

Prioritizing Projects to Maximize Return on Investment



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I. Introduction: The Importance of ROI

Return on Investment (ROI) is the glue that binds project investments to business results. Organizations that systematically predict, measure, and manage the business return of their projects gain competitive advantage in an increasingly challenging business landscape.

Few organizations that implement good processes for ROI alignment do so as a matter of principle or strategy. Many have experienced the results of poor alignment through depleted budgets and ineffective (and/or uncompleted) projects.

C.C Pace has been working with companies for over 20 years to maximize the business value of their technology investments. This paper describes a flexible framework that can be used to develop and implement ROI analyses for your company's projects.

The framework emphasizes the following techniques:

- Using lessons learned from past projects.
- Weighing corporate priorities.
- Evaluating problems with current processes.
- Identifying new initiatives.
- Evaluating alternatives.
- Identifying comprehensive initiatives.
- Planning Implementation.

We have included a high-level overview of the framework as well as step-by-step process descriptions and guidelines.

Key Issue

How can a company facilitate return on investment analysis (ROI) and prioritize the benefits of implementing specific information technology (IT) projects?

Audience

Business and technology executives who prioritize and authorize projects.

Related Resources

- Economic downturns spur close scrutiny of information technology projects and budgets.
- Technology investments can directly impact your corporate bottom line.
- To achieve your business goals you need to implement the right technology tools at the right time.

Key Points

- A well-structured ROI analysis can help improve IT and business alignment.
- ROI analysis and prioritization can be done quickly (with estimated data) to identify top-tier projects or it can be done more thoroughly (with detailed data) to develop comprehensive implementation plans.
- Comparing past project outcomes to project expectations helps with future ROI projections.
- The ultimate measure of all initiatives is business value. Don't get blindsided by other variables such as technology novelty or competitive reactions.
- Neither technology nor process change alone can solve a problem or achieve an objective. Utilize both to be successful.

II. Getting Started: Laying the Foundation

Data Collection

The quality of the information used impacts the quality of analysis results. Needed information is not always available in a concise format suitable for use in an ROI model. Such information may be buried throughout hefty corporate documents or not formally documented at all.

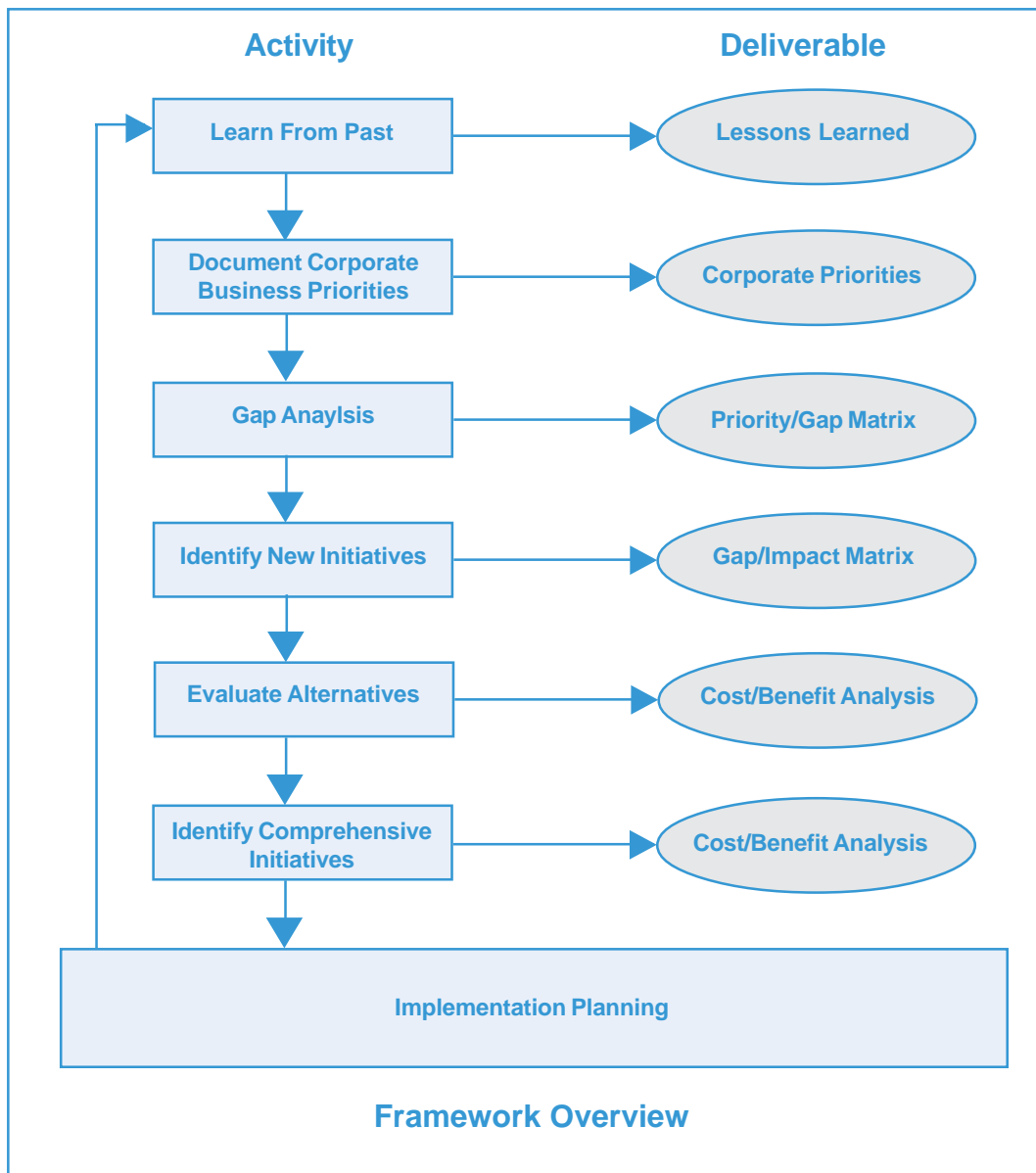
The information you will need to collect as a foundation for your Technology Project ROI Analysis falls into several categories:

- *Previous Project History:* **Results of evaluating prior project projections against actual results from both business benefit and cost perspectives yields valuable information for analyzing current or planned projects.**
- *Ranked Business Priorities:* **Successful projects align with business objectives. Prioritizing business goals aids in evaluating the business value of potential projects.**
- *Current Organizational Measurements and Trends:* **Documenting metrics (especially those related to achieving corporate goals) helps in evaluating project results. Metrics may include recent revenue trends, client satisfaction trends, and operational cost trends.**
- *Internal Cost Metrics:* **Internal resource availability and cost data are important in evaluating required outlays for new projects.**
- *State of the Organization:* **Technical, organizational and business factors (or short-term plans) that may impact project success should be documented. Corporate technical architecture, both current and planned, should also be considered in evaluating technology projects.**
- *Assumptions:* **Hypotheses about the future that impact your decisions should be documented so that when the future proves the hypotheses true or false, project priorities can be updated accordingly.**

III. Putting it Together: A Systematic Process

A systematic process for organizing, analyzing and prioritizing projects will help to justify decisions. By formalizing the ROI process you can :

- Ensure that your base information is as complete and accurate as possible.
- Provide consistency in evaluating projects by the same documented criteria.
- Incorporate business and market changes (i.e., revisit assumptions) to keep analysis results relevant.



IV. Activity Descriptions: Activity 1 - Learn from Past Projects

When it comes to business justification, many organizations (and individuals) are guilty of front-loading their projects. Often, a great deal of analysis and anticipated benefit calculations are performed to justify a project, while very little analysis is done following project implementation to see how accurate the cost/benefit prognostications were. While this lack of after-the-fact analysis avoids blame (and praise) for project participants, it also prevents the organization from gaining valuable information for evaluating, prioritizing, and planning future projects. Data that every organization needs to review for past projects include:

- Anticipated direct and indirect cost and schedule data, compared with the project's actual costs and schedule.
- Anticipated business benefits compared with the project's actual business benefits.
- Both positive and negative sources of unanticipated cost, schedule, and benefits. Documenting the sources of the unexpected helps refine planning for future projects.
- Business staffing and/or process changes that were needed but not anticipated as a result of the project's implementation.
- Changes in requirements that occurred while the project was in process or shortly afterward. How can project planning be improved to minimize such changes for future projects?
- For each project, what element(s) (i.e., estimation algorithm, project team make-up, and/or reporting tool) can serve as a model for future projects?
- What mistake(s) (and plan for avoiding them) can serve as a lesson?

IV. Activity Descriptions: Activity 2 - Document Corporate Business Priorities

Admittedly, corporate objectives are moving targets. Often, market conditions or competitor actions can radically change organizational strategies. A scorecard of business priorities is essential to achieve alignment between business goals and technology projects. When possible, quantifying the relative weight of the goals (often in a simple format such as a one-to-ten scale) assists in comparing potential IT or process initiatives.

Types of corporate priorities include:

- Revenue or market share enhancements for specific company products/services or for the entire product/service line. These may also include client retention, expansion of client base, and/or increased volume of client orders.
- Efficiency and quality goals for specific corporate processes. These may include reductions in cost, cycle time, or defects (or a combination thereof). Efficiency targets are often set through comparisons to other firms, particularly competitors (e.g., best practices). Efficiency and quality goals are unique for the processes they measure (e.g., financial, supply chain, human resources).
- Qualitative goals, such as external and internal customer satisfaction, are a specific form of quality goals. These are common for evaluating the quality of corporate processes as well as the effectiveness of support organizations such as human resources, facilities management, and marketing.
- Financial measurement goals relate to a company's balance sheet and/or its stock position. These may include mix of debt and equity, reduction in expenses (either cost of goods sold or indirect sales and administration expense), and turnover of inventory.

IV. Activity Descriptions: Activity 3 - Identify Gaps in Achieving Objectives

Many ROI frameworks start with IT projects and work backward to align with business goals. When possible, we recommend that the analysis begin with the business priorities and then probe the processes (including automated systems) that may be hindering the goals' achievement.

In this activity, Pace recommends analyzing each business process or set of processes relevant to achieving a specific corporate priority, and identifying the root causes (or gaps) in the process that may prevent achievement of that business goal.

For example, if gaining revenue or market share is a priority for your catalog company, you may want to review processes relevant to client acquisition and customer satisfaction. These may indicate that improvements to several processes (and their supporting automated applications) may be in order.

Examples of processes relative to a revenue business goal include:

- Customer Analytics: Are we selling all possible products/services to existing clients?
- Market Analysis: Are we selling the products that the market is ready to buy?
- Customer Satisfaction Management: Are we answering our clients' questions and managing their orders well?
- Inventory Management: Are we managing product delivery and availability to meet market needs?
- Production: Do our products have defects?
- Distribution/Inventory: Are we delivering products in time and quantity to meet client requirements?

IV. Activity Descriptions: Activity 4 - Identify New Initiatives

Incremental Initiatives

Often, the least expensive, most timely, and easiest way to achieve a business goal is to incrementally improve an existing process or set of processes. We focus on both manual and automated processes, since this considers both the way that an organization performs activities *and* the automated systems that support those tasks. Achieving most goals (and solving most problems) requires modifications to both computerized system and process.

Incremental initiatives may include application enhancements (such as new reporting formats) or changes in existing processes (such as new process measurement, change in reporting relationships, and/or updated procedures). New automated applications (either custom developed or purchased from a vendor) may also be considered to enhance operational goals.

New Model Initiatives

Major change initiatives have earned a poor reputation in the past few years, in projects ranging from reengineering to ERP to “e-commerce will solve it all “ initiatives. However, C.C. Pace has learned that it is helpful to consider large-scale process or technology overhauls to achieve competitive advantage and/or solve persistent operational problems. The key to avoiding the ‘latest new thing’ syndrome is to realistically evaluate the benefits, costs, and risks of each new model.

To identify new models, we recommend that you begin with the business objective and the gaps identified in Activity 3. Next, study best practices and brainstorm new models of process and/or technology that may significantly improve your business model, fill the gaps, and dramatically increase the likelihood of achieving the business objective.

New models may include tactics such as:

- Outsourcing functions (e.g., call center) that are now handled internally.
- Reorganizing procedures (e.g., customer service), staffing models, and/or metrics.
- Using new vehicles for client acquisition and service, such as Internet-enabled client entry or affiliate marketing (cross-selling with another vendor online).
- Developing applications to provide new functionality, such as data mining.
- Creatively using new technologies, such as wireless, voice recognition, and imaging.

You can find new models by exploring business best practices within your industry, brainstorming (how can technology be used to solve this business problem?), and examining best practices from other industries. Many technological innovations that originate in one industry are practical for other kinds of businesses. For example, just-in-time inventory originated in the manufacturing business, but soon was adopted by multiple industries to manage a wide range of supplies and assets.

IV. Activity Descriptions: Activity 4 - Identify New Initiatives (continued)

Quantifying Initiative Value

It is often difficult to capture quantitative data about the value of potential initiatives. Nevertheless, there are some creative ways to arrive at objective value measurements. Factors that should be integrated into an initiative's value analysis include:

- Business impact of known problems in the process.
- Likelihood that the initiative will solve these problems.
- Success history of similar initiatives.
- Value of process improvement in achieving the business goal.

Initiatives should be identified by type (automation and/or process) and by their quantitative value in solving the known problem. Many organizations find it helpful to assign quantitative "scale" values to initiatives based upon the *goal value* and an initiative's likely *goal impact*.

Once each goal and its identified process problems are addressed, you then have a baseline from which to calculate relative project priority. While project priority does not translate directly to dollars saved or earned, this method helps companies more objectively assess multiple projects in relation to one another.

IV. Activity Descriptions: Activity 5 - Evaluate Alternatives

Cost Estimation

The first step in prioritizing projects (both short-term and long-term) is to estimate their implementation costs. Cost categories include direct costs (which require specific financial outlays) and indirect costs (such as staff time and cost of resources that could otherwise be utilized for other purposes).

Make sure that cost descriptions are comprehensive. The cost for an IT system implementation often includes direct costs for hardware, purchased software, and consulting resources as well as indirect costs for internal programming staff and project allocations (equipment, office space, overhead). Don't forget to include the dollar and time costs of training design, delivery, and attendance. System maintenance costs (both dollars and time) are often overlooked in cost evaluations. Many organizations take anticipated project cost schedules and discount them by present-value analysis, so that present costs are higher than costs incurred in the future.

Hidden Costs

Changes in process design, measurement, and organization often incur hidden costs, such as those for learning curves, cost and time to overcome resistance, and lost productivity of staff who are no longer doing the tasks to which they were originally assigned. Process change, like new system implementation, also incurs training costs including awareness building, training design, training attendance, and training maintenance (help desk). Remember to calculate both one-time and continuing costs.

Implementation Risk

Often, project success hinges on factors that are distinct from a strictly dollar-based cost/benefit analysis. Therefore, we recommend that initiatives also be evaluated based on risk of implementation (i.e., factors that may preclude project success), success of similar projects, and duration of implementation, as well as scope of organizational change.

Implementation risk factors may include project complexity, ease of integration with existing systems and processes, existing references for this kind of project (newer technologies and processes obviously increase risk), and past corporate project histories. Another point to keep in mind is that risk increases proportionately with the duration of implementation. At C.C. Pace, we typically encourage the short implementation cycles as a means to reduce this risk on large-scale projects (see the C.C. Pace white paper on agile methodologies, available online at www.ccpace.com, for more information).

Scope of organizational change should also be evaluated since resistance to change often impedes the success of a project. Organizational change factors include number of people affected, breadth of change based upon current procedures and operations, change readiness of staff, and change history of past projects.

There may be other variables that an organization chooses to analyze in addition to those presented here. These may include an initiative's use of scarce organizational resources, dependencies on other projects, and/or any other variable that has proven helpful in forecasting past project value or success.

IV. Activity Descriptions: Activity 5 - Evaluate Alternatives (continued)

Decision-Making

Notice that there are trade-offs for every project in terms of cost, benefit, and risk. It's rare for a specific project to clearly emerge as most worthy of implementation. A complete portfolio view of all initiatives and their costs, benefits, risks, timeframes, and durations aids in prioritizing top-tier projects and defining areas that require further data collection. Management can set weights for various categories of business value as long as consensus is reached among stakeholders; however, it is critical that partisanship be removed from the process. An impartial third party can sometimes help achieve an objective analysis.

How should projects be chosen once your analysis is complete? It depends upon your corporate resources, project history, economic climate, and business goals. Some organizations choose a top-tier cutoff based on quantitative factors alone, such as weighted business value divided by three-year cost of implementation. Others choose to allocate their resources (both money and internal resources) for projects with the highest business value (with or without weighting for risk.) Organizations with severe budget challenges may choose projects with the lowest out-of-pocket costs, ranking them by business value. Whatever the priorities for your organization, project prioritization should be tracked and analyzed following project implementation. If your projects didn't reach their business goals, your estimation and/or prioritization factors should be updated.

IV. Activity Descriptions: Activity 6 - Identify Comprehensive Initiatives

Sometimes an analysis of all projects (and gaps) highlights an underlying organizational, technical, or architectural weakness. In this activity, analyze suggested projects and try to identify comprehensive issues that may be at the root of several different organizational problems.

These may include:

- Strategic alignment within and/or among business centers.
- Alignment between business and information technology management.
- Technology infrastructure issues that might include:
 - Staff skill shortages.
 - Persistent problems with system availability or response time.
 - Ineffective project management.

Once underlying issues are identified, comprehensive initiatives to address them can be developed. This activity provides the opportunity to identify, assess in terms of business value, and estimate the cost (and risks) of comprehensive projects that may support many initiatives and corporate goals. It also provides a framework for coordinating the implementation plans of all chosen initiatives.

IV. Activity Descriptions: Activity 7 - Implementation Planning

This activity synthesizes those that precede it. The company's portfolio of proposed projects is presented along with a comprehensive schedule, resource estimates, and cost estimates. Supporting documentation may include resource dependencies, dollar value of corporate benefits expected, and/or interim project checkpoints with expected business value results.

Keep in mind that the process described here need not be extremely detailed or lengthy. The prioritization process can be completed quickly (documenting high level assumptions and estimates) for first-round prioritization with more detailed data identified for collection later. Remember that prioritization is not a one-time activity, but rather an ongoing one. Schedule regular reviews of ongoing projects to re-evaluate their risk, cost, and anticipated business value against pre-project estimates.

V. So What is Most Important?

The most critical elements of successful project value ROI analysis include:

- Always starting with business goals and challenges. Starting with technology and working backwards to business utility often results in clever but non-fruitful projects.
- Remembering that ROI analysis should be completed both for the past and the future. Estimates should be evaluated against project realities so that discrepancies can be factored into future projections, making them more realistic.
- Recognizing that not all business goals can be achieved through technology alone. A combination of process redesign (including organization, metrics, and procedures) as well as technology (new or updated applications) may be necessary. Creative focus on business goals can help in defining initiatives to achieve them.
- Realizing that project benefits cannot always be completely or accurately quantified. When choosing among competing initiatives designed to achieve multiple goals, independent evaluation of the goal value and the initiative's impact on that goal may help in comparing the value of projects.
- Remembering that there are many kinds of project costs. Be sure your cost evaluations factor in direct costs, indirect costs, project risk, impact of organizational change, and lag time until results are achieved.
- Analyzing your entire technology project portfolio may reveal something broader in your business that needs to be changed. Be alert for underlying structural issues (in IT infrastructure, organizational design, and/or business/IT alignment) that may contribute to multiple business problems.
- Continually monitoring critical business success metrics and re-evaluating your project alignment process based upon them. Business models change and project prioritization criteria should change accordingly.

XII. About the Authors

NOTE: A more detailed version of this paper, with sample tools and tables, may be obtained by contacting the authors.

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