

SEM Introduction

The *Systems Engineering Methodology (SEM)* provides guidance for information systems engineering related practices and procedures. The primary purpose of the methodology is to promote the development of reliable, cost-effective, computer-based solutions while making efficient use of resources. Use of the methodology will also aid in the status tracking, management control, and documentation efforts of a project.

The SEM was developed as an essential component of the Michigan *State Unified Information Technology Environment (SUITE)* initiative. The purpose of SUITE is to standardize methodologies, procedures, training, and tools for project and systems development lifecycle management throughout the Michigan Department of Information Technology (MDIT) in order to implement repeatable processes and conduct development activities according to Capability Maturity Model Integrated (CMMI) Level 3 requirements. The SUITE Model includes integration of the SEM with the State's PM Methodology, Process Management, and Supporting Processes.

SEM Stages

The SEM is organized into seven stages:

- Initiation & Planning
- Requirements Definition
- Functional Design
- System Design
- Construction
- Testing
- Implementation

The positioning of these stages is depicted on the attached SEM Overview Diagram.

SEM Templates

There are twenty-one (21) SEM templates, eight (8) of which are checklists to help ensure that associated templates have been completed correctly, using the appropriate team involvement, guidance, and approvals. The SEM Templates are depicted on the attached SEM Overview Diagram.

More info at www.michigan.gov/suite

SEM Process Guides

The SEM has two companion documents called Process Guides. These guides are designed to enhance the quality of the systems being developed or enhanced.

Structured Walkthrough Process Guide

A guide to assist the project team with a formal process on how to ensure a deliverable is complete and of acceptable quality. A structured walkthrough is required for every major project deliverable.

Stage Exit Process Guide

A guide to assist the project team in the transition from one SEM stage to the next. Stage exit approvals are required before moving to the next stage (e.g., Requirements Definition to Functional Design).

SEM Touch Points

The SEM utilizes a concept known as "touch points". Touch points are interfaces with other areas outside of your span of control. Touch points are intended to guide the team to engage the proper departmental resources at the correct times. SEM touch points are depicted on the attached SEM Overview Diagram.

SEM Express and SEM Tailoring

SEM Express was developed to manage small straight-forward projects. This guide has three stages instead of seven, allowing a streamlined approach to systems development.

SEM Chapter 2 includes guidance on what components and templates are required, based on system complexity and size.

SEM System Maintenance Guide (SMG)

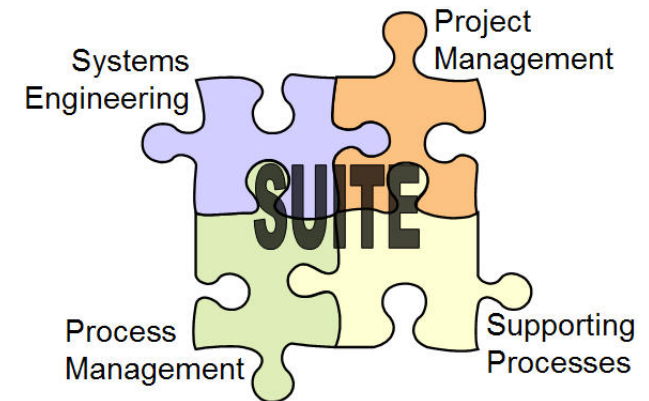
For systems in existence that require changes, the SMG contains guidance on maintaining systems, including information on system release management.

SEM/SUITE Training Components

Detail SEM training is available on how to use the SEM and its companion process guides, as well as specialized workshops in Requirements Gathering, System Effort Estimating, Structured Walkthroughs, the Stage Exit process, and interfacing with Security.

More info at www.michigan.gov/suite

Systems Engineering Methodology (SEM) Quick Reference



*A Ready Reference for planning
and implementing information
technology systems*

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Technology**

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Systems Engineering Methodology (SEM) Overview

