



Key Factors to consider in evaluation of IT investments

This document describes the critical success elements and key phases that should be a part of a mature IT investment process. The IT investment process that is designed should match the culture and organizational structure of the company. The overriding objective is that senior managers be able to systemically maximize the benefits of IT investments through use of the IT investment process.

ORGANIZATIONAL ATTRIBUTES FOR SUCCESSFUL IT INVESTMENTS

Critical Attribute #1: Senior management attention

- Senior program managers, with authority to make key business and funding decisions on IT projects, are continuously involved in the process.
- A disciplined and structured management forum is used to make IT investment decisions, with the authority to approve, cancel, or delay projects, mitigate risks, and validate expected returns.
- Program, Information Resource Management (IRM), and financial managers with clearly defined roles, responsibilities, and accountability for the success of IT projects.

Critical Attribute #2: Overall mission focus

- Link strategic planning to the Company's mission goals and customer needs. This includes developing long-term general goals, setting specific annual performance targets, and annually evaluating actual performance against these targets.
- Develop mission-related IT measures that link the IRM strategic plan with the agency strategic plan.
- Determine whether the function to be supported by the investment should be performed in the private sector rather than by an agency of the Federal government.
- Determine whether the agency proposing to perform the function is the most appropriate agency.
- Examine the work processes involved to ensure they are efficient, effective, and will take full advantage of the proposed automation.
- Use mission benefit, not project completion on time and within budget, as an important measure of success for any IT project.
- Identify all major existing or planned information systems and define their relationship to one another and to the agency's mission.



Critical Attribute #3: Comprehensive approach to IT investment

- Define a portfolio that includes IT projects in every phase (initial concept, new, ongoing, or fully operational) and for every type (mission critical, cross-functional, infrastructure, administrative, and R&D) of IT system.
- Develop levels of review, documentation requirements, and selection criteria appropriate to the phase and type of IT system.
- Define dollar thresholds that can be used to channel projects to the appropriate agency decision levels to best accommodate organization wide versus unit specific impact. Most important is the use of a consistent set of investment decision practices throughout the agency. Some best practice organizations submit projects to thorough investment reviews when costs exceed between 0.5 and 2 percent of the organization's IT budget.
- Develop criteria for identifying projects of a critical nature that fall below the dollar threshold but should be included in the investment review process.





PHASES OF THE INVESTMENT CONTROL PROCESS

PHASE ONE: SELECTION

Step 1: Screen Project Proposals

IT proposals should be screened for the level of review as well as relevance and feasibility.

Key Questions to Consider in Screening a Proposal:

1. Is the project clearly relevant to mission priorities outlined in the agency's strategic or business plan?
2. Is the project feasible to design and execute given the agency's demonstrated capability to deliver?
3. Are there commercial off the shelf systems available to achieve the majority of the project's goals?
4. Has another agency done this type of a project before? If so, have lessons learned been incorporated into the project plan, and consideration given to using their system for the project's requirements?
5. Does the project conform to the agency's technology and information architecture?
6. Will the project be executed in well-defined stages, including decision points for continuing, modifying, or canceling the project?

Step 2: Analyze Project Risks, Benefits, and Costs

Key Risk Questions to Consider:

1. Has the relevant agency group successfully managed previous IT investments of similar risk and complexity?
2. Has the project team assessed project risk (e.g., unusual technical requirements or system complexity) using a comprehensive, well understood and documented process?
3. Has a sensitivity analysis been performed for key variables?
4. For higher risk projects, does the proposal explain how specific risk factors will be continuously monitored to minimize exposure?
5. What are the risks to program operations and customer service if this project does not proceed?



Key Benefit Questions to Consider:

1. Have the benefit estimates been validated or approved by users?
2. Has the project team prepared a benefit-cost analysis for the investment ?
3. What are the constraints and assumptions that may affect the costs and benefits of alternative solutions?
4. Does the justification for the investment proposal depend on projected benefits that occur more than 5 years in the future? If so, what is the level of confidence in those benefits estimates?
5. Is an IT investment considered an infrastructure project that makes future projects possible? If so, how does the benefit-cost analysis account for expected payoffs from future investments?
6. Do the assumptions supporting the analysis accurately reflect market conditions where commercially available software and hardware costs are declining each year?
7. Are agency cost assumptions based on today's prices or prices expected at the time of budget execution?
8. Are quantitative and qualitative benefits clearly expressed in mission or program improvement terms (e.g., changes in quality, cost, speed, accuracy, or productivity)?
9. Is it possible to share the costs of the project across different organizational units with similar needs?





Step 3: Prioritize Projects Based on Risk and Return

During this phase, IT projects are rigorously compared against one another to create a prioritized list of all investments under consideration.

A scoring and ranking process such as the one depicted in Table 1 (see last page) may be used more than once and in more than just this step to "winnow" the number of projects that will be considered by an executive decision-making body down to the best possible choice.

Step 4: Determine the Right Mix of Projects and Make the Final Cut

During this phase, an executive level decision making body determines which projects will be funded based on the analyses completed in the previous steps. Senior management should also designate how many times a project is to be reviewed based on the level of risk and any steps that the project team must take to mitigate that risk.





PHASE TWO: CONTROL

Step 1: Monitoring Projects/Systems Against Projected Costs , Schedule, & Performance

Senior managers need to compare the preliminary results being achieved by a project against its projected costs, benefits and risks, and to identify actual or potential managerial, organizational, or technical problems.

Step 2: Taking Action to Correct Deficiencies

The action should result in the deliberate continuation, modification, or cancellation of each project.

PHASE THREE: EVALUATION

Step 1: Conduct Post Implementation Reviews

Conduct and review the results of post implementation reviews, focusing on anticipated versus actual results in terms of cost, schedule, performance, and mission improvement outcomes. Determine the causes of major differences between plans and end results.

Step 2: Decide on Adjustments

Using the results of the post implementation review as a baseline, decide whether to continue without adjustment, to modify the system to improve performance or, if necessary, to consider alternatives to the implemented system.

Step 3: Lessons Learned

Using the collective results of post implementation reviews across completed systems, modify the organization's existing investment selection and control processes based on lessons learned.

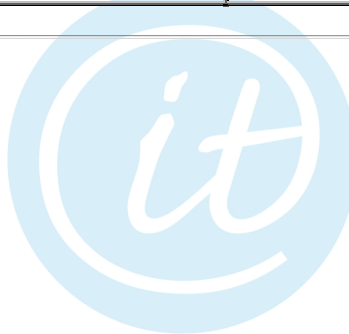
Table 1: Example of Decision Criteria and Scoring Process Used to Rank IT Projects

	IT Project (1 thru n)	Weight
DECISION CRITERIA	SCORING	PERCENT
Overall Risk Factors		Weight for Risks SUM=100%
Investment Size - How large is the proposed technology investment, especially in comparison to the overall IT budget?	1_____5_____10 Large Small	40
Project Longevity - Do projects adopt a modular approach that combines controlled systems development with rapid prototyping techniques? Are projects as narrow in scope and brief in duration as possible to reduce risk by identifying problems early and focusing on projected versus realized results.	1_____5_____10 Non-modular Modular	30
Technical Risk - How will proposed technology be integrated into existing systems? Will proposed investment take advantage of Commercial Off-The-Shelf (COTS) software and systems? How will the complexity of the systems architecture and software design affect the development of the project?	1_____5_____10 Experimental Established Custom Industry Standard	30
Overall Return Factors		Weights for Returns SUM = 100%
Business Impact or Mission Effectiveness - How will the technology investment contribute toward improvement in organizational performance in specific outcome-oriented terms?	1_____5_____10 Low High	25
Customer Needs - How well does the technology investment address identified internal and/or external customer needs and demands for increased service quality and timeliness or reductions in costs?	1_____5_____10 Low High	15
Return on Investment - Are the return on investment figures using benefit-cost analysis thresholds reliable and technically sound?	1_____5_____10 Risky Known estimates benefit	20
Organizational Impact - How broadly will the technology investment affect the organization (i.e., the number of offices,	1_____5_____10 Low High	25



ITAbode

users, work processes, and other systems)?		
Expected Improvement - Is the proposed investment being used to support, maintain, or enhance existing operational systems and processes (tactical) or designed to improve future capability (strategic)? Are any projects required by law, court ruling, Presidential directive, etc.? Is the project required to maintain critical operations--payroll, beneficiary checks, human safety, etc.--at a minimal operating level? What is the expected magnitude of the performance improvement expected from the technology investment?	1_____5_____10 Tactical: Strategic: Improves Provides existing process capability new	15
Total Risk Adjusted Score = Weighted Sum of Overall Risk Factors + Weighted Sum of Overall Return Factors		



ITAbode