Quality Plan Template

The Quality Plan identifies the quality requirements that are agreed upon between the members of the team, the team leader, and the sponsor. Through the quality plan, the team is adhering to the objectives for delivering value-based solutions. The process of assessing and ensuring quality will be an ongoing process throughout the life cycle of all projects. As the various projects enter specific phases, different yet consistent criteria for assessing quality will be used.

IPT Name:		
Deliverable Name: Quality Plan Template		**Date Completed:**
Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
Task Order Number:		

The Quality Management Process is an integral component of the Modernization Partner's objective of delivering value-based solutions. Through a series of predetermined quantitative metrics and independent reviews, the Modernization Partner expects to manage and control the delivery solutions, which adhere to:

- Uncompromised quality in all aspects of software development, systems implementation and process reviews;
- Ability to provide quantitative measures for managing benefits over costs; and
- Shared success between SFA, Program Stakeholders and other affected Trading Partners.

The process of assessing and ensuring quality will be an ongoing process throughout the life cycle of all projects. As the various projects enter specific phases, different yet consistent criteria for assessing quality will be used. For example the Modernization Partner will, in all applicable cases, assess the quality of testing as a component of implementation. Through measurable criteria, we will report on the effectiveness of test plans and the applicability of the overall system validation strategy. These findings may be used to fine tune the test plan in the early stages of the life cycle thus ensuring more rigorous validation prior to implementation.

The Modernization Partner's Quality Management Process is intended to:

- Define and manage the expectations of stakeholders,
- Define and implement processes to deliver to those expectations,

- Measure / verify the ability of these processes to deliver on those expectations, and
- Improve delivery capability in terms of people, process, and technology.

The underlying objective of the Quality Management Process is to ensure that all projects, undertaken by the Modernization Partner or other contractors in conjunction with the Department of Education, meet or exceed the expectations of the defined stakeholders while adhering to the established business guidelines and documented business rules.

This Quality Plan describes a tailored methodology, based on Method1™, which will be used to assist in undertaking periodic reviews of all deliverables in progress and for facilitating reporting on the status of the overall program operations. These are achieved through the establishment of specific metrics, which can be used to provide an objective and measurable means of assessing progress and a series of assessments and recommendations, which will be used to provide an all-encompassing and independent view of project status. The quantitative nature of these metrics together with the independent assessment of status will form the basis of a Lessons Learned database, which will be used to fine tune future projects and avoid an iteration of known pitfalls or problems.

This Quality Plan will be implemented by the Modernization Partner to manage, track and report on the quality process during the various critical stages of projects undertaken by the Department of Education. While the plan encompasses all system life cycle tasks, its applicability is modular in that it can be customized to fit projects of all sizes and scopes. This plan focuses on the methodology, tasks, and metrics that will be used within the scope of the Quality Management Process of this project.

In accordance with the Modernization Partner's overall objectives, this Quality plan is intended to provide methods and tasks associated with:

- Reducing costs,
- Improving customer service, and
- Improving employee morale.

Within this framework, this plan incorporates those quality review methods and metrics that are both efficient and useful to meeting these objectives.

The remainder of this Quality Plan is divided into five sections:

2.1 Quality Management Task Plan

This section describes the tasks and deliverables that will be completed by the Modernization Partner. This work plan was developed to describe the methodology and tasks that will be implemented within the scope of the overall Quality Achievement Process for this project, and includes the following steps:

1.1.1 Document and Publish Business Rules
1.1.2 Identify Project Level Stakeholders
1.1.3 Define Stakeholders' Expectations

1.1.4 Define Quality Verification Process
1.1.5 Define Metrics for System Development Projects
1.1.6 Define Continuous Improvement Process
1.1.7 Implement Quality Plan
1.1.8 Perform Quarterly Quality Review (Internal)
1.1.9 Quarterly Client Quality Management and Assurance Review (External)
1.1.10 Perform Project Quality Checkpoint Reviews – Independent Verification and Validation Review IV&V
1.1.11 Improve Quality Approach
1.1.12 Post Implementation Review

2.2 Quality Review Methods – This section describes the quality review methods, templates and checklists that will be used to evaluate Department of Education system projects that are within scope of the SFA Modernization Partner Project.

2.3 Metrics – This section describes the metrics that we recommend for use during this project. Although there are numerous metrics that have been developed over the past two decades that are intended to quantify systems development projects, we have selected those metrics that will be useful to the Department of Education and efficient in data collection and analysis.

2.4 Cost Analysis Methods – This section describes the cost analysis methods that can be used to assist the Department of Education in assessing the value of project with respect to their cost.

2.5 Issues Tracking Methods – This section describes the issues tracking process that will be used by the Quality Assurance Team to provide a component of individual project reviews and to provide input into the Lessons Learned tracking system that will be used as a part of the Quality Improvement Approach.

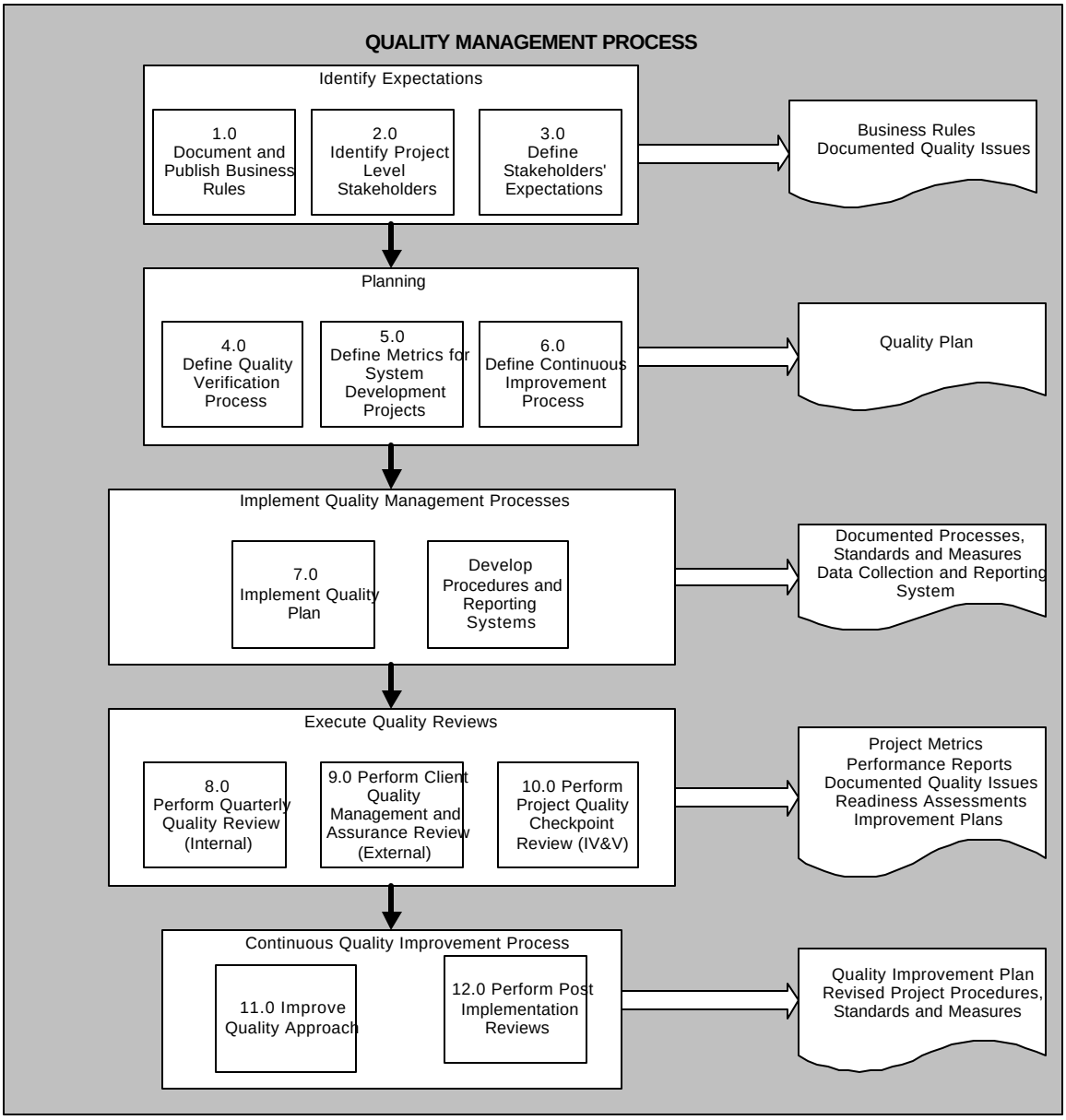
2.1 Quality Management Task Plan

This section describes the quality management tasks that will be performed and deliverables that will be completed during the SFA Modernization project for system development projects performed by the SFA and the Modernization Partner. These include:

- *Modernization Partner* ***– Responsible for the implementation of the quality management process, including internal and external quality reviews, recommendations for improvement***
- **COO Organization** - Participate in internal and external quality reviews
- **CIO Organization** - Provide input into the quality process and participate in - quality reviews, define business requirements
- **CFO Organization** - Provide input into the quality process and participate in quality reviews, define business requirements

- **Channel Organizations** - Provide input into the quality process and participate reviews, define business requirements
- **Legacy Contractors** - Provide input into the quality process Modernization Partner - Responsible for all aspects of quality

Task Overview



2.1.1 Document and Publish Business Rules

One of the critical components of the Modernization Partner's quality Management Process is the Department of Education's business rules and guide lines. In all applicable cases, the Modernization Partner will assess the

quality of deliverables and requirements against these business rules. Adherence to these business rules will be a major quality focus on all ED sponsored projects.

2.1.2 Identify Project Level Stakeholders

Project level stakeholders are considered key sponsors of particular projects. It is entirely possible that a given project will be assigned to several project level stakeholders. In these instances, the Modernization Partner will aim to coordinate efforts amongst the various sponsors and ensure that the final deliverable is one that satisfies all known requirements by all stakeholders.

This step in the process is intended to identify the key stakeholders and their expectations. It also is to develop a process to ensure that these expectations are properly managed over the duration of the project.

The Quality Management Process will assess the degree to which the Modernization Partner, Legacy contractors and the various other stakeholders were successful in achieving this goal. Lessons learned items will be critical to ensuring that future projects adhere to this critical component.

Steps

- Identify Stakeholders

2.1.3 Define Stakeholders' Expectations

Understanding the expectation of stakeholders is critical to the success of a project. The quality Management Process will develop criteria to assess the degree to which these expectations were defined and documented.

Steps

- Identify Stakeholders Expectations and Reconcile Gaps
- Obtain Consensus and Communicate Expectations

2.1.4 Define Quality Verification Process

This quality plan identifies the methods and criteria, which may be used to assess the overall level of project quality. We also have defined the criteria and processes by which desired quality levels will be ensured. This plan also describes the checkpoints, throughout the project life cycle, intended to ensure that stakeholders' expectations are refined, where necessary.

It is our objective to apply modified versions of quality management to all projects undertaken as a component of the Modernization Blue Print. Approaches to this goal will be further defined in the Detail Quality Plan, but in short may include periodic program / project reviews, peer reviews,

walkthroughs, readiness assessments, stakeholder reviews and team satisfaction measurements.

Steps

- Define Project Processes, Standards, Measures, Goals and Responsibilities
- Define Project Quality Management Processes & Develop Reporting

Systems

- Define Process Verification and Improvement Processes

The Modernization Partner, in conjunction with other Legacy contractors and ED Representatives also will assess various "Post Implementation" quality factors. In doing so, we will gauge the degree to which the "Expected Benefits" for a given project were realized in the post implementation period. This information will be useful in assessing future or related benefits and may be critical in approving additional phases or related enhancements.

2.1.5 Define Metrics for System Development Projects

This plan defines quantitative criteria that will be used to assess a variety of quality factors for each given project, and are described in Section 4.0 of this document. These metrics will be aligned with the Modernization Performance Plan objectives of the sponsoring organization. There are three important factors regarding these metrics:

1) While every attempt has been made to define a comprehensive list of these quantitative measures, it is possible that additional ones will be identified during later projects. The Modernization Partner will enhance the list of these metrics as additional components are identified or made redundant.
2) The application of these metrics will be, in part, dependent on the nature of a particular project. It is entirely possible that certain projects will only utilize a subset of the criteria.
3) The Modernization Partner is committed to augmenting these quantitative metrics with independent reviews and readiness assessments. We have developed a standard format for these reviews and will utilize them to provide a high level synopsis of the status of a given project.

2.1.6 Define Continuous Improvement Process

One of the most crucial components of quality management is the objective to avoid previously identified pitfalls. Quality tracking must be comprehensive enough to not only identify and measure project pitfalls and shortcomings, but to provide a mechanism for installing improvements – thus becoming a tool for improving quality rather than just tracking it.

The quality reviews and metrics mentioned earlier, and described in Sections 3.0 and 4.0 respectively, will form the basis for a comprehensive lessons learned database. This database may be used to apply issues and resolutions from one project to further enhance the planning of a subsequent project, in addition to updating processes.

Steps

- Utilize Issues Tracking Database
- Develop Lessons learned Database

2.1.7 Implement Quality Plan

This plan includes a comprehensive quality checklist and criteria against which a variety of projects may be measured. Templates for readiness assessments and independent reviews of projects have been designed and are included in this plan. These methods and templates will be used by the Modernization Partner's Quality Assurance Team to implement quality reviews for projects sponsored by the Department of Education.

Steps

- Perform Quality Assessment
- Identify Process improvements

2.1.8 Perform Quarterly Quality Review (Internal)

The Program Management Office (PMO) will survey project level Stakeholders on a quarterly basis. Results of these reviews are shared with major stakeholders and subsequently shared with each team. Follow-up findings with an action plan for addressing deficient areas will be developed and published by the Program Management Office.

Management at all levels of the program will collect and monitor program metrics on a regular basis. The PMO will collect, review and publish the quality metrics on a quarterly basis. Identified gaps will be documented with the objective of being avoided in subsequent projects.

Steps

- Execute Quarterly Reviews

2.1.9 Quarterly Client Quality Management and Assurance Review

Andersen Consulting will perform CQMA independent reviews with experienced individuals within the firm. These Management Reviews will be conducted approximately every three months. The results will be documented in writing and will be available to the SFA Chief Operating Officer. Documentation will take the form of a brief status memo, as seen by the reviewer, and include recommendations on how to address issues and risks, or how to proceed with particular subjects.

The process includes a review of key work products (deliverables) and individual discussions with team members and management.

Steps

- Execute Quarterly Reviews

2.1.10 Perform Project Quality Checkpoint Reviews – Independent Verification and Validation Review (IV&V)

The Modernization Partner, in conjunction with SFA and an IV&V contractor will conduct reviews on individual projects through development, testing, and implementation. The IV&V contractor is separate from the Modernization Partner and is charged with verifying the quality of project deliverables, adherence to methodologies, and processes.

Steps

- Participate in IV&V Reviews

2.1.11 Improve Quality Approach

The Modernization Partner expects to improve the quality approach based on the results of its quality reviews, including but not limited to, new or modified metrics, clarified stakeholder expectations and program wide process modifications.

The Modernization Partner intends to utilize the various quality issues to maintain a lessons learned database. We will utilize the data within this tracking mechanism to alter the quality tracking process as necessary.

Steps

- Recommend Process Improvements
- Communicate Process Improvements

2.1.12 Post Implementation Review

On a regular basis, the quality team will conduct "Post Implementation Reviews". The intention of such a review is to assess the actual benefits of a project with documented expectations. In doing so, the Modernization Partner hopes to measure the degree to which the "Expected Benefits" for a given project were realized in the post implementation era. This information will be useful in assessing future or related benefits and may be critical in approving additional phases or related enhancements.

The process includes review of key work products (deliverables) and individual discussions with team members and management.

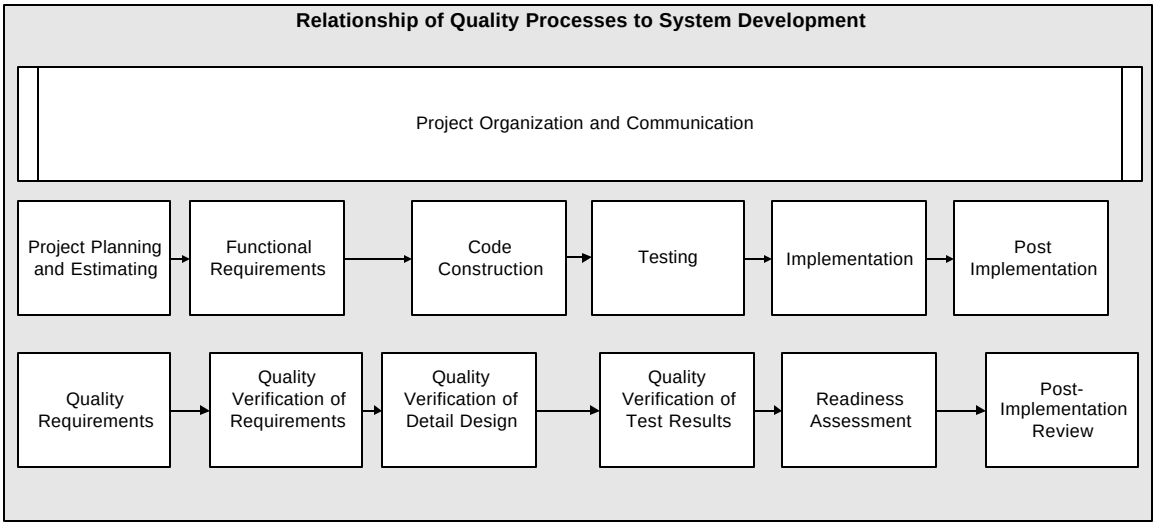
Steps

- Execute Post-Implementation Reviews

2.2 Quality Review Methods

This section of the Modernization Partner's Quality Plan describes the methods and underlying criteria, which may be used to assess the overall level of project quality. We also have defined the criteria and processes by which desired quality levels will be ensured. It is our objective to apply modified versions of quality management to all projects undertaken as a component of the Modernization Blue Print.

The diagram below depicts an overview of the relationship between quality processes and the system development life cycle.



2.2.1 Quality Verification Process

Within the context of quality management, it is critical that quality is built into the project rather than just being observed from the outside. For example, if standards have not been documented and incorporated into the project tasks, then it will be impossible to evaluate whether those standards have been met, after the fact. Therefore, the quality review process for current and ongoing system projects within the Department of Education will need to begin incorporating these new quality standards and business rules before they can truly be evaluated against them. Further, the metrics also will require an iterative process that can then be applied to new and planned projects.

In general, quality management should begin at the planning stages of the project. Quality factors should be incorporated into plans and estimates and should specifically pertain to the project's overall goals and objectives. Scope and priority of the system functionality as well as likely duration of the usefulness of the code should be considered during the planning and estimating tasks. For example, the development of a new system that will become an integral part of the student lending process (e.g., claims and collections) should have different quality measures than a one-time report requirement within an existing system.

In addition to quality factors associated with results or outcomes, which are typically used by external quality review teams, there are process quality factors that should be considered to be internal to the specific project. These include:

- Separating estimation from development – Assigning estimators that are independent from the developers when estimating time and cost factors for a project.

- Separating development from verification – Beginning the testing process before the code has been compiled. There is empirical evidence to indicate that code that compiles correctly typically has fewer problems.

- Creating separate incentives for estimators/planners, developers, and testers - Recognition for quality is a critical factor in quality management and will be addressed in other sections of this deliverable.

- Incorporating quality requirements into the system – Using standards and guidelines, certain quality requirements should be built into all system projects. These include acceptable system response time, naming conventions, standard report formats, coding standards, etc.

2.2.1.1 Quality Requirements

Quality requirements must be defined as part of the functional requirements, and will be verified and validated as part of the requirements, and at each review process during the project. A description of the four key system quality indicators, as identified in Method1™ are described below. Each of these indicators should be considered during the Quality Review process for each project.

- **Flexibility** - Flexibility indicates how easily the system can be adapted to meet changing conditions, including new functionality, new platforms, and failure correction. The system also must be able to support changes to the architecture to allow for the introduction of different applications, as well as to allow for changing business requirements. Lastly, the system must support changes to the application to allow a business function to occur in different ways, according to the needs of the business. Examples of system characteristics implementing flexibility requirements could include a "plug and play" architecture, fully commented code to ease maintenance, or multiple routes of navigation.

  The last facet of flexibility is portability, the ease with which the software can be moved to another hardware or system software platform. Portability can be enhanced by selecting a programming language that can be supported by multiple platforms, designing a common data model, isolating hardware-specific components so that they can be changed for a new platform without affecting anything else, and having separate input/output modules if the databases will be different.

  It is important to note that changes made to a component have the potential to affect flexibility. Therefore, flexibility tends to degrade over

the maintenance life of a system. Flexibility will be compromised by quick fixes. The impact on flexibility of the correction of errors and defects should be fully investigated to ensure that flexibility is maintained, when possible. Because of the age of certain Department of Education Legacy systems, this will be an important consideration during this project.

- **Performance** - Performance measures the ability of the system to process all the business events within the time frame, specified by the service level agreement (SLA), given the number of concurrent users.

  Performance should be tested under both typical and extreme conditions. Stress testing tests the behavior of the system under extreme conditions: high volumes, maximum number of simultaneous users, and queuing at the hardware resources (network, CPU, disk).

  Quality reviews that include stress test results and capacity planning should provide the reviewer with sufficient information to assess the system's performance.

- **Reliability** - Reliability measures the system's ability to function correctly under both normal and abnormal operating conditions. Reliability includes error handling, security, recoverability (restart/recovery), availability (uptime/downtime), and serviceability.

  Reliability tests prove that the application fails in a controlled manner, that it can recover from these failures, and that inputs (both correct and incorrect) receive a consistent response. Aspects of reliability can be balanced against each other. For example, if the system is to be very robust and able to recover and restart without user or operations staff involvement, then there is less of a need for extensive help desk support (the "serviceability" aspect of reliability).

  During the review process, verification of detailed test conditions, comprehensive test scenarios, consistent test results should provide an indication of the system's level of reliability.

- **Usability** - Usability measures the ease with which users can interact with the system, the ease of learning, and the ease of continued use. In addition, usability measures whether the system is efficient to use. The user interface is defined as both the layout and the flow of the application components with which the user interacts (i.e., screens, windows, and reports).

  Usability testing involves testing the application's user interface during its development stages, before the project is so far into the development

process that changes are not feasible. Aspects of usability testing should begin as early as possible in the development process. Usability tests performed after the user interface has been designed will only yield limited value, as any changes identified by those tests will likely be very costly to implement.

During the review process, the reviewer should verify that appropriate users are involved in both the development of screens and early stages of testing to ensure quality user interfaces while minimizing the risks and costs associated with re-work.

2.2.1.2 Quality Verification during the System Life Cycle

The Quality Verification Process must be incorporated into the life cycle of the system with routine verification at specified checkpoints during each system project, whether a new development or modification to an existing system. Also, because of the number and complexity of the various systems developed and used by the Department of Education, the additional aspect of inter-project quality reviews also should be included when a project affects numerous stakeholders and Legacy contractors systems and operations.

2.2.1.3 Quality Verification Objectives

Quality reviews should be scheduled at milestones during each project to meet the following objectives:

- To ensure that risks are identified, communicated and managed, as early in the life cycle as possible
- To ensure that the planned development process is being followed
- To benefit from the external reviewer's expertise and experience
- To provide updates on the status of the project to the Department of Education and the project's stakeholders

2.2.1.4 Project Planning and Estimating

Quality review of the project planning and estimation phases includes the review of documents to ensure that the project plans effectively communicate the following:

- A valid basis for approving and initiating system development projects, using Department of Education standards and business rules.
- Identifying the information and processing requirements of the system.

- Developing a conceptual design of the proposed system for use in project evaluation and in accurate estimation of the development effort and cost, and accounting for the impact on Legacy contractors and other external systems.

- Describing the design and development, while documenting intended benefits.

The results of these reviews also will be used as input to the Post-Implementation reviews and as a basis for more accurate predictions of the costs and benefits of future projects.

2.2.1.5 Requirements and Design

Requirements define many aspects of the project, its processes and outcomes. Evaluating user requirements involves understanding both the functional requirements (those regarding the systems features and functions) and the other requirements, such as quality requirements and project requirements. The system development process traditionally focuses on functional requirements; other requirements such as quality requirements and project requirements generally represent new areas of project focus. A general list of the requirement types involved in systems development includes the following:

- **Functional requirements** define what the system must do. They define the software's capabilities and express the scope of the system development effort. They are the focus of the system modeling and specification effort in analysis.

- **Quality requirements** are measurable attributes that express a desired level of achievement (or goal), indicating how well a system must perform its intended function. Quality requirements include performance, reliability, usability and flexibility requirements. These are key inputs to the design process; they provide designers with statements regarding the levels of quality that must be achieved by the system.

- **Project requirements** describe the way that the project should be carried out. Project requirements may define the users preferences for how the project should be executed, the level of user interaction, or other project outcomes such as the transfer of knowledge among project team members.