

Project Management Guidelines

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Introduction

The Technology Services Board (TSB) has established policies regarding Information Technology (IT) Project Management. It is the objective of these guidelines that agency directors understand techniques to ensure IT projects are conducted in a disciplined, well-managed, and consistent manner that promotes the delivery of quality products completed on time and within budget. This will be accomplished through the hiring of experienced project managers or through training. These conditions establish the minimum baseline for agency compliance. Agencies are encouraged to adopt rigorous and replicable project management approaches that respond to and expand upon this guideline.

Statutory Authority

The provisions of [RCW 43.105.287](#) detail the powers and duties of the TSB, including the authority to develop statewide or interagency information services and technical policies, standards and procedures.

Scope

These guidelines apply to all executive and judicial branch agencies and educational institutions, as provided by law, that operate, manage, or use IT services or equipment to support critical state business functions.

Exemptions

None.

Guidelines

The project manager is the key to project success. No other individual has greater impact on the potential for the success or failure of an IT investment than the project manager. Without appropriate leadership, management skills, authority, and resources to guide a multi-million dollar IT project through the complex System Development Life Cycle stages, the results are likely to be unsatisfactory. In large part, the project manager will set the vision and define the goals and measures for ensuring project success.

Why Qualified Project Managers are Essential

The principal reason for having a qualified project manager is to successfully implement an IT project on schedule, within budget, and according to requirements. At times, agency executives may lose sight of this fact by assigning a less than fully qualified person to fill this critical position. When this occurs it is likely the project will experience serious difficulties or might even fail. The challenge for agency executives is threefold:

- Ensure that fully qualified individuals are always assigned to project management positions.

- Ensure that an internal policy is designed and instituted to foster professional growth and development.
- Provide the necessary management support and ensure that resources are available.

This requires executive management's commitment to provide the appropriate internal conditions (i.e., policy, funding, staff, physical resources, training, continuation training, etc.) that promote the selection and retention of competent project managers through professional development and a commitment to excellence.

Project Manager Skills

Fundamentally, project managers must possess strong management and leadership skills. In addition, they must be knowledgeable of the theory and concepts of IT management practices and approaches related to planning, organizing, staffing, monitoring, and controlling. Finally, project managers should be familiar with the appropriate management tools and techniques used in support of an IT project.

These, as well as other issues, will be discussed in the following pages. Topics include:

Elements for Success

- Agency responsibilities
- Characteristics of a project manager
- Building and supporting a project team
- Project team/contractor relationship
- Defining success

Managing the Project

- Applying proven project management methods and techniques
- A guide for identifying project manager duties

Professional Development

- Developing Education and Training Programs

Elements for Success

For most agencies, implementing major information systems is not a routine event or common aspect of doing business. For many people, this is a once in a lifetime experience that they may never wish to experience again. Consequently, the agency's overall experience with managing a major IT project is likely to be limited to a small number of employees. Even large agencies may not have the necessary experience in managing the implementation of major IT systems since most of their experience is limited to maintaining current applications. In preparing for a major IT project, there are

a number of key issues to consider that are characterized as elements for success. Regardless of agency experience, these should be considered before going forward with the project.

Following is a brief description of these elements and how they apply to achieving success.

Agency Responsibilities

By their very nature, IT projects are complex. For example, software must satisfy user functional requirements; perform flawlessly; satisfy a myriad of technical performance criteria; be user friendly; be cost effective; and maintainable. To achieve these objectives, project managers must overcome numerous external and internal obstacles and challenges during the course of development and implementation. While many obstacles to success are externally driven, many originate from within the organization. In most cases, if the internal obstacles are resolved, the external challenges are easier to manage. It is essential that the agency does everything possible to remove obstacles to success. Following is a brief description of the steps needed to establish a foundation for project success.

Understanding the Nature of IT Projects

The complexity of managing an IT project is often poorly understood. It is not uncommon for project managers to struggle to get necessary staffing, funding, equipment, and resources. In this regard, senior executives should carefully assess what is necessary to support the project team. One possible approach would be a formal executive orientation concerning the issues, risks, obstacles, and critical success factors for managing a major IT project.

Confirming Project Feasibility

The project manager should lead a study of the feasibility of the proposed project. Typically this study should address the following:

- Identification of an executive sponsor
- Project duration
- Nature of development effort (internal or external)
- Project manager requirements (partial or full time)
- Project management team composition
- Technical needs
- Risk identification and mitigation
- Financial commitment
- Functional capacity
- Level of functional user support

- Facility, equipment, tools, training, and other products or services necessary to support the project team

This study should not be conducted from a view of “what it will cost” but “what is really necessary” and “what will it take” to make the project successful.

Understanding, Defining, and Supporting the Project Goals and Scope

Having the goals and scope clearly defined along with senior management’s commitment to support the project are essential factors. Without management’s commitment and a clear understanding of the project’s purpose, the project is likely to fail. The project manager, with the support of the executive sponsor, must ensure there are no questions or lack of agency support before preparing the feasibility study report. One way to test whether or not commitments exist is to simply ask the question, “Would the commitment still exist if the current sponsor departs prior to project initiation?”

Setting Goals

To ensure long-term support, another fundamental step is establishing clear project goals. A project must always serve some valid business purpose; simply being a good idea is not good enough. The project’s goals must identify meaningful benefits to the organization and its stakeholders. In developing and framing project goals, the following considerations should be applied:

- Be specific – This is essential to provide continuity if another individual takes over the project and leads it to successful completion.
- Be realistic – Goals must be achievable within the scope of work and consistent with expected funding, so that work can be completed within the time available.
- Have a time component – Definite and realistic start and completion dates must be established.
- Be measurable – The project must have clearly defined task deliverables over time, defined by milestones that demonstrate successful accomplishment of elements of the project.
- Be agreed upon – Before proceeding with the project, all stakeholders must agree to the goals.
- Identify responsibility for achieving the goals – People must be assigned and accept responsibility for achieving specific goals.

Once goals are agreed upon, participants must be willing to share appropriate responsibility for the success or failure of the project. For example, the project manager should not be held accountable if the end-user organization fails to plan or prepare for the implementation of the new system. The project manager, however, is responsible for identifying issues important to the success of the project. The user management team is responsible for citing problems with implementation or operation of new systems when they are identified.

Setting the Project Scope

When the project goals are identified and agreed upon, the next step is to agree upon the proposed project scope. Experience has shown that risk increase significantly when projects have a duration greater than 12 to 18 months. While complex projects may have some components that will take longer than a year to complete, every effort should be made to break projects into “logical chunks” of twenty-four months or less. When scoping a project, the following should be considered:

- How much can be achieved in the current project?
- When must the project be completed?
- When must the money be obligated?
- When and for how long will resources (people, facilities, equipment, etc.) be available?

Applying these factors in the scoping process will help shape the size of the proposed project. Making the project scope too broad often adds unnecessary complexity. These considerations also reduce "scope creep" which describes projects that expand over time due to ineffective planning.

Planning Organizational Change

Perhaps one of the most important actions an agency must undertake is restructuring an existing activity to accommodate new process changes that are brought about by installing new systems. It is important to appreciate the complexity and time it requires to accomplish organizational readiness for an implementation step. Organizations should not delay in preparing for the transition. A late start in planning for the transition can result in project implementation dates slipping, functional and organizational productivity becoming impaired, and criticism concerning the agency's inability to effectively manage IT projects.

A key task is to ensure that the organization completes planning and preparation activity before user training starts. Planning and preparation should address all areas and activities impacted by the new software. This includes policy, procedures, forms, staffing, new job descriptions, organizational responsibilities, training, checklists, and customer services. A benefit of this activity is the potential for identifying additional functional and technical requirements early in the development process that can enable changes to the software design at minimum impact. In addition, the process ensures that training material is consistent with the system functionality, policy, business process flows, and procedures.

Supporting the Project Manager

The agency director's or deputy director's sponsorship of and commitment to the project is important to the project success. There are three executive level actions that are critical to every successful project:

- Direct reporting of the project managers to the agency director or deputy director

- Directing staff to provide all of the necessary support and resources
- Clearly defining the project manager's scope of authority and responsibility

Following is a brief discussion as to how these actions benefit the project:

Direct reporting – Project managers responsible for large scale, agency-wide IT projects should report directly to the agency director or deputy director and provide regular project status briefings. In addition to keeping management informed of the project, this provides the manager with an opportunity to get quick response to issues involving end-user line managers.

Project resources – Projects that have full-time (versus part time) personnel assigned to the project team usually experience significantly greater productivity because they are available to promptly solve problems and resolve issues before they cause delays to the project.

Project manager authority – Establishing clear lines of management authority is essential to project success. Project managers should be given broad authority to take whatever action is necessary to ensure that project activities are completed on time, within budget, and that the contract requirements are successfully met. In addition, the project manager should have unrestricted access to all agency managers and managers of effected or supportive external organizations to resolve project related problems. It is important that senior management have complete confidence in the project manager, and that agency personnel recognize this confidence.

Characteristics of a Project Manager

A competent project manager is essential. However, it is not uncommon for individuals to be selected to fill this position on the basis of availability rather than qualifications. Identifying and selecting an individual to fill the project manager role should be done as carefully as filling other management positions within an organization. This requires developing a formal position/job description, developing qualification criteria, and conducting a rigorous interview and selection process.

Although there are many necessary characteristics and qualifications, some attributes rank above others. The following are examples of some of the more important project manager characteristics and qualifications that should be considered when developing qualification criteria and conducting job interviews:

Ability to Plan Effectively and Act Efficiently

These skills are required on an almost daily basis. Understanding the implementation of a successful project requires timely action.

Ability to Manage and Lead

It is possible to be a good manager (i.e., schedule meetings, follow-up on activities, keep good books, etc.) without being a good leader. Leadership cannot be assigned; it is earned through respect and trust. A good leader and manager must develop strong “people skills” necessary to support interpersonal, informational, and decision making roles:

- Interpersonal role – Concerns how people perceive the manager as being authoritative, honest, capable, and dependable. These qualities come into play when:
 - Solving disputes between various parties
 - Dealing with people from differing backgrounds when building a team or consensus
 - Motivating staff or team members to achieve milestones when facing major obstacles
- Informational role – Concerned with keeping people up-to-date and abreast of project issues, progress, and status. Activities include:
 - Scheduling and leading team meetings
 - Developing and maintaining work schedules
 - Briefing management on project status and issues
- Decision role – Involves making countless daily decisions and having the experience to make the right choices without alienating people who may be affected by these decisions. Examples include:
 - Ability to correctly reallocate resources if part of a project falls behind schedule or goes over budget
 - Ability to achieve the “right” balance between cost, time, and result
 - Ability to manage scope, ensuring the project doesn’t grow beyond the necessary requirements, planned budget, and established completion date
- Behavior Traits – The following behavioral traits are important characteristics of being a successful project manager:
 - Enthusiasm for the Project – Requires demonstrating a commitment to do a good job. This attitude should carry over to the other members of the project team and other people with whom the project manager will come into contact.
 - Ability to Manage Change Effectively – Change is a way of life in any project. Learning how to manage exceptions is an important capability.
 - Ability to be Tolerant of Ambiguity – Project managers often have ambiguous authority. In certain situations, people may not consider the project manager as a manager. Learning to deal with these conditions and to effectively manage around them is essential.
 - Team Building and Negotiating Skills – The ability to build team cohesion and coalitions among various stakeholders is essential.

- A Customer-First Orientation – Keeping the customer satisfied is essential. Most projects are intended to benefit one or more stakeholders. Fulfilling their needs and expectations is the principal objective of the project.
- Adherence to the Priorities of Business – Project managers need to keep the business aspects of the project in mind. While the project will not be about making a profit, it is about controlling cost, meeting deliverable schedules, and providing a quality product to the customers. These goals can be achieved through the application of sound project management practices.

Project Manager Qualifications

In addition to possessing the above personal characteristics, there are certain qualifications that should be possessed by candidates for a project manager's position. These include the following:

- Previous project management experience – Previous project management experience is essential, at least as a key member of a project team. Most successful project managers are not born they are created from training, experience, and involvement. Elements of this experience should include:
 - Systems development experience – Includes familiarity with the functionality of commercial-off-the-shelf (COTS) software, as well as the design and development of custom software. Ideally, the candidate's experience will include integrating custom systems and COTS software.
 - Relevant industry experience – Experience working for similar organizations. A working knowledge and awareness of agency issues, state financial and budgeting processes, as well as other issues are equally important considerations.
 - Professional education – While a professional degree should not be a mandatory requirement for the position, relevant education related to IT and project management is desirable.
 - Professional equivalency – In many cases a well-qualified individual may not have the desired academic background but has extensive and equivalent project experience. In such cases, an equivalency through experience ought to be acceptable in lieu of academic credentials.
 - Training – Project managers should have a reasonable understanding of the tools and products available to support IT projects.

Building and Supporting a Project Team

The size, complexity, and duration of a project will define the need and size of a project team. For example, a relatively small, internally developed project, that does not involve multiple units or process change, will likely require a project manager and some part time assigned assistance. However, projects that are high-cost, high-visibility, externally developed, or involve many units or changes to business processes that will potentially require dedicated full-time resources to mitigate risk.

Complex projects usually have many important concurrent activities. This may be more than can be managed by a single individual or part time help. An essential objective of the project team is to prevent unnecessary delays.

In determining the size and composition of a project team, the following should be considered:

- Project scope and risk
- Project team purpose
- Project team skill composition
- Full versus part time personnel assignments
- Essential technical skill resources
- Other resource requirements

Following is a brief discussion of each of these elements:

Project Scope and Risk

Project scope and risk help define the size of the team, skill requirements, and duration of assignment to the team.

Project Team Purpose and Benefits

A project team staffed by members from within the organization benefits the project in the short and long term. While assigned to the project, their principal role is to provide immediate and knowledgeable technical and functional support during the design, development, and implementation phases of the project. They act as technical and functional liaisons between the users and development contractor to ensure issues are quickly resolved. In addition, they review and assess various deliverable documents prepared by the contractor, including functional requirements, design specifications, test plans, training plans, system architectural and communication plans. Lastly, they provide critical input to the using organization concerning their planning and preparation for applying the new systems in an operational environment.

After implementation is completed, the project team members often transition back to their previous units and become essential cadre of knowledgeable people that will provide key technical and functional leadership in employing and maintaining the new system.

Project Team Skill Composition

Composition of the team will vary from project to project. Generally the team will be comprised of members who bring a mixture of technical, functional, administrative, and business skills such as the following:

- Technical skills will include professionals with knowledge of state technical standards, software development, operating systems, hardware, communications networks, internal data processing capabilities, and configuration management.

- Functional skills include knowledge of the using organization's functional or business processes. Individuals should be thoroughly knowledgeable of current processes, practices, procedures, and governing regulations.
- Administrative skills essential in the timely preparation and maintenance of project related documentation such as reports, deliverable reviews, budgets, schedules, team performance and evaluation reviews, technical and functional library, and other correspondence.
- Business and related analytical skills are often required when a project is dealing with issues such as the following:
 - Use of complex cost scheduling and reporting system
 - Complex financial/funding arrangements
 - Rigorous contractor payment and performance schedule

Full Versus Part-Time Assignment

There are many issues to consider when assigning resources to a project:

- Heavy workload requirements
- Continuity
- Access to person(s) with specialized technical and functional expertise
- Management control
- Career enhancement opportunity

If there is doubt concerning whether a person should be full-time, management would be well-advised initially to make a temporary (i.e., 60-90 days) assignment, and adjust according to the experience of the assignment period.

Other Resource Requirements

Following is a list of necessary support resources. Some of these requirements are based on the assumption of external development. In cases where the project is being developed internally, some of these suggestions might not apply.

- **Workspace** – Ideally, the agency project team should be located in an area separated from other business units but adjacent to the contractor's development team. Separation ensures privacy for members of the contractor's team and project team. A conference room will be needed to conduct the numerous meetings and discussions between the project team members as well as the contractor.
- **Equipment** – Project teams require support equipment, which may include access to computers, software, printers, copying machines, FAX machines, and telephones to perform their duties. Having proper team designated equipment can improve performance and productivity.
- **Budget** – Numerous project teams are hampered in accomplishing their duties because of an inadequate project management team budget. Initial funding estimates for a budget should include:

- Personnel costs
- Equipment and software
- Travel and per diem expenses
- Office expenses (i.e., space, indirect material, etc.)
- Training, conference, and seminar expenses
- Consultant/contractor support
- Miscellaneous

Project Team/Contractor Relationship

Agency project teams must be independent of the contractor. There are a number of steps that can be taken by the project manager to reduce the likelihood of the project being compromised. Project managers should consider the following action:

- All formal meetings between the contractor and project team to discuss the project should be documented.
- All proposed changes to the project will be submitted formally to the contractor and/or project manager in a written format previously agreed upon by the project manager and contractor.
- Relations between the contractor and agency personnel should be formal and maintained at a business level. Social events outside a business involving project personnel and the contractor are not recommended.
- Deliverable dates should be rigorously administered. Project team comments on deliverables should be in writing and in a proscribed format.
- The primary duty of the project team is to support and further the interests of the agency. Independence and objectivity are therefore essential.

Defining Success

Managing stakeholders' expectations is critical to success. Failure to properly manage expectations can result in unfair criticism, inquiries, and erosion of critical legislator and senior management support. Many large, high-visibility projects often receive opposition from influential individuals or special interest groups. Occasionally, the significance of these problems might be overstated or the facts misrepresented. Avoiding these situations may not always be possible. It is possible, however, to minimize the impact if it should happen. This can be achieved by defining at the beginning of the project what constitutes success. Stakeholders must understand fully what is to be accomplished; when certain benefits will be realized; and who is responsible for achieving the results. The project manager should continue to revise and update the goals as the project advances.

Initial Operational (IOC) and Full Operational Capabilities (FOC) Milestones

This technique involves introducing a milestone that:

- Sets realistic expectations regarding initial and subsequent system capabilities such as reliability, functionality, and overall performance.

- Requires the using organization to achieve specific performance objectives within a finite period of time.

The starting milestone is the IOC. The completion point represents the FOC. The process is as follows:

- IOC milestone: This begins (clock starts) after user acceptance of the new system. The IOC phase can be characterized as an official period of adjustment between the using organization and the new system. The underlying assumption is that the users will not reach effective and efficient performance levels for some period of time. This happens for a number of reasons:
 - Users are learning how to use the system. (At this point, user means the first line employees who are using the system to support their work.) They do not understand all of the system features and functions and are learning the techniques and level of knowledge needed to develop shortcuts and other efficiency gaining steps.
 - Policies, procedures, checklists, and forms usually lag behind the implementation of the new software. Operational process disconnects exist between these areas and the applications.
 - System fixes performed by the contractor to correct basic software functionality problems will likely continue through most of this phase. Many of these fixes will affect operating procedures.

The time frame for completing the IOC is determined by the user organization and approved by the executive sponsor. This time frame may be 6 to 12 months for completion. FOC represents the end of the transition period, and stops the project clock. At this point, the contractor has eliminated the system's errors; users have been adequately trained and are completely familiar with the system; policies, procedures, checklists, and forms have been revised or new ones developed. The focus has shifted from fixing and implementing the system to sustaining routine business processes and identifying opportunities for improvement.

FOC clearly signals the end of the project. The IT project management team should have been phased-out, and the system should now be in a routine operating and maintenance mode. Changes or enhancements to the system should go through a formal change management process.

Applying Proven Project Management Methods and Techniques

It is not the intention of these guidelines to describe in detail how to be an IT project manager. There are numerous books and articles published on the subject, and Department of Enterprise Services and other agencies sponsor courses on the topic. The appendix provides a list of some of the written resources.

The project manager is the key to a project's success. An individual selected to perform this task must be knowledgeable of the process and scope of activities, techniques of project management, and be capable of applying them.

These guidelines have been developed to assist senior managers in identifying the principal duties of a project manager. The principal duties for each of the major phases of an IT project's life cycle are highlighted. While these tasks are not all inclusive, they represent the essential tasks/activities necessary to effectively manage a typical IT project. Following this page is a summary of essential project manager duties.

Project Manager Duty Guideline

Following is the sample guideline:

Phase I: Initiating

- Define project goals.
- Define general expectations of customers, management, or other stakeholders.
- Define criteria for measuring success.
- Define project scope.

Select initial members of the project team.

Phase II: Planning

- Refine the project scope (reach a balance between requirements, available resources, policy, and schedule).
- Conduct a feasibility study (or review a previously prepared study).
- Develop list of task-related activities that lead to reaching project goals.
- Sequence activities in a logical manner reflective of dependencies.
- Develop a workable schedule monitoring plan and task-based budget to complete the project.

Acquire stakeholder approval of proposed plan.

Phase III: Executing

- Provide team leadership and motivation.
- Meet frequently and work closely with the project team.
- Develop timely, effective and regular communication with stakeholders.
- Identify, document and resolve conflicts that arise during the course of the project.

Secure the necessary resources to carry out the project plan or adjust the plan accordingly with agency management.

Phase IV: Controlling

- Monitor the plan and identify deviations.
- Take corrective action to align progress with the plan.
- Respond effectively to user and team requests for project changes.
- Reschedule the project as needed and appropriate.
- Adjust resource requirements as necessary.
- Manage project scope changes to ensure resource impacts are clearly identified and communicated.

Periodically make adjustments to project goals with stakeholder approval.

Phase V: Closing

- Close down the project management office and ensure the reassignment of the team.
- Learn from the project through the Post Implementation Review (PIR) actions.
- Review the project activities and results with stakeholders and team members.
- Prepare a written final report.

Maintenance

Technological advances and changes in the business requirements of agencies will necessitate periodic revisions to policies, standards, and guidelines. The Office of the Chief Information Officer is responsible for routine maintenance of these to keep them current. Major policy changes will require the approval of the TSB.

Appendix: References On Project Management

Following is a listing of professional sources regarding project management.

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17. Project Management Institute, 130 South State Road, Upper Darby, PA 19082. Telephone: 610-734-3330. Website: <http://www.pmi.org>. This organization is geared towards professional, full-time project managers.