STANDARD SYSTEMS DEVELOPMENT METHODOLOGY (SSDM)

December 2003

TABLE OF CONTENTS

1 INTRODUCTION

This document contains the State of Hawaii Executive Branch of Government's Standard Methodology for developing systems.

IT Standards consist of the Executive Branch IT policies, standards, procedures, conventions, and guidelines for the development of application systems.

The standard methodology must be applied to all systems developed for use by the Executive Branch, including consultants who are developing applications for information processing and communications applications for Executive Branch agencies, unless waiver of the standard is received from the Information and Communication Services Division (ICSD) Administrator.

1.1 Purpose

The purpose of this document is to present a standardized approach to developing application systems.

Another goal of this document is to promote consistency in the development of application systems.

1.2 Overview

The Standard Systems Development Methodology (SSDM) evolved from SDM/Structured, a proprietary manual set developed by AGS Management Systems who went out of business in 1999. SDM/Structured (thus SDDM) is obsolete and does not contain sufficient information on Rapid Application Development (RAD), Joint Application Development (JAD) workshops in place of interviews, or information engineering. SDM/Structured (thus SSDM) is forms dependent. SDM/Structured consists of thirteen manuals, has no automated tools, and is generally a good methodology, as a traditional approach to development by cost-committed phases. ICSD has been unable to acquire a new standard methodology due to funding shortfalls. However, SSDM remains the standard that must be followed if it is not waived for use by Executive Branch agencies and consultants.

1.3 Scope

The scope of this document is a description of the SSDM and waiver request requirements to use another methodology by project or agency.

1.4   Comments and Suggestions

Any State of Hawaii Information Technology Standards document, reference manual or users guide mentioned in this document are available through the departmental user agency data processing coordinator (DP Coordinator). Standards are also accessible on-line by clicking on Information Technology Standards on the ICSD home page at:

> http://www.hawaii.gov/icsd/

Statewide Forms are accessible on-line by clicking on Forms Central on the Government in Hawaii home page at:

> http://www.ehawaiigov.org/government/html/

Comments, recommendations, proposals, or suggestions regarding the contents of this document may be sent either via email to icsd.admin.ppmo@hawaii.gov or in writing to:

> Information and Communication Services Division
> Project Planning and Management Office
> 1151 Punchbowl Street, B-10
> Honolulu, Hawaii 96813-3024

2 SSDM OVERVIEW

2.1 State System Development Life Cycle

The following system development life cycles are supported by the state standard through the Information and Communication Services Division (ICSD):

2.1.1 Standard System Life Cycle

- Phase 1: System Requirements Definition (SRD)
- Phase 2: System Design Alternatives (SDA)
- Phase 3: System External Specifications (SES)
- Phase 4: System Internal Specifications (SIS)
- Phase 5: Program Development (PD)
- Phase 6: Test (TST)
- Phase 7: Conversion (CNV)
- Phase 8: Implementation (IMP)

2.1.2 Purchased Package System Life Cycle

The Purchased Package Life Cycle is the same as the Standard System Life Cycle except that the SES, SIS and PD phases are performed only for the system modifications that may be required to meet the operational and other requirements of the system.

2.1.3 Limited System Life Cycle

The Limited System Life Cycle is a compressed development cycle that allows for fewer tasks and activities, and documentation requirements for small projects of lesser scope, time frame projections, cost, or priority.

2.1.4 System Maintenance

This is the stage to follow Production Implementation but may also be considered a Life Cycle.

2.1.5 System Enhancement

Like Maintenance but larger in scope and objectives and may be a small or large effort in that a project may follow a small project with the Limited System Life Cycle or a complete Standard System Life Cycle to complete a larger enhancement project.
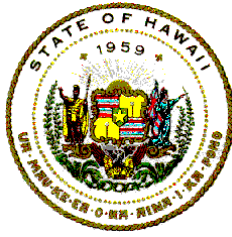
2.1.6 Use of Special Techniques

The ICSD encourages the use of Joint Application Development (JAD) workshops in place of the interview process, and Rapid Application Development (RAD) to do prototyping in the SRD and SDA phases. The ICSD also encourages the use of software tools in the development process such as various groupware products and ICASE.

2.2   SSDM Task Lists by Phases

The following task lists and work-planning checklists are included in this document:

- System Requirements Definition (SRD) Work Plan
- System Design Alternatives (SDA) Work Plan
- System External Specifications (SES) Work Plan
- System Internal Specifications (SIS) Work Plan
- Program Development (PD) Work Plan
- Testing (TST) Work Plan
- Conversion (CNV) Work Plan
- Implementation (IMP) Work Plan

2.2.1 SRD Work Plan

This phase seeks to identify and documents requirements of the system up front in the development process.

1.   Plan SRD Work Tasks

  1.0   Get Management Support To Work On Project

  1.0.1   Receive Service Request Action Packet
  1.0.2   Get Management Approvals
  .   Request approval to start project
  .   Request approval for projected SRD costs and schedules

  1.1   Identify Project Scope

  1.1.1   Define Scope And Assumptions
  1.1.2   Define Participants/Users
  1.1.3   Define High-Level Business Model

. List project goals, objectives, assumptions, and restrictions
. Design context diagrams
. Define key information about each participating organization
. Identify individuals to be interviewed
. Develop business model of areas affected by requested project
. Gain management approval for project scope

1.2 Establish Index To Identify Data

Design indexing level for model for data consisting of:
1) required input/output documents
2) required reports
3) pertinent statistical studies
4) Update/maintain index for collected data

1.3 Conduct Interviews

1.3.1 Prepare Questions For Interviews
. List basic and key questions for person to be interviewed
1.3.2 Schedule And Hold Interviews
. Take notes during each interview conducted
1.3.3 Review and Summarize Interviews
. Formulate exhibits to support requested project
. Draft data flow and work flow diagrams based on interview contents
. Consolidate and summarize contents of interviews

1.4 Document The Current System

1.4.1 Build High-Level Model Of Project
. Draw current (actual) physical data flow diagrams
1.4.2 Design Lower-Levels Of Project Model
. Describe all data flows of interfaces within the system
1.4.3 Define Needed Data Stores
. Describe function for all files
. Define each data flow and file elements in data dictionary
1.4.4 Document Processes And Procedures
. Analyze data descriptions
. Analyze major data processes
. Make process description for major data processes
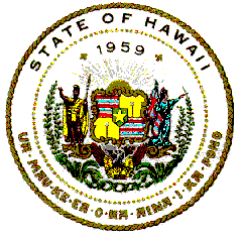1.4.5 Build Index For Model Levels

1.5 Analyze Current System

1.5.1   Design Lowest Level Logical Data Flow Diagrams
.   Describe and analyze current abstract logical data flow diagrams
1.5.2   Update Current Element Definitions In Data Dictionary
.   Describe and analyze logical data items in current system
1.5.3   Define Current Data Elements Functions
1.5.4   Develop Current Data Stores Models
.   Describe and analyze logical data stores models for current files
1.5.5   Design Current Data Function Matrix
.   Describe and analyze function descriptions of current system processes
1.5.6   Develop Higher Level Logical Data Flow Diagrams
1.5.7   Send Current Physical Model For Management Review

1.6   Define Information Requirements For New System

    1.6.1   Establish New System Objectives
    .   List new system information objectives
    1.6.2   Identify New System Logical Requirements
    .   Identify logical impacts of each new system objectives
    .   Specify needed data dictionary updates
    1.6.3   Design New System Logical Data Models
    .   Design new system logical data flow diagrams
    .   Define new system information requirements for new functions and processes
    1.6.4   Propose New System Data Stores Models

1.7   Create And Analyze New System Objectives

    1.7.1   Rank New System Objectives
    1.7.2   Define Required Data Characteristics And Attributes
    .   Define and rank new physical data requirements
    .   Define appropriate data dictionary elements
    .   Define new data flow diagrams
    .   Define appropriate new functions and descriptions
    1.7.3   Propose New Physical System Function Requirements
    1.7.4   Review New System Model For Quality Considerations
    .   Review new data models for audit considerations
    1.7.5   Get Approval For New Ranked System Objectives

1.8   Prepare SRD Document To Include:

    I.   Analysis of current system
    II.   New requirements definitions

III.   Anticipated benefits
IV.   Summarize study and recommended system
V.   Supporting data and appendices

1.9   Process SRD Documents Through Review Points

    1.9.1   Prepare Work Plan and Estimates for SDA Phase
    1.9.2   Process SRD Work Plan Action Packet For Review and Approval
    1.9.3   Review SRD Action Packet for Documentation Quality
    .   Get approval for SRD recommendation
    .   Get approval for estimated SDA costs and schedule
    .   Get approval for SRD action packet

2.2.2 SDA Work Plan

This phase seeks to define the possible design solutions that will both satisfy the requirements and meet the design constraints.

2.0   . Review SRD work plan
    Review SRD action documents

2.1   Identify Design Constraints

Review lists of system requirements definitions (SRD), project scope, constraints, restrictions, and assumptions concerning the overall system design to identify design alternatives
Assess validity of system assumptions, scope, and constraints
Define audit-related constraints

2.2   Specify Operational Alternatives

Design high level model for each viable alternative with each consisting of:
1)   Data flow diagram
2)   Data dictionary
3)   Model narrative discussion
Review alternatives requiring database interfaces

2.3   Define Processor Boundaries

    2.3.1   Specify System Automation Boundaries
    2.3.2   Define Internal System and External Automated System
        Connections
    2.3.3   Define Manual Functions

2.3.4   Allocate Manual Functions
. Design level set of data flow diagrams for each alternative to show the allocation of required functions defined in SRD to the appropriate processors
. Refine lists of constraints and assumptions
. Review viable design alternatives
. Review and include quality-related criteria in evaluations

2.4   Evaluate Candidate Products

Design detailed evaluation for contending products
Analyze contending products for final selection consideration
Select final product for approval
Design recommendation report to management
Generate recommendation report to management
Get approval for final product

2.5   Define Automated System Requirements

2.5.1   Design Inputs and Outputs for Automated Systems
2.5.2   Specify Data Input and Output Processes
2.5.3   Define Physical Data Store Requirements
2.5.4   Document Required Administrator Activities
. For recommended alternative, provide:
1)   Augmented data flow diagrams
2)   Supplemented data dictionary entries
3)   Modeled physical data stores
4)   Additional process description details
. Design narrative highlighting differences from recommended alternative for each additional alternative
. Redefine system design constraints
. Review and define control-related requirements
. Review data requirements
. Review and identify security requirements
. Review quality implications of each alternative

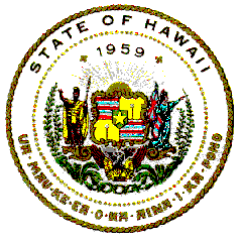2.6   Determine Estimated Cost Savings And Projected Schedule

2.6.1   Determine Tangible Cost Savings
. Get current operating costs
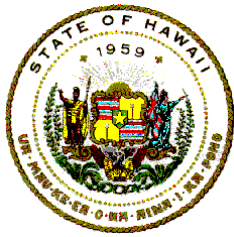. Project future operating costs
. Determine tangible direct costs
2.6.2   Determine Intangible Savings Or Contributions

. Project development costs for each alternative
. Project start-up costs for each alternative
. Determine intangible costs
2.6.3 Determine ROI And Payback Period
. Project payback period
. Project ROI for each alternative
2.6.4 Determine Initial Project Schedules
. Develop projected schedule for each alternative
  1) Schedule SES for each alternative
  2) Schedule project completion for each alternative
. Review cost savings
. Review validity of return on investment (ROI)
. Review validity of payback

2.7 Identify Trade-offs

Design and compare tabulations for each alternative, including data; costs; ROI; payback period; etc.
Compare benefits of each alternative
Compare alternative system design attributes
Assess implications for users and organization for each alternative
Review quality-related trade-offs for each alternative

2.8 Prepare SDA Document To Include:

I. List of alternative solutions
II. Recommended system design description

III. Analysis of data requirements
IV. Summarize study and justify recommendation
V. Supporting data and appendices

2.9 Process SDA Documents

2.9.1 Prepare Work Plan and Estimates for SES Phase
2.9.2 Process SDA Work Plan Action Packet For Review and Approval
2.9.3 Get approval for SDA recommendation
2.9.4 Get approval for estimated SES costs and schedule
2.9.5 Get approval for SDA action packet

2.2.3 SES Work Plan

This phase seeks to create the complete system specifications and capture all the user requirements for the new system, both physical and logical.

Review SRD work plan and action packet
Review SDA work plan and action packet

3.1 Establish Automated System Environment

3.1.1 Document Operating Environment
3.1.2 Specify Hardware And Software Requirements
3.1.3 Specify Hardware And Software Configurations
3.1.4 Establish Allowances For Future Contingencies
3.1.5 Prepare Plan For System's Facilities
3.1.6 Order Hardware And Software
. Define constraints imposed by current operating environment
. Establish required hardware and software specifications
. Establish specifications to acquire required but unavailable hardware and software
. Design allowances for future contingencies
. Establish specifications and schedules to alter site to accommodate new hardware
. Review operating environment and future contingencies
. Review design approaches and performance constraints
. Issue contracts and purchase orders

3.2 Partition Automated System Into Sub-Systems

. Design partitioned physical automated model to show:
1) Data flow diagram for each automated sub-system
2) Data dictionary describing sub-system interfaces
3) Operating processing descriptions for each sub-system

3.3 Document Communications Requirements

. Design sub-system networks
. Design communications network for each sub-system network

3.4 Design Inputs And Outputs For Each Sub-System
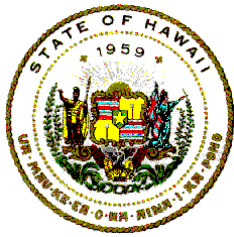
3.4.1 Design Data Flows For Each Sub-System

    3.4.2 Specify Data Transportation Processes
    3.4.3 Establish Data Control Mechanisms
- Design format of automated data inputs and outputs
- Design descriptions of automated data inputs and outputs
- Design automated data input and output process descriptions

    3.4.4 Design data flow control measures to insure:
      1)   Data completeness
      2)   Data correctness
      3)   Data reliability
      4)   Data availability
      5)   Data audit controls

    3.4.5 Review data flow controls
    3.4.6 Review data security requirements

3.5   Design Automated Data Stores

    3.5.1 Establish Data File Structures
    3.5.2 Specify Data Management Requirements
    3.5.3 Identify Stored Data Integrity And Security Requirements
    3.5.4 Specify Data File Maintenance Processes
- Design data table contents and layouts
- Design file contents and layouts
- Design logical database schema
- Design automated file maintenance process descriptions
- Design control measures to ensure stored data integrity
- Design measures to ensure data control
- Review data file elements
- Review logical database schema
- Review integrity for data stores
- Review security requirements
- Review data file maintenance processes

3.6   Design Administrative Activities

    3.6.1 Design Data Entry And Data Destination Procedures
    3.6.2 Establish Data Audit And Data Security Procedures
    3.6.3 Specify File Construction And Reconstruction Processes
    3.6.4 Prepare Plans For Users' Guides
- Design manual/telecommunications procedures and processes to support new automated system, including procedures for:
      1)   Data entry and data collection
      2)   Data output distribution
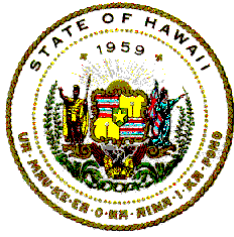
3) Data file construction, recovery, or reconstruction
4) Data control, audit, and security measures

. Design data control schematics
. Design messages to summarize data processing
. Design users' guides
. Review procedural requirements
. Review data control procedures
. Review data security procedures
. Review file construction procedures
. Review file recovery procedures

3.7 Prepare Test Data; Prepare System Test Cases; Prepare System And Data Conversion Plans; And Prepare Implementation Plans

3.7.1 Identify Test Case Criteria For System Acceptance
3.7.2 Develop Preliminary System Test Plan
3.7.3 Develop System Test and Data Conversion Plans
3.7.4 Develop System Implementation Plan
3.7.5 Develop Training Plans

. Design system acceptance criteria
. Design preliminary test plan
. Design system and data conversion plans
. Design system implementation plan
. Design training plan
. Review system acceptance criteria and related plans
. Review system test plans
. Review system conversion plans
. Review system implementation plan
. Review interface systems test plans
. Review training plans
. Walk through system external specification design

3.8 Prepare SES Document To Include:

I. Management Summary of System Design
II. System Design Detail Specifications
III. System Security; Data Controls; Data Auditability Specifications
IV. System Processes and Procedural Requirements
V. Testing; Conversion; Implementation Plans
VI. Preliminary Operations Data (content and layout)
VII. External Systems Interface Requirements
VIII. Supporting Data and Appendices
IX. Automated System Requirements Changes

X.   Planned Users' Guides Outlines

3.9   Process SES Document and Reviews

3.9.1   Process SES Work-Plans
3.9.2   Estimate Costs and Schedules for SIS Phase
3.9.2   Process SES Documents for Review and Approval
.   Get SES action packet approved
.   Get costs and schedules for SIS phase approved

2.2.4 SIS Work Plan

This phase seeks to change the primary audience to the automated system
environment which dictates a change in modeling techniques within the confines of
the Methodology.

4.0   Initiate SIS
         Review SES work plan and action packet
.   Verify completeness of sub-system units break-down

4.1   Establish System Architecture

4.1.1   For Each Sub-system: Identify Design Units And Job Streams
4.1.2   For Each Design Unit: Define Internal Design Structure
4.1.3   For Each Sub-system: Review Architecture Designs
.   Establish overall system schematics
.   Describe sub-systems scope of work
.   Finalize hardware and software ordering specifications
.   Identify system models that can use reusable components
               from present system and utilities
.   Review sub-system structure for database impacts
.   Walk through framework of system architecture designs

4.2   Design Data File Structures

4.2.1   Define Mainline Data File Structures
4.2.2   Finalize Data Table Contents And Layouts
4.2.3   Design Data Interfaces And Work Data Files
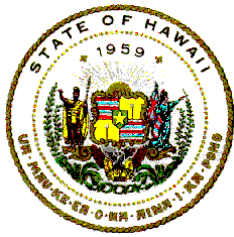4.2.4   For all mainline and resident data; data tables and work files provide:
         1)   File Characteristics Descriptions
         2)   File Layouts
         3)   Data Dictionary Entries
.   Develop each data table structure specifications

. Design file index for each sub-system
. Design database schema and sub-schema

4.3 Finalize Input And Output Designs

4.3.1 Design Data Interactive Dialog
4.3.2 Design Data Output Layouts And Specifications
4.3.3 Design Data Input Layouts And Specifications
. For all sub-system input and output data flows, include:
1) Design of data layouts
2) Detailed data specifications
3) Entries in data dictionary
. Finalize data dialog data collection specifications
. List all input data and output data for each sub-system
. Review database schema and sub-schema
. Review all system data structures
. Review and update system data dictionary

4.4 Define Special Data Design Considerations

4.4.1 Define Transaction Processing Design Specifications
4.4.2 Define Data Controls And Audit Trail Processing
4.4.3 Define Data Security Considerations
4.4.4 Define Data History And Data Purging Criteria
4.4.5 Identify Future Data Design Provisions
. Design detail specifications for the following:
1) Transaction processing related functions
2) Data control and data auditability
3) System data security
4) History files maintenance and purging
. Design future enhancements for data design provisions
. Review data controls and audit trail specifications
. Review data security specifications
. Review history data and data purging criteria
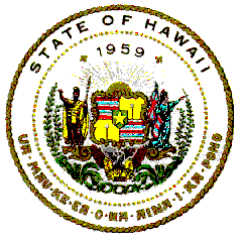. Review all special data design considerations

4.5 Define System Program Design Specifications

4.5.1 Specify Detail Processing Logic For Each Module
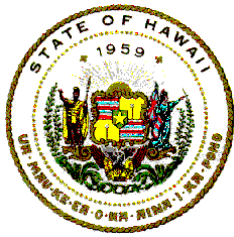4.5.2 Specify Compile Units And Load Module Units
. Design detailed processing logic for each program module
. Design data dictionary entries for parameter/control data

.   Design list of compile units and load units showing program component modules for each designed unit

.   Review designed units for program design specifications

4.6   Finalize Plans For System Test, Conversion, And Implementation

   4.6.1   Define System Test Requirements Plan
   4.6.2   Specify System Test Case Specifications
   4.6.3   Finalize System Test Plan
   4.6.4   Update System And Data Conversion Plans (from SES)
   4.6.5   Update System Implementation Plan (from SES)

.   Design system test plan to include:
   1)   System test requirements plan
   2)   Specifications for system test cases
   3)   Finalized schematic logic for system and data testing
   4)   Audit trail and data security procedures

.   Revise conversion plans
.   Revise implementation plan
.   Review finalized system test, conversion, and implementation plans
.   Review system test case data and scenarios
.   Get approvals for system test, conversion, and implementation

4.7   Define Operations Related Information

.   Design computer operations procedures for routine and exceptions processing
.   Design operations schedules for tests and production
.   Design computer operations requirements for hardware and software
.   Perform quality assurance review of SIS action plan
.   Get approval of SIS plan to proceed to PD phase

4.8   Prepare SIS Document To Include:

   I.   System Design Overview
   II.   Sub-System Design Description
   III.   Data Files and/or Database Structures
   IV.   Data Input and Output Designs
   V.   Special Data Design Considerations
   VI.   System Design Unit Organization
   VII.   Detail Module Design and Logic

VIII.   Operations Related Data Information
IX.   Plans for System Test, Conversion, and Implementation
X.   Supporting Data and Appendices

4.9   Process Final Project Costs And Schedules

  4.9.1   Prepare Work Plans And Cost Estimates For Remaining Phases
  4.9.2   Process SIS Documents Through Review Processes
  4.9.3   Get Approval For Costs And Schedules For Remaining Phases
  4.9.4   Get Approval For SIS Action Packet

2.2.5 PD Work Plan

This phase seeks to develop the code for the programs in the new system and test them individually.

5.0   Initiate PD

      .   Assign sub-systems from SES to program work group
      .   Review SIS sub-system design units

5.1   Code Sub-System Program Units

  5.1.1   Develop Source Code For Sub-system Modules
  5.1.2   Create Input And Output Data, Files and/or Database
  5.1.3   Generate Test Data For Programs Or Modules Input

5.2   Prepare Sub-System Job Control Commands

  5.2.1   Develop Sub-system Job Control Commands To Run Test Data
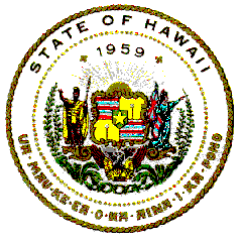 5.2.2   Use Standardized Format For Sub-system Job Control Commands

5.3   Compile Sub-System Program Units

  5.3.1   Generate Compile Module For Program Source Code
  5.3.2   Store Object Code From Compiled Program Units

5.4   Review Sub-System Units

  5.4.1   Review Program Unit Source Code Listing
  5.4.2   Compare Program Source With SIS Module Design And Logic
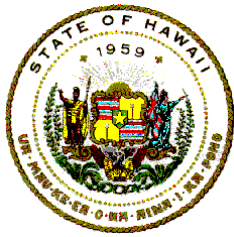
5.5   Perform Test Of Sub-System Unit

5.5.1 Prepare Sub-system Unit For Test
. Locate sub-system compiled object modules
. Locate generated input test data
5.5.2 Execute Sub-system Job Control Commands
5.5.3 Resolve Sub-system Testing Problems
5.5.4 Verify Sub-system Test Job Results
5.5.5 Get Approval For Sub-system Test Job Results

5.6 Perform Sub-System Test Of Load Modules

5.6.1 Prepare Sub-system Load Units For Testing
. Locate stored sub-system compiled object load modules
. Locate generated input test data
5.6.2 Run Sub-system Load Module Units With Test Data
5.6.3 Resolve Sub-system Load Module Testing Problems
5.6.4 Verify Sub-system Load Module Test Results
5.6.5 Get Approval For Sub-system Load Module Testing Results

5.7 Installation Defined Tasks

5.7.1 Review SIS Installation Design Plan
5.7.2 Perform Planned Installation Defined Tasks

5.8 Prepare PD Document To Include:

I. Library containing all sub-system unit program source modules
II. Library containing all sub-system unit object load modules
III. Listing of all sub-system unit program source modules
IV. Listing of job control commands for each sub-system unit

5.9 Approve PD Document

5.9.1 Revise Cost For Overall System Development
5.9.2 Revise Schedule For Implementation Of Full System
5.9.3 Assemble PD Action Packet To Include:
1) Revised cost and schedule
2) PD documents
5.9.4 Get Management Approval To Continue System Development

2.2.6 TST Work Plan

This phase seeks to perform all testing and includes test planning and test case specification.

6.0   Initiate TST

.   Review SIS sub-systems design units
          Prepare sub-systems control inputs
          1)   Design sub-systems test case scenarios
          2)   Develop sub-systems test data work-sheets
.   Prepare overall integrated sub-systems controls inputs

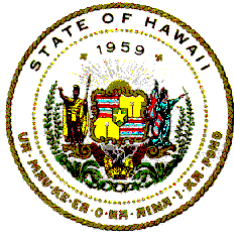6.1   Define Integrated System Acceptance Criteria

          6.1.1   Design Sub-Systems Acceptance Testing Criteria
          6.1.2   Develop Integrated Sub-Systems Testing Criteria
          6.1.3   Design Measurements For Testing Criteria

6.2   Prepare Integrated System Test Plans

          6.2.1   Develop Sub-System Test Plans During SES Phase
                  .   Identify testers
                  .   Specify tester's responsibilities
                  .   Project testing time frames
          6.2.2   Summarize Sub-Systems Test Plans During SES Phase
          6.2.3   Integrate Sub-Systems Test Plans During SIS Phase
          6.2.4   Finalize System Test Plan

6.3   Define System Test Case Specifications

          6.3.1   Develop Sub-Systems Testing Requirements Plan During SES Phase
          6.3.2   Design Sub-Systems Test Case Specifications
          6.3.3   Prepare Sub-System Test Case Specifications During SIS Phase
                  .   Define test requirements plans to fit each test case criteria
                  .   Define sub-systems test case specifications
                  .   Review adequacy of sub-systems test requirements plans
                  .   Review sub-systems test cases
                  .   Summarize sub-systems testing specifications
                  .   Summarize tabulated test case specifications

6.4   Prepare System Test Data

    6.4.1   Develop Sub-Systems Test Data For Test Cases During SIS Phase
    6.4.2   Create Master Test Data For Files and DataBases During SIS Phase
    6.4.3   Integrate Master Test Data Files During PD Phase
    6.4.4   Refine Master Test Data Files During PD and TST Phases

6.5   Perform Desk-Check Of System Testing Code

    6.5.1   Design Sub-Systems Testing Code
    6.5.2   Prepare Sub-Systems Testing Code
    6.5.3   Compile And Execute Sub-Systems With Testing Code
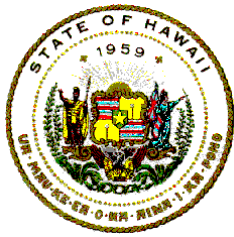
6.6   Perform Integrated Sub-Systems Testing

    6.6.1   Prepare For System Test Cases
      .   Module tests and sub-systems tests
      .   Integrated system test
      .   Data file recovery and reconstruction tests
    6.6.2   Do Modules And Program Testing
    6.6.3   Do Integrated System Testing
    6.6.4   Develop Check-Out Users Guide Procedures
    6.6.5   Maintain List Of Discrepancies And Problems To-Be-Resolved
    6.6.6   Do Acceptance Testing During IMP Phase
    6.6.7   Run Parallel Testing During IMP Phase
    6.6.8   Develop Testing Procedures User Guides

6.7   Debug Programs And Sub-Systems

    6.7.1   Run Sub-Systems Modules And Programs Testing
    6.7.2   Detect Discrepancies And Errors
    6.7.3   Resolve And Correct Testing Problems
    6.7.4   Verify Sub-Systems Testing Results
    6.7.5   Get Approval For Sub-Systems Testing Results
    6.7.6   Integrate Sub-Systems Testing Results
      .   Review SIS installation design plan
        Perform planned installation defined tasks

6.8   Document Testing Results

    6.8.1   Review Test Case Results
    6.8.2   Review System Acceptance Results
    6.8.3   Summarize Testing Results

6.8.4   Document Results Of Completed Test Cases
6.8.5   Let Management Review Acceptance Tests
6.8.6   Get Management Approval Of Acceptance Tests

6.9   Prepare Testing Documents and Send To Document Control

2.2.7   CNV Work Plan

This phase seeks to cover all aspects of data conversion and contains tasks which are performed on their own time line separate from the rest of the methodology.

7.0   Initiate CNV

. Review System Test Plans from SES phase
. Review Data Conversion Plans from SES phase
. Prepare project control input data
  1)   Review SES/SIS data conversion scenarios
  2)   Review SES/SIS data conversion worksheets
  . 3)   Prepare overall integrated system data controls inputs
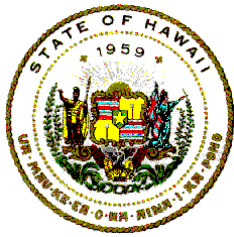
7.1   Prepare Conversion Requirements Plans

7.1.1   Define Key System And Data Conversion Activities
7.1.2   Identify Conversion Responsibilities
7.1.3   Establish Conversion Schedules
7.1.4   List Procedures To Generate Each First-Start-Up File
. Review and audit system and data conversion plans
. Let management review conversion plans
. Get management approval to implement conversion plans

7.2   Define Data Requirements

7.2.1   Define Data Conversion Requirements
7.2.2   Define Source For Files and Tables
. Create data file conversion definitions for start-up files
. Identify missing data; identify source to collect missing data
. Define source and method to derive data for files and tables

7.3   Define Data Collection Requirements

7.3.1   Design Data Collection Forms To Get Data For Files And Tables
7.3.2   Define Data-Entry Instructions

7.3.3   Refine Data Conversion Requirements

7.4   Define Data Purge and Data Error Correction Requirements

   7.4.1   Define Criteria to Purge Data
   7.4.2   Define Criteria to Put Data Into History or Archive Files
   7.4.3   Define Data Error Correction Processing Requirements
   7.4.4   Define Data Error Correction Procedures

7.5   Define Data Reporting Requirements

   7.5.1   Define Data Conversion-Aid Reports Requirements
   7.5.2   Define Data Control Reports Used For Data Conversion

7.6   Develop Data Conversion Programs

   7.6.1   Prepare Schematics For Data Conversion Processes
   .   Review data conversion requirements
   7.6.2   Design Data Conversion Program Logic
   7.6.3   Prepare Test Cases For Data Conversions
   7.6.4   Develop Code for Data Conversion Programs
   7.6.5   Prepare Operations Instructions For Data Conversion
   .   Develop data conversion process schematics
   .   Develop processing logic definitions for each conversion program
   .   Develop test cases for data conversion programs
   .   Construct program logic code; test and debug program code
   .   Develop job instructions for computer operators

7.7   Prepare Data Conversion Procedures

   7.7.1   Develop Procedures To Convert Data
   7.7.2   Review User Procedure Requirements

7.8   Prepare CNV Documents To Include:

   I.   System conversion overview
   II.   Start-up data requirements
   III.   Data file conversion requirements
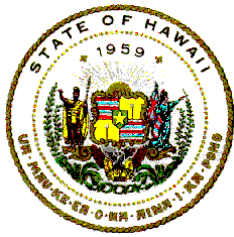   IV.   System conversion report requirements
   V.   Conversion programs logic definitions
   VI.   Conversion procedural requirements
   VII.   System operational instructions
   VIII.   Conversion data test cases

7.9   Process CNV Documents

      7.9.1   Review Assembled System Conversion Documents
      7.9.2   Let Management Review System Conversion Documents
      7.9.3   Get Management Approval Of Conversion Documents
      7.9.4   Get Management Approval To Do Implementation Phase

2.2.8 IMP Work Plan

This phase seeks to perform all tasks required to implement the new system.
Most tasks can be performed concurrently with those in the PD and TST phases.

8.0   Initiate IMP

    .   Review SES implementation plans
    .   Review interface systems test plans
    .   Review audit trail and data security procedures
    .   Review training plans
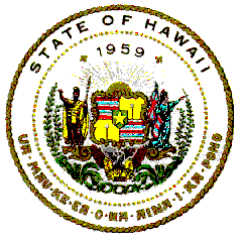
8.1   Prepare Implementation Plan

      8.1.1   Review SIS Updated Detail System Implementation Plan
      8.1.2   Let Management Review Overall System Implementation Plan
      8.1.3   Get Management Approval To Implement Plan

8.2   Prepare Users Guides After Completed SES Phase

      8.2.1   Identify User Audience Who Need Users Guides
      8.2.2   Prepare Users Guides With Appropriate Levels Of Details
      8.2.3   Send User Guide To Appropriate Users For Review And Comments
      8.2.4   Revise Users Guides To Address Users Requirements
        .   Prepare Managerial Users Guides For Training Program
        .   Prepare Procedural Users Guides For Training Program

8.3   Prepare Operations Guides After Completed SIS Phase

      8.3.1   Prepare Operators Guides With Appropriate Levels Of Details
      8.3.2   Send Operations Guide To Appropriate Operators For Review
      8.3.3   Revise Operations Guides To Address Operators Requirements
      8.3.4   Prepare The Following Material For Operations Training Program
          I.   System information
          II.   Operation schedules

III.   Job processing related information
IV.   Input and output control information
V.   Security requirements
VI.   Special requirements, i.e.: network and telecommunications
VII.   Hardware, software, and data back-up procedures
VIII.   Data recovery or reconstruction procedures

8.4   Install New Or Additional Hardware

8.4.1 Bid, Select, And Procure Required Hardware
   .   Let management review bid and contract to procure hardware
   .   Get management approval for contract to acquire hardware
8.4.2 Prepare Facilities For Hardware Requirements
8.4.3 Prepare Hardware Acceptance Test Cases
8.4.4 Install And Configure The Hardware
8.4.5 Test Operations And Reliability Of Hardware
8.4.6 Accept the Hardware

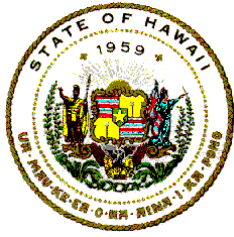8.5   Prepare Job Implementation Duties And Responsibilities

8.5.1 Locate Existing Job Descriptions
8.5.2 Review Job Descriptions After Completed SES Phase
8.5.3 Revise job descriptions To Accommodate New System

8.6   Conduct Training Program

8.6.1 Design And Develop Training Programs After SES Phase
8.6.2 Prepare Appropriate Training Materials After SIS Phase
8.6.3 Ensure Materials Meet Training Requirements
8.6.4 Prepare Training Schedule During Testing Phase
8.6.5 Conduct Training Classes Before Acceptance Test
   .   Develop content outlines for training materials
   .   Develop training agenda
   .   Itemize visual aides and student handouts
   .   Prepare lecture notes
   .   Conduct briefings for management
   .   Conduct training classes

8.7   Order Required Data Collection Forms

8.7.1 Design Required Data Collection Forms After SES Phase
8.7.2 Arrange To Produce Required Data Collection Forms
8.7.3 Acquire Required Data Collection Forms Before Training

8.8   Prepare To Turn System Over To Operations

      8.8.1 Catalogue And Store SDM Phases Resultant Documents
      8.8.2 Catalogue And Store Lists Of Application Source Code
      8.8.3 Catalogue And Store Test Cases Data
      8.8.4 Catalogue And Store Acceptance Test Data
      8.8.5 Arrange For Back-Up Operations Facilities

8.9   Initiate New System Cut-Over After SES Phase Completed

      8.9.1 Plan Cut-Over Sequence Schedule
      8.9.2 Perform Acceptance Test Cases
      8.9.3 Run Parallel Processing
      8.9.4 Certify Expected System Results As Complete
      8.9.5 Update Project Costs
      8.9.6 Update Actual Project Schedules
      8.9.7 Approve Quality of Acceptance Test Results
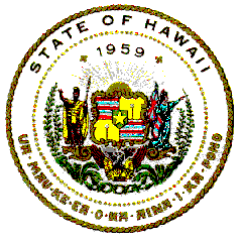
2.3   SSDM Documentation Requirements by Phases

The following SDDM Documentation Table of Contents and Work-Planning Checklists are included in this document.

- System Requirements Definition Phase
- System Design Alternatives Phase
- System External Specifications Phase
- System Internal Specifications Phase
- Program Development Phase
- Testing Phase
- Conversion Phase
- Implementation Phase

2.3.1 System Requirements Definition Phase

Part I: Analysis of Present System

1.0   Business Model
2.0   User Area Identification

3.0   Current System Description
    3.1   Model Table of Contents
    3.2   Data Flow Diagram
    3.3   Data Dictionary
    3.4   Function Descriptions
4.0   Problems and/or Need Analysis
5.0   Special Considerations

Part II: Requirements Definition

1.0   Proposed Objectives
2.0   Proposed System Requirements
    2.1   Model Table of Contents
    2.2   Data Flow Diagrams
    2.3   Data Dictionary
    2.4   Function Descriptions

Part III: Anticipated Benefits

1.0   Tangible Benefits
2.0   Intangible Benefits

Part IV: Project Recommendations

1.0   DP Appraisal
2.0   Scope for Next Phase

Part V: Supporting Data and Appendices

1.0   Conduct of Study
2.0   Current Operational Model
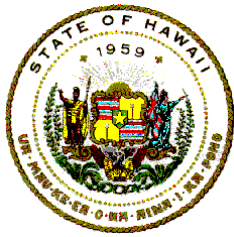3.0   Summary of Collected Data

2.3.2 System Design Alternatives Phase

Part I: Alternative Solutions (1)

1.0   Considered Alternatives
2.0   Chosen Alternatives

Part II: Proposed System Specifications

1.0   System Description
2.0   System Design
    2.1 Data Flow Diagram
    2.2 Data Dictionary
    2.3 Data Store Model
    2.4 Process Description
3.0   System Limitations

4.0   Alternative Descriptions

Part III: Packages Evaluations (2)

1.0   Package Evaluations Summary
2.0   Recommended Selection

Part IV: Analysis of Data

1.0   Plan Analysis (3)
2.0   Benefits & Objectives Analysis
3.0   Key Cost & Schedule Data Analysis

Part V: Summary & Recommendations (1)

1.0   Comparisons & Tradeoffs
2.0   DP Appraisal

Part VI: Supporting Data & Appendices

1.0   Glossary
2.0   Supporting Working Papers
3.0   Package Recommendation Report (2)

NOTE: (1)   This part is completed only if multiple alternatives have been
             considered.

       (2)   This part/section is completed only if there are vendor package
              evaluations.

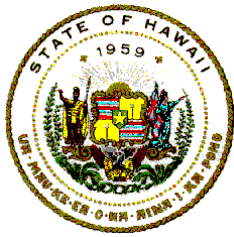   (3)   This section is completed only if a DP Master Plan exists.

2.3.3 System External Specifications Phase

Part I: Management Summary

1.0   System Flow Diagram
        1.1 Data Flow Diagram
        1.2 Data Dictionary
        1.3 Narrative
2.0   Design constraints
3.0   Future Contingencies

Part II: System Design Specifications

1.0   Specification Model
        1.1 Table of Contents
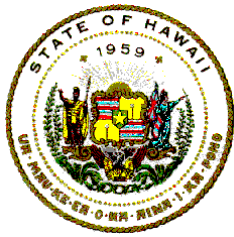   1.2 Data Flow Diagrams
        1.3 Data Dictionary

NOTE:(1) Applies only id application is TP-oriented

(2) This part is used for 'maintenance' and 'enhancement' purposes only 'after' the system is operational

2.3.4 System Internal Specifications Phase

Part I: System Design Overview

1.0   System Architecture
         1.1 System Description
         1.2 System Schematic
2.0   Data Dictionary

Part II: Subsystem Designs (1)

1.0   Subsystem-1
         1.1 Subsystem-1 Description
         1.2 Subsystem-1 Design Considerations
2.0   Subsystem-2

Part III: Data Files/Data Base Structures

1.0   File Index
2.0   Data File-1
3.0   Data File-2

Part IV: Input and Output Design

1.0   Dialog Descriptions
2.0   Output Descriptions
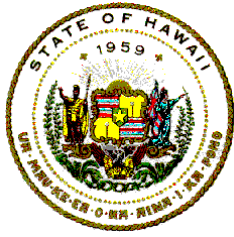3.0   Input Descriptions

Part V: Special Design Considerations

1.0   Data File Considerations
2.0   Data Control and Auditability Considerations
3.0   Security Considerations
4.0   Teleprocessing Considerations (2)
5.0   Recovery, Restart, and Checkpointing
6.0   Implementation Considerations
         6.1 Use of System Standards
         6.2 Use of Utilities
         6.3 Use of Carryover Segments from Existing System
7.0   History Purging
8.0   Provisions for Future Enhancements

Part VI: Design Unit Organization

1.0   Design Unit-1
2.0   Design Unit-2

Part VII: Module Design

1.0   Module Descriptions
2.0   Messages and Job Halts

Part VIII: Operations-Related Data

1.0   Hardware/Software Requirements
2.0   Preliminary Operations Data
        2.1 Computer Time: Testing Phase
        2.2 Computer Time: Production Cycle
        2.3 Supply Requirements
        2.4 Other Special Requirements

Part IX: Testing, Conversion, and Implementation Plans

1.0   Testing Plan
        1.1   Finalized Test Plan
        1.2   Test Case Specifications
2.0   Finalized Conversion Plan
3.0   Finalized Implementation Plan

Part X: Supporting Data and Appendices

Part XI: System/Program Changes

1.0   System Changes During Development
2.0   System Changes During Production
        2.1   System Changes Log
        2.2   Maintenance Requests

NOTE: (1)   This part is repeated for each subsystem which is in each
             automated system
      (2)   This section is included if TP is applicable

2.3.5 Program Development Phase

Part I: System Library Contents

Part II: Job JCLs
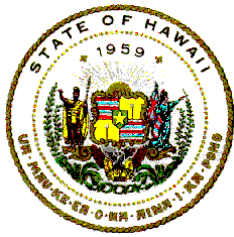
Part III: Source Listings

2.3.6 Testing Phase

Part I: Test Results Approval

1.0   Test Level Approvals

Part II: Test Case Definitions

1.0   Acceptance Test Cases

2.0   Test Case Specifications
3.0   Test Data

Part III: Test Results

1.0   Test Run Results
2.0   Test Run Output

2.3.7 Conversion Phase

Part I: Conversion Overview

1.0   The Conversion Plan
2.0   Conversion Process Schematic
3.0   Special Conversion Aids

Part II: Start-up Data Requirements

1.0   Source Data Forms/Documents
2.0   Key-entry Instructions

Part III: File Conversion Requirements

1.0   Existing File Definitions
2.0   File Conversion Requirements
3.0   History/Archive Requirements

Part IV: Report Requirements

1.0   Special Listings
2.0   Control-Related Reports

Part V: Conversion Programs

1.0   Program Logic Definitions

Part VI: Procedural Requirements

1.0   Data Input Preparation
2.0   Error Correction
3.0   Data Purging
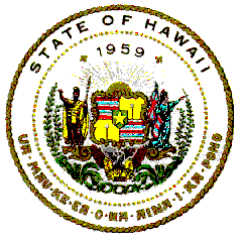4.0   Data Control
5.0   Synchronization

Part VII: Operating Instructions

1.0   Job Instructions

Part VIII: Test Cases

1.0   Program Test Cases

Part IX: Conversion Results

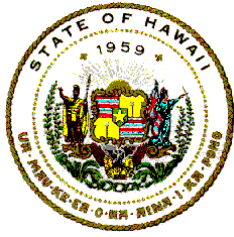1.0   Production Turnover Conversion

2.3.8 Implementation Phase

Part I: Training Material

1.0   Training Material

Part II:Operations Guide

1.0   System Overview
       1.1 System Description
       1.2 System Schematic
       1.3 System Component Indices

2.0   Operational Requirements
       2.1 Environment Requirements
       2.2 Supply Requirements

3.0   System Component Indices
       3.1 Input/Output Schedules
       3.2 Job Production Schedules

4.0   Batch Job Descriptions
       4.1 Job Stream Overview
       4.2 Job Instructions
       4.3 Job Halts and Messages
       4.4 Job Restart Procedures

5.0   Input/Output Control
       5.1 Key Entry Instructions
       5.2 Output Distribution
       5.3 Balancing and Control
       5.4 File Retention and Distribution

6.0   Security System

7.0   Reconstruction and Recovery

3 WAIVER PROCEDURE

This section describes two waiver processes, which are basically the same: !) agency project or overall agency exemption from SSDM, and 2) consultant project waiver requests, which are normally specified in a Request for Proposals (RFP) issued by the agency or by the State Procurement Office.

3.1 Agency Project or Agency Overall Request for Exemption (waiver) from SSDM

Development of all tasks done by a project or all projects by an agency in the Executive Branch must follow SSDM or obtain exemption (waiver) in writing from ICSD to utilize another methodology for development of application systems.
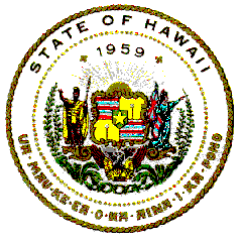
Authorization will be granted by the ICSD if the proposed methodology can be shown to contain complete instructions and guidelines for developing information systems under a phased deliverable approach such as described by the standard. The proposed methodology will be described fully, including the approach and strategy and all tasks, activities and deliverables with clear guidelines and quality controls for each to assure that all relevant issues, problems, functions, data, processing, and control objectives are met by the deliverable system and its documentation.

The proposed methodology description shall include a cross reference of the tasks, activities, and deliverable document contents between the proposed methodology and SDDM. A sample work plan, deliverable document Table of Contents, and detail descriptions and guidelines for sample tasks and activities are to be submitted to ICSD for the proposed methodology with a request for waiver of SSDM by an agency of the Executive Branch.

If an agency does not receive authorization to utilize another methodology, by the ICSD, then the agency must comply with the SDDM.

The following documents are on file with all departments and are available to be reviewed for consideration of the need to request waiver.

•   SDM/Structured Manuals that are the basis for the Standard System Development Methodology (SSDM)

3.2   Consultant Project Waiver from SSDM

A consultant may receive waiver for a project as specified in the Request for Proposals (RFP) for which the vendor (consultant) proposes. The RFP language for requirements to use SSDM and request for waiver follows.

3.3   RFP's Language

Should the Offeror desire further detailed documentation regarding SSDM, ICSD has manuals which the Offeror may borrow on a temporary. Attached as Appendix to this document is a sample of the Loan Agreement and the form which an Offeror must sign in order to borrow the manuals.
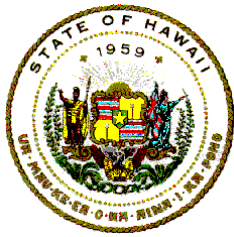
3.3.1   Procurement Process Section

The process is authorized by and normally covered by the RFP, which follows the process established in Subchapters 5 and 6 of Chapter 3-122, Hawaii Administrative Rules (H.A.R.), implementing Chapter 103D Hawaii Revised Statutes (HRS). All Offerors are charged with presumptive knowledge of all requirements of the cited authorities. Submission of a valid executed proposal by any Offeror shall constitute admission of such knowledge on the part of such Offeror.

The procurement process begins with the issuance of the RFP, the submittal by prospective offerors of letters of intent to propose, and receipt of all required approvals by the issuing agency to use a methodology other than the State Standard System Development Methodology (SSDM) or use of SSDM.

All questions regarding the RFP or the project shall be submitted to the Issuing Officer in writing. Formal responses to written questions or inquiries regarding the RFP shall be answered by the State in writing as an Addenum.

Changes to the RFP will be made as Addenda to the RFP, on a replacement page basis, with modifications or alterations identified by change identifiers (e.g., numbers or letters) along with the revision date.

Offerors who plan to use a methodology other than the SSDM to complete the work under this RFP must submit a written request to the Information and Communication Services Division (ICSD). SSDM was adopted by the

Information Technology Standards

State as its standard methodology through the ICSD, a division of the Department of Accounting and General Services (DAGS). SSDM is based upon SDM/Structured, which was a proprietary methodology purchased by the ICSD in the 1980's but which is no longer owned by the proprietary firm. The original manuals are at the ICSD for reference to details and each department has a copy of the manuals (also for reference). Any contract resulting from this RFP must be in compliance with SDDM or another pre-approved methodology. An overview of SDDM is included in this RFP as Appendix.
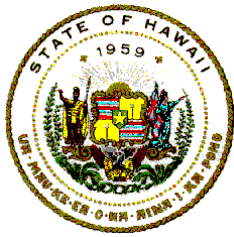
The next major phase involves the preparation and submittal of the Proposal. Each Offeror may submit only one (1) proposal. Alternate proposals will not be accepted. The Proposal must be submitted in a sealed envelope. Each Proposal will be reviewed to determine whether it is in compliance with the RFP's requirements as to form and content.

Those Offerors who fail to meet the Compliance Review will be (1) mailed a Notice of Compliance Disqualification, certified return receipt on the date specified in SIGNIFICANT DATES, and (2) disqualified from further consideration for this project.

The State reserves the right to consider as acceptable only those proposals submitted in accordance with all requirements set forth in this RFP and which demonstrate an understanding of the problems involved and the scope of work. Any proposal offering any other set of terms and conditions, or terms or conditions contradictory to those included in this RFP, may be disqualified without further notice.

An Offeror will be disqualified and the proposal automatically rejected for any one or more of the following reasons:

- The Offeror has shown a lack of responsibility and cooperation as there is evidence of collusion among Offerors, in which case all proposals and Offerors involved in the collusive action will be rejected.
- The Offeror has shown a lack of responsibility and cooperation as demonstrated by past work.
- The proposal shows any noncompliance with applicable law.
- The proposal is conditional, incomplete, or irregular in such a way as to make it incomplete, indefinite, or ambiguous as to its meaning.

- The proposal has any provision reserving the right to accept or reject award, or to enter into an agreement pursuant to an award, or has provisions contrary to those required in the solicitation.
- The proposal is delivered after the deadline specified in the timetable.

Those Proposals that satisfy the Compliance Review criteria shall be substantively reviewed by the Proposal Review Committee (PRC) to develop the Priority Listed Offerors. The Top Three (3) Priority Listed Offerors may be invited to discuss their proposals with the PRC. The PRC reserves the right to expand the discussion list if it is determined that expanding the list is in the best interest of the State. The PRC will notify the Top Three (3) Priority Listed Offerors in writing if the list is to be expanded.
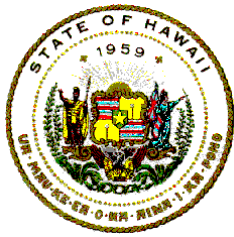
Following any discussions, the top three (3) Priority Listed Offerors will be invited to submit their Best and Final Offer. The PRC reserves the right to have a second round of discussions with the top three (3) Priority Listed Offerors prior to the submission of the Best and Final Offer, should that prove necessary for the complete understanding of and fair evaluation of the Proposals. After receipt and review of the Best and Final Offers, the PRC will make its recommendation to the Issuing Officer.

The Issuing Officer will award the contract to the Offeror whose proposal is determined to be the most advantageous to the State taking into consideration price and the evaluation factors set in SUBSTANTIVE EVALUATION.

The PRC and the department reserve the right to determine what is in the best interests of the State for purposes of reviewing proposals submitted in response to this RFP. The PRC intends to conduct a comprehensive, fair and impartial evaluation of proposals received in response to this procurement effort. The department also reserves the right to cancel this solicitation or reject offers in whole or in part when it is in the best interest of the purchasing agency as provided in Subchapter 11 of Chapter 3-122, H.A.R.

The State will combine the RFP and all addenda, and the Proposal into a single document that will become a part of the contract.

3.3.2 Methodology for Developing Section

Development of all tasks encompassed by this RFP must follow the State's Executive Branch standard, SSDM. However, the Offeror may utilize its own standard or methodology by obtaining authorization in writing as stated in AUTHORIZATION TO USE ANOTHER METHODOLOGY by the Due Date stated in SIGNIFICANT DATES.

Offerors who plan to use a methodology other than the State's standard to complete the work under this RFP must submit a written request. Information, in the form of an overview, about the life cycles supported, tasks/activities, and deliverables required under this RFP and contract are contained in Appendix of this RFP. Offerors may call the contact person or the ICSD (see ISSUING OFFICE AND CONTACT PERSON) to arrange to view detail manuals for the SDM/Structured, which is the basis for SSDM manuals.

3.3.3 Proposal Due Date Section

The Proposals are due at the Issuing Officer's address no later than the date and time specified for Proposal Due in SIGNIFICANT DATES.
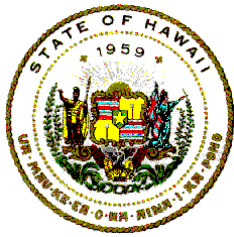
Proposals must be delivered by that date and time to the Issuing Officer specified in ISSUING OFFICER AND CONTACT PERSON. Proposals received earlier will be held unopened. Late Proposals will be rejected unopened.

Proposals that do not comply with the requirements shall not be considered and shall be returned to the Offeror with a letter explaining the reasons for its return. The official time shall be that recorded on the Issuing Officer's time stamp clock. These conditions apply regardless of whether a Proposal is mailed or hand-delivered.

3.3.4 Authorization to Utilize Another Methodology Section

If Offeror plans to use a methodology other than the state standard, a written request must be sent to the issuing agency contact person by the deadline in SIGNIFICANT DATES.

Authorization will be granted if the proposed methodology can be shown to contain complete instructions and guidelines for developing information systems under a phased deliverable approach such as described by the standard. The proposed methodology will describe the methodology approach and strategy and define tasks, activities and deliverables with

clear guidelines and quality controls for each to assure that all relevant issues, problems, functions, data, processing, and control objectives are met by the deliverable system and its documentation.
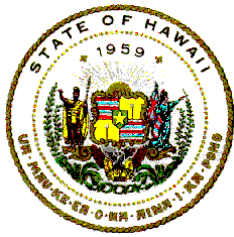
The proposed methodology shall be fully described and a cross reference of the tasks, activities, and deliverable document contents between the proposed methodology and SDDM shall be provided. A sample work plan, deliverable document Table of Contents, and detail descriptions and guidelines for sample tasks and activities are to be submitted for review.

If Offeror does NOT receive authorization to utilize another methodology, then Offeror must comply with the SSDM.

3.3.5 Supporting Documentation Section

The following documents are on file with all departments and are available upon request. Prospective Offerors wishing to examine any of these may do so by making arrangements with the agency contact person.

- SDM/Structured Manuals that are the basis for the Standard System Development Methodology (SSDM)

Information Technology Standards

APPENDIX

The SSDM Loan Form (Used for Consultants) looks like the sample shown below. Form ICSD-230 is available from ICSD. The shaded fields are fillable online.

INFORMATION AND COMMUNICATION SERVICES DIVISION

TEMPORARY LOAN OF STATE PROPERTY
Systems Development Methodology Manuals

The Department of Accounting & General Services, ICSD, Lender, and the Borrower as indicated below, enter into the agreement regarding the following SDM Manuals:

- ☐ Summary Guidelines
- ☐ System Requirements Definition (SRD)
- ☐ System Design Alternatives (SDA)
- ☐ System External Specifications (SES)
- ☐ System Internal Specifications (SIS)
- ☐ Program Development (PGM)/Test (TST)
- ☐ Conversion (CONV)/Implementation (IMP)

- ☐ Project Administration (PAD)
- ☐ Quality Assurance (QA)
- ☐ Data Dictionary
- ☐ Maintenance
- ☐ Small Projects/Enhancements
- ☐ Estimating Guidelines

The Borrower agrees to the Conditions described below. Nothing in this document or otherwise should be construed as passing title of the subject material from the Lender (ICSD) to the Borrower.

1. Borrower shall exercise normal care and prudence in the use and storage of the subject material. Borrower agrees to all requirements for non-disclosure and proper use of the proprietary product by third parties. In case of loss or damage or other non-return of the materials, the Borrower will reimburse Lender for the full cost of replacement.

2. Borrower agrees to all terms, conditions, and proprietary rights of the Licensor of the product while the in the temporary possession of the Borrower; the ICSD hereby transfers the requested manuals identified above to the Borrower for the term of the loan period.

3. Borrower shall return all manuals and related materials upon completion of bid, system development work, contract termination, or at the request of the ICSD, to 1151 Punchbowl Street, Honolulu, Hawaii, 96813, unless instructed by the ICSD Administrator to deliver to another site.

Date _____

Borrower _____

Print Name _____

Title _____

Company _____   Project/ _____
_____   Contact Reference

Address _____

Phone _____   FAX: _____

Approved By Authorized
Person as Lender: _____   Date _____

ICSD-230 (Rev 01/15/2004)