

Capability Maturity Frameworks for Transportation Systems Management and Operations (TSM&O) Program Areas



U.S. Department of Transportation
Federal Highway Administration

FACTSHEET

FEBRUARY 2016

Background

The concept of a capability maturity framework emerged from the Strategic Highway Research Program 2 (SHRP2) L01 and L06 projects that promoted a process-driven approach to improve transportation systems management and operations. The projects focused on the role of institutions and the necessary business processes to improve management of programs and projects.

Adapted from the software development world, the notion of capability maturity frameworks rest on the following three tenets:

- Process matters: projects fail or do not achieve desired functionality for variety of reasons unrelated to the technology;
- Prioritizing the rights actions is important: is an agency ready, how do they know, and what should they do next;
- Focus on the weakest link: what is holding the agency back in becoming a leader in a particular area.

Approach

The frameworks are all described as a matrix defining the process improvement areas and levels (from Level 1, low-level to Level 4, optimized high-level) of capability. Following a self-assessment process, specific actions are identified to increase capabilities across the desired process areas. Capabilities are described for the following 6 areas:

1. Business processes
2. Systems and technology
3. Performance measurement
4. Culture
5. Organization and workforce
6. Collaboration

Table 1. Capability Maturity Framework Process Overview

Process Improvement Areas		Capability Levels			
Dimensions or Process Areas	What is it	Level 1 Ad-Hoc, Low Level of Capability	Level 2 Managed, Medium Level of Capability	Level 3 Integrated, High Level of Capability	Level 4 Optimized, Highest Level of Capability
Business Process	Plans, Programs, Budgets	Statement of Capability			
Systems & Tech	Approach to Building Systems		Step 1 Self-Assessment. Work with your stakeholders to assess where you are in terms of the capabilities in each area		Step 2 Identify areas of improvement and the desired levels of capability to improve program effectiveness
Performance Measurement	Use of Performance Measures				
Workforce	Improving Capability of Workforce				
Culture	Changing Culture and Building Champions		Step 3 Identify actions that you need to take to move to the desired levels of capability		
Collaboration	Improving Working Relationships				

Types of TSM&O Capability Maturity Frameworks and Their Status

An overarching TSM&O Capability Maturity Model (CMM) was developed through the contributions of SHRP2 L06, American Association of Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA) and others. This framework addresses operations programs at a high level.

Referred to as the Guidance to Improving Transportation Systems Management and Operations (available at <http://aashtotsmoguidance.org/>) the capability maturity model targets the entire gamut of systems operations and management at a State or regional context. This framework can be applied at various levels of transportation operations and management depending on the specific needs of the agency or region.

Status:

This CMM self-assessment is complete and available at the above AASHTO link. It is the basis for the FHWA supported CMM workshops being conducted throughout the country as part of the SHRP2 Organizing for Reliability Implementation Assistance efforts.

Contacts:

Steve Clinger (stephen.clinger@dot.gov) or Joe Gregory (joseph.gregory@dot.gov).

The FHWA Office of Operations led efforts to develop six additional TSM&O capability maturity frameworks (CMF) which elaborate on, and are consistent with, the CMM developed under SHRP2 by TRB, AASHTO, and FHWA, but provide more focused assessment and suggested actions in each of the following operations program areas:

- Traffic Management
- Traffic Incident Management
- Planned Special Events
- Work Zone Management
- Road Weather Management
- Traffic Signal Control

Status:

Capability Maturity Frameworks and supportive interactive tools have been developed for these operations program areas. The framework tools help to improve the capability of an agency/region to move towards the adoption of suitable approaches for each of the above program areas. The current versions of the framework tools are available at <http://www.ops.fhwa.dot.gov/tsmoframeworktool/index.htm>.

Contacts:

If interested in using a framework, or hosting a CMF workshop for your agency or region, please contact the FHWA leads for this activity:

Jim Hunt (jim.hunt@dot.gov) or Wayne Berman (wayne.berman@dot.gov).

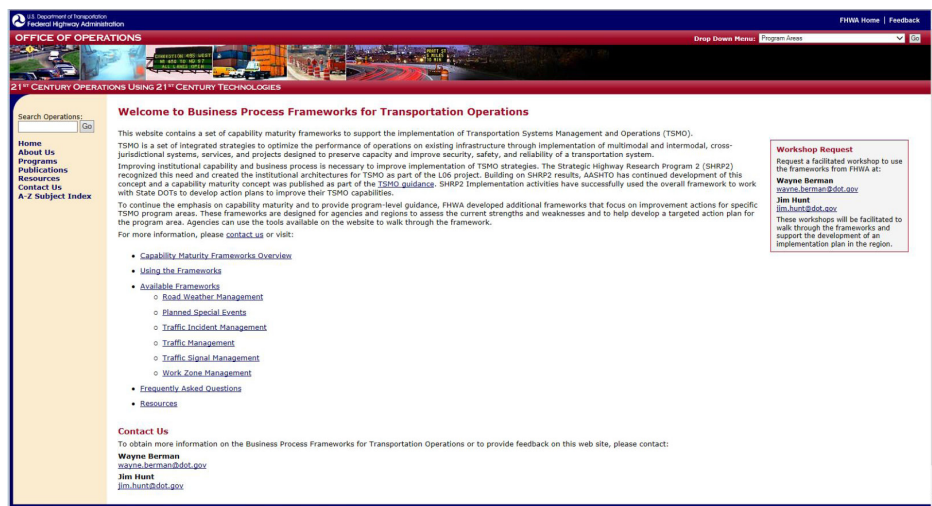


Figure 1. Screenshot of Tool

