

# WHAT'S IN IT FOR YOU (AND YOUR COMPANY)?

*Show off your ROI skills by sizing up your company's IT spending*

**by Marc J. Epstein and Adriana Rejc Buhovac**

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In too many organizations, decision makers overlook economic rationality in justifying information technology (IT) spending. Instead they acquire the best and most recent technologies to outpace other companies. The pressure to remain competitive is forcing many organizations to consider a more results-based approach, where the central question is: Will we see a return on investment (ROI)? Large IT, e-commerce and enterprise resource planning (ERP) system investments all face the same challenge: demonstrating their value in light of the historical difficulty of estimating the revenues they generate and their total costs.

It typically falls on senior corporate and financial managers to evaluate the payoffs and recommend resource allocations, and CPAs who know how to accurately calculate the return on technology investments can guide them through this process.

With CEOs and CFOs demanding accountability for the tremendous investment in IT, managers are required to calculate the ROI and make a bottom-line contribution. Few things are more convincing to top executives than measurable results. IT executives must find ways to measure and communicate the contribution of IT so that existing initiatives are managed appropriately, new projects are approved only when there is satisfactory return and marginal or ineffective projects are revised or eliminated. They need

comprehensive systems to evaluate the impact of IT initiatives on financial performance.

Typically, the payoffs of IT are not measured, ROI is not calculated and IT investments are not evaluated with the same rigor as other corporate investments. While senior IT managers are convinced they do create value and their initiatives would be significant profit centers if measured properly, they have difficulty proving it. Because CEOs and CFOs lack the information necessary to make well-informed decisions on the payoffs of these investments, most companies seem to focus on reducing the cost of IT rather than maximizing its potential to create value.

This article describes a model that CPAs can use to evaluate IT performance and calculate the payoff. Accountants can use it to help CIOs evaluate and justify their initiatives and to assist CEOs and CFOs in making better resource-allocation decisions.

## **The Starting Point**

Exhibit 1 describes the inputs, processes, outputs and outcomes of IT initiatives. An organization's IT success is dependent on *inputs*. These include the existing corporate strategy, structure and systems. Along with available resources and the external environment, these are critical inputs that affect IT strategies. Other factors, such as leadership, IT structure and systems or *processes*, also significantly affect the

performance and success of IT initiatives. The inputs and processes have an impact on IT *outputs*, which can be classified as either *internal outputs*—such as improvement in productivity, time savings, quality or overall cost reduction—or *external outputs*, such as customer acquisition, satisfaction and loyalty. If the IT strategy and implementation are successful, these outputs should result in improved overall corporate profitability—the *outcome*.

Every IT project or initiative must be measured and evaluated along the four dimensions of the IT Contribution Model. It is important to understand the relationships leading from the inputs to the processes and then flowing to the desired outputs and outcomes. For example, if an organization inputs more resources to consolidate and standardize its IT infrastructure, its improved IT processes will lead to time savings, which in turn will increase customer satisfaction and loyalty, sales and revenues.

### **Use the Right Yardstick**

Companies must develop appropriate metrics to closely monitor cause-and-effect relationships. Because some elements, such as leadership, are more difficult to measure, the temptation is to avoid measuring them at all. However, if they are considered crucial in demonstrating how IT can improve business success, they must be incorporated in the performance measurement system. It may be that nonfinancial performance measurement is more appropriate in such cases, but CPAs should try to use monetary values as often as possible when measuring drivers as well as outputs. For example, improvements in quality may be measured by the percentage of high-quality products, but it is more important to measure the dollars saved on reduced rework. Similarly, increased employee productivity can be measured by the percentage increase in

production output per employee, but it's better to measure the additional sales that result.

Exhibit 2 lists a selection of measurement criteria. A more complete list of performance measures can be found in the *Management Accounting Guideline, Evaluating Performance in Information Technology*, published by the Society of Management Accountants of Canada (CMA-Canada) and the AICPA (see “AICPA Resources,” at left). There is no rule for the right number of metrics to include in measurement systems, but using too many tends to distract managers from pursuing focused IT initiatives. It is important to focus on the key indicators. Generally, a complete IT performance measurement system should include no more than 20 measures.

### **Calculating the Return**

The metrics for IT inputs, processes and outputs provide the tools IT managers and financial managers need to calculate the ROI. For the calculation to be complete, IT benefits and IT costs must be carefully identified and addressed. The IT Contribution Model plays a vital role by articulating the drivers of IT ROI, the relationships among them and all potential benefits. One study (“What CEOs Really Think about IT” by Erik Monnoyer in *The McKinsey Quarterly*, No. 3, 2004) reported that only half of companies actually monitored expected benefits. The challenge of calculating the ROI of IT lies primarily in determining the benefits of IT projects and transforming them into monetary values.

Because many IT projects overrun their cost projections, it's important to be careful when estimating costs. Base estimates on the total lifetime costs of the project, including planning, forecasting potential risks, development and implementation, as well as

maintenance and upgrades and disruption costs, both human and organizational.

In general, the ROI calculation should be performed on a marginal basis, including only additional costs incurred by the new system. Likewise only new or additional benefits should be compared with the costs.

### **A Practical Example**

Company ABC decided to standardize and consolidate its computer software and hardware, including new notebook computers. It began a pilot study of 100 employees to estimate how much the notebooks would improve productivity and financial results.

On the cost side, ABC considered the front-end direct costs, the operating costs, the disruption costs related to human factors (hours lost due to IT training), the disruption costs related to organizational factors (lost orders and lower customer satisfaction) and the costs of risk mitigation (the development and implementation of an IT performance framework).

When it came to benefits, the employees in the pilot study reported average weekly time savings of two hours using the new notebook computers. Their productivity improved because they were likely to use their laptops more frequently and in more locations. As a consequence, ABC began offering more services, which in turn led to an increase in the number of new customers acquired. The notebooks also enabled faster and on-time placement of orders, which improved the manufacturing capacity utilization (saving an estimated \$50,000 in operating costs) and shortened delivery times. The overall quality of business processes improved, reducing grievance costs by \$10,000. Customer loyalty also improved, leading to an increase in the profitability of the average existing customer. Finally, the study reported savings

in direct IT costs based on the increase in information systems security, which reduced system downtime by 10 hours. (More details are provided in exhibit 3.)

The ROI should be calculated before beginning an IT project to estimate its potential cost effectiveness and after the project to measure the results. Because the benefits of an IT investment increase over time, ROI should be calculated yearly throughout the life of the project. This facilitates budgeting, planning and resource allocation, and fits into a broad performance evaluation and reward system.

### **Apples to Apples**

In the early days of computing, investments were made almost exclusively on the basis of direct financial benefits that generally related to direct cost savings. But the opportunities for such direct savings have been reduced greatly.

Despite the difficulty involved, using nonfinancial measures of performance—such as improved organizational agility and communications, enhanced employee performance, more flexible working conditions, safer environments and higher job satisfaction—to quantify the longer-term or indirect benefits has become increasingly significant. These longer-term benefits may stem from enhanced management performance through better and timelier information, an improved decision support capability or a reduction in the number of meetings because of better communication. Integration of IT systems, enhanced security and improved relationships with suppliers also are drivers of more indirect, longer-term benefits.

These benefits will not always clearly translate into short-term profits, but they should ultimately lead to either cost savings or increased revenues. The transformation of

these internal outputs to monetary terms is illustrated in exhibit 4.

Generally, cost savings from IT, which traditionally applied primarily to staff displacement, now can be traced to reduced employee overtime, less need for specialized and more expensive staff, and reduced travel costs. All sources of time savings—such as less searching for information, fewer phone calls and queries and reduced order processing time—lead to cost savings and potentially to increased sales. Improved quality control saves cost by reducing rework, rejections at final inspection, mistakes in invoicing and delivery, customer returns and help-desk requirements. These improvements originate from reduced capital and maintenance costs for new equipment and enhanced inventory-control systems that lead to savings on cash flow and reduced inventory, floor space and employee time.

With respect to additional revenues, some systems make it possible to introduce new products, to develop products faster and in a more focused manner or to provide economic justification for previously unacceptable products. Improved asset utilization also can lead to potential increases in production and consequently in revenues. But external outputs, such as channel optimization, customer acquisition, customer loyalty and adding value, are more directly related to creating business value. Thus, translating these benefits into monetary value shouldn't be a difficult task.

But metrics for customer satisfaction, acquisition and loyalty must be chosen carefully. Customer approval ratings that are based on satisfaction surveys, for example, are more of a leading indicator of customer satisfaction and represent a customer wish list more than they do real requirements. Also, while the customer acquisition rate can be an important indicator, the best signs

of customer satisfaction may be the customer retention ratio, the ratio of serious customer complaints to quantity of services and products provided, and the level of increased spending per retained customer.

### **Know Where You Began**

Before implementing the model, establish baseline indicators for each performance measure you intend to track. This will enable you to draw conclusions about the actual benefits of your IT initiatives. With more historical data from within your organization and from other organizations, you can establish benchmarks and use them to objectively evaluate the results your IT projects achieve.

It's essential that you identify and measure the present and future marginal costs and benefits of IT initiatives in order to have a comprehensive and objective calculation of the ROI of your IT initiative. In particular, disruption costs that are associated with the adoption of IT initiatives typically are significant and require a thorough evaluation.

Getting real business value from an IT initiative begins with a structured and careful examination of costs, benefits and risks from the initial feasibility through post-implementation. Companies need to pay continuous attention to asset tracking, usage data, total cost of ownership and IT performance measurement.

By using some forethought and a structured approach, CPAs can convert diverse and often imprecise data into coherent and measurable management strategies. That, in turn, can help management choose the IT investments that will boost profitability and—almost as important—pay for themselves.

## **AICPA Resources**

### **Special interest group**

The AICPA Information Technology (IT) Membership Section is an AICPA voluntary membership section for CPAs who want to maximize their IT skills in order to increase efficiency and boost profits (<http://infotech.aicpa.org/Memberships/Information+Technology+Membership+Section+Overview.htm>).

### **Credential**

Certified Information Technology Professional (CITP) designation. A CITP is a CPA credentialed as a technology professional and recognized for his or her unique ability to bridge the gaps between business and technology. Information about the program and applying for it is available at <http://infotech.aicpa.org/Memberships/The+Certified+Information+Technology+Professional+Credential.htm>.

### **Conference**

Tech 2006: The AICPA Information Technology Conference

Hilton Austin  
Austin, Texas  
June 12–14, 2006

### **Publication**

Management Accounting Guideline, Evaluating Performance in Information Technology (paperback, # 030000JA; download, # 030000PDFJA).

For more information or to order, go to [www.cpa2biz.com](http://www.cpa2biz.com) or call the Institute at 888-777-7077.

CPAs should use monetary values as often as possible when measuring factors that demonstrate how IT can improve business success.

*Note:* This article is related to one the authors wrote for the February 2005 issue of CMA Management magazine and is based on Evaluating Performance in Information Technology, one of a series of *Management Accounting Guidelines* published by the AICPA and the Society of Management Accountants of Canada (CMA-Canada).

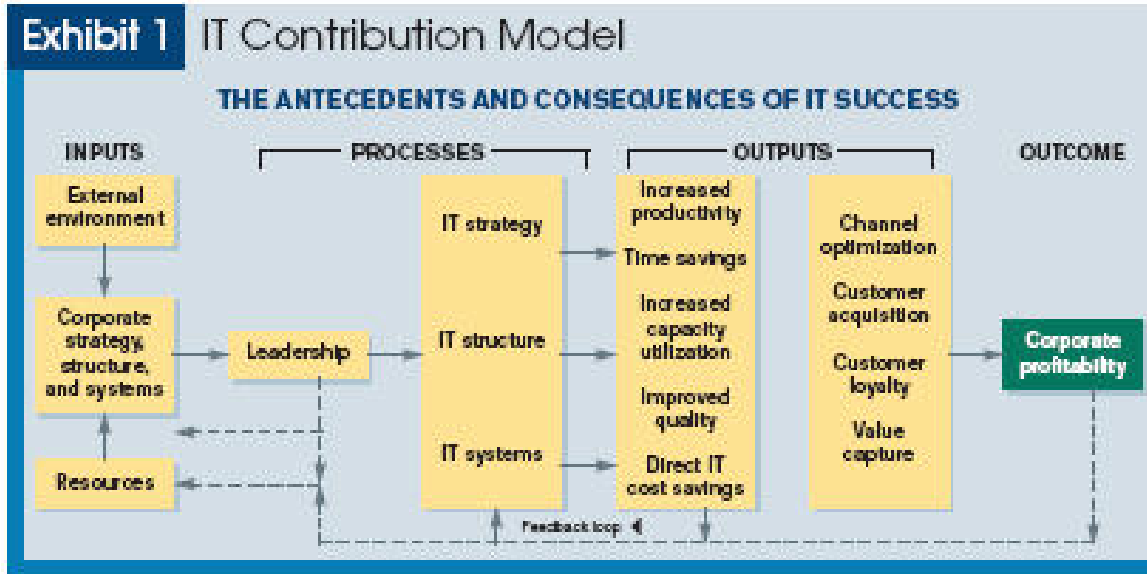
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## **Executive Summary**

- ◆ The difficulty of calculating the return on an IT investment often has weakened the case for funding such initiatives.
- ◆ Financial managers and other decision makers expect requests for IT funding to be framed in an ROI or shareholder value format so they can compare them with other investment options.
- ◆ The successful measurement of IT projects involves evaluating critical resources and processes that produce desirable results and lead to overall organizational success.
- ◆ It's essential to assign monetary values to nonfinancial IT results. Although some benefits of IT initiatives do not always produce short-term profits, they should reduce costs or increase revenue.
- ◆ To calculate the return on an IT investment, measure its total costs, including those related to disruptions and risks, as well as its total benefits.

**Exhibit 1 IT Contribution Model**

The Antecedents and Consequences of IT Success



**Exhibit 2 Examples of Metrics**

Useful Yardsticks

<b>Inputs</b>	<b>Performance measures</b>
Corporate strategy	<ul style="list-style-type: none"> <li>• Number of IT projects in the strategic plan</li> </ul>
Corporate structure	<ul style="list-style-type: none"> <li>• Level of empowerment to strategic business unit and functional managers</li> </ul>
Corporate systems	<ul style="list-style-type: none"> <li>• Percentage of business processes documented and measured</li> </ul>
Resources	<ul style="list-style-type: none"> <li>• Dollars available for IT staff training and development</li> </ul>
External environment	<ul style="list-style-type: none"> <li>• Number of potential threats relating to IT from external environment</li> </ul>
<b>Processes</b>	<b>Performance measures</b>
Leadership	<ul style="list-style-type: none"> <li>• Percentage of senior executives' time dedicated to IT</li> </ul>
Creation and execution of appropriate IT strategies	<ul style="list-style-type: none"> <li>• Availability and planning for IT security features</li> <li>• Planned cost of disruption of IT initiatives</li> </ul>

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	<ul style="list-style-type: none"> <li>Planned cost of risk related to IT projects</li> </ul>
Designing and implementation of a proper IT structure	<ul style="list-style-type: none"> <li>Percentage of IT expenses related to outsourcing</li> <li>Number of IT applications not fully integrated into the overall IT system</li> </ul>
Development and implementation of appropriate IT systems	<ul style="list-style-type: none"> <li>Number of IT professionals per employee</li> <li>Dollars invested in IT skills and knowledge</li> <li>Percentage of staff with pay-for-performance compensation</li> <li>Percentage of projects' evaluations based on ROI metrics</li> </ul>
<b>Internal outputs</b>	<b>Performance measures</b>
Increased productivity	<ul style="list-style-type: none"> <li>Percentage increase in production output per employee</li> <li>Dollar increase in sales based on productivity improvements</li> </ul>
Time savings	<ul style="list-style-type: none"> <li>Reduction in online response time</li> </ul>
Increased capacity utilization	<ul style="list-style-type: none"> <li>Fixed costs per unit of capacity</li> <li>Percentage of utilization of databases</li> </ul>
Improved quality	<ul style="list-style-type: none"> <li>Dollars saved on prevention and appraisal cost of quality</li> </ul>
Direct IT cost savings	<ul style="list-style-type: none"> <li>Percentage reduction in mandatory IT expenses</li> </ul>
<b>External outputs</b>	<b>Performance measures</b>
Channel optimization	<ul style="list-style-type: none"> <li>Dollar value of activities completed through Web sites</li> <li>Hours of annual Web site downtime</li> </ul>
Customer acquisition	<ul style="list-style-type: none"> <li>Number of new customers gained through IT innovation</li> <li>Sales from new customers</li> </ul>
Customer loyalty	<ul style="list-style-type: none"> <li>Sales from retained customers vs. new customers</li> </ul>
Added value	<ul style="list-style-type: none"> <li>Average customer profitability</li> </ul>

Outcomes	Performance measures
Long-term financial success	<ul style="list-style-type: none"> <li>Percentage change in company stock price attributable to IT initiatives</li> <li>ROI</li> </ul>
Short-term financial success	<ul style="list-style-type: none"> <li>Cash-flow growth</li> <li>Percentage of overall cost reduction</li> </ul>

**Exhibit 3 Examples of an IT ROI Calculation**

**Exhibit 3 Examples of an IT ROI Calculation**

**1 Calculate the monetary value of IT initiative benefits**

Outputs	Benefits	Monetary value
Increased productivity	Increased profits from new customers (number of new customers (50) → average customer profitability (\$1,200))	\$60,000
Time savings	(2 hours per week → 50 work weeks in a year → average labor cost per hour (\$40) → 100 employees)	\$400,000
Increased capacity utilization	Cost savings	\$50,000
Improved quality	Increased on-time deliveries reducing cost of grievances	\$10,000
Direct IT cost savings	Reduced hours of system downtime (10 hours saved → average labor cost per hour (\$40) → 100 employees)	\$40,000
Channel optimization, customer loyalty value creation	Increased profits from existing customers (Increased average existing customer profitability by \$1,000 → 310 customers)	\$310,000
Total benefits		\$870,000

**2 Calculate the total costs of IT initiative**

Costs		Monetary value
Front-end direct costs of IT initiative	Hardware, software, installation and configuration costs and overhead	\$350,000
Disruption costs related to human factors	Hours lost because of IT training (5 hours per employee → average labor cost per hour (\$40) → 100 employees)	\$20,000
Disruption costs related to organizational factors	Technical disruptions, resulting in lost orders and lost customers (20 customers → average existing customer profitability (\$1,200))	\$24,000
Costs of risk mitigation	Development and implementation of IT performance framework	\$6,000
Total capital costs		\$400,000
Operating costs of IT initiative	Direct IT operation costs, maintenance costs (\$2,500 per month → 12 months)	\$30,000
Total operating costs		\$30,000

**3 Calculate the IT initiative ROI**

$$ROI = \frac{\text{Total benefits} - \text{Operating costs}}{\text{Capital costs (Investment)}} \times 100 = \frac{\$870,000 - \$30,000}{\$400,000} = 210\%$$



**Exhibit 4 Does IT Pay Off?**

**Calculating Monetary Benefits From IT Initiatives**

<b>Outputs</b>	<b>Examples</b>	<b>Monetary benefits</b>
Increased productivity	An IT infrastructure upgrade improves productivity of a manufacturing operator whose labor costs are tied to operating hours.	Calculate the unit labor cost of the operation. The increase in output multiplied by the unit labor cost is the added value of the IT upgrade.
Time savings	An IT project reduces labor involvement in IT programs. An IT project eliminates bottlenecks in production and delivery, resulting in increased on-time deliveries.	Multiply the hours saved by the labor cost per hour plus benefits. If the result is a reduction in grievances, use the average cost per grievance to estimate the benefits.
Increased capacity utilization	Infrastructure enhancement (for example, use of satellite communications) optimizes the use of existing resources, such as transportation vehicles.	Benefits arising from increased turns (that is, journeys from the production facility to the customer and back) are equal to additional sales minus direct variable costs.
Improved quality	An IT project enhances manufacturing quality, resulting in: Lower preventive and appraisal cost of quality. Less scrap and waste.	Multiply the number of hours saved by the standard wage, adjusted by a benefits factor. Calculate the savings in costs of defective products by subtracting their salvage value from the total cost incurred at the point the defect is identified.

<p>Direct cost savings</p>	<ul style="list-style-type: none"> <li>• Integration of the organization’s IT systems with those of its global customers and dealers.</li> <li>• An IT initiative to increase information systems security.</li> <li>• A program of consolidation and standardization across a range of hardware, database, communications and applications systems reduces IT expenses.</li> </ul>	<ul style="list-style-type: none"> <li>• Calculate the reduction in administrative costs.</li> <li>• Reduced hours of system downtime (multiply the hours saved by the average hourly productivity) and reduced fraud incidence (estimate the financial damage caused by fraud).</li> <li>• Benefits equal to reduced IT expenses(cost of operating and maintaining the IT system).</li> </ul>
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**Practical Tips**

- ◆ Understand relationships between inputs, such as corporate strategy and systems, and outputs, such as time savings and customer satisfaction.
- ◆ Because the benefits of IT investments increase over time, calculate ROI yearly throughout the life of the project.
- ◆ Choose customer satisfaction, acquisition and loyalty metrics carefully. Customer approval ratings based on satisfaction surveys, for example, are more of a customer wish list than real requirements.
- ◆ Before implementing the IT Contribution Model, establish baseline indicators for the specified performance measures so you can draw conclusions about the actual benefits of IT initiatives.
- ◆ To maintain your IT budget’s return on investment, pay ongoing attention to asset tracking, usage data, total cost of ownership and IT performance measurements.

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