$80,750	$80,750	$80,750

Source: Forrester Research, Inc.

✪ Unquantifiee Benefits

In addition to the benefits quantified in the previous sections, Forrester documented additional benefits that cannot be quantified. The benefits include:

› **Automated campaigns.** The bank uses multiple products from SAS — CM and RTDM. With the two products fully integrated, the bank is able to launch campaigns without any human intervention. The shift is allowing the bank to systematically search, identify, and target customers based on business rules rather than going through a cycle of segmentation, analytics, customer targeting, and launching of individual, standalone campaigns.

› **Reduced risk of loans.** Although the bank executives told Forrester that the new loans are targeted at more desirable customers and that loans have a lower risk of default, the bank, to date, is unable to measure the improved default rates.

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Total Benefits

Table 3 shows the total of all benefits across the five areas listed above, as well as present values (PVs) discounted at 10%. Over three years, the bank expects risk-adjusted total benefits to be a PV of more than $4.6 million.

TABLE 3

Total Benefits (Risk-Adjusted)

Benefit	Initial	Year 1	Year 2	Year 3	Total	Present value
Net profit from increased loan volume	$0	$1,593,750	$1,800,938	$2,035,059	$5,429,747	$4,466,212
Reduced cost of IT staffing	$0	$80,750	$80,750	$80,750	$242,250	$200,813
Total benefits	**$0**	**$1,674,500**	**$1,881,688**	**$2,115,809**	**$5,671,997**	**$4,667,025**

Source: Forrester Research, Inc.

COSTS

The organization experienced costs in this case study of:

› Servers, licenses, and maintenance fees.

› Implementation and configuration costs.

🪙 Servers, Licenses, And Maintenance Fees

The bank pays annual license and maintenance fees to SAS. In addition, the bank paid capital acquisition costs of $15,000 for servers that host RTDM and a total of $290,000 in professional services costs to set up, configure, and integrate RTDM with Siebel and other software tools used in campaigns. The costs are typical for the size and complexity of the bank's implementation of RTDM; as such, Forrester risk-adjusts the cost by 5%.

TABLE 4
Servers, Licenses, And Maintenance Fees

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
C1	License fees for SAS RTDM			$98,500	$107,000	$122,000
C2	Maintenance fees	C1*18%		$17,730	$19,260	$21,960
C3	Professional services for initial set up, configuration, and integration		$290,000			
C4	Servers to host RTDM		$15,000			
Ct	Servers, licenses, and maintenance fees	C1+C2+C3+C4	$305,000	$116,230	$126,260	$143,960
	Risk adjustment		↑ 5%			
Ctr	Servers, licenses, and maintenance fees (risk-adjusted)		$320,250	$122,042	$132,573	$151,158

Source: Forrester Research, Inc.

⑤ Implementation And Configuration Costs

The bank assigned a team of 12 employees to evaluate, architect, and manage the implementation of RTDM. This group worked for three months. In addition, a group of three employees handles the ongoing needs for configuration, updates, and changes to business rules. The total cost for the employees to implement and handle the ongoing configuration needs related to RTDM is shown in Table 5. The costs appear typical for the size and complexity of the bank's implementation of RTDM. The cost is risk-adjusted by 5%.

TABLE 5
Implementation And Configuration Costs

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
C1	Transition team of 12 people for three months	12 staff for 3 months	4			
C2	Ongoing configuration team	3 FTES		3	3	3
C3	Annual burdened salary per FTE		$85,000	$85,000	$85,000	$85,000
Ct	Implementation and configuration costs	(C1+C2)*C3	$340,000	$255,000	$255,000	$255,000
	Risk adjustment		↑ 5%			
Ctr	Implementation and configuration costs (risk-adjusted)		$357,000	$267,750	$267,750	$267,750

Source: Forrester Research, Inc.

Total Costs

Table 6 shows the total costs, as well as associated present values, discounted at 10%. Over three years, the organization spends more than $1.8 million, which calculates to a PV of more than $1.6 million.

TABLE 6
Total Costs (Risk-Adjusted)

Cost	Initial	Year 1	Year 2	Year 3	Total	Present value
Servers, licenses, and maintenance fees	$320,250	$122,042	$132,573	$151,158	$726,023	$654,329
Implementation and configuration costs	$357,000	$267,750	$267,750	$267,750	$1,160,250	$1,022,855
Total costs	**$677,250**	**$389,792**	**$400,323**	**$418,908**	**$1,886,273**	**$1,677,183**

Source: Forrester Research, Inc.

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FLEXIBILITY

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some future additional investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to implement RTDM and later realize additional uses and business opportunities. Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

The bank is experiencing flexibility by having the ability to launch automated campaigns. By automatically searching and identifying customer segments, the bank is able to identify customer segments that are unexpected and would likely go untapped using traditional methods. Early successes changed the perspectives of bank executives that were originally skeptical of automated targeting that now place greater trust in business rules and automated systems, and thus embrace the RTDM platform and encourage increases adoption across the bank.

RISKS

Forrester defines two types of risk associated with this analysis: "adoption risk" and "impact risk." "Adoption risk" is the risk that a proposed investment in RTDM may deviate from the original or expected requirements, resulting in higher costs than anticipated. "Impact risk" refers to the risk that the business or technology needs of the organization may not be met by the investment in RTDM, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

Quantitatively capturing investment risk and impact risk by directly adjusting the financial estimates results provides more meaningful and accurate estimates and a more accurate projection of the ROI. In general, risks affect costs by raising the original estimates, and they affect benefits by reducing the original estimates. The risk-adjusted numbers should be taken as "realistic" expectations since they represent the expected values considering risk. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.
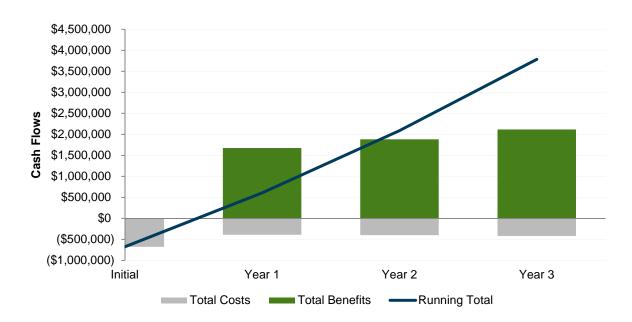

TABLE 7
Benefit And Cost Risk Adjustments

Benefits	Adjustment
Net profit from increased loan volume	↓ 15%
Reduced cost of IT staffing	↓ 5%

Costs	Adjustment
Servers, licenses, and maintenance fees	↑ 5%
Implementation and configuration costs	↑ 5%

Source: Forrester Research, Inc.

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Financial Summary

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the organization's investment in SAS Real-Time Decision Manager. Figure 3 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 7 in the Risks section to the unadjusted results in each relevant Costs and Benefits section.

FIGURE 3

Cash Flow Chart (Risk-Adjusted)

Source: Forrester Research, Inc.

TABLE 8

Cash Flow: Risk-Adjusted

	Initial	Year 1	Year 2	Year 3	Total	Present value
Costs	($677,250)	($389,792)	($400,323)	($418,908)	($1,886,273)	($1,677,183)
Benefits	$0	$1,674,500	$1,881,688	$2,115,809	$5,671,997	$4,667,025
Net benefits	($677,250)	$1,284,709	$1,481,365	$1,696,901	$3,785,724	$2,989,842
ROI						178%
Payback period						6.3 months

Source: Forrester Research, Inc.

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SAS Real-Time Decision Manager: Overview

The following information is provided by SAS. Forrester has not validated any claims and does not endorse SAS or its offerings.

SAS Real-Time Decision Manager allows organizations to leverage their inbound, real-time customer interactions. Companies can track and respond to customers at multiple touchpoints — service, sales, and support, etc. SAS combined analytics with business logic and contact strategies to deliver the real-time recommendations and decisions to your interactive customer channels — websites, contact centers, and point of sale.

Real-time analytics

- Integration with SAS 9 platform for real time analytics.
- Integration with SAS Enterprise Miner for more complex analytical processing.
- Analytical model housing and life-cycle management via integration with SAS Model Manager.
- Score nodes for calculating customer value.
- Process nodes for querying business rules and information to assist in determining next best actions.
- Branch nodes for guiding users to take certain paths through a diagram based on information gathered in the decision diagram up to that point in time.

Data throughput

- Ability to deliver a high volume of real-time transactions to meet the needs of the online channel.
- Ability to achieve response times required to ensure optimal customer experiences.
- Ability to update response history data as soon as a customer responds to offers.
- Simple integration with a variety of third-party applications at the data level through SAS integration utilities.

Decision processes

- Reusable, out-of-the box tasks for constructing rapid decision processes.
- Ability to create calculated variables without having to write code.
- Campaign components administration by the marketer and not IT.
- Simple, easy-to-follow workflow checklists.
- Ability to view data you are working with in decision creation.
- Both hierarchy and matrix views for assigning treatments to marketing cells.
- PDF diagram documentation for sharing throughout the organization.
- Reusability of nodes, calculated variables, test cases and subdiagrams from other decision campaigns.

Campaign testing

- Out-of-the-box A/B test nodes.
- Campaign analysis capabilities, including more campaign simulation options.
- Ability to test not only entire decision campaigns for their effectiveness, but subdiagrams and certain decision paths as well.
- Detailed response history, which translates to more information about your customers — thus better decision-making.

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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, flexibility, and risks.

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 form 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.

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.

RISKS

Risk measures the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections, and 2) 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 minimum, three values are calculated to estimate the underlying range around each cost and benefit.

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Appendix B: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Companies set their own 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 respective organizations 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 NPV of cash flows.

Payback period: The breakeven point for an investment. This is 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 at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations are not calculated until the summary tables are the sum of the initial investment and the discounted cash flows in each year.

TABLE [EXAMPLE] Example Table					
Ref.	Metric	Calculation	Year 1	Year 2	Year 3

Source: Forrester Research, Inc.

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