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The Total Economic Impact™ Of Oracle Enterprise Manager Database Management Packs

Multi-Customer Analysis

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Executive Summary

In November 2007, Forrester Research initiated work on a research project commissioned by the Oracle Corporation that focused on examining the potential return on investment (ROI) that enterprises may realize by adopting Oracle Enterprise Manager. This study specifically examines the benefits of Oracle Diagnostic Pack and Oracle Tuning Pack for managing applications and Oracle databases.

This study highlights the benefits and costs of deploying the Oracle Enterprise Manager Diagnostic Pack and Tuning Pack across the enterprise of a sample *Organization* (see Description of Sample *Organization* starting on page 8). The findings in this study are, in a large part, based on in-depth interviews conducted with five organizations currently using the Oracle Enterprise Manager Diagnostic Pack and Tuning Pack. The study examines the estimated ROI for the sample *Organization* and presents the aggregate findings derived from the interview and analysis process as well as Forrester's independent research.

The study found that for the sample *Organization,* Oracle Enterprise Manager Diagnostic Pack and Tuning Pack provided benefits and savings in the following areas:

- Increased database administrator (DBA) productivity.

- A reduction in system downtime and a corresponding increase in availability.

- A 20% reduction (over three years) in capital spending on servers monitored by Oracle Enterprise Manager.

This sample *Organization* using Oracle Enterprise Manager Diagnostic Pack and Tuning Pack achieved a risk-adjusted and a **very favorable 100% ROI** (122% non risk-adjusted ROI) over a three-year period with **a risk adjusted payback period of 16 months** (15 months non risk-adjusted).

Purpose

The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Oracle Enterprise Manager Diagnostic Pack and Tuning Packs. Forrester's aim is to clearly show all calculations and assumptions that go into the analysis. This study should be seen as a guide to better understand and evaluate Oracle Enterprise Manager Database Management Packs.

Methodology

Oracle selected Forrester for this project because of our expertise in database management technologies and Forrester's Total Economic Impact™ (TEI) analysis methodology. TEI not only measures costs and benefits (areas that are typically accounted for within IT) but also weighs the enabling value of a technology in increasing the effectiveness of overall business processes.

Forrester employed three fundamental elements of TEI (see Appendix A) in this study:

- Cost and cost reduction.

- Benefits and savings to the entire organization.

- Risk.

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

Approach

Forrester used a four-step approach for this study:

1. Forrester interviewed Oracle marketing and product management employees to fully understand the value proposition of Oracle Enterprise Manager Diagnostic Pack and Tuning Pack.

2. Using knowledge of the Oracle Enterprise Manager Diagnostic Pack and Tuning Pack, as well as input from existing Forrester research and Oracle, a Forrester representative conducted in-depth discussions with five of Oracle's customers regarding their experiences with Oracle solutions.

3. Forrester constructed a financial value model representative of the data collected in the interviews.

4. Forrester created this study, which represents and examines the estimated value of the findings derived from the customer interview and analysis process and from Forrester's independent research.

About Oracle Enterprise Manager

According to Oracle, Oracle Enterprise Manager is a complete management solution for databases, middleware, and business applications, as well as key data center infrastructure items such as servers and storage. It provides strong end-to-end monitoring and management that encompasses end user experience, application processes and flows, and the performance and availability of the underlying software and system infrastructure. Using its top-down approach, business and IT users get end-to-end perspectives on applications from a single management console.

Oracle Enterprise Manager provides an integrated management solution for managing Oracle databases. With new self-managing capabilities, Oracle eliminates time-consuming, error-prone administrative tasks, so database administrators can focus on strategic business objectives instead of performance and availability fire drills. Oracle Diagnostic Pack and Tuning Pack are two management packs within the Oracle Enterprise Manager portfolio. They provide automation for diagnostics and tuning of applications running on Oracle databases. Benefits from Oracle Enterprise Manager include:

*   **Maximize performance and availability.** Automatically monitor the entire database environment and proactively resolve issues before they turn into emergencies.

*   **Elevate administrator productivity.** Give your administrators the tools they need to manage more databases, more effectively while increasing their value to the organization.

*   **Eliminate failures from human error.** Take control of your IT environment by addressing the No. 1 cause of unplanned downtime through extensive out-of-box automation and configuration and change management capabilities.

For more information on Oracle Enterprise Manager, visit www.oracle.com/enterprisemanager/

Key Findings

Forrester's interviews and research show that Oracle Enterprise Manager Diagnostic Pack and Tuning Pack can provide significant value to organizations. There were several common benefits cited by the five interviewed organizations that are described briefly below, and in more detail in the Benefits And Savings section of this study.

From these common value statements, Forrester was able to generate a potential ROI for a sample *Organization*. The objective was to illustrate how the common benefit and cost estimates can be applied to other organizations considering the purchase of Oracle Enterprise Manager.

As stated above, for our sample *Organization,* Oracle Enterprise Manager Diagnostic Pack and Tuning Pack provided benefits and savings in the following areas:

- Increased database administrator (DBA) productivity.

- Enhanced business productivity through a reduction in system downtime and a corresponding increase in availability.

- A 20% reduction (over three years) in capital spending on servers needed to run Oracle database software.

This sample *Organization* is using Oracle Enterprise Manager Diagnostic Pack and Tuning Pack and achieved **a very favorable 100% ROI** (risk-adjusted) over a three-year period with **a payback period of 16 months**. On a non risk-adjusted basis, the sample *Organization* achieved a 122% ROI over a three-year period with a payback period of 15 months.

Table 1 shows a three-year summary of the ROI, payback period, net present value (NPV), costs and risk-adjusted benefits for our sample *Organization*.

Table 1: Three-Year Summary Financial Results — Sample Organization (Risk-Adjusted)

Summary of financial results	Non risk-adjusted	Risk-adjusted
ROI	122%	**100%**
Payback period	15 months	**16 months**
Total costs (present value)*	($1,431,116)	**($1,431,116)**
Total cost savings and benefits (PV)	$3,176,040	**$2,858,436**
Total net present value (NPV)	$1,744,924	**$1,427,320**

* Forrester used a discount rate of 12% to calculate PV and NPV.

Source: Forrester Research, Inc.

The three-year total net present value (NPV) of **$1,427,320** (risk-adjusted) represents the incremental net cost savings and benefits attributed to successfully implementing and using Oracle Enterprise Manager Diagnostic Pack and Tuning Pack. Prior to implementation, the sample *Organization* was experiencing and trying to remedy the following historical issues:

- A rapid rate of business growth and slowing IT response.

- DBA labor costs that were increasing with the rate of business growth.

- Difficulty achieving service objectives due to system changes resulting in unplanned downtime.

- Governance issues with too many custom scripts being created by the DBAs. (The *Organization* wanted to standardize practices and reduce the possibility of human error in these scripts.)

- A desire to reduce the number of database-related, end user help desk calls.

- Difficulty in quantifying the amount of time and effort required to manage the databases. (Alternatively, management could not quantify or qualify the work capacity of existing DBAs.)

Cost and benefits details are provided below in the Costs, Benefits and Risk sections.

A risk-adjusted ROI that demonstrates a compelling business case raises confidence that the investment is likely to succeed because the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers, because they represent the expected value considering risk, should thus be taken as "realistic" expectations. Assuming normal success at mitigating risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment.

The objective of this study is to illustrate the savings and benefits that the sample *Organization* realized from deploying Oracle Enterprise Manager Diagnostic Pack and Tuning Pack. The results can guide other organizations' expectations with respect to the savings and benefits that might be realized in their particular business environments.

Disclosures

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

- The study was commissioned by Oracle and delivered by the Forrester Consulting group.

- Oracle reviewed and provided feedback to Forrester, but Forrester maintained editorial control over the study, its findings, and the financial data. Forrester did not accept any changes to the study that contradicted its findings, obscured the meaning of the study, or changed any of the data collected.

- The customer names for the interviews were provided by Oracle.

- Forrester makes no assumptions as to the potential ROI other enterprises will receive within their own environments. Forrester strongly advises that the reader use his or her own estimates within the framework provided in the study to determine the appropriateness of implementing the Oracle solution.

- This study is not an endorsement by Forrester of Oracle or its offerings.

- The study is not a competitive product analysis.

Organization Interview Highlights

Forrester's conclusions were derived in large part from information received in a series of in-depth interviews with executives and personnel at five organizations currently using the Oracle Enterprise Manager Diagnostic Pack and Tuning Pack. The following is a brief description of each of the interviewed organizations:

1. An $18 billion (sales) international pharmaceutical company with over 40,000 employees that has been using the Diagnostic Pack and Tuning Pack components of Oracle Enterprise Manager since 1999 on more than 400 database instances.

2. A European-based global manufacturer of mobile devices with sales of $18 billion that has been using the Oracle Enterprise Manager Diagnostic Pack and Tuning Pack for more than two years to help manage its 700 databases.

3. A leading Australian financial institution with more than 30,000 employees doing business also in New Zealand, Asia, and the United Kingdom, that has been using the Diagnostic Pack and Tuning Pack components of Oracle Enterprise Manager for more than two years to help manage 275 databases.

4. One of the leading financial institutions in the US specializing in retail banking, mortgage and construction lending, investment and insurance services with more than $15 billion in assets that has been using Oracles Enterprise Manager Diagnostic Pack and Tuning Pack since 2004 to help manage 15 major databases and eight application servers.

5. A global leader in the power generation systems industry with annual revenues of more than $10 billion serving customers in more than 150 countries that has been using Oracle Enterprise Manager Diagnostic Pack for almost three years.

Common Objectives And Challenges Solved By Oracle Enterprise Manager

The customers Forrester interviewed had several common high-level business objectives as well as tactical problems or issues that they were hoping to address and solve by investing in Oracle Enterprise Manager Diagnostic Pack and Tuning Pack. These objectives and challenges are shared by this study's sample *Organization* (see sample *Organization* description below).

Common high-level business objectives or strategies included:

- Improve DBA productivity to keep pace with business growth.

- Free up DBAs' time to perform more value-added advisory and strategic services (beyond installing, tuning, patching, and upgrading databases). These value-added services include: addressing storage and security issues and capacity planning.

- Improve applications' and systems' quality of service.

- Have a centralized platform to proactively monitor alerts for databases/systems and servers/clusters 24x7 so problems can be resolved quickly.

- Ensure high availability of mission-critical applications to internal and external users.

- Reduce capital spending in the area of servers and associated maintenance.

Common tactical problems or issues included:

- Correct a governance issue with too many custom scripts being created by all the DBAs. The organizations wanted to standardize practices and reduce possibility of human error in these scripts.

- Reduce the number of help desk calls related to databases.

- The need to quantify the amount of time and effort required to manage the databases (alternatively, management could not quantify or qualify the work capacity of existing DBAs).

- Establish a harmonized and global view in monitoring all databases using Oracle Enterprise Manager (i.e., faster problem diagnosis and better root cause analysis).

Sample Organization

Forrester examined the costs and benefits of Oracle Enterprise Manager by conducting in-depth interviews with five Oracle Enterprise Manager Diagnostic Pack and Tuning Pack customers. The resulting data, along with Forrester's independent research, generated a baseline to determine the potential ROI for organizations contemplating their own deployment of these solutions. Forrester's sample *Organization* below has similar costs, benefits, goals, and objectives as the five companies that were interviewed. The purpose of the sample *Organization* is to show the potential ROI.

Description Of Sample Organization

With revenue of just over $1 billion, this global enterprise has 150 active databases across a major data center and two regional data centers managed by four DBAs; it also has 20 remote branch offices. The *Organization* participates in both the commercial and consumer markets.

Prior to implementing Oracle Enterprise Manager, the *Organization* was experiencing a rapid rate of business change and slowing IT response as well as a high cost of labor and difficulty in achieving service objectives due to system changes that resulted in unplanned downtime. The *Organization*'s key challenges for managing these applications were:

- The need for a central monitoring tool to ensuring performance and availability across all its databases and applications built on Oracle databases.

- Resolving problems proactively and quickly in order to minimize impact.

- Automating its database operations tasks to prevent too many custom scripts being written and monitored by its four DBAs.

- Finding a way to increase DBA efficiency by improving its database to DBA ratio.

- Reducing the ongoing capital costs of server hardware for deploying applications.

Critical success factors and high-level business objectives or strategies that the sample *Organization* hopes to achieve by implementing the Oracle Enterprise Manager solution include:

- Help the *Organization* be more agile in implementing new business systems and requirements faster by aligning IT with line-of-business priorities so the resources are applied to activities that generate the most business benefits.

- Create a higher quality of service and reduced downtime following systems changes that result from a variety of actions such as application and infrastructure changes.

- Manage and support its applications at a lower cost.

The CIO for this *Organization* is in charge of the adoption of IT technologies that support business process automation — a requirement from the *Organization*'s line of business managers. This has resulted in the increased adoption of packaged and custom-built applications that take advantage of modern technologies such as SOA, grid computing, and virtualization. For the sample *Organization,* it has become increasingly critical to effectively manage such applications and its underlying infrastructure. The *Organization* chose Oracle Enterprise Manager Diagnostic Pack and Tuning Pack to help with the challenges of its database management solutions built on top of Oracle databases. Although not discussed in this study, the *Organization* also uses Oracle Enterprise Manager to manage other components in its IT operations environment including middleware and applications to get a true top-down view of application performance and availability. The ultimate goal of this sample *Organization* is to ensure the health of business applications that drive revenue.

An investment in Oracle Enterprise Manager Diagnostic Pack and Tuning Pack includes the following costs (see the Costs, Benefits, And Risk section for quantification of the costs):

- Internal planning for the implementation of Oracle Enterprise Manager.

- Two servers to host Oracle Enterprise Manager.

- Oracle Enterprise Manager Software licenses for Diagnostic Pack and Tuning Pack.

- Oracle ongoing support costs for both Diagnostic Pack and Tuning Pack.

- Oracle Enterprise Manager training (Oracle Database 10g Administration Workshop and Oracle Enterprise Manager Grid Control 10g Workshop).

Costs, Benefits, And Risk

Costs

Costs and cost reduction are important parts of the TEI model. Costs are calculated as a change in costs primarily to IT as a result of the introduction of the technology to the *Organization*. Therefore, the introduction of Oracle Enterprise Manager Diagnostic Pack and Tuning Pack affects IT budgets both negatively (with the implementation and purchase of the solution) and positively (in terms of cost savings and efficiencies created both in IT and in the business).

The sample *Organization* incurred costs in the following categories: one-time costs related to internal planning of the Oracle Enterprise Manager implementation; two servers and software license costs associated with Diagnostic Pack and Tuning Pack; annual software support and maintenance costs; and Oracle training costs. These costs totaled **$1,550,750** over the three years of this study.

Cost Details

- Planning (time/effort) to implement Oracle Enterprise Manager: **$13,000** — 300 hours at $90,000 annual cost per full-time equivalent (FTE).

- Two servers to host Oracle Enterprise Manager: **$28,000** — initial hardware costs plus $2,000 in annual support costs.

- License cost for Diagnostic Pack: **$450,000** — $2,250 per each of the 200 CPUs.

  o Support costs $297,000 ($99,000 annually): 22% of license costs or $495 per CPU.

- License cost for Tuning Pack: **$450,000** — $2,250 per each of the 200 CPUs.

  o Support costs $297,000 ($99,000 annually): 22% of license costs or $495 per CPU.

- Training costs: **$15,750** — $3,000 each for four DBAs to attend Oracle's 10g Administration Workshop, and one DBA at $3,750 to attend the Oracle Enterprise Manager 10g Grid Control Workshop.

The financial results in this study assume that the sample *Organization* purchased and deployed Oracle Enterprise Manager Diagnostic Pack and Tuning Pack at a normal discount from Oracle's US list price as of December 2007. Other organizations may incur different prices; therefore, Forrester make no assumptions that other organizations will achieve similar results as those cited in this study.

Table 2: Incremental Costs Associated With Implementing Oracle Enterprise Manager Diagnostic Pack and Tuning Pack

Projected costs	Year 0	Year 1	Year 2	Year 3	Total	PV
Planning (time/effort) to implement Oracle Enterprise Manager	$13,000	$0	$0	$0	$13,000	$13,000
Two servers to host Oracle Enterprise Manager	$22,000	$2,000	$2,000	$2,000	$28,000	$26,804
License and support costs for Diagnostic Pack	$450,000	$99,000	$99,000	$99,000	$747,000	$687,781
License and support cost for Tuning Pack	$450,000	$99,000	$99,000	$99,000	$747,000	$687,781
Training costs	$15,750	$0	$0	$0	$15,750	$15,750
Total costs	$950,750	$200,000	$200,000	$200,000	$1,550,750	$1,431,116

Source: Forrester Research, Inc.

Benefits And Savings

As with the customers interviewed for this study, the implementation of Oracle Enterprise Manager Diagnostic Pack and Tuning Pack was the catalyst that helped the sample *Organization* achieve benefits in the following areas: DBA productivity savings, business productivity (avoiding downtime,

increased availability), and capital expenditure savings (servers). These benefits are described and quantified below and total **$3,660,654 (risk-adjusted)** over the three years of this study.

There are two adjustments that Forrester made to the benefit numbers; one is related to the learning curve of Oracle Enterprise Manager Diagnostic Pack and Tuning Pack; and the second is related to the risk of actually achieving the benefits.

1. The Learning Curve factor

    The organizations interviewed by Forrester cited a fairly significant learning curve in benefits realization, hence Forrester assumes that in Year 1, the sample *Organization* achieves 50% of the optimum level of benefits; in Year 2, it increases to 80%; and in Year 3, Forrester assumes (and interviewed organizations reported) a full 100% achievement of the benefits. These adjustments are reflected in the benefit data below and in Table 3.

2. The Risk Factor

    In addition to acknowledging the learning curve associated with benefits realization, Forrester has assigned a **10% risk reduction factor** to all the benefits in recognition of the risks associated with projects in general. See the Risk section below for more details. These risk adjustments are reflected in the benefit data below and in Table 3.

Benefits And Savings Details

DBA Productivity Savings

The *Organization* was able to improve DBA productivity by a total of 34% in the first year, by 55% in the second year, and by 68% in the third year as a result of productivity improvements achieved using Diagnostic Pack and Tuning Pack. The *Organization* achieved a risk-adjusted **$509,340** in DBA labor savings (over a three-year period) from using Oracle Enterprise Manager Diagnostic Pack and Tuning Pack based on labor saved in the following tasks:

Diagnostic Pack:
- o   Performance analysis of current system state.
- o   Historical performance analysis of system.
- o   Transient event performance analysis.
- o   Define monitoring thresholds for key metrics.
- o   Set up and receive notifications for critical issues.

Tuning Pack:
- o   Tune poorly performing SQL caused by missing indexes.
- o   Tune poorly performing SQL caused by missing statistics.
- o   Tune poorly performing SQL caused by bad execution plan design.
- o   Tune poorly performing SQL caused by bad SQL design.
- o   Optimize access structures design (indexes, MVs, etc.) for applications.

Business Productivity Savings (Avoiding Downtime, Increased Availability)

The *Organization* achieved a risk-adjusted **$2,599,315** in benefits (over a three year period) from a reduction in system downtime avoided and a corresponding increase in availability from the use of Oracle Enterprise Manager Diagnostic Pack and Tuning Pack based on the following capabilities:

Diagnostic Pack:
- o Downtime avoided by automatic database diagnostic monitor (ADDM) recommendations.
- o Improvement in mean time to recovery (MTTR) based on historical system performance analysis.
- o Improvement in MTTR based on transient system performance analysis.
- o Downtime avoided by proactive alerts and notifications.

Tuning Pack:
- o Improvement in SQL performance for existing application.
- o Reduction in downtime to apply access structure fixes.

Capital Expenditure Savings (Servers)

Diagnostic and Tuning Packs: The *Organization* achieved a risk-adjusted **$552,000** reduction in capital spending on servers monitored (over a three-year period) from the use of Oracle Enterprise Manager Diagnostic and Tuning Pack for the following:
- o 40 servers (over a three-year period) not purchased through optimal system tuning of existing systems.

Table 3: Benefits And Savings Associated With Implementing Oracle Enterprise Manager Diagnostic Pack And Tuning Pack (Risk-Adjusted)

Projected costs	Year 0	Year 1	Year 2	Year 3	Total	PV
DBA productivity savings	$0	$110,726	$177,162	$221,452	$509,340	$397,720
Business productivity savings	$0	$565,069	$904,109	$1,130,137	$2,599,315	$2,029,685
Capital expenditure savings	$0	$120,000	$192,000	$240,000	$552,000	$431,031
Total benefits	$0	$795,795	$1,273,271	$1,591,589	$3,660,654	$2,858,436

Source: Forrester Research, Inc.

Risk

Risk-adjusted ROI is discussed in this study, and the sample *Organization's* benefits are quoted in risk-adjusted (worst case) terms. Costs are not risk-adjusted in this study because 97.6% of the costs are related Oracle firm-quoted products and services.

The assessment of risk provides a range of possible outcomes based on the risks associated with IT projects in general and specific risks relative to organizations implementing Oracle Enterprise Manager Diagnostic Pack and Tuning Pack. Forrester's research discovered that implementing Enterprise Manager was a relatively low-risk endeavor.

Since the future cannot be accurately predicted, there is risk inherent in any project. Measurement of risk is a method of incorporating the levels of confidence and uncertainty regarding the benefit estimates of a given investment. Higher confidence that the benefit estimates will be met implies

that the level of risk is lower, and the variation between the risk-adjusted and non-risk-adjusted outcomes is minimized.

The following risks were considered in this report:

- Lack of corporate discipline in creating processes and procedures to best take advantage of the benefits.

- Lack of appropriate training for DBAs who will be responsible for optimizing the full benefit potential from Oracle Enterprise Manager.

- Failure to leverage DBA productivity improvements and server hardware capital expenditure savings achieved by deploying Oracle Enterprise Manager.

- Internal inertia, conflicting priorities, and turnover that reduce the *Organization*'s ability to achieve the benefits.

In addition to acknowledging the learning curve associated with benefits realization, Forrester has assigned a **10% risk reduction factor** to all the benefits in recognition of the above risks.

If a risk-adjusted ROI still demonstrates a compelling business case, it raises confidence that the investment is likely to succeed since the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers should be taken as realistic expectations since they represent the expected value considering risk. Assuming normal success at mitigating risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment.

Financial Analysis

Table 1 (repeated from the Executive Summary) shows a three-year summary of the ROI, payback period, net present value (NPV), costs, and risk-adjusted savings and benefits for our sample *Organization*.

Table 1: Three-Year Summary Financial Results — Sample Organization (Risk-Adjusted)

Summary of financial results	Non risk-adjusted	Risk-adjusted
ROI	122%	**100%**
Payback period	15 months	**16 months**
Total costs (present value)*	($1,431,116)	**($1,431,116)**
Total cost savings and benefits (PV)	$3,176,040	**$2,858,436**
Total net present value (NPV)	$1,744,924	**$1,427,320**

* Forrester used a discount rate of 12% to calculate PV and NPV.

Source: Forrester Research, Inc.

The three-year risk-adjusted total net present value (NPV) of **$1,427,320** represents the incremental net cost savings and benefits attributed to successfully implementing and using Oracle Enterprise Manager Diagnostic Pack and Tuning Pack.

Cost and benefits details are provided in the Costs, Benefits, and Risk sections. A risk-adjusted ROI that demonstrates a compelling business case raises confidence that the investment is likely to succeed because the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers, because they represent the expected value considering risk, should thus be taken as "realistic" expectations. Assuming normal success at mitigating risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment.

The objective of this study is to illustrate the savings and benefits the sample *Organization* realized from deploying Oracle Enterprise Manager Diagnostic Pack and Tuning Pack, not those that other organizations might obtain by doing so. The results can nevertheless guide other organizations' expectations with respect to the savings and benefits that might be realized in their particular business environments.

Findings And Conclusions

This study is meant to provide the reader with a framework for examining the costs and benefits of deploying Oracle Enterprise Manager Diagnostic Pack and Tuning Pack. Based on our in-depth discussions with five current Oracle customers, Forrester was able to estimate costs, benefits, and risks for a composite sample *Organization*. Our findings indicate that the *Organization* should achieve a **three-year risk-adjusted NPV of $1,427,320, a very favorable 100% ROI, and a payback period of 16 months.**

As with the customers interviewed for this study, the implementation of Oracle Enterprise Manager Diagnostic Pack and Tuning Pack was the catalyst that helped the sample *Organization* achieve benefits in the following areas: DBA productivity savings, business productivity (avoiding downtime, increased availability), and capital expenditure savings (servers).

Organizations that are likely to achieve these benefits have the following characteristics:

- Organizations with many databases being managed by many DBAs having varying skill and experience levels and using non-standard practices.

- IT departments experiencing a direct linear relationship between the growth in databases and the growth of DBA head count; and are looking to achieve productivity gains.

- Organizations that have a decentralized database administration function, that need a more centralized platform to proactively monitor alerts for databases/systems.

- Small- to medium-size organizations with a part-time DBA, and/or system administrators performing DBA tasks that are looking for a more cost-effective and efficient way to manage their databases.

- Businesses that rely on technology to generate revenues and profits and that are striving to be more competitive in their industry.

For our sample *Organization*, Oracle Enterprise Manager Diagnostic Pack and Tuning Pack carries a low level of risk, a very positive **100% risk-adjusted ROI**, and a payback period of 16 months to recoup the investment.

For the sample *Organization*, the favorable risk-adjusted ROI and payback period raises confidence that an investment in Oracle Enterprise Manager is likely to succeed since the risks that may threaten the project have already been taken into consideration and quantified.

Forrester makes no assumptions regarding the effects of Oracle's solutions at other organizations. This study examines the potential impact attributable to the five organizations that participated in the examination and applies the common costs and benefits to the representative sample *Organization*. The underlying objective of this document is to provide guidance to technology decision-makers seeking to identify areas where value can potentially be created by using Oracle Enterprise Manager Diagnostic Pack and Tuning Pack.

Appendix A: Total Economic Impact Primer

Total Economic Impact is primarily a common language tool, designed to capture and properly communicate the value of IT initiatives in a common business language. In so doing, TEI considers four elements of any initiative:

- Benefits.

- Costs (sometimes referred to as total cost of ownership, or TCO).

- Flexibility.

- Risk.

Figure 1 shows the TEI methodology conceptually. Benefits, flexibility, and costs are considered, through the filter of risk assessment, in determining an expected ROI for any given initiative.

Figure 1: The Total Economic Impact Methodology
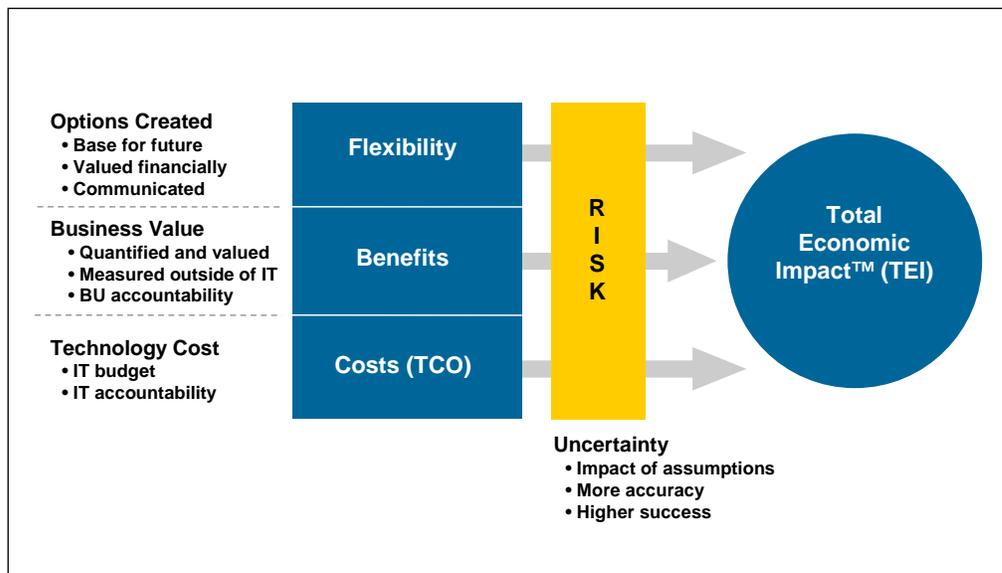
Source: Forrester Research, Inc.

Benefits

Benefits represent the value delivered to the business by the proposed project. Often, IT project justification exercises focus on cost (e.g., TCO) and cost reductions. Among industry leaders, IT is deployed as an offensive weapon with value expectations greater than simple cost reduction, especially when those cost reductions tend to focus within IT. TEI captures the value proposition of the proposed project by measuring the benefits against the incurred costs.

All benefits captured by TEI must be traceable back to one or more critical success factors (CSFs). These CSFs are directly linked to a higher-level business strategy. If a proposed technology investment generates benefits that cannot be satisfactorily linked to a CSF, then it will not be

included as a benefit for the organization in the model. In these cases, TEI requires that the benefit be discarded.

Under TEI, benefits may only accrue to the business units. Benefits derived through cost reductions within IT accrue as negative TCO to the IT budget, thereby showing a reduced TCO. (TCO is considered by TEI to be a single-dimension, cost-centric focus on the IT budget.)

The TEI process begins with a discovery of potential benefit areas. A representative, who has the ability to capture the benefit in question from the organization under examination, must validate each benefit captured during discovery. In other words, values cannot be arbitrarily assigned to a benefit if that person is not in a position to deliver that benefit should the project be approved.

Additionally, projects that are expected to deliver business value require some effort on the part of the business to realize that value. That effort may be in the form of training, organizational change, or a modification of existing business processes. Therefore, TEI requires dialog with the business leaders responsible for making the necessary changes in order to capture the proposed benefit during the justification phase. TEI captures this dialog in the form of the names of the individuals, which validates the value calculation of each benefit.

Within TEI, each benefit entered has a specific capture date. Although the benefit may be captured over time, TEI requires the specification of a date when most of the benefit has been captured. TEI will then place the value delivered in the appropriate time frame within the project.

Costs

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs. These may be in the form of fully burdened labor, subcontractors, or materials. Additionally, costs consider all the investment and expenses necessary to deliver the value proposed.

Flexibility

Flexibility, which is not a subject of this study, represents investing in additional capacity that can, for some future additional investment, be turned into a business benefit — for instance, an investment in an enterprisewide upgrade of the desktop word processor application where the primary driver may be standardization (to increase efficiency) and licensing (to decrease IT costs). However, a collaborative workgroup feature may translate into greater worker productivity when the organization is ready to absorb the discipline necessary to capture that benefit. The collaboration feature does not promise benefit during this phase of the project and must be captured later, incorporating additional investment, most likely in the form of training. However, the existence of the option has a present value that can be estimated. The flexibility component of TEI captures that value.

Risk

Risks are used to widen the possible outcomes of the project. Since the future cannot be accurately predicted, there is risk inherent in any project. TEI captures risk in the form of risks-to-benefits and risks-to-costs.

Risks-to-benefits considers all possible risks to each possible benefit. Likewise, risks-to-costs considers all possible risks to each possible cost. Then a range is chosen by applying best judgment for each cost and benefit, based on the set of risks assigned to each cost and benefit. The

range is entered in the form of a low estimate, a most-likely value, and a high estimate. For example, the risks to a cost may result in a range from the expected value as the low estimate to two times the expected value as the high for a particular cost (representing a potential two times cost overrun).

TEI applies a probability density function known as "triangular distribution" to the values entered. The expected value — the mean of the distribution — is used as the risk-adjusted cost or benefit number. The risk-adjusted costs and benefits are then summed to yield a complete risk-adjusted summary and ROI.

Typical project risk factors to consider include the following:

- **Vendors.** The risk that the vendor of a product or technology may need to be replaced at some point during the project duration.

- **Products.** The risk that a product will not deliver the functionality expected.

- **Architecture.** The risk that the current product architecture will not allow future infrastructure decisions and changes.

- **Culture.** The risk that an organization will be unable to absorb the new technology or adapt to its implementation.

- **Delays.** The impact on revenues of a project delay or cancellation.

- **Size.** The direct correlation of project risk to the size of the project, as measured by application size or budget.

Appendix B: About The Project Director

Bob Cormier

Principal Consultant

Bob is a principal consultant for Forrester's Total Economic Impact™ (TEI) service. He serves Technology Product Management and Marketing professionals, as well as CIO's, advising them on the TEI framework, including services that help organizations understand, communicate, and make better decisions about the overall financial value of IT strategies and investments.

Bob came to Forrester through its acquisition of Giga Information Group and has more than 25 years experience in the IT and consulting industries. Prior to joining Giga, he held senior-level positions at two leading eBusiness consulting firms, ZEFER and Cambridge Technology Partners. Bob has successfully led company efforts to optimize financial, operational, and resource planning activities, incorporating leading-edge, professional service automation (PSA) applications and enterprise resource planning (ERP) systems. He has also held senior management positions at Digital Equipment and Anixter International.

Bob earned an M.B.A. from Bentley College and a B.S. in business from the University of New Hampshire. As an adjunct professor, he has taught finance and economics courses for more than 10 years at Southern New Hampshire University and Daniel Webster College.