STATE OF MICHIGAN
STRUCTURED WALKTHROUGH (SWT)
PROCESS GUIDE

A Companion to the Systems Engineering Methodology (SEM) of the State Unified Information Technology Environment (SUITE)

Michigan Department of Technology, Management & Budget

www.michigan.gov/SUITE

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REVISION HISTORY

Revision Date	Section(s)	Summary
April 2009	n/a	Initial document release.
October 2014	All	Updates for consistent formatting, references to correct PMM and SEM forms and department name.

PREFACE

The initial development of the *Structured Walkthrough Process Guide* was published in August 2007, and was developed as part of a continuing effort to improve the quality, performance, and productivity of State of Michigan information systems. Development of the Process Guide was governed by the Michigan *State Unified Information Technology Environment* (SUITE) initiative. This update incorporates revisions to the templates associated with the Structured Walkthrough process.

The purpose of SUITE is to standardize methodologies, procedures, training, and tools for project management and systems development lifecycle management throughout the Department of Technology Management and Budget (DTMB) in order to implement repeatable processes and conduct development activities according to Capability Maturity Model Integrated (CMMI) Level 3 requirements. A formal enterprise level support structure will be created to support, improve and administer all SUITE components, including the System Engineering Methodology (SEM), the SMG, the Project Management Methodology (PMM) and related enterprise initiatives. Until that structure is in place, questions regarding this process guide should be sent to the SUITE Core Team at SUITE@michigan.gov.

TABLE OF CONTENTS

Page inserted for consistency in section start points.

CHAPTER 1.0 - OVERVIEW

Purpose

This process guide describes the method for conducting a Structured Walkthrough (SWT) during the lifecycle stages of systems engineering projects, regardless of hardware platform.

Organization

This process guide consists of the following sections:

- Overview
- Responsibilities Before the Walkthrough
- Responsibilities During the Walkthrough
- Responsibilities After the Walkthrough
- Additional Activities After the Walkthrough
- Structured Walkthroughs for Lifecycle Stages
- Structured Walkthroughs for Other Documents

Description

A structured walkthrough is an organized procedure for a group of peers to review and discuss the technical aspects of software development work products. The major objectives of a structured walkthrough are to find errors and to improve the quality of the product. Errors typically occur as omissions or contradictions, flaws in logic, or inconsistencies in the work product style (e.g., poorly stated requirements and inefficient code).

Structured walkthroughs should not be used to discuss solutions for the errors that are found. *The basic purpose of a walkthrough is error detection, not error correction.* When the walkthrough is completed, the author of the work product is responsible for taking the necessary actions to correct the errors. The author may hold private conversations with reviewers or conduct follow-up meetings to discuss potential solutions.

Structured walkthroughs should be conducted during all stages of the system lifecycle. Walkthroughs can be conducted in various formats, with various levels of formality, and with different types of participants.

In some cases, it might be useful and expedient to include end users in walkthroughs. Management representatives do not participate in structured walkthroughs. Regardless of the variations in format and participants, the basic activity (peer review) and the major objectives (find errors and improve quality) of the structured walkthroughs remain the same.

General Information

Structured walkthroughs are appropriate for reviewing the technical accuracy and completeness of system development work products, project management tools, and other types of documents (e.g., technical operating

procedures). The walkthroughs should be scheduled to review small, meaningful pieces of work. The progress made in each lifecycle stage should determine the frequency of the walkthroughs.

Benefits

Structured walkthroughs provide the following benefits.

- Save time and money by finding and correcting errors earlier in the lifecycle.
- Provide value-added input from reviewers with different technical backgrounds, experience, and expertise.
- Validate and improve the related lifecycle work products.
- Keep the project team informed of the development progress.
- Provide professional growth to participants by giving them an opportunity to look at different development methodologies and approaches.

Participants

Each participant in the structured walkthrough process has a specific role. For a small size project, a person may fulfill multiple roles.

The **author** of the work product is responsible for requesting the walkthrough when a meaningful portion of the product has been developed and is free from casual errors (e.g., spelling errors). The author attends the walkthrough as an observer and answers reviewer's general questions. The author is not a reviewer.

The **presenter** usually develops the agenda for the walkthrough and presents the work product being reviewed. The presenter should be familiar with the work product and be a member of the project team.

The **moderator** facilitates the walkthrough session, ensures that the walkthrough agenda is followed, and encourages the participation of all reviewers. The moderator may also be the scribe.

The **reviewers** evaluate the work product to determine if it is technically accurate. The reviewers also assess whether the project guidelines or standards are being followed, the project requirements are met, and the product is properly prepared.

The **scribe** takes notes during the walkthrough. The scribe records the errors identified and any other technical comments, suggestions, and unresolved questions. The scribe should not be a reviewer.

Defect Tracking Log

The Defect Tracking Log (SEM-0186) is available to assist the reviewers with recording errors found prior to the walkthrough session. It is an Excel spreadsheet containing five tabs: Defects, User Acceptance Testing, Production, Analysis, and Summary. Of particular note are the Analysis and Summary tabs.

The Analysis tab contains three pivot tables titled Defect Analysis (total), UAT Defect Analysis, and Production Defect Analysis. These pivot tables collect data from the previous tabs and generate defect summary information by:

SEM Stage	Initiation and Planning, Requirements, Functional Design, System Design, Construction, Testing and Implementation
Defect Type	Environment, Code, Change of Scope, Cosmetic, Data, Design, and Performance
Priority	Low, Medium, High, and Urgent
Status	New, Open/In progress, Rejected/Re-open, Future Release, Fixed, Closed, and N/A

The Summary tab summarizes the information from the pivot tables on the Analysis tab: Defect Tally Summary, UAT Tally Summary, and Production Tally Summary. These summaries provide counts of defects by Status type. While the N/A and Future Release summary counts are displayed, they are not included in the net defect totals.

A copy of the Defect Tracking Log is available electronically on the DTMB SUITE website. The Defect Tracking Log has been developed for teams that do not have an acceptable method for recording and tracking defects.

Meeting Record

The Structured Walkthrough Meeting Record (SEM-0187) is completed during the formal SWT meeting to capture SWT information such as attendees and SWT date information. The Meeting Record is finalized after the meeting and includes the recording of defect summary totals. The Meeting Record is used during each stage of the software lifecycle will be checked during the Stage Exit process. The Meeting Record is also used by Quality Assurance to maintain statistical data on structured walkthroughs. The presenter is responsible for the preparation of the Structured Walkthrough Meeting Record. A copy of the Structured Walkthrough Meeting Record is available electronically on the DTMB SUITE website.

Implementation

This procedure describes a formal structure for conducting walkthroughs. The formality and structure of the walkthrough sessions should be tailored to meet the needs of the development team, and the purpose and scope of the work product.

Note

The Structured Walkthrough procedure is a Maturity Level 3 Key Process Area of the SEI Software Capability Maturity Model Integration (CMMI) model.

CHAPTER 2.0 – RESPONSIBILITIES BEFORE THE WALKTHROUGH

Author's Responsibilities

Prior to the walkthrough session, the author of the work product must:

Step	Activity
1	Complete a meaningful segment of a work product. Avoid requesting walkthroughs on incomplete segments or on a segment(s) that is too large to be adequately reviewed in less than 2 hours.
2	Proofread work product segment and eliminate non-technical errors such as spelling or typographical mistakes. Non-technical errors can distract reviewers from the technical aspects of the work product.
3	Notify the presenter that a completed segment of a work product is ready for a structured walkthrough. May also discuss potential reviewers with the presenter.
4	Prepare any support materials, such as flow charts, to assist reviewers with their understanding of the entire work product and how the segment being reviewed fits into the entire product.
5	Provide the work product and all support materials to the presenter for advance distribution to the reviewers.
6	When the segment to be reviewed is finished, the author should be prepared to work on other segments of the work product (or other project tasks) while waiting for the walkthrough to occur.

Presenter's Responsibilities

Prior to the walkthrough session, the presenter must:

Step	Activity
1	Determine if the size of the work product segment is appropriate for one walkthrough session; walkthrough sessions should not exceed 2 hours in length. If more time is necessary, the work product segment should be divided into smaller portions and each portion reviewed separately.
2	Select reviewers who are appropriate for the work product, such as systems analysts, programmers, technical writers, and testers. Reviewers should include people on and off the project. In some cases, the participation of software users may be considered desirable. If necessary, the presenter can discuss who should participate in the walkthrough with the manager of the project team.
3	Select the moderator and the scribe. Determine whether the scribe will be responsible for completing the Structured Walkthrough Meeting Record (SEM-0187) and the Defect Tracking Log (SEM-0186).
4	Schedule the meeting date, time, and location. Notify all participants of these arrangements at least two days prior to the walkthrough.
5	Establish the agenda. Review the agenda and any important issues with the moderator.

6	Provide reviewers with copies of all materials to be reviewed at least 2 days prior to the walkthrough.

Reviewers' Responsibilities

Prior to the walkthrough session, the reviewers must:

Step	Activity
1	Carefully review the materials provided by the presenter. Make a note about the amount of time spent reviewing the material. Give this information to the scribe at the beginning of the walkthrough session.
2	Identify technical errors. Insert comments and questions directly on the review materials for easy reference during the walkthrough discussion.
3	Note directly on the review materials any non-technical errors found during the review, such as spelling or typographical mistakes. While these errors are not discussed during the walkthrough, they should be provided to the author at the conclusion of the walkthrough.
4	Notify the presenter immediately if the reviewer will not be able to complete the review in time for the walkthrough session. An unprepared reviewer will hinder the walkthrough process. If enough time is available, the presenter can select a new reviewer.
5	Review the procedures for the structured walkthrough process. Each reviewer should be familiar with the procedures prior to participating in a walkthrough session.

Moderator and Scribe Responsibilities

Prior to the walkthrough session the moderator and the scribe must:

Step	Activity
1	Review the materials provided by the presenter to become familiar with the contents.
2	Review the agenda and discuss any questions with the presenter.
3	Note directly on the review materials any non-technical errors found during the review, such as spelling or typographical mistakes. While these errors are not discussed during the walkthrough, they should be provided to the author at the conclusion of the walkthrough.
4	Review the procedures (ground-rules) for the structured walkthrough process. Clarify specific roles and responsibilities with the presenter. The moderator and scribe should be familiar with the procedures prior to participating in a walkthrough session.

CHAPTER 3.0 – RESPONSIBILITIES DURING THE WALKTHROUGH

Moderator's Responsibilities

During the walkthrough the moderator is responsible for the following activities:

Step	Activity
1	Call the walkthrough session to order. It is important to start the session at the scheduled time.
2	Ask participants to introduce themselves and state their current responsibility/job assignment.
3	Briefly review the procedures and agenda for the walkthrough session.
4	Facilitate the walkthrough session. Every attempt should be made to adhere to the agenda and the established meeting procedures. Encourage active participation of all reviewers. Limit discussion to the identification of errors. The discussion of solutions is not part of the walkthrough process. Limit the author's participation to observation and answering questions. If the session exceeds 2 hours, the moderator should stop the session at a logical breaking point and schedule another session to continue the discussion. When walkthrough sessions exceed 2 hours, the productivity and attention span of the reviewers will be adversely affected.
5	At the conclusion of the session, ask the reviewers to make a decision about the status of the work product as follows: A = Accept product(s) as presented B = Acceptable with Revisions – no further walkthrough needed C = Revise and schedule another walkthrough A majority opinion decides the action. If a majority opinion or consensus cannot be reached, the presenter will make the decision. If another walkthrough is necessary, the entire structured walkthrough process should be repeated.
6	Adjourn the walkthrough session at the scheduled time. If the agenda has not been completed, schedule a follow-up session.

Presenter's Responsibilities

During the walkthrough the presenter is responsible for the following activities:

Step	Activity
1	Provide a brief overview of the work product.
2	If necessary, review outstanding issues from previous walkthrough(s).
3	Present the product to be reviewed. Answer reviewers' questions. The presenter can ask the author for assistance in answering questions.
4	At the conclusion of the meeting, if the reviewers cannot reach consensus about the status of the work product, the presenter is responsible for making that decision. The status will be one of the following: A = Accept product(s) as presented B = Acceptable with Revisions – no further walkthrough needed C = Revise and schedule another walkthrough

Scribe's Responsibilities

During the walkthrough the scribe is responsible for the following activities:

Step	Activity
1	Record the beginning time for the walkthrough session.
2	Record the attendance of each participant.
3	Record the amount of time each reviewer spent reviewing the work product.
4	Record the technical errors identified by the reviewers. Record all significant comments and suggestions made by the reviewers and presenter.
5	Record suggested action items and other follow-up activities.
6	Record the end time for the walkthrough session.

Reviewers' Responsibilities

During the walkthrough each reviewer is responsible for the following activities:

Step	Activity
1	Provide the scribe with the time spent reviewing the work product.
2	Provide the appropriate introduction information (e.g., name and current job responsibilities).
3	Describe technical errors found during review of the work product. Be an active participant.
4	Ask questions as needed to clarify information about the work product.
5	Make constructive suggestions and comments about the work product.
6	Participate in the decision about the status of the work product: A = Accept product(s) as presented B = Acceptable with Revisions – no further walkthrough needed C = Revise and schedule another walkthrough If consensus cannot be reached by the reviewers, the presenter is responsible for making the decision.
7	Inform the author about any non-technical errors found during the review by providing a marked up copy of the review package.

CHAPTER 4.0 – RESPOSIBILITIES AFTER THE WALKTHROUGH

Scribe's Responsibilities

The scribe is responsible for the following activities ***after*** the walkthrough:

Step	Activity
1	Prepare the meeting record for the walkthrough session. Include any action items identified by the reviewers and the person/team responsible for completing each action item.
2	Circulate the meeting record to the participants for their review and comments.
3	Update the meeting record as needed. Distribute the revised meeting record to the author. Copies of the meeting record should be distributed to the other participants only if an additional walkthrough is required.

Reviewers' Responsibilities

The reviewers are responsible for the following activities ***after*** the walkthrough:

Step	Activity
1	Review the Review the Structured Walkthrough Meeting Record (SEM-0187) and the additions to the Defect Tracking Log (SEM-0186) for accuracy and completeness.
2	Indicate changes that are needed to add or clarify information in the meeting record. Submit any changes to the scribe. If necessary, discuss discrepancies with the presenter.
3	If requested by the author of the work product, provide additional explanation of walkthrough comments.

Presenter's Responsibilities

The presenter is responsible for the following activities ***after*** the walkthrough:

Step	Activity
1	Review the Review the Structured Walkthrough Meeting Record (SEM-0187) and the additions to the Defect Tracking Log (SEM-0186) for accuracy and completeness.
2	Indicate changes to the meeting record and return to scribe. If necessary, discuss discrepancies with the reviewers.
3	Initiate follow-up activities recommended by the reviewers. Verify that all action items have been assigned to the appropriate person/team.
4	Finalize the Structured Walkthrough Meeting Record. Include the following information: • Description of the work product reviewed. • Description of findings. In addition to findings, include significant problems that would cause schedule slippage or project cost increase.

	• Date, time, and duration of the walkthrough. • List of attendees. • Status decision (i.e., accept as is, revise--no further walkthrough, or revise and schedule another walkthrough) and any other follow-up activities.
5	Distribute copies of the Structured Walkthrough Meeting Record and the updated Defect Tracking Log to the appropriate management personnel including the Project Manager and the Quality Assurance Team Manager.
6	Track progress made on open action items. As action items are closed, indicate closed status on the meeting record.
7	If necessary, schedule a follow-up walkthrough when the revised work product is ready.

Author's Responsibilities

The author is responsible for the following activities ***after*** the walkthrough:

Step	Activity
1	Make all necessary changes to the work product.
2	Use the Defect Tracking Log as a checklist to make sure all errors are corrected, reviewer's comments have been addressed, and open issues are investigated.
3	Check with the presenter and reviewers, as needed, to obtain additional information or clarifications.
4	Conduct follow-up meetings with subject matter experts, as needed, to complete work product.
5	Prepare work product and participate in follow-up walkthrough, if required.

Quality Assurance Manager

The Quality Assurance Manager is responsible for the following activities ***after*** the walkthrough:

Step	Activity
1	Prepare a summary of the information contained in the Structured Walkthrough Meeting Record (SEM-0187) and the Defect Tracking Log (SEM-0186).
2	Distribute the summary to the Project Manager. The data presented in the report is included in periodic management reports.

Project Manager

The Project Manager is responsible for the following activities ***after*** the walkthrough.

Step	Activity
1	Review the Structured Walkthrough Meeting Record (SEM-0187) and the Defect Tracking

	Log (SEM-0186).
2	File the Structured Walkthrough Meeting Record in the project management notebook/files.
3	Follow up on any action items that remain open. A formal plan may need to be developed for action items that cannot be resolved during the current lifecycle stage.

CHAPTER 5.0 – ADDITIONAL ACTIVITIES AFTER THE WALKTHROUGH

Preparation of Structured Walkthrough Meeting Record

The presenter is responsible for the preparation of the Structured Walkthrough Meeting Record (SEM-0187). The presenter may ask the scribe to prepare the report. If the scribe prepares the report, the presenter reviews the report before it is distributed. A copy of the Structured Walkthrough Meeting Record is available at the end of this process guide and is available electronically on the DTMB SUITE website.

The Meeting Record is distributed to the appropriate project personnel including:

- Project Manager
- Quality Assurance Manager

The Meeting Record and Defect Tracking Log is used by Quality Assurance to maintain statistical data on structured walkthroughs.

The Structured Walkthrough Meeting Records generated during each stage of the software lifecycle will be checked during the Stage Exit process. The purpose of the Stage Exit Process Guide check is to verify that structured walkthroughs were conducted during each lifecycle stage, that the walkthrough action items were documented, and that the action items have been properly resolved and closed.

Follow-up Walkthrough

If a follow-up walkthrough is required, the procedures used in the original walkthrough should be repeated. Use the meeting record and defect tracking log from the previous walkthrough as a checklist to confirm that the previously identified errors and issues were resolved.

CHAPTER 6.0 – STRUCTURED WALKTHROUGH FOR LIFECYCLE STAGES

What to Review – Introduction

Structured walkthroughs are generally used to review software products or systems under development at various lifecycle stages. This section describes the work products that should be reviewed at each stage of the lifecycle. The work products correspond to the deliverables described in the State of Michigan Systems Engineering Methodology (SEM).

Initiation and Planning Stage

The Initiation and Planning Stage defines the work to be accomplished for a development or maintenance task and estimates the resources that will be required. During the Initiation and Planning Stage, a structured walkthrough should be conducted for each deliverable.

Purpose	Additional Participants
Review the stage deliverables, such as the following: • Project Plan • Security Plan • Maintenance Plan, if needed • Software Configuration Management Plan	The developer and at least one systems analyst, preferably outside the project. If the project involves sensitive data, include the Security Liaison from the Office of Enterprise Security

Requirements Definition Stage

The Requirements Definition Stage determines the scope and requirements for a development project. During the Requirements Definition Stage, structured walkthroughs are used primarily to identify problems, inaccuracies, ambiguities, and omissions in the Requirements Specifications.

Purpose	Additional Participants
Review the following stage deliverables: • Requirements Specification Document • Requirements Traceability Matrix (initial) • Security Plan	One or more of the project designers and at least one systems analyst. If the project involves sensitive data, include the Security Liaison from the Office of Enterprise Security.

Functional Design Stage

The Functional Design Stage selects the design elements that determine how the software product will be constructed to meet the functional requirements. During the Functional Design Stage, the structured walkthroughs are used to identify flaws, weaknesses, errors, and omissions in the architecture of the design.

Purpose	Additional Participants
Review the Functional Design Document, Logical Model, Data Dictionary, Requirements Traceability Matrix and Security Plan for errors in the following design areas: • Hardware • Software • Logical design • Communications • System interfaces • Backup and recovery • Security • User interface • Reports	At least one systems analyst and one or more of the project designers/programmers. If the project involves or sensitive data, include the Security Liaison from the Office of Enterprise Security.

System Design Stage

The System Design Stage uses the concepts and the system architecture to describe the system components in detail. During the System Design Stage, structured walkthroughs are used to review detailed specifications, and plans that address testing and implementation issues.

Purpose	Additional Participants
Review the stage deliverables: • Physical Model • Program Specifications • System Design Document • Conversion Plan • Test Plan *(initial)* • Test Reports *(initial)* • Data Dictionary *(revised)* • Requirements Traceability Matrix *(revised)* • Software Configuration Management Plan • Security Plan	At least one systems analyst and one or more of the project designers / programmers. If the project involves sensitive data, include the Security Liaison from the Office of Enterprise Security.

Construction Stage

The Construction Stage involves the construction of the product or solution and the testing that is an integral part of the construction process. During this stage, walkthroughs are conducted on deliverables such as programs, test plans, test cases, and the operating documentation.

Purpose	Additional Participants
Reviews programs and/or solution components at the completion of a logical unit of work. Reviews should verify adherence to the following: • System design • Program Specifications • Software Configuration Management Plan Other deliverables to be reviewed: • Installation Plan *(initial)* • Requirements Traceability Matrix *(revised)* • Test Plan *(final)* • Transition Plan • Operating Documents • Training Plan *(initial)* • Security Plan	Technical personnel with appropriate expertise and at least two additional reviewers. The entire programming team might attend the walkthrough, depending on the approach. If the project involves sensitive data, include the Security Liaison from the Office of Enterprise Security.

Testing Stage

The Testing Stage is the transition from individual software components to an integrated software product. During the Testing Stage, structured walkthroughs are used to review the integrated product, check the accuracy of the operating documents that will be provided to the user(s) and programmer(s), and the acceptance activities.

Purpose	Additional Participants
Review the following stage work products: • Integration and System Test Results/Reports • Programmers Reference Manual • Requirements Traceability Matrix *(final)* • Installation Plan *(final)* • Training Plan *(final)*	Participants include personnel with appropriate technical expertise and a technical writer. If the project involves telecommunications, include a representative from the appropriate functional area. If the project involves sensitive data, include the Security Liaison from the Office of Enterprise Security.

Implementation Stage

The Implementation Stage is the transition from a product or solution in development to a product or system in full production status. During the Installation Stage, structured walkthroughs are used to check the Acceptance Test Report and inspect the plans for activities performed in preparation for full-scale production.

Purpose	Additional Participants
Review the following stage deliverables: • Installation Test Materials • User Training Materials • Maintenance Plan *(final)* • Transition Plan *(final)* • Conversion Plan *(final)* • Security Plan *(final)* • Project Plan *(final)* • Post Implementation Evaluation Report (PIER)	Participants include personnel with appropriate technical expertise. If the project involves telecommunications, include a representative from the appropriate functional area. If the project involves sensitive data, include the Security Liaison from the Office of Enterprise Security.

CHAPTER 7.0 – STRUCTURED WALKTHROUGHS FOR OTHER DOCUMENTS

Types of Documents

Structured walkthroughs are appropriate for reviewing other types of documents, such as the following:

- Departmental and contractual publications
- Long-range plans
- Administrative and technical operating procedures
- Technical reports
- Presentations

Types of verification

When reviewing other types of documents, structured walkthroughs are used to verify the technical and editorial accuracy and appropriateness of the content and format

Purpose	Participants
Reviews for accuracy including the following: • Consistency • Completeness • Conformance to standards and guidelines • Style • Grammar and spelling	Technical experts, technical writer, and graphics expert.