

Augsburg College Information Technology Systems Development Life Cycle Guidelines

I. Definition Phase

Defines a business problem and documents the purpose and scope of the proposed information system.

A. Initiation Subphase

Establishes the existence of a business problem that may be solved by the development of an information system.

B. Concept Definition Subphase

Verifies the business problem, identifies high-level requirements that must be met to solve the problem, and outlines a feasible, timely, and cost-effective solution to the problem. This subphase should characterize or reassess any existing characterization of the information's and information system's sensitivity levels and identify any existing or potential management and operational controls for the business area. Prior to beginning any information system development effort, existing systems and sources should be thoroughly researched for suitability to meet identified requirements.

C. Requirements Definition Subphase

Determines the detailed functionality, standards, and security required of the proposed system based on college requirements and risk management principles.

II. Development or Acquisition Phase

Utilizes the information developed in the previous phase to assess and evaluate the development and/or acquisition of products and services. This phase will be repeated if the project requires multiple release cycles.

A. Design Subphase

Begins the actual design of the intended system based on requirements and IT architectural consideration. The design specifies automated vs. manual functions and procedures, computer programs, data-storage techniques, and technical control mechanisms that address the sensitivity requirements of the system. The conformity review is conducted during this subphase.

B. Construction Subphase

Codes and tests the program modules that implement the design against the stated requirements and design specifications. System maintenance, operations and training documentation are developed.

C. Implementation Phase

Installs the system in the production environment. Data is converted as needed, security features are configured and enabled, and sample testing is conducted to verify the system and its security. Written authorization to process must be completed during this phase prior to beginning operations.

D. Testing Subphase

Tests the system to ensure that it works as specified in the requirements and design specifications (including revisions controlled through the configuration management processes) and that it meets acceptable standards of performance, reliability, integrity, and security.

Testing should also ensure that data names, definitions, and formats used in data exchange mechanisms conform to data standards.

E. Implementation Subphase

Releases and deploys the new system to all required users within the college and to external users, where required, and conducts training for all users, operations, and maintenance personnel.

III. Operations and Maintenance phase

Continues use of the new or modified system by the college, resolves problems not detected during testing, improves the performance of the product, and modifies the system to meet changing requirements. Significant new development or enhancement must be managed as a new development cycle. Any changes to the general support system on which an application resides need to be evaluated and may stimulate a new release cycle.

IV. Termination Phase

Ends the operation of the system in a planned, secure, orderly manner. System components and data are archived or incorporated into other systems as required and hardware is disposed of responsibly.

V. System Life-Cycle Management Activities

All Augsburg College information system development or acquisition projects must implement life-cycle management activities in tandem with the SLC phases:

A. Project Planning

Establishes reasonable plans for building the system and controlling the project. It involves establishing a work breakdown structure, developing estimates of the planning parameters for the work to be performed, identifying project risks, establishing the necessary commitments, and developing the plan to perform the work.

B. Project Tracking

Provides visibility into and control of the project progress to ensure that the project plan is being followed. It involves tracking project performance against the project plan, monitoring risks, taking corrective actions when there are significant discrepancies between performance and the plan. Progress is primarily determined by comparing actual system size, effort, cost, and schedule against those projected in the plan.

C. Component Management

Manages the acquisition of software components from sources external to the project. It identifies software to be acquired, identifies and selects suppliers, establishes agreements with suppliers, accepts delivery of the acquired software, and ensures its maintenance and support. (This is required only for projects having separately acquired components.)

VI. System Life-Cycle Support Activities

All Augsburg College information system development or acquisition projects must implement life-cycle support activities in tandem with the SLC phases:

A. Configuration Management

Establishes and maintains the integrity of the developmental and managerial products through the system life cycle. This involves identifying the configuration of the developmental products at given points in time (i.e., those products identified as configuration items), controlling changes to these products, and maintaining the integrity of these baselines through the system life cycle.

B. Quality Assurance

Objectively reviews the project's activities and products for adherence to applicable requirements, processes, standards (including data standards), and procedures. It involves identifying and documenting non-compliance issues, providing feedback to project staff, development personnel, and managers, and ensuring that non-compliance issues are addressed.

C. Records Management

Incorporates records management and archival functions into the design, development, and implementation of information systems. This involves establishing record schedules for both system development products and for the data contained in the system, if necessary.

D. Security Management and Assurance

Includes designating an accountable manager and security personnel; determining information sensitivity and associated threats; assessing and managing risk; developing a security plan, ensuring that information security requirements and controls are identified for the system to reduce the risks; ensuring that technical security controls are incorporated and tested (certified); specifying security implementation limitations (residual risks); and authorizing (accrediting) the information system in writing before operations commence. Security considerations, activities and documentation are required at every phase in the SLC.