

CA Application Performance Management



Benefit vs. Cost Analysis for Customer One

REFERENCE ROI BUSINESS CASE

By: CA Technologies ROI & Business Value Analytics Team

NOTE TO READER

This is a **Reference Return on Investment (ROI) Business Case** which also known as a **Reference Benefit Cost Analysis (BCA) Business Case**. This **Reference** document represents the design or template that shows the layout of the various cost and benefit or business value components and their relationships to each other. The Reference Business Case template is based on a design that meets the needs of the maximum number of diverse enterprises in accordance with a set of business process patterns observed and is based on a set of scale, cost and rate metrics that describe the greatest number of customers.

The **Reference ROI/BCA Business Case** serves typically as a **starting point** for a **custom business case** which would be based on the customer's actual operational metrics.

The metrics used within this document to develop this ROI/BCA analysis are shown in Attachment B and are based on CA's best faith estimate of the metrics that comprise the **most likely enterprise in the most likely industry**. It also **assumes** that the customer's operational processes in IT are relatively immature and that the proposed solution is to be implemented in a **green field** IT environment. It also **assumes that all potential benefits are applicable** to the customer's current operations.

Table of Contents

Executive Summary 3

Financial Summary 5

Measurable Benefits Overview 6

Total Cost of Ownership (TCO) Overview 9

Total Cost of Ownership (TCO) Details 10

Total Benefit of Ownership (TBO) Details 11

Risk of Not Making Investment 13

Attachment A – TBO Assessment 14

Attachment B – Data Points and Assumptions 38

Attachment C – Financial Metric Definitions 41

Executive Summary

Overview

Today's mission-critical web applications perform a number of important business functions including revenue generation, supply chain management and the delivery of essential government services. For organizations deploying these web applications, the success or failure of the business depends on 1) the ability of end-users, or customers, to complete transactions reliably and 2) the ability of IT teams to find and fix problems rapidly before service level agreements (SLAs) have been breached.

Customer One Business Drivers

The CA Application Performance Management (APM) solution can help Customer One realize the following business objectives:

- ❖ Understand & prioritize the business impact of application performance based on real users' experience, thus ensuring customer satisfaction and retention.
- ❖ Protect revenue generating activities by ensuring that all transactions in production are monitored at all time to proactively manage application performance issues.
- ❖ Decrease operational costs by decreasing MTTR (Mean Time to Repair), hence improving IT Operations' productivity and effectiveness.
- ❖ Increase employee productivity, morale, and responsiveness to customers by ensuring high availability and performance of applications that are needed to support customer-facing tasks.

Customer One Requirements

For any organization, a key measure of success is how well customers are served. Business processes that enable customers, partners, and employees to complete business transactions successfully are the foundation for success. However, with the transition to Web applications, more and more transactions are processed automatically online and business stakeholders can no longer rely on traditional sources to understand what the end-user is really experiencing.

Solution Summary

The **CA Application Performance Management** solution consists of two primary components – **Introscope** and **Customer Experience Module (CEM)**.

The **CA APM** solution enables Customer One to monitor complex web applications on both the mainframe and distributed environments for production environments 24x7, detect problems before they affect your customers, and resolve these issues quickly and collaboratively. It gives you the ability to manage transaction integrity and user satisfaction - key requirements for ensuring successful customer interactions with your mission-critical web applications. Using patented, low-overhead technology, the **CA APM** solution provides comprehensive end-to-end transaction visibility across your entire infrastructure - the application itself, application servers, web servers, messaging, and other backend systems.

Business Value

CA's ability to execute is a function of its size, geographic reach, and financial stability. Our continued revenue growth and commitment to the market fuel our sustained investment in development for and marketing to the IT industry. Our worldwide sales, services, and support organizations assure that those investments will translate into customer touch and satisfaction.

Financial Summary

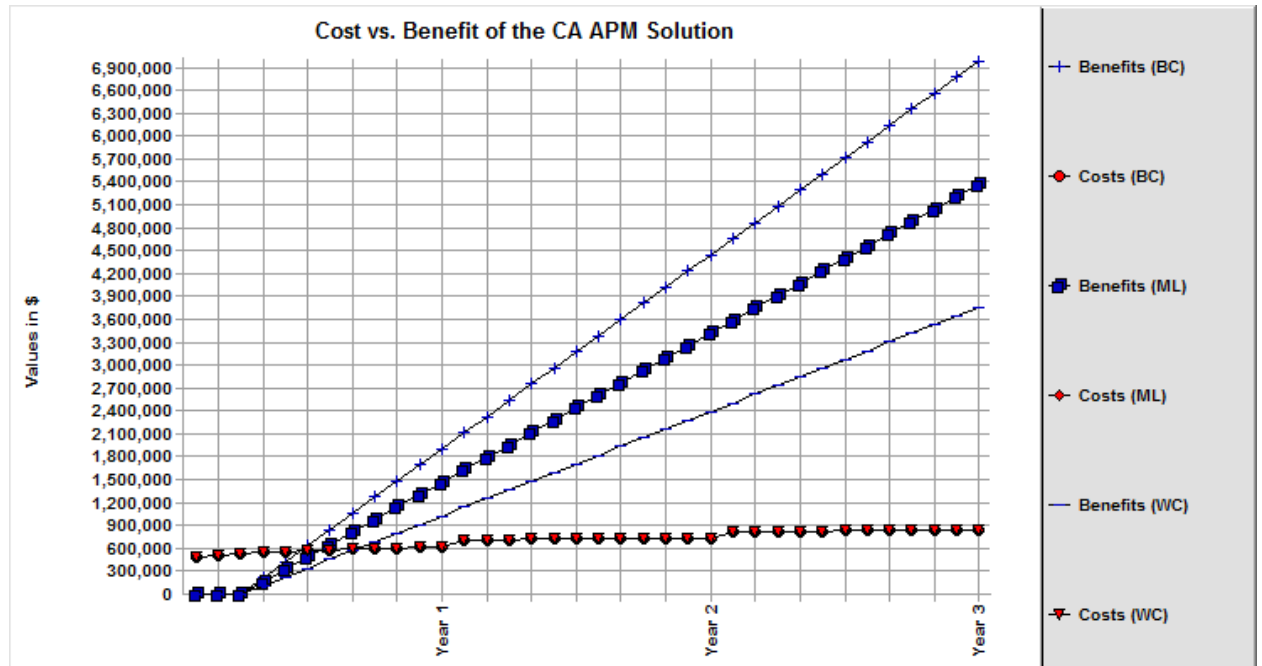
Based on the assumptions used in this ROI business case, CA has identified and quantified a series of potential economic benefits from the CA APM Solution for Customer One.

Detailed Financial Metrics

Financial Metrics	Best Case	Most Likely	Worst Case
Simple ROI	437%	322%	207%
Payback (Months)	7	8	11
(ramp-up time included)	3 months	3 months	3 months
NPV (Net Present Value)	\$2,983,402	\$2,178,630	\$1,373,859
IRR (Internal Rate of Return)	250%	192%	131%
Risk of Not Investing	\$2,717,595	\$2,007,376	\$1,297,157
TBO (Total Benefit of Ownership)	\$6,984,394	\$5,370,791	\$3,757,187
TCO (Total Cost of Ownership)	\$843,900	\$843,900	\$843,900
Cumulative Cash Flow	\$3,684,297	\$2,716,134	\$1,747,972

Note: A 12.00% Discount Rate and 40.00% Tax Rate were used for this CA APM Business Case. The values are 3 year cumulative.

Cost vs. Benefit



Note: The lines in the chart are Cumulative Benefits (TBO) and Cumulative Costs (TCO). This chart reflects the timeframe in which the project reaches positive cash flow ('Most Likely Case' scenario).

Measurable Benefits Overview

A total of **13 benefits** have been quantified for an estimated **3-year cumulative savings of \$5,370,791** in the 'Most Likely Case' scenario of this business case.

- 1. Reduced Revenue Impact through Improved Business Services Availability** **\$825,000**

The Application Performance Management solution enables IT teams to expertly manage the performance and availability of mission-critical application infrastructure resources to better assure revenue streams. Improvements in availability of mission-critical, customer-facing systems and other infrastructure preserve the integrity of the brand. [See Page 16.](#)
- 2. Improved IT Staff Productivity with Managing Application Performance with Pre- and Post-Production Planning & Tuning** **\$682,990**

In order to avoid critical situations, understanding the application's behavior under simulated user load is critical before rolling an application into production. Historical data reporting allows IT staff to analyze trends and better plan for capacity. Understanding how and whether the application will scale is the key question for which capacity planners must prepare. In order to avoid critical situations, understanding the application's behavior under simulated user load, be able to monitor the impact of emergency patches, perform functionality, and regression testing are all critical activities before rolling an application into the production environment. Understanding how and whether the application will scale is the key question for which capacity planners must prepare. The CA APM solution enables IT Staff to spend less time "firefighting". Savings from enhanced IT productivity often realized as the ability to better utilize highly skilled resources. [See Page 18.](#)
- 3. Improved Retention of Customers due to Higher Satisfaction** **\$618,750**

The business will lose a percentage of its customers if the on-line experience is unsatisfactory, slow, or unresponsive due to poor application availability and performance. There is a cost to the business of getting their customers back if their customers have defected. The CA application performance management solution monitors, maintains and manages all the components of the customer's on-line transactions for an improved experience. [See Page 20.](#)
- 4. Improved Productivity for Internal Business End Users through Improved Business Services Availability** **\$554,870**

Internal Business End User Productivity Benefits are enhanced through performance improvement to increase system availability of critical web applications and system resources used on the job and in the field. By monitoring resources from an application perspective, application supporters can respond to application centric problems identified by the help desk. Problems come into the help desk or are reported as poor performance or inability to complete an online form for an application. Application support staff can analyze problems and identify the source from an application perspective. [See Page 22.](#)
- 5. Reduced Frequency and Duration of Triage Calls through Improved Visibility into Failed Applications Infrastructure Components** **\$508,200**

Proactive incident detection and notification when problems occur, rapid triaging to quickly and reliably eliminate the chaos of the "blame game", and faster root cause diagnosis to resolve performance problems, all combine to improve management of application performance incidents.

Through a unified and simplified console, the frequency and duration of triage calls can be reduced through the integrated solution. Rapid root cause identification also increases MTTR thereby improving FTE productivity and reliability of the IT infrastructure. The end-to-end performance monitoring gauges provided by the APM solution show how well the IT Infrastructure is delivering services to the business end user and provides a comprehensive view of infrastructure performance and gives triage teams the ability to quickly identify problem root cause and reduce MTTI and MTTR. Through a unified and simplified infrastructure management console through a single pane of glass, the frequency and duration of triage calls can be reduced by the integrated solution providing accelerated diagnosis of performance issues for applications that traverse the enterprise. [See Page 24.](#)

- 6. Decreased Service Desk Costs for Resolution of Application Performance Issues \$495,000**
At Level 1 through Automation of Events / Actions
 Service Desk calls placed by customers and internal users are quickly resolved due to automation. Proactive incident detection, notification, automated correlation and threshold alerting, faster root cause identification and rapid triaging allows for quicker resolution before customers are affected. With increased application availability, fewer calls by customers and internal users are placed into the Service Desk. [See Page 26.](#)
- 7. Improved Utilization of Application Development Staff with Pre- and Post-Production Planning and Tuning \$468,336**
 Through the detailed metrics provided by the CA APM solution, businesses with applications in production can provide the development team with valuable feedback. Developers can reduce time wasted defending their code in production, or generating on-the - Fly fixes for production applications. The CA APM solution enables developers to spend more time developing and less time "firefighting". Savings from enhanced IT productivity often realized as the ability to better utilize highly skilled resources. [See Page 28.](#)
- 8. Decreased Service Desk Costs for Resolution of Application Performance Issues \$352,275**
at Level 2/3 through Quicker Root Cause Identification
 Service Desk issues escalated to Level 2/3 are quickly resolved due to faster root cause identification. Proactive incident detection, faster root cause identification and rapid triaging allows for quicker resolution before customers are affected. With better tools for identifying root cause of application performance issues, Level 2/3 issues are quickly resolved thereby reducing MTTR. [See Page 30.](#)
- 9. Reduced Cost of Web Transactions Conversion to Costlier Service Channels \$301,744**
(e.g., by Phone, In-Person, etc.)
 CA CEM provides real-time visibility into customer transactions, enabling you to quickly identify, prioritize and resolve defective transactions or infrastructure problems. This capability ensures that end-users won't abandon critical on-line applications for costlier channels of service. [See Page 32.](#)
- 10. Reduced Risk of SLA Penalties through Increased Visibility in SLA Compliance Factors \$173,250**
 With improved monitoring and increased visibility into the availability and performance of networks, servers and applications delivering SLA compliance, an enterprise can be proactive and avoid the risk and the cost of SLA non-compliance. [See Page 35.](#)

11. Reduction in Cost of Application Performance Software Maintenance Renewals for Replaced or Redundant Software **\$143,688**

The composite automation/integration capabilities of the integrated CA APM solution enables the IT organization to realize cost savings from avoiding unnecessary IT software maintenance renewals for replaced or redundant software for the distributed environment. [See Page 36.](#)

12. Improved Equipment Utilization and Scalability through Improved Capacity Planning **\$123,750**

Comprehensive tracking of historical, real-time application performance and capacity data optimizes equipment requirements planning and equipment utilization. [See Page 38.](#)

13. Reduced Manual Registration Rework Caused by System Performance Issues **\$122,938**

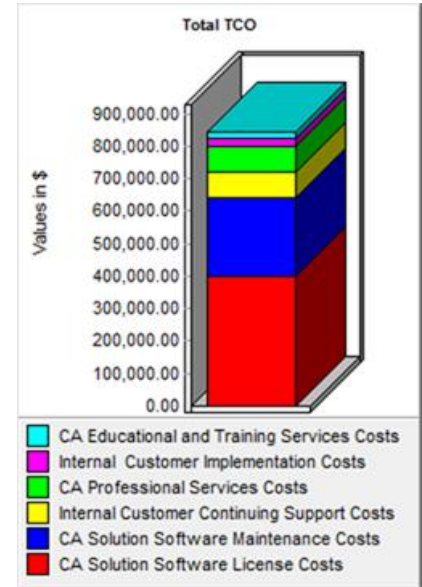
User registration dropouts occur throughout the year caused by poor application performance. These dropouts require manual reviews and adjustments by customer facing staff, causing significant delays in the ordering process until the user account is established. [See Page 39.](#)

Total Cost of Ownership (TCO) Overview

The Total Cost of Ownership includes the initial and on-going costs of the proposed CA APM Solution. These estimations also include the internal cost areas such as additional support and system administration costs.

This section presents a summary of the total projected cost of ownership (TCO) of the proposed solution.

The total cost in year one is estimated to be **\$628,900**. The TCO over 3 years is estimated to be **\$843,900** as shown in the graph.



Total Cost of Ownership (TCO) Details

The following Total Cost of Ownership table of estimates shows a detailed itemized cost break-down for the proposed solution over the period of 3 years.

TCO

Cost Source	Cost Type	Year 1	Year 2	Year 3	Category
CA Technologies	Solution License	\$400,000			Capital Amortized
CA Technologies	Solution Maintenance	\$80,000	\$80,000	\$80,000	Expenses
CA Technologies	Professional Services	\$75,000			Expenses
CA Technologies	Education & Training	\$18,900			Expenses
Customer One	Hardware				Capital Depreciated
Customer One	Implementation	\$27,500			Expenses
Customer One	Continuing Support	\$27,500	\$27,500	\$27,500	Expenses
Customer One	Additional Expense				Expenses
	TOTAL	\$628,900	\$107,500	\$107,500	

Total Benefit of Ownership (TBO) Details

The following table projects the impact range of each quantifiable benefit identified in this business case. The dollar amounts are estimated 3 year cumulative savings numbers.

TBO

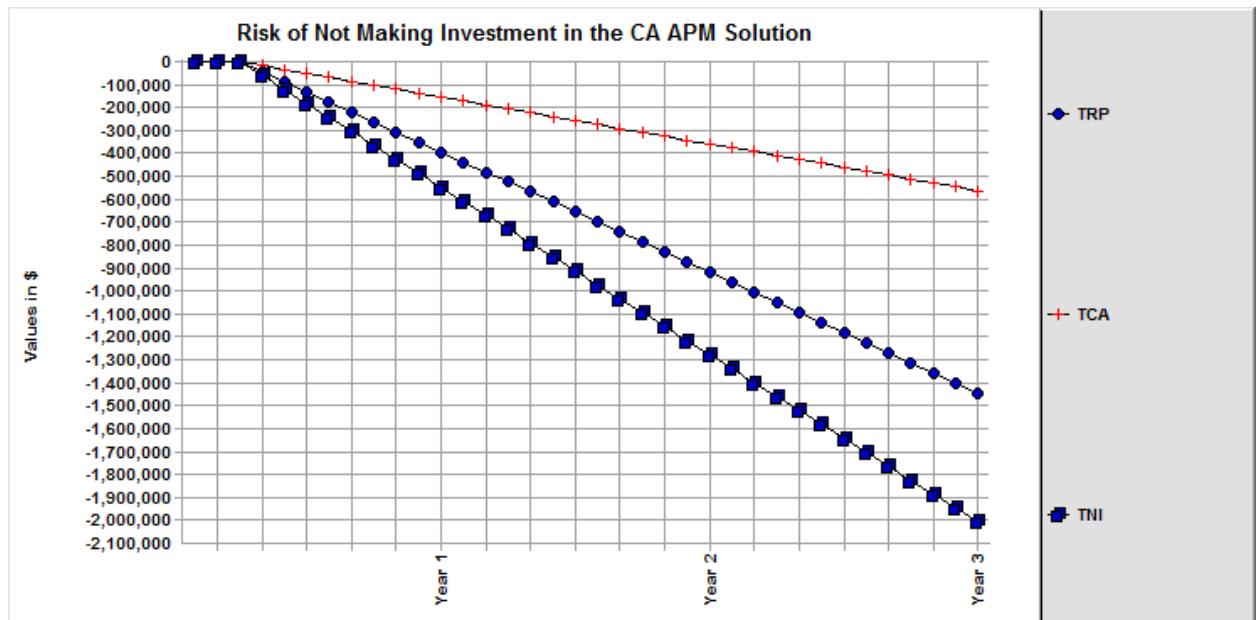
Solution	Operational Benefit	Measurable Assumption	Best Case	Most Likely Case	Worst Case
CA APM	Reduced Revenue Impact through Improved Business Services Availability	Revenue protection based on increased reliability of application infrastructure.	\$1,237,500	\$825,000	\$412,500
CA APM	Improved IT Staff Productivity with Managing Application Performance in the Production Environment	Improved IT Staff Productivity.	\$780,560	\$682,990	\$585,420
Customer Experience	Improved Retention of Customers due to Higher Satisfaction	Potential lost revenue due to poor customer satisfaction.	\$825,000	\$618,750	\$412,500
CA APM	Improved Productivity for Internal Business End Users thru Improved Business Services Availability	Cost savings from improved internal end-user productivity.	\$832,305	\$554,870	\$277,435
CA APM	Reduced Freq/Duratr of Triage Calls through Improved Visibility into Failed App Infrastr Components	Improved productivity of application performance management FTEs involved in triage calls.	\$580,800	\$508,200	\$435,600

Solution	Operational Benefit	Measurable Assumption	Best Case	Most Likely Case	Worst Case
CA APM	Decreased Service Desk Costs for Resolution of IT Infrastructure Perf Issues @ Level 1 thru Auto	Improved Service Desk Staff Productivity at Level 1	\$660,000	\$495,000	\$330,000
CA APM	Improved Utilization of Application Development Staff with Pre- & Post-Production Planning & Tuning	Improved Application Development Staff Productivity & Utilization	\$624,448	\$468,336	\$312,224
CA APM	Decreased Service Desk Costs for Resolution of IT Infrastructure Issues @ Level 2/3 through Root	Improved Service Desk Staff Productivity at Level 2/3	\$469,700	\$352,275	\$234,850
Customer Experience	Reduced Cost of Web Transactions Conversion to Costlier Service Channels (Phone, In-Person)	Reduce customer service cost.	\$318,986	\$301,744	\$284,501
CA APM	Reduced Risk of SLA Penalties through Increased Visibility into SLA Compliance	Annual savings in SLA penalties	\$202,125	\$173,250	\$144,375

Note: Please see Attachment A of this business case for additional detail on each benefit with corresponding baseline data, assumptions used, and methods of quantification.

Risk of Not Making Investment

The estimated risk of not making this investment related to Revenue Protection and Cost Avoidance opportunities is charted over the 3-year business case period and shown below.



Note: TRP= Total Revenue Protection, TCA= Total Costs Avoidance, TNI= Total Risk of Not Making Investment

Attachment A – TBO Assessment

This section provides a detailed list of Forecasted Benefits included in this Business Case for the CA APM solution.

1. Reduced Revenue Impact through Improved Business Services Availability

Type of Profit Impact: Revenue Protection

Solution: CA APM

Feature Value Creation: The Application Performance Management solution enables IT teams to expertly manage the performance and availability of mission-critical application infrastructure resources to better assure revenue streams. Improvements in availability of mission-critical, customer - Facing systems and other infrastructure preserves the integrity of the brand.

Measurable Assumption: Revenue protection based on increased reliability of application infrastructure.

Means of Quantification: FI in App Infrastructure Performance for Customers * Total Revenue touched by IT Infrastructure * % Revenue Impacted by IT Infrastructural Performance Issues

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$337,500	\$225,000	\$112,500
Year 2	\$450,000	\$300,000	\$150,000
Year 3	\$450,000	\$300,000	\$150,000
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$1,237,500	\$825,000	\$412,500

Assumption Key: F1

Assumption Name: FI in App Infrastructure Performance for Customers

Forecast Improvement in Revenue Protection with improved Application Infrastructure Performance.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Most Likely Case	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Worst Case	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%

Assumption Key: F2**Assumption Name:** Total Revenue touched by IT Infrastructure

The amount of annual revenue generated by business end users using the company's IT infrastructure.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000
Most Likely Case	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000
Worst Case	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000	\$300,000,000

Assumption Key: F3**Assumption Name:** % Revenue Impacted by IT Infrastructural Performance Issues

Business transactions that are unable to be completed, or abandoned due to poor IT infrastructure performance or outages.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Most Likely Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Worst Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%

2. Improved IT Staff Productivity with Managing Application Performance in the Production Environment

Type of Profit Impact: Variable Cost Reduction

Solution: CA APM

Feature Value Creation: In order to avoid critical situations, understanding the application's behavior under simulated user load is critical before rolling an application into production. Historical data reporting allows IT staff to analyze trends and better plan for capacity.

The ability to track tuning or optimization changes before release to production, verify that only expected changes are made, and by correlating changes with performance metrics, ensure that the changes actually result in the desired result. The CA APM solution enables IT Staff to spend less time "firefighting". Savings from enhanced IT productivity often realized as the ability to better utilize highly skilled resources.

Measurable Assumption: Improved IT Staff Productivity.

Means of Quantification: FI IT Staff Productivity in Pre-Production * Number of IT Staff FTEs * Annual Salary of an IT Staff FTE

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$212,880	\$186,270	\$159,660
Year 2	\$283,840	\$248,360	\$212,880
Year 3	\$283,840	\$248,360	\$212,880
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$780,560	\$682,990	\$585,420

Assumption Key: F1

Assumption Name: FI IT Staff Productivity in Pre-Production

Forecasted increase in IT Staff productivity.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Most Likely Case	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Worst Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%

Assumption Key: F2**Assumption Name:** Number of IT Staff FTEs

Number of IT Staff FTEs involved in diagnosing/resolving performance issues

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs
Most Likely Case	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs
Worst Case	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs

Assumption Key: F3**Assumption Name:** Annual Salary of an IT Staff FTE

Source of this data sample is Bureau of Labor Statistics Survey for Network and Computer Systems Administrators for management of companies and enterprises

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960
Most Likely Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960
Worst Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960

3. Improved Retention of Customers due to Higher Satisfaction

Type of Profit Impact: Revenue Protection

Solution: Customer Experience

Feature Value Creation: The business will lose a percentage of its customers if the on-line experience is unsatisfactory, slow, or unresponsive due to poor application availability and performance. There is a cost to the business of getting their customers back if their customers have defected. The CA application performance management solution monitors, maintains and manages all the components of the customer's on-line transactions for an improved experience.

Measurable Assumption: Potential lost revenue due to poor customer satisfaction.

Means of Quantification: FI % Improvement in the On-Line Transacting Avail * Total Revenue Handled/Processed by Applications * % Customer Defections due to Poor Experience

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$225,000	\$168,750	\$112,500
Year 2	\$300,000	\$225,000	\$150,000
Year 3	\$300,000	\$225,000	\$150,000
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$825,000	\$618,750	\$412,500

Assumption Key: F1

Assumption Name: FI % Improvement in the On-Line Transacting Avail

The % Improvement in the On-Line Transacting Availability

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Most Likely Case	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Worst Case	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

Assumption Key: F2

Assumption Name: Total Revenue Handled/Processed by Applications

The amount of annual revenue generated by customers using the company's web applications.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000
Most Likely Case	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000
Worst Case	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000	\$150,000,000

Assumption Key: F3**Assumption Name: % Customer Defections due to Poor Experience**

The % Customer Defections due to Poor Experience.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Most Likely Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Worst Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%

4. Improved Productivity for Internal Business End Users thru Improved Business Services Availability

Type of Profit Impact: Variable Cost Reduction

Solution: CA APM

Feature Value Creation: Business End User Productivity is enhanced through increased availability and performance of business application, systems and other IT resources which are made possible through automation of Service Desk functions and enhanced by the operations view provided to IT Staff by the solution dashboard.

Measurable Assumption: Cost savings from improved internal end-user productivity.

Means of Quantification: FI in IT Performance for Internal End Users * Total Number of Business End Users * % of Users Impacted by Outage/Poor Performance * Annual Salary of a Business End User

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3 * F4

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$226,992	\$151,328	\$75,664
Year 2	\$302,657	\$201,771	\$100,886
Year 3	\$302,657	\$201,771	\$100,886
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$832,305	\$554,870	\$277,435

Assumption Key: F1

Assumption Name: FI in IT Performance for Internal End Users

Internal End User Productivity is enhanced through improved IT Performance.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Most Likely Case	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Worst Case	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%

Assumption Key: F2**Assumption Name:** Total Number of Business End Users

This is the number of employees working for the company who rely on IT infrastructure components and applications.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs
Most Likely Case	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs
Worst Case	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs	2,700 FTEs

Assumption Key: F3**Assumption Name:** % of Users Impacted by Outage/Poor Performance

What is the percentage of end users per incident impacted by non - Functional IT infrastructure.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Most Likely Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Worst Case	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%

Assumption Key: F4**Assumption Name:** Annual Salary of a Business End User

Source of this data sample is Bureau of Labor Statistics Survey for Architecture and Engineering Occupations

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$74,730	\$74,730	\$74,730	\$74,730	\$74,730	\$74,730
Most Likely Case	\$74,730	\$74,730	\$74,730	\$74,730	\$74,730	\$74,730
Worst Case	\$74,730	\$74,730	\$74,730	\$74,730	\$74,730	\$74,730

5. Reduced Frequency and Duration of Triage Calls through Improved Visibility into Failed Infrastructure Components

Type of Profit Impact: Variable Cost Reduction

Solution: CA APM

Feature Value Creation: Proactive incident detection and notification when problems occur, rapid triaging to quickly and reliably eliminate the chaos of the "blame game", and faster root cause diagnosis to resolve performance problems, all combine to improve management of application performance incidents. Through a unified and simplified console, the frequency and duration of triage calls can be reduced through the integrated solution. Rapid root cause identification also increases MTTR thereby improving FTE productivity and reliability of the IT infrastructure. The end-to-end performance monitoring gauges provided by the APM solution show how well the IT Infrastructure is delivering services to the business end user and provides a comprehensive view of infrastructure performance and gives triage teams the ability to quickly identify problem root cause and reduce MTTI and MTTR.

Measurable Assumption: Improved productivity of application performance management FTEs involved in triage calls.

Means of Quantification: FI in Improvement in Efficiency of Triage Calls * # of Triage Calls per Year * # of Operations Managers involved per Triage Call * Average # Hours expended on Triage Calls per FTE * (Annual Salary of an Operations Manager/Lead / Staff Hours Worked per Year)

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3 * F4 * (F5 / F6)

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$158,400	\$138,600	\$118,800
Year 2	\$211,200	\$184,800	\$158,400
Year 3	\$211,200	\$184,800	\$158,400
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$580,800	\$508,200	\$435,600

Assumption Key: F1

Assumption Name: FI in Improvement in Efficiency of Triage Calls

CA best practices typically see an improvement in the frequency and duration in calls after implementing this type of solution.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Most Likely Case	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Worst Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%

Assumption Key: F2**Assumption Name:** # of Triage Calls per Year

For a typical customer the frequency can range from 1 - 20 calls per month (almost daily), which translates to 240 calls per year

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	240 Calls	240 Calls	240 Calls	240 Calls	240 Calls	240 Calls
Most Likely Case	240 Calls	240 Calls	240 Calls	240 Calls	240 Calls	240 Calls
Worst Case	240 Calls	240 Calls	240 Calls	240 Calls	240 Calls	240 Calls

Assumption Key: F3**Assumption Name:** # of Operations Managers involved per Triage Call

For this customer, bridge can include 10, 20, up to 30 people.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs
Most Likely Case	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs
Worst Case	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs	10 FTEs

Assumption Key: F4**Assumption Name:** Average # Hours expended on Triage Calls per FTE

For this customer, the range is from 4 - 12 hours per triage call of effort.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	4 Hrs	4 Hrs	4 Hrs	4 Hrs	4 Hrs	4 Hrs
Most Likely Case	4 Hrs	4 Hrs	4 Hrs	4 Hrs	4 Hrs	4 Hrs
Worst Case	4 Hrs	4 Hrs	4 Hrs	4 Hrs	4 Hrs	4 Hrs

Assumption Key: F5**Assumption Name:** Annual Salary of an Operations Manager/Lead

Average loaded salary of an Operations Manager/Technical Lead involved in triage calls.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
Most Likely Case	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
Worst Case	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000

Assumption Key: F6**Assumption Name:** Staff Hours Worked Per Year

This is the average number of hours worked by the IT staff per year and may vary from company to company.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours
Most Likely Case	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours
Worst Case	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours

6. Decreased Service Desk Costs for Resolution of IT Infrastructure Performance Issues at Level 1 through Automation of Events, Actions and Notifications

Type of Profit Impact: Variable Cost Reduction

Solution: CA APM

Feature Value Creation: Service Desk calls placed by customers and internal users are quickly resolved due to automation. Proactive incident detection, notification, automated correlation and threshold alerting, faster root cause identification and rapid triaging allows for quicker resolution before customers are affected. With increased application availability, fewer calls by customers and internal users are placed into the Service Desk.

Measurable Assumption: Improved Service Desk Staff Productivity at Level 1

Means of Quantification: FI in Number of Calls into Service Desk @Level 1 * Number of Level 1 Service Desk FTEs * Annual Salary of a Service Desk Level 1 FTE

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F4

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$180,000	\$135,000	\$90,000
Year 2	\$240,000	\$180,000	\$120,000
Year 3	\$240,000	\$180,000	\$120,000
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$660,000	\$495,000	\$330,000

Assumption Key: F1

Assumption Name: FI in Number of Calls into Service Desk @Level 1

Improved efficiency at Level 1 response to issues, estimated from 20% to 35%.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Most Likely Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Worst Case	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%

Assumption Key: F2**Assumption Name:** Number of Level 1 Service Desk FTEs

This position is responsible for taking calls from users of business applications, entering them in the Service Desk and routing them to the correct queue for resolution.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	12 FTEs	12 FTEs	12 FTEs	12 FTEs	12 FTEs	12 FTEs
Most Likely Case	12 FTEs	12 FTEs	12 FTEs	12 FTEs	12 FTEs	12 FTEs
Worst Case	12 FTEs	12 FTEs	12 FTEs	12 FTEs	12 FTEs	12 FTEs

Assumption Key: F4**Assumption Name:** Annual Salary of a Service Desk Level 1 FTE

Source is 2009 Help Desk Institute (HDI) including 29% Benefits per Bureau of Labor Statistics 2008

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Most Likely Case	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Worst Case	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000

7. Improved Utilization of Application Development Staff with Pre- & Post-Production Planning & Tuning

Type of Profit Impact: Variable Cost Reduction

Solution: CA APM

Feature Value Creation: In order to avoid critical situations, understanding the application's behavior under simulated user load is critical before rolling an application into production. Historical data reporting allows IT staff to analyze trends and better plan for capacity.

Understanding how and whether the application will scale is the key question for which capacity planners must prepare. Introscope's abilities to capture database response times, map memory usage, and provide detailed historical transactional data for baselining help prepare an application for the production environment.

The ability to track tuning or optimization changes before release to production, verify that only expected changes are made, and by correlating changes with performance metrics, ensure that the changes actually result in the desired result.

Measurable Assumption: Improved Application Development Staff Productivity & Utilization

Means of Quantification: FI in Development Staff Productivity * Number of Application Developer FTEs
* Annual Salary of an Application Developer FTE

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$170,304	\$127,728	\$85,152
Year 2	\$227,072	\$170,304	\$113,536
Year 3	\$227,072	\$170,304	\$113,536
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$624,448	\$468,336	\$312,224

Assumption Key: F1**Assumption Name:** FI in Development Staff Productivity

Development staff spends less time firefighting performance issues and more time focused on development work.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Most Likely Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Worst Case	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%

Assumption Key: F2**Assumption Name:** Number of Application Developer FTEs

Number of application developers involved in diagnosing/resolving performance issues.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	8 FTEs	8 FTEs	8 FTEs	8 FTEs	8 FTEs	8 FTEs
Most Likely Case	8 FTEs	8 FTEs	8 FTEs	8 FTEs	8 FTEs	8 FTEs
Worst Case	8 FTEs	8 FTEs	8 FTEs	8 FTEs	8 FTEs	8 FTEs

Assumption Key: F3**Assumption Name:** Annual Salary of an Application Developer FTE

Source of this data sample is Bureau of Labor Statistics Survey for Network and Computer Systems Administrators for management of companies and enterprises

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960
Most Likely Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960
Worst Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960

8. Decreased Service Desk Costs for Resolution of IT Infrastructure Issues at Level 2/3 through Quicker Root Cause Identification

Type of Profit Impact: Variable Cost Reduction

Solution: CA APM

Feature Value Creation: Service Desk issues escalated to Level 2/3 are quickly resolved due to faster root cause identification. Proactive incident detection, faster root cause identification and rapid triaging allows for quicker resolution before customers are affected. With better visibility into identifying root cause of application performance issues, Level 2/3 issues are quickly resolved.

Measurable Assumption: Improved Service Desk Staff Productivity at Level 2/3

Means of Quantification: FI in Number of Calls into Service Desk @Level 2/3 * Number of Level 2/3 Service Desk FTEs * Annual Salary of a Service Desk Level 2/3 FTE

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$128,100	\$96,075	\$64,050
Year 2	\$170,800	\$128,100	\$85,400
Year 3	\$170,800	\$128,100	\$85,400
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$469,700	\$352,275	\$234,850

Assumption Key: F1

Assumption Name: FI in Number of Calls into Service Desk @Level 2/3

Improved efficiency at Level 2/3 response to issues, estimated from 20% to 35%.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Most Likely Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Worst Case	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%

Assumption Key: F2

Assumption Name: Number of Level 2/3 Service Desk FTEs

This position is responsible for 1st or 2nd level identification and resolution of incidents and problems.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	7 FTEs	7 FTEs	7 FTEs	7 FTEs	7 FTEs	7 FTEs
Most Likely Case	7 FTEs	7 FTEs	7 FTEs	7 FTEs	7 FTEs	7 FTEs
Worst Case	7 FTEs	7 FTEs	7 FTEs	7 FTEs	7 FTEs	7 FTEs

Assumption Key: F3

Assumption Name: Annual Salary of a Service Desk Level 2/3 FTE

Source is 2009 Help Desk Institute (HDI) including 29% Benefits per Bureau of Labor Statistics 2008

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$61,000	\$61,000	\$61,000	\$61,000	\$61,000	\$61,000
Most Likely Case	\$61,000	\$61,000	\$61,000	\$61,000	\$61,000	\$61,000
Worst Case	\$61,000	\$61,000	\$61,000	\$61,000	\$61,000	\$61,000

9. Reduced Cost of Web Transactions Conversion to Costlier Service Channels (e.g., to Phone, In-Person, etc.)

Type of Profit Impact: Variable Cost Reduction

Solution: Customer Experience

Feature Value Creation: CA CEM provides real-time visibility into customer transactions, enabling you to quickly identify, prioritize and resolve defective transactions or infrastructure problems. This capability ensures that end-users won't abandon critical in-line applications for costlier channels of service such as phone and/or in-person.

Measurable Assumption: Reduce customer service cost.

Means of Quantification: $FI \% \text{ Improvement in App Availability \& Performance} * \% \text{ Transactions impacted by poor app performance} * (((\text{Average Number of Web Transactions} * \% \text{ Web Transactions Convert to In-Person} * \text{Cost Per In-Person Transaction}) + (\text{Average Number of Web Transactions} * \% \text{ Web Transactions Convert to Phone} * \text{Cost per Phone Transaction}) + (\text{Average Number of Web Transactions} * \% \text{ Web Transactions Deflected to E-Mail} * \text{Cost per E-Mail Transaction})) - ((\% \text{ Web Transactions Convert to In-Person} + \% \text{ Web Transactions Convert to Phone} + \% \text{ Web Transactions Deflected to E-Mail}) * (\text{Average Number of Web Transactions} * \text{Cost per Web Transaction})))$

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: $F1 * F3 * (((F2 * F5 * F6) + (F2 * F7 * F8) + (F2 * F9 * F10)) - ((F5 + F7 + F9) (F2 * F4)))$

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$86,996	\$82,294	\$77,591
Year 2	\$115,995	\$109,725	\$103,455
Year 3	\$115,995	\$109,725	\$103,455
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$318,986	\$301,744	\$284,501

Assumption Key: F1

Assumption Name: FI % Improvement in App Availability & Performance

Forecasted % increase in application availability and performance.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	37.00%	37.00%	37.00%	37.00%	37.00%	37.00%
Most Likely Case	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Worst Case	33.00%	33.00%	33.00%	33.00%	33.00%	33.00%

Assumption Key: F2**Assumption Name:** Average Number of Web Transactions

of Web based Service Transactions per Year.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans
Most Likely Case	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans
Worst Case	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans	3,300,000 Trans

Assumption Key: F3**Assumption Name:** % Transactions impacted by poor app performance

% of application down time or poor performance.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Most Likely Case	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Worst Case	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%

Assumption Key: F4**Assumption Name:** Cost per Web Transaction

The Average cost per web transaction.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Most Likely Case	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Worst Case	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00

Assumption Key: F5**Assumption Name:** % Web Transactions Convert to In-Person

The % Web Transactions Convert to In-Person.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Most Likely Case	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Worst Case	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

Assumption Key: F6**Assumption Name:** Cost per In-Person Transaction

The Average cost per in-person transaction.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00
Most Likely Case	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00
Worst Case	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00

Assumption Key: F7**Assumption Name:** % Web Transactions Convert to Phone

The % Web Transactions Convert to Phone.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
Most Likely Case	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
Worst Case	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%

Assumption Key: F8**Assumption Name: Cost per Phone Transaction**

The Cost per Phone Transaction.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
Most Likely Case	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
Worst Case	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00

Assumption Key: F9**Assumption Name: % Web Transactions Deflected to E-Mail**

The % Web Transactions Deflected to E-Mail.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Most Likely Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Worst Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%

Assumption Key: F10**Assumption Name: Cost per E-Mail Transaction**

The Cost per E-Mail Transaction.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Most Likely Case	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Worst Case	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00

10. Reduced Risk of SLA Penalties through Increased Visibility into SLA Compliance

Type of Profit Impact: Cost Avoidance

Solution: CA APM

Feature Value Creation: With improved monitoring and increased visibility into the availability and performance of networks, servers and applications delivering SLA compliance, an enterprise can be proactive and avoid the risk and the cost of SLA non-compliance.

Measurable Assumption: Annual savings in SLA penalties

Means of Quantification: FI % Reduction in Cost of SLA Compliance * Annual Cost of IT Penalties from All Sources

Delay Factor:

* Best Case: Year 1, Month 4

* Most Likely Case: Year 1, Month 4

* Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$55,125	\$47,250	\$39,375
Year 2	\$73,500	\$63,000	\$52,500
Year 3	\$73,500	\$63,000	\$52,500
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$202,125	\$173,250	\$144,375

Assumption Key: F1

Assumption Name: FI % Reduction in Cost of SLA Compliance

Annual cost of SLA Penalties from all IT sources.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Most Likely Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Worst Case	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%

Assumption Key: F2

Assumption Name: Annual Cost of IT Penalties from All Sources

Annual Cost of SLA Penalties from All Sources

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$210,000	\$210,000	\$210,000	\$210,000	\$210,000	\$210,000
Most Likely Case	\$210,000	\$210,000	\$210,000	\$210,000	\$210,000	\$210,000
Worst Case	\$210,000	\$210,000	\$210,000	\$210,000	\$210,000	\$210,000

12.Reduction in Cost of Software Maintenance Renewals for Replaced or Redundant Software

Type of Profit Impact: Cost Avoidance

Solution: CA APM

Feature Value Creation: The composite automation/integration capabilities and the consolidation of replaced or redundant tools allows the IT organization to realize cost savings from consolidating and retiring single purpose or obsolete tools thereby avoiding unnecessary replaced software maintenance renewals.

Measurable Assumption: Reduced software maintenance renewal costs

Means of Quantification: FI in Reduced Software Maintenance Renewal Cost * Annual Value of Existing Application Infrastructure Maintenance

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$40,219	\$39,188	\$38,156
Year 2	\$53,625	\$52,250	\$50,875
Year 3	\$53,625	\$52,250	\$50,875
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$147,469	\$143,688	\$139,906

Assumption Key: F1

Assumption Name: FI in Reduced Software Maintenance Renewal Cost

Forecast reduction of software maintenance renewal costs enabled by the composite benefits of the Systems Availability solution.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	97.50%	97.50%	97.50%	97.50%	97.50%	97.50%
Most Likely Case	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%
Worst Case	92.50%	92.50%	92.50%	92.50%	92.50%	92.50%

Assumption Key: F2

Assumption Name: Annual Value of Existing Application Infra Maintenance

Annual Value of existing application availability and performance management maintenance contracts.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000
Most Likely Case	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000
Worst Case	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000

13.Improved Equipment Utilization and Scalability through Improved Capacity Planning

Type of Profit Impact: Cost Avoidance

Solution: CA APM

Feature Value Creation: Comprehensive tracking of historical, real-time application performance and capacity data optimizes equipment requirements planning and equipment utilization.

Measurable Assumption: Optimized Equipment Utilization.

Means of Quantification: FI in Equipment Utilization * Annual Equipment Cost for Hi QoS & Hi Trans Volumes

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$45,000	\$33,750	\$22,500
Year 2	\$60,000	\$45,000	\$30,000
Year 3	\$60,000	\$45,000	\$30,000
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$165,000	\$123,750	\$82,500

Assumption Key: F1

Assumption Name: FI in Equipment Utilization

Decrease in hardware cost based upon optimized utilization of hardware using performance monitoring metrics collected.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Most Likely Case	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Worst Case	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

Assumption Key: F2

Assumption Name: Annual Equipment Cost for Hi QoS & Hi Trans Volumes

Annual hardware investment cost required to support targeted QoS and/or growing transaction volumes. Equipment examples are application servers, load balancers, web servers, database servers, storage devices, etc.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Most Likely Case	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Worst Case	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000

14. Reduced Manual Registration Rework Caused by System Performance Issues

Type of Profit Impact: Cost Avoidance

Solution: Customer Experience

Feature Value Creation: User registration dropouts occur throughout the year caused by poor application performance. These dropouts require manual reviews and adjustments by customer facing staff, causing significant delays in the ordering process until the user account is established.

Measurable Assumption: Decrease in manual rework efforts by customer facing staff.

Means of Quantification: FI % Decrease in On-Line Registration Dropouts * # User Dropouts Needing Manual Intervention * # Hours Required to Manually Process Requests * (Annual Salary of an IT Staff FTE / Staff Hours Worked Per Year)

Delay Factor:

- * Best Case: Year 1, Month 4
- * Most Likely Case: Year 1, Month 4
- * Worst Case: Year 1, Month 4

Formula for Quantification: F1 * F2 * F3 * (F4 / F5)

Year	Best Case	Most Likely Case	Worst Case
Year 1	\$38,318	\$33,529	\$28,739
Year 2	\$51,091	\$44,705	\$38,318
Year 3	\$51,091	\$44,705	\$38,318
Year 4	\$0.00	\$0.00	\$0.00
Year 5	\$0.00	\$0.00	\$0.00
Year 6	\$0.00	\$0.00	\$0.00
TOTAL	\$140,501	\$122,938	\$105,376

Assumption Key: F1

Assumption Name: FI % Decrease in On-Line Registration Dropouts

Forecast decrease cost incurred due to manual rework of on-line Registration Dropouts.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Most Likely Case	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Worst Case	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%

Assumption Key: F2

Assumption Name: # User Dropouts Needing Manual Intervention

Slow application performance can cause users to abandon the registration process requiring manual intervention.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts
Most Likely Case	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts
Worst Case	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts	3,600 Dropouts

Assumption Key: F3**Assumption Name:** # Hours Required to Manually Process Requests

Number of hours to process a manual registration request.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	1 Hours	1 Hours	1 Hours	1 Hours	1 Hours	1 Hours
Most Likely Case	1 Hours	1 Hours	1 Hours	1 Hours	1 Hours	1 Hours
Worst Case	1 Hours	1 Hours	1 Hours	1 Hours	1 Hours	1 Hours

Assumption Key: F4**Assumption Name:** Annual Salary of an IT Staff FTE

Source of this data sample is Bureau of Labor Statistics Survey for Network and Computer Systems Administrators for management of companies and enterprises

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960
Most Likely Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960
Worst Case	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960	\$70,960

Assumption Key: F5**Assumption Name:** Staff Hours Worked Per Year

This is the average number of hours worked by the IT staff per year and may vary from company to company.

Case	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Best Case	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours
Most Likely Case	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours
Worst Case	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours	2,000 Hours

Attachment B – Data Points and Assumptions

The following table summarizes the data points and assumptions used in the CA Application Performance Management ROI Business Case for Customer One.

Values highlighted in **blue** have been supplied by Customer One while data points highlighted in **orange** are estimations based on experience with similar projects and based on our understanding of Customer One's IT and support operation.

Data Points and Assumptions Used	Units	Best Case	Most Likely	Worst Case
Company Data				
What is the percentage of revenue impacted by IT infrastructure performance Issues?	%		1.00%	
What is the total number of Business End Users in the company who are dependent on functioning IT?	FTEs		2,700	
What is the total amount of revenue generated through customers using enterprise applications per year?	\$		150,000,000	
What is the Annual Revenue touched by Business End Users using IT infrastructure per year?	\$		300,000,000	
Customer Service Operations				
What is the number of hours per incident required to manually process user registration requests?	Hours		1	
What is the yearly number of dropouts annually during the user registration process requiring manual intervention?	Dropouts		3,600	
What is the % Customer Defections due to Poor Experience?	%		1.00%	
What is the % of web transactions convert to in-person transactions when poor application performance occurs?	%		10.00%	
What is the % of web transactions convert to a phone call when poor application performance occurs?	%		60.00%	
% Web Transactions Deflected to E-Mail?	%		30.00%	
What is the # of Web based Service Transactions Per Year?	Transactions		3,300,000	
What is the Cost per E-Mail Transaction?	\$		3	
What is the average cost per in-person transaction?	\$		8	
What is the Cost per Phone Transaction?	\$		2	

What is the average cost per web transaction?	\$		1	
IT Operations & Application Support				
What is the number of triage calls per year due to downtime and other related issues?	Calls		240	
What is the percentage of end users per incident who are impacted by IT infrastructure availability or performance issues?	%		1.00%	
What is the % of application down time or poor performance?	%		5.00%	
What is the Annual Equipment Cost Required to Support High QoS & High Transaction Volumes?	\$		300,000	
What is the Annual Value of Existing Application Management Maintenance Contracts that will be replaced by the CA solution?	\$		55,000	
What is the average # of hours spent by each person resolving issues per triage call?	Hours		4	
SLA Compliance				
What is the Annual Cost of SLA Penalties from All IT sources?	\$		210,000	
Staffing Counts				
What is the number of technical/business/operations management FTEs participating in triage calls?	FTEs		10	
How many application development FTEs are involved in diagnosing/resolving application performance issues?	FTEs		8	
How many IT Staff FTEs are involved in diagnosing/resolving application performance issues?	FTEs		10	
What is the Number of Service Desk FTEs at Level 1?	FTEs		12	
What is the Number of Service Desk FTEs at Level 2/3?	FTEs		7	
Staffing Salaries				
What is the Average Annual Salary (Loaded) of a Business End User FTE?	\$		74,730	
What is the average loaded salary of an Operations Manage/Technical Lead involved in triage calls?	\$		110,000	
What is the Average Annual Salary (Loaded) of a Service Desk Level 1 FTE?	\$		50,000	
What is the Average Annual Salary (Loaded) of a Service Desk Level 2/3 FTE?	\$		61,000	
What is the Average Annual Salary (Loaded) of an Application Developer FTE?	\$		70,960	

What is the Average Annual Salary (Loaded) of an IT Staff including Application Support FTE?	\$		70,960	
What is the Average Number of Hours Worked per Year by the IT Staff?	Hours		2,000	
Forecast Improvements				
What is the Forecast decrease cost incurred due to manual rework of on-line Registration Dropouts?	%	40.00%	35.00%	30.00%
What is the forecasted % increase in application availability and performance?	%	37.00%	35.00%	33.00%
What is the Forecast % Improvement in the On-Line Transacting Availability per the CA Solution?	%	20.00%	15.00%	10.00%
What is the Forecast Reduction in SLA Penalties from all IT sources annually through better monitoring of business services provided?	%	35.00%	30.00%	25.00%
What is the Forecast Improvement in Revenue Protection with improved Application Infrastructure Performance?	%	15.00%	10.00%	5.00%
What is the forecast % increase in development staff productivity?	%	40.00%	30.00%	20.00%
What is the forecast improvement in equipment cost incurred to support high QOS and/or growing transaction volumes?	%	20.00%	15.00%	10.00%
What is the Forecast Improvement in the efficiency of triage calls through a unified Application Management solution?	%	40.00%	35.00%	30.00%
What is the Forecast Increase in Internal End User Productivity through improved IT Performance?	%	15.00%	10.00%	5.00%
What is the Forecast Reduction of Application Performance related issues into the Service Desk at Level 1?	%	40.00%	30.00%	20.00%
What is the Forecast Reduction of Application Performance related issues into the Service Desk at Level 2/3?	%	40.00%	30.00%	20.00%
What is the Forecast % Reduction of Software Maintenance Renewal Costs due to the Service Availability Solution?	%	97.50%	95.00%	92.50%
What is the forecast % increase in IT staff productivity in pre-production capacity planning?	%	40.00%	35.00%	30.00%

Attachment C – Financial Metric Definitions

For all the EVC Analysis calculations, Glomark software uses 72 periods (months).

Simple Return On Investment (SROI) Ratio

The Return on Investment is a measure of the earning power of a company's assets.

$$\text{SROI} = \frac{\text{Cumulative Cash Flow}}{\text{Assets} + \text{Expenses}} \times 100\%$$

If there is no investment (*Total Investment* = 0), the result will read “!ERROR”.

Payback Period

The Payback period is the amount of time in months required to recover the initial investment in a project, i.e. until the cumulative net benefit (benefits minus costs) is equal to zero.

If the Payback period is not reached within the Glomark software scope (72 periods or months), the value will read “None”.

Net Present Value (NPV)

The net present value of an investment is the current value of a future series of payments and receipts. This value changes with variations in the discount rate (r). So if n is the number of values (cash flow values) and r is the discount rate on each period, the formula for NPV is:

$$\text{NPV} = \sum_{i=1}^n \frac{\text{value}_i}{(1+r)^i}$$

For all the EVC Analysis calculations, Glomark software uses 72 periods (i.e. $n = 72$), obtained from the monthly values of benefits and costs. Therefore, the discount rate used for the NPV calculations (r) is a monthly equivalent of the annual value entered by the user, which is calculated using the following formula:

$$r_{\text{month}} = (1 + r_{\text{year}})^{\frac{1}{12}} - 1$$

If Net Present Value for an investment is greater than zero it will be considered a “good investment”.

Internal Rate of Return (IRR)

The internal rate of return is the annual compound interest rate received for an investment consisting of payments (negative values) and income (positive values) that occur at regular periods.

Glomark software calculates the Internal Rate of Return by iteration using the user entry “IRR Guess” (0% as default) as starting value. The IRR cycles through the calculation, until the result obtained is

accurate to within 0001 percent. If a result can not be found after 20 tries, the function fails returning the following message “!ERROR”.

Although Glomark software makes use of monthly values to determine the Internal Rate of Return, the value returned is the equivalent yearly rate, obtained using the following formula:

$$r_{\text{year}} = (1 + r_{\text{month}})^{12} - 1$$

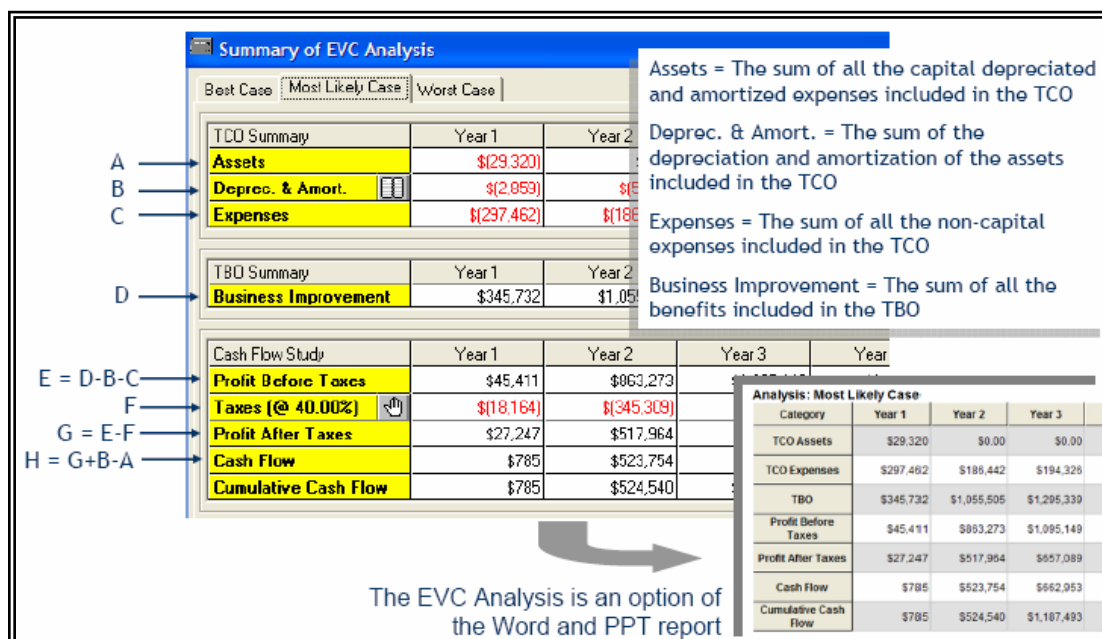
IRR is closely related to the net present value. The rate of return calculated by IRR is the interest rate corresponding to a 0 (zero) net present value. There are certain circumstances under which the Internal Rate of Return can not be calculated:

1. The cash flow is not negative on the first period of study.
2. The cash flow reaches positive and negative values alternately, i.e. crosses the “zero axis” more than one time.

If the IRR is greater than the investor’s “hurdle rate”, the investment is considered “good”.

Value Added (VA) or Economic Profit

The Economic Profit is defined as the Net Operating Profit After Taxes less the Cost of Capital employed in generating that profit. Therefore, a firm has “added value” over a period of time when this economic profit is positive, i.e. it has generated profits in excess of its cost of capital. The Economic Profit is also known as Economic Value Added (EVA[®], a registered trademark of Stern Stewart).



Note: Information contained in the above chart is for informational purposes only.

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ROI Analysis Approach

The ROI analysis in this document provides projective (forecasted) values derived from an analysis of benchmark data. The benchmarks used in the CA Technologies best practices methodology are a composite of conservative data ranges derived from industry research, interviews with subject matter experts, and experiential data.

The values expressed are not a guarantee of achievable results and will vary depending upon your current infrastructure, people, and processes. The Impact Ranges shown in this analysis are provided to show a range of process improvements and ROI metrics that can be achieved through the appropriate, effective implementation and use of the CA Technologies solution.

The Total Cost of Ownership (TCO)

The TCO represents the typical investment required to support the deployment of this solution in an enterprise of the magnitude as represented by the metrics shown in the detailed TCO table.

Total Benefit of Ownership (TBO)

The TBO in this business case shows the breakdown of the cumulative value (TBO) of individual process improvements by applying the forecast improvements to applicable metrics shown in Attachment A.

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