

SUITE Awareness Session

March 10, 2008



Today's Topics

1. Welcome & Opening Comments

Ken Theis, MDIT Director

2. Agency Value

Lynn Draschil, MDIT Senior Deputy Director, Agency Services

Doug Couto, MDIT Information Officer, Agency Services

3. SUITE Model & Training Opportunities

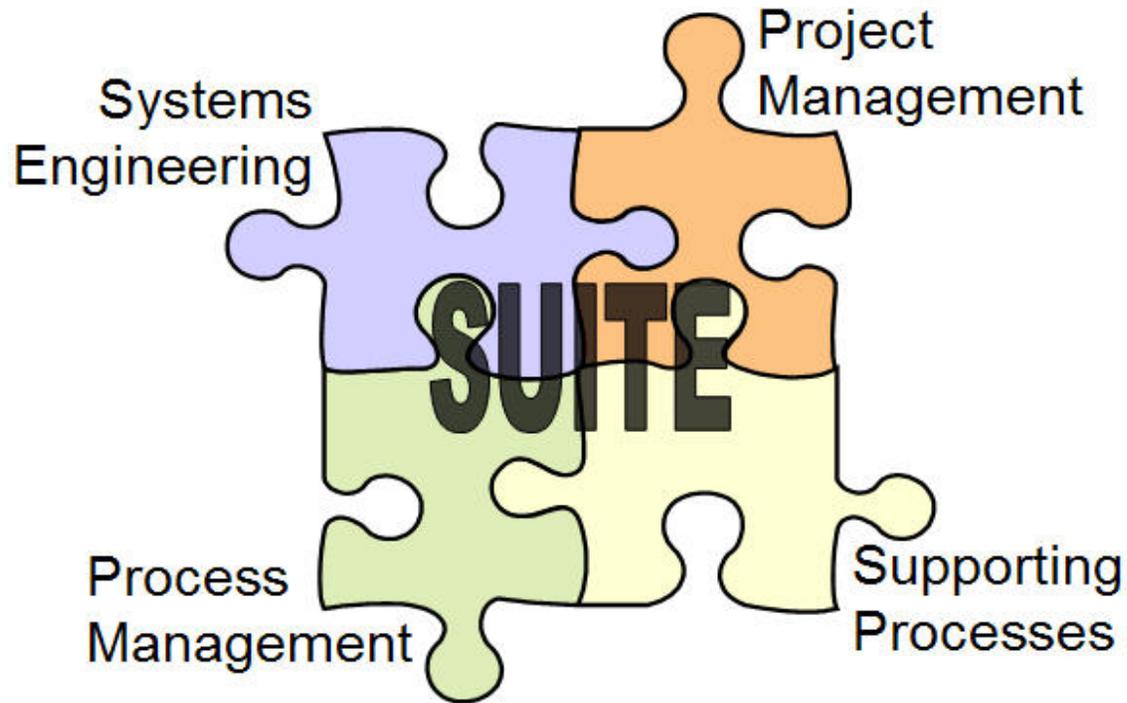
Dan Buonodono, SUITE Co-Project Manager

Virginia Hambric, SUITE Co-Project Manager

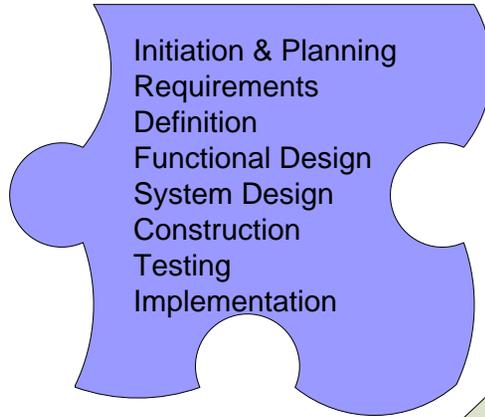
4. Q & A



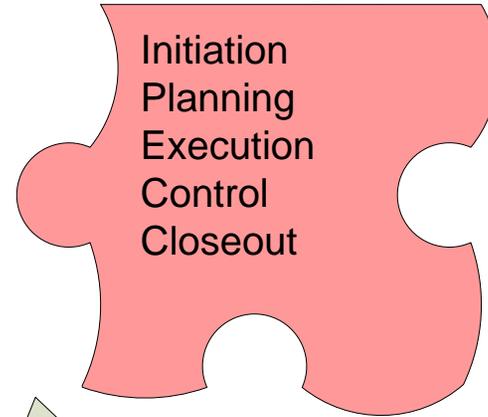
SUITE Components



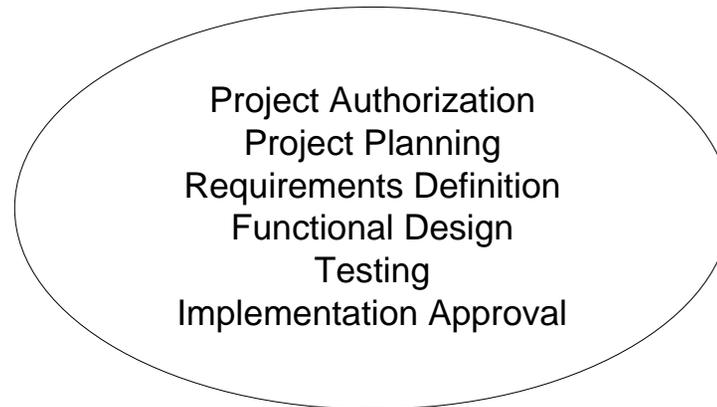
Systems Engineering Methodology (SEM)



Project Management Methodology (PMM)



Agency Involvement

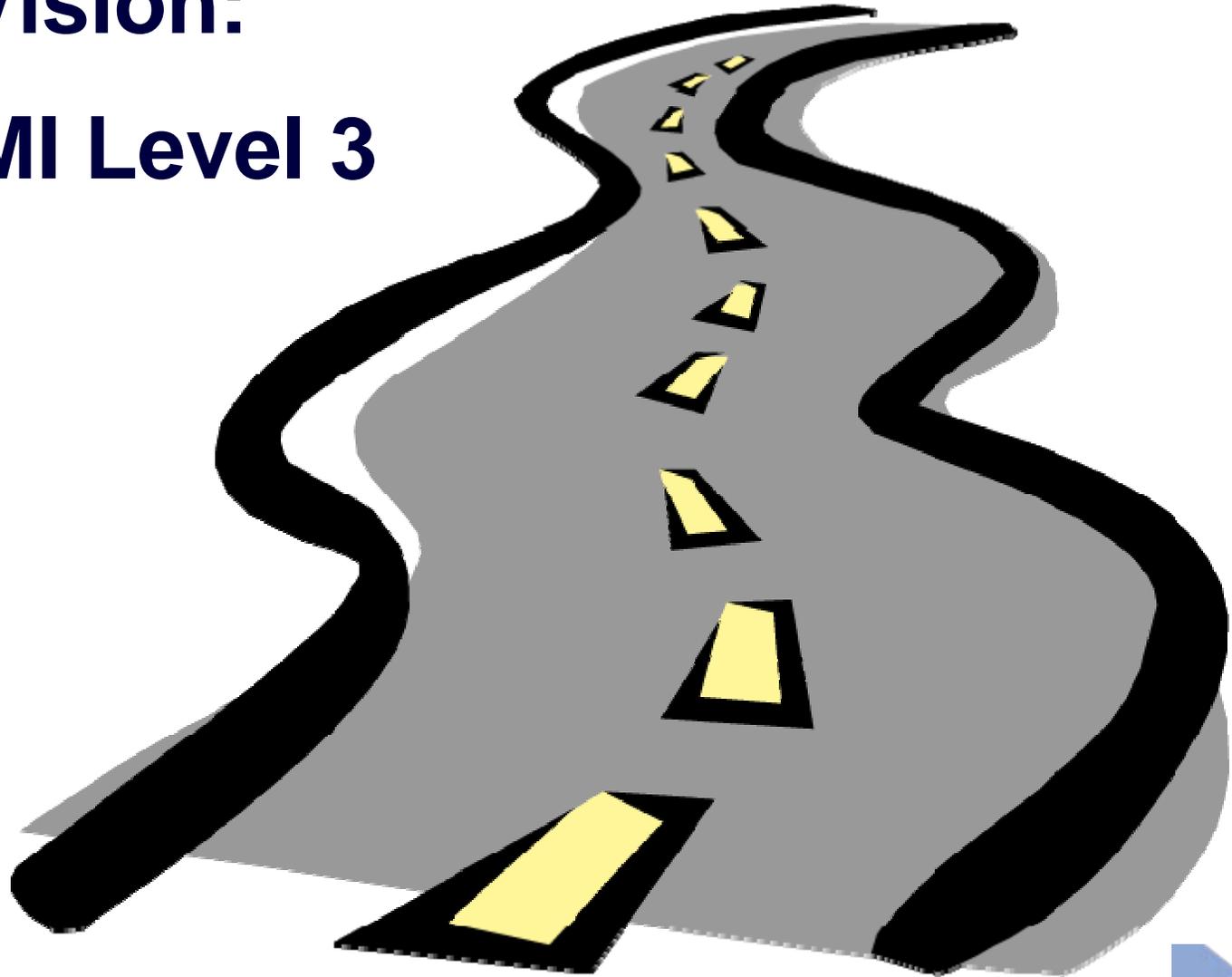


Useful Acronyms

- ◆ **SUITE** = State Unified Information Technology Environment
- ◆ **CMMI** = Capability Maturity Model Integrated, developed by the Software Engineering Institute at Carnegie Mellon University
- ◆ **CMMI Level 3** = Maturity Level that is characterized by defined processes
- ◆ **PMM** = Project Management Methodology
- ◆ **SEM** = Systems Engineering Methodology



Long Range Vision: CMMI Level 3



What is CMMI?

- ◆ Developed by the Software Engineering Institute (SEI)
- ◆ Industry standard for software development and maintenance
- ◆ Most endorsed benchmark
- ◆ A model for process improvement
- ◆ Accommodates new initiatives
- ◆ 5 maturity levels

www.sei.cmu.edu/cmmi



CMMI Performance Measures

Based on SEI Research with 25 different organizations*

Performance Category	Median Improvement
Cost	20%
Schedule	37%
Productivity	62%
Quality	50%
Customer Satisfaction	14%
Return on Investment	4.7:1

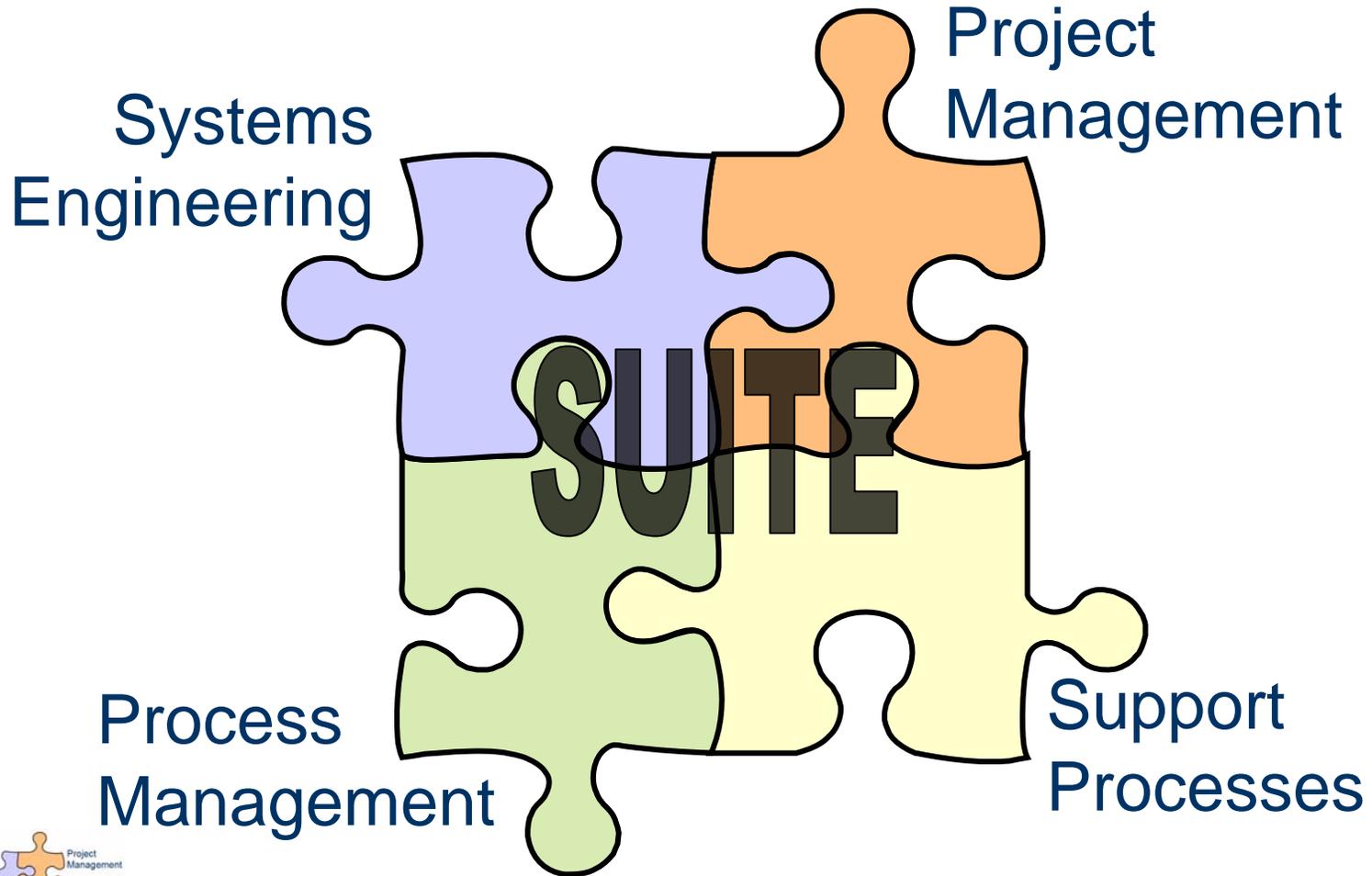


www.michigan.gov/suite

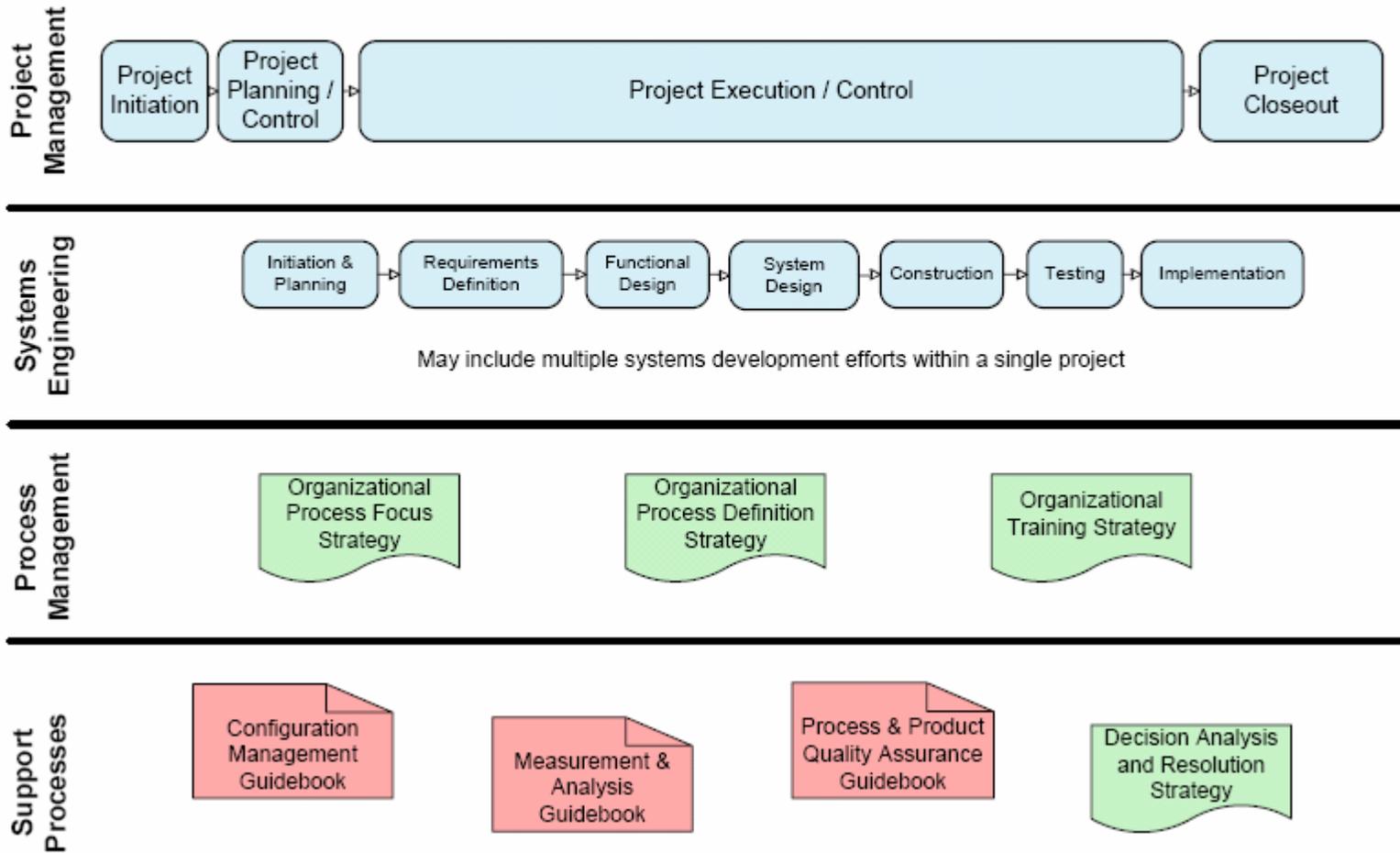
*Private Sector Experience (August 2007)



Michigan's Processes & CMMI



State Unified Information Technology Environment (SUITE)



Purpose of PMM

The Project Management Methodology (PMM) provides **standard methods and guidance** to ensure that projects are conducted in a **disciplined, well-managed, and consistent manner.**

The PMM promotes the delivery of **quality products**, and results in projects that are completed **on time and within budget.**



Roles & Responsibilities

Major Milestones	Functional Roles			
	Business Lead/ Owner	Policy Analysts	Agency Sponsor	
Requirements Specification	Contributor	Contributor	Approver	
Functional Design	Contributor	Contributor	Approver	





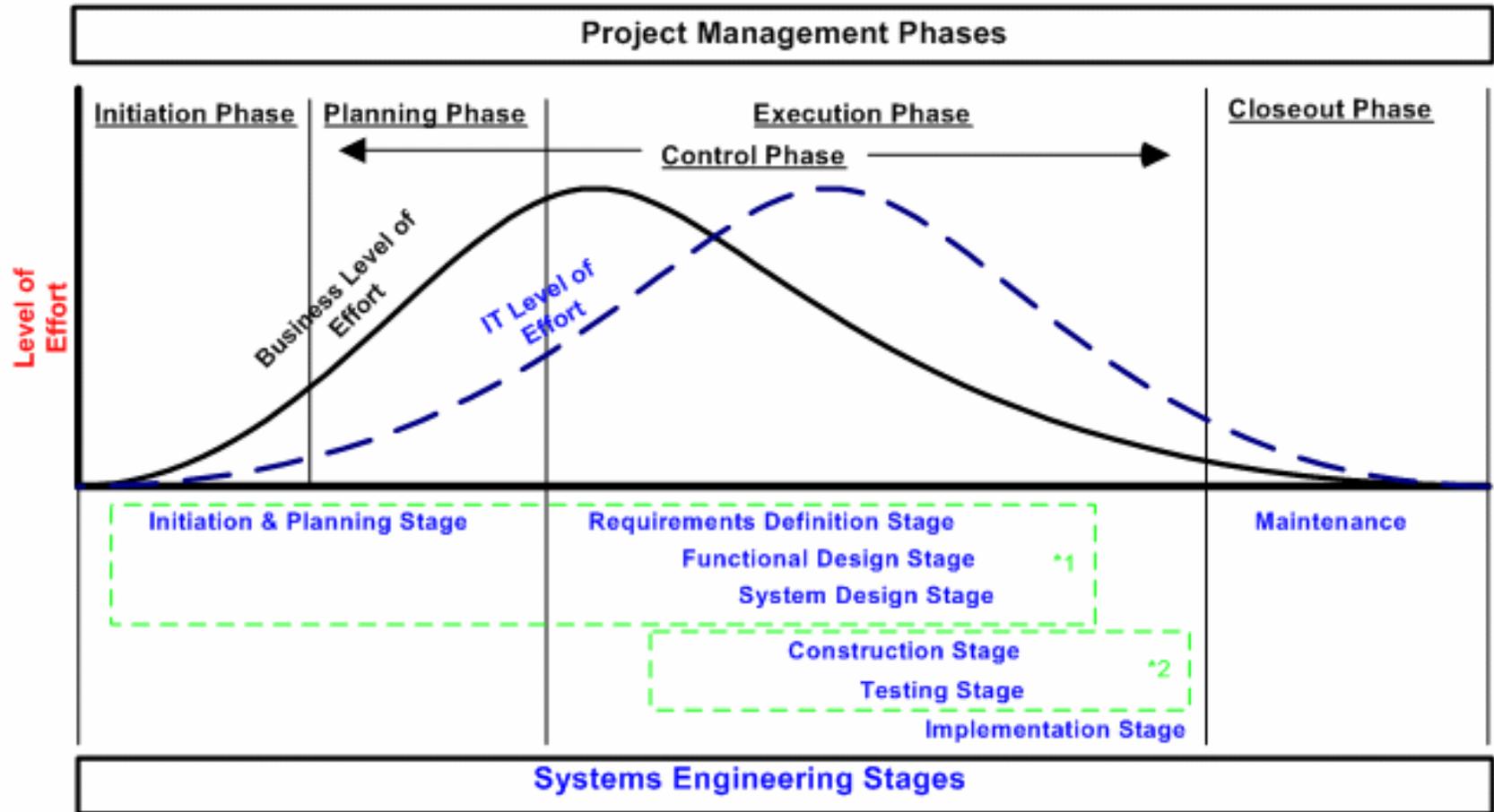
Purpose of SEM

The *Systems Engineering Methodology (SEM)* provides guidance for information systems development related activities and software quality assurance practices.

The primary purpose of the SEM is to promote the development of reliable, cost-effective, computer-based solutions while making efficient use of resources.



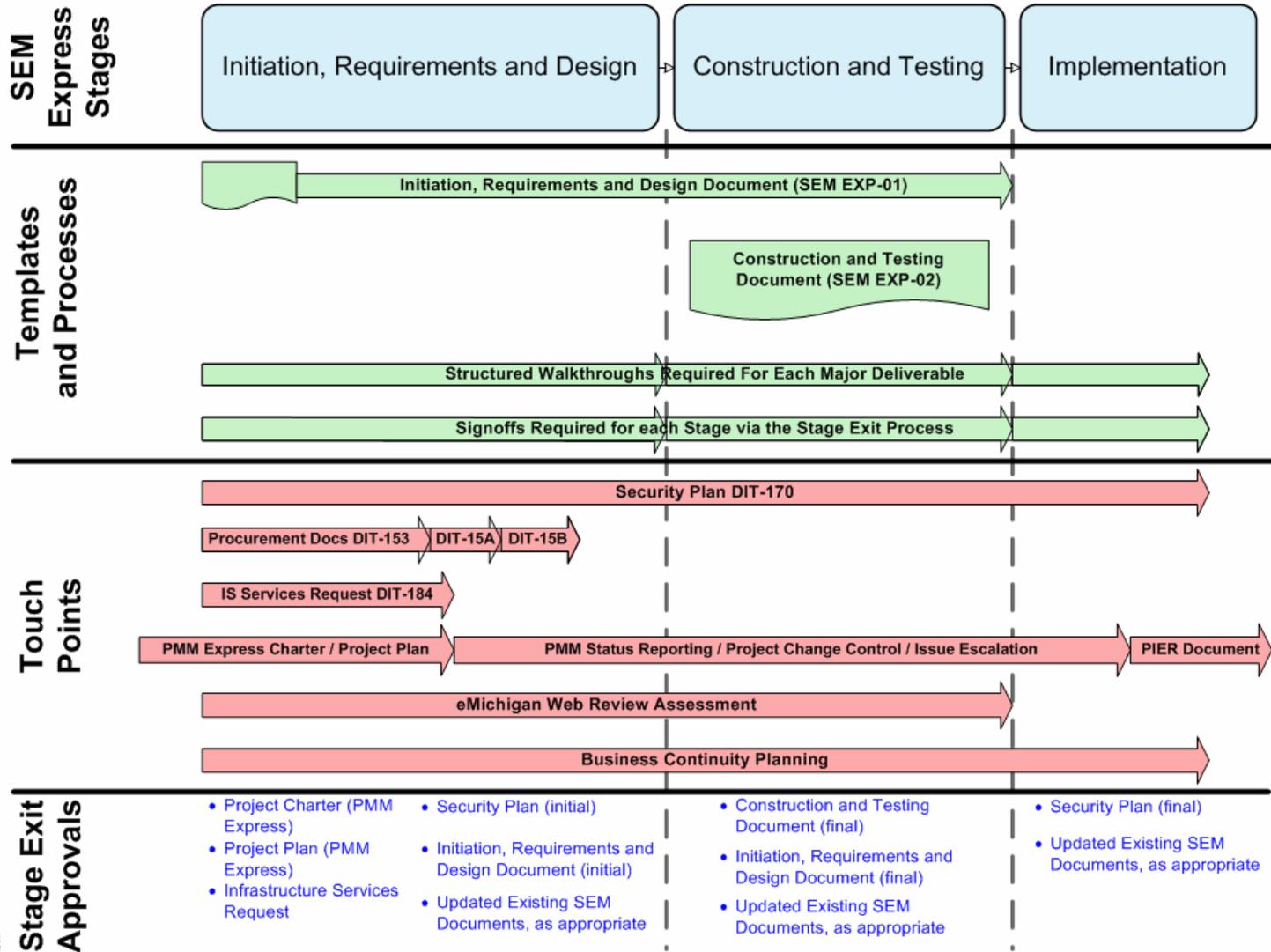
PMM and SEM Interaction



*1 = SEM Express Initiation, Requirements and Design Stage
 *2 = SEM Express Construction and Testing Stage



SEM Express Overview



SEM Express

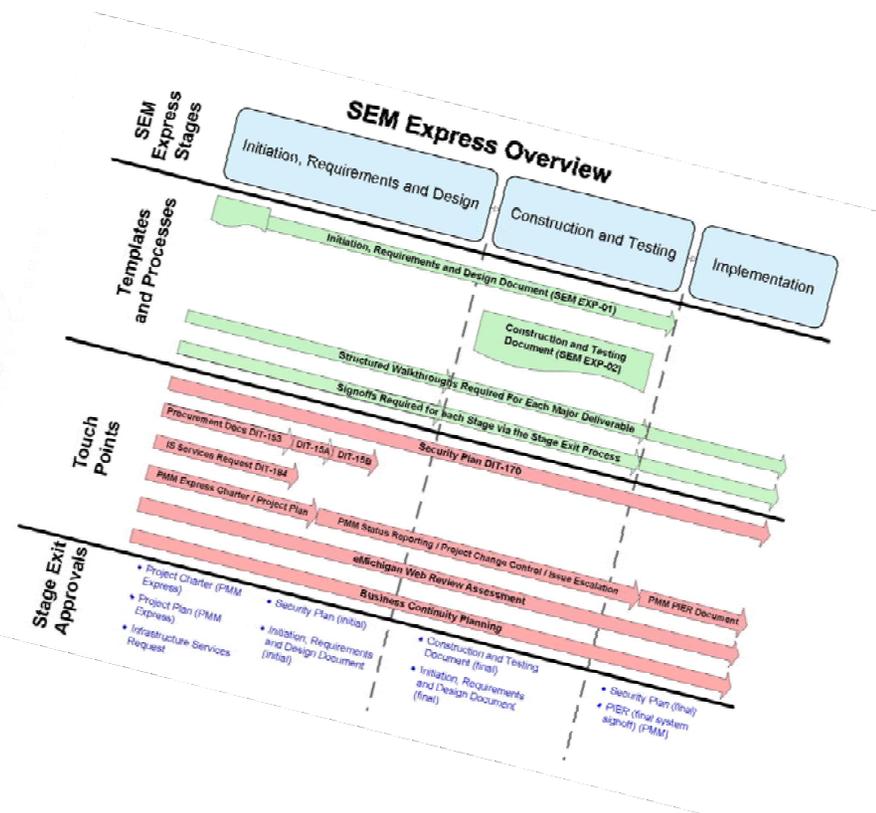
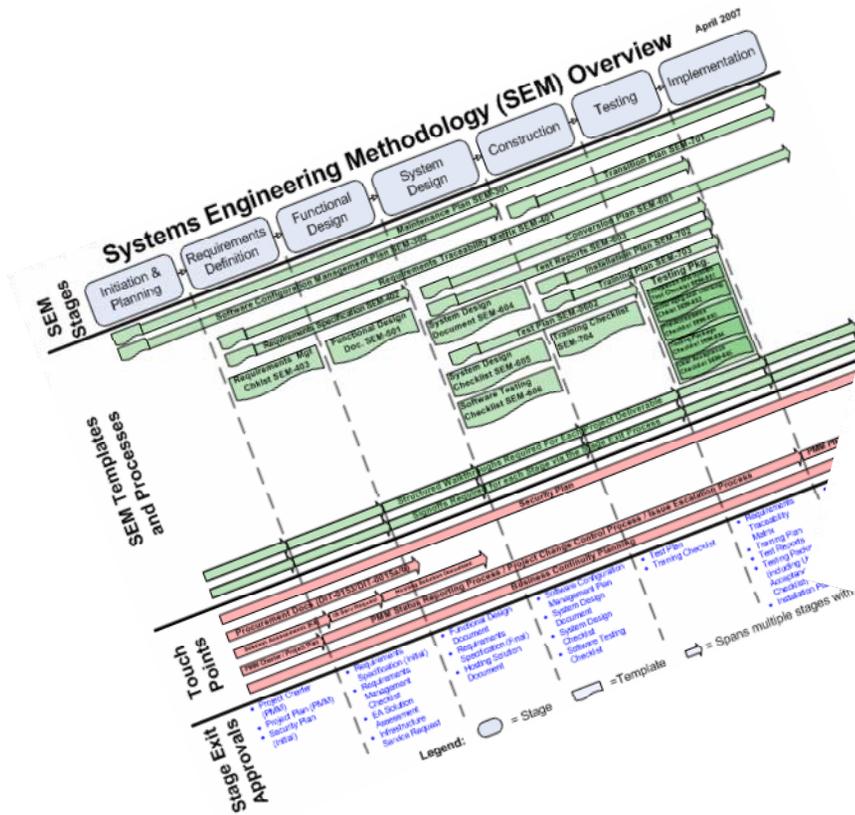
SEM Express offers guidance for **small** and **straight-forward** systems development projects. The intent of *SEM Express* is to provide an abbreviated methodology that **ensures all necessary processes are performed and documented.**

In general, the definition of “straight-forward” includes projects that:

- ◆ Continue to operate in the existing infrastructure environment and do not involve procurement of additional infrastructure components
- ◆ Utilize existing resources and do not procure services (except when contractors are utilized as part of a multi-project initiative)
- ◆ Are developed for a single agency
- ◆ Can be implemented without formal user training
- ◆ Have little to no risk associated with them
- ◆ Have a low degree of exposure



SEM and SEM Express



Continual Improvement of SEM

- ◆ SEM Version 1.0 was published in March 2007
- ◆ SEM Version 1.1 was published in July 2007
- ◆ It is expected that the SEM will improve and mature over the next several years, with much of that improvement expected in the next 6-12 months
- ◆ It is the responsibility of each of us to identify improvement opportunities to the methodology



New Concepts

◆ Touchpoints

- Security
- Procurement
- Infrastructure Services
 - Enterprise Architecture, Solutions Engineering & Telecom
- Business Continuity Planning

◆ New Processes

- Structured Walkthrough
- Stage Exit



Structured Walkthrough

- ◆ A structured walkthrough is an organized procedure for a **group of peers to review and discuss** the design and technical aspects of software development work products.
- ◆ The walkthrough **may include non-technical** personnel for review of some project deliverables.

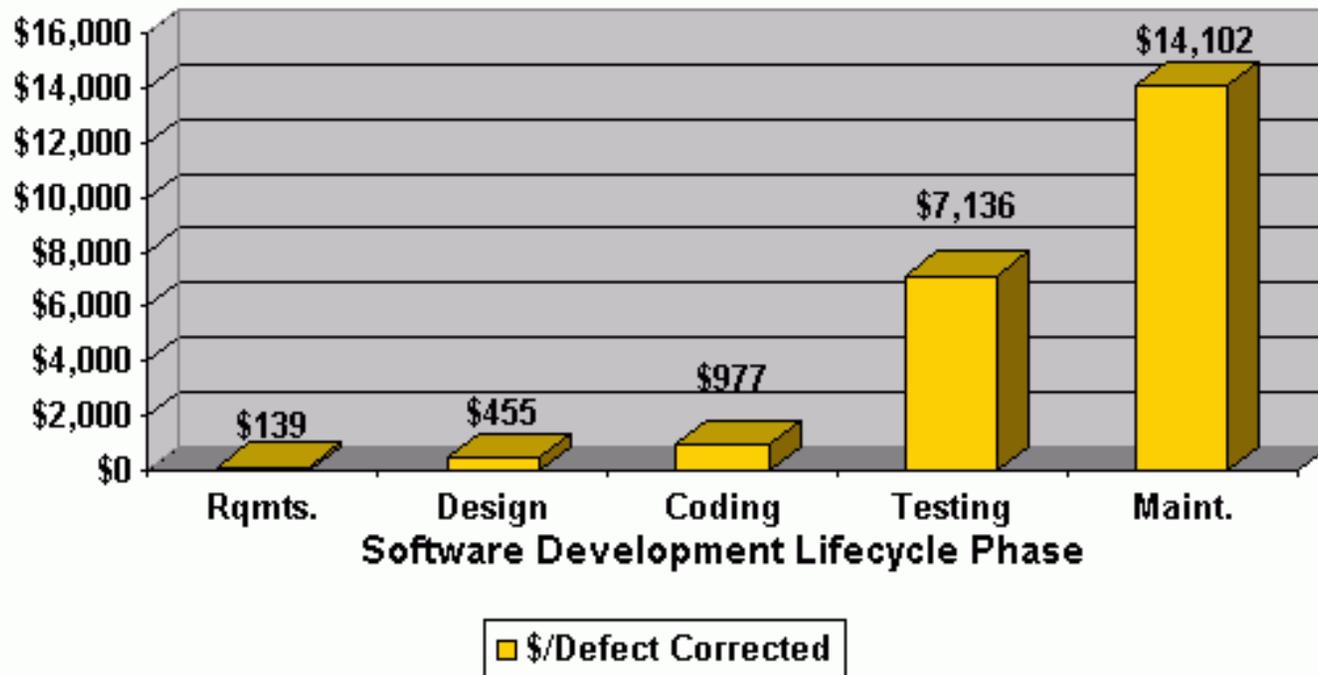


Why Structured Walkthroughs?

When do you want to find a problem?

Costs of Correcting Defects

Source: B. Boehm and V. Basili, "Software Defect Reduction Top 10 List," *IEEE Computer*



Why not just test?

- ◆ Bell Northern Research discovered that finding defects through inspections were **two to four times faster** than finding them through testing. (Russell, 1991)
- ◆ IBM's Santa Teresa laboratory found that **3.5 hours** were needed to find a major defect by code inspection **versus 15 to 25 hours** of testing. (Kaplan, 1995)
- ◆ A single testing stage is unlikely to remove more than **35 percent** of the defects of the tested work product, whereas design and code inspections typically find **50 to 70 percent** of the defects. (Jones, 1996)



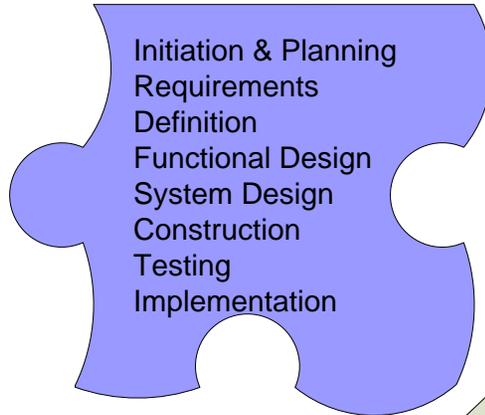
SEM Stage Exit Process

A process to ensure that documents/processes are **completed** and **signed off** prior to moving to the next SEM Stage

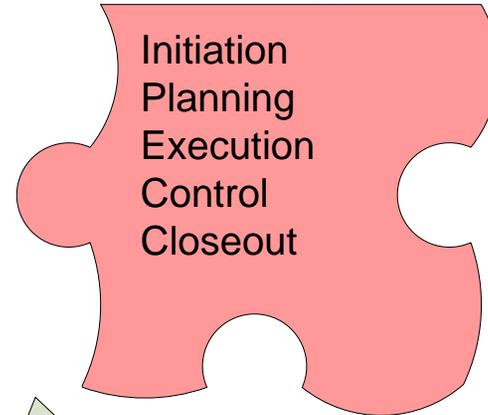
- ◆ Assists the project team with the Exit Approval Process
- ◆ Assists the project team in securing the approval by designated individuals to continue with the project and move forward into the next stage of development
- ◆ The **Exit Approval** indicates that all documents related to that stage have been approved **and that there are no “critical” outstanding issues**



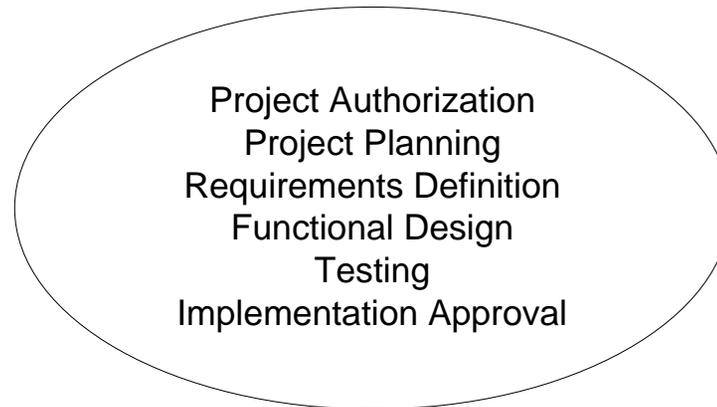
Systems Engineering Methodology (SEM)



Project Management Methodology (PMM)



Agency Involvement



Initiation and Planning Stage

- ◆ Most outputs are PMM documents - Participation of agency staff is critical !
 - Business Case
 - Project Charter
 - Project Plan
- ◆ Project Management Methodology (PMM) and SEM are tightly integrated
- ◆ Two SEM documents are started
 - Software Configuration Management Plan
 - Maintenance Plan



Requirements Definition Stage

- ◆ Develop mutual understanding between business owner/users and project team about the requirements for the project
- ◆ Analyze business needs and translate into formal requirements
- ◆ Approved Requirements Specification = initial baseline for product design
- ◆ Approved Requirements Specification = reference for determining whether the completed product performs as the system owner requested and expected
- ◆ Plan testing activities to validate product performance



Functional Design Stage

- ◆ Maps the "what to do" of the Requirements Specification into the "how to do it" of the design specifications
- ◆ The functional design describes the logical system flow, data organization, system inputs and outputs, processing rules, and operational characteristics of the product from the user's point of view
- ◆ The goal of this stage is to define and document the functions of the product to the extent necessary to obtain the system owner and users understanding and approval and to the level of detail necessary to build the system design



System Design Stage

- ◆ Translate the user-oriented Functional Design into a set of technical, computer-oriented system design specifications
- ◆ Design the data structure and processes to the level of detail necessary to plan and execute the Construction and Implementation Stages
- ◆ Produce general module specifications that define what each module is to do, but not how the module is to be coded
- ◆ Provide a blueprint for the coding of individual modules and programs



Construction Stage

- ◆ Translate System Design into a language the computer can understand and execute
- ◆ Construction involves coding, validation and unit testing by a developer
- ◆ Install hardware or software procured to support the construction effort
- ◆ Develop plans for installation of the operating environment hardware and software
- ◆ Design a training program and create a Training Plan
- ◆ Produce operating documentation for installing, operating, and supporting the product through its lifecycle



Testing Stage

- ◆ Components are integrated and tested to determine whether the product meets predetermined functionality, performance, quality, interface, and security requirements
- ◆ Once the product is fully integrated, system testing is conducted to validate that the product will operate in its intended environment, satisfies all user requirements, and is supported with complete and accurate operating documentation
- ◆ User Acceptance Testing (UAT) follows System Testing, and solicits feedback from users to make any final adjustments to the programming before releasing the product for implementation



Implementation Stage

- ◆ Implementation of the product is initiated after all application testing has been successfully completed
- ◆ This stage involves the activities required to install the software, databases, or data that comprise the product onto the hardware platform at the site(s) of operation
- ◆ User training may be required to complete the implementation process. A description of the training necessary for developers, testers, users, and operations staff is provided in the Training Plan



SUITE Tools and Resources



SUITE Training Opportunities

◆ PMM Express full-day class*

◆ Weekly SUITE 101 Workshops**

1st Fri Writing a Good Business Requirement

2nd Fri Software Configuration Management

2nd Fri SUITE Express

3rd Fri Structured Walkthroughs & Stage Exits

4th Fri Estimating Durations

4th Fri Working with the Office of Enterprise Security



◆ CMMI Overview – coming soon!

* Contact Dianne Thurman to register

** MDIT Employees: Send completed DIT-45 to Terry Horton
Non-MDIT Employees: Send an email to suite@michigan.gov



Other Resources

◆ PM Certification Program

- More in-depth information on PM and PMM Express
- Info at www.michigan.gov/projectmanagement

◆ SUITE Website

- www.michigan.gov/suite



Who Can I Contact About SUITE?

- www.michigan.gov/suite
- Your MDIT counterpart, such as your Client Services Director
- SUITE@michigan.gov – Routed to right responder
- SEM Change Form DIT-181



Questions?

Thank You!

