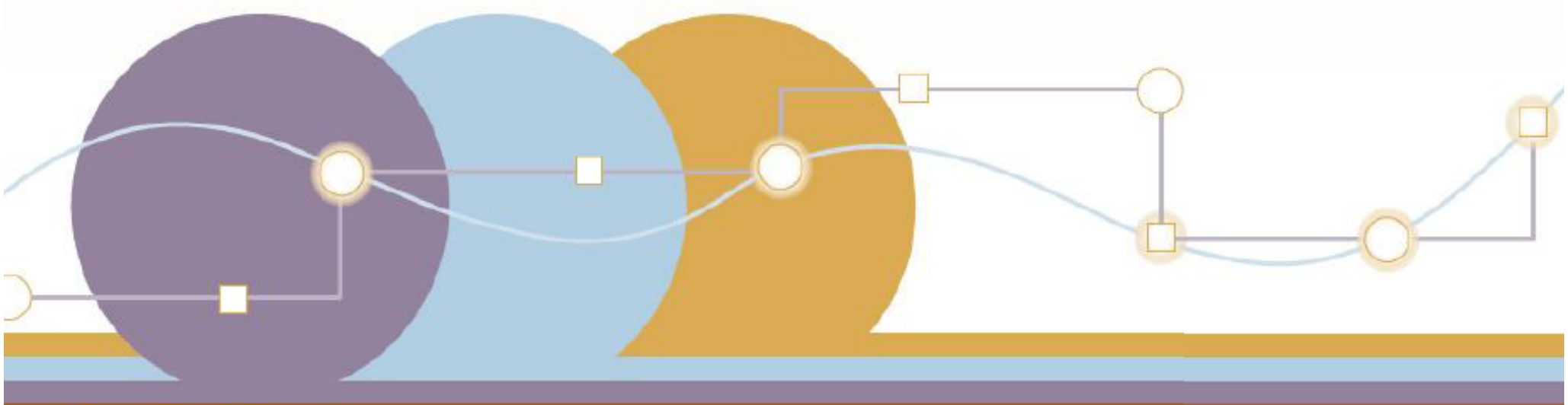
Mobility and Congestion Performance Data Peer Exchange

FHWA TPM Toolbox: CMM, Guidebook, Self-Assessment, and Practitioner Consortium

May 9 & 10, 2016
Portland, OR



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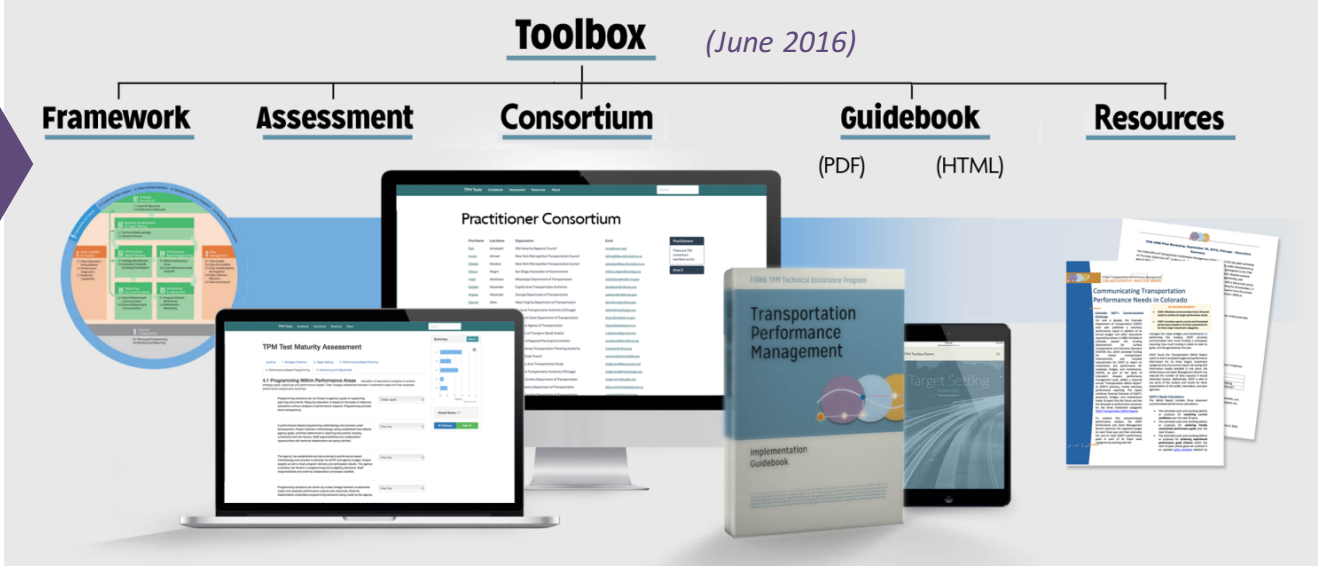
What is the TPM Toolbox?

CAPABILITY MATURITY MODEL



Peer Exchange *(May 9-10 2016)*

Workshops *(July-Dec 2016)*

Spur adoption and advancement of TPM

CMM: Capability Maturity Model

- Background
  - First created by Carnegie Mellon in 1991 as tool for US Govt. to assess capability of software contractors
  - Because of its success, CMMs have been adopted widely
  - Transportation examples: SHRP-2/AASHTO TSM&O, FHWA INVEST Assessment Tools
- Purpose
  - Assess current state
  - Identify logical set of improvements
  - Show benefit of moving to higher maturity/capability levels
- TPM CMM
  - Assess maturity on 1-5 scale
  - Serves as basis of Assessment Tool
  - Interfaces with guidebook content

CMM: Capability Maturity Model

Each Component and subcomponent has common elements:

Component C. Data Management

Definition: Established processes to ensure data quality and accessibility, and to maximize efficiency of data acquisition and integration for performance management.

C.1. Data Quality

Definition: Processes and organizational functions to define, measure, and ensure data is accurate, complete, timely, consistent with requirements and business rules and relevant for a given use.

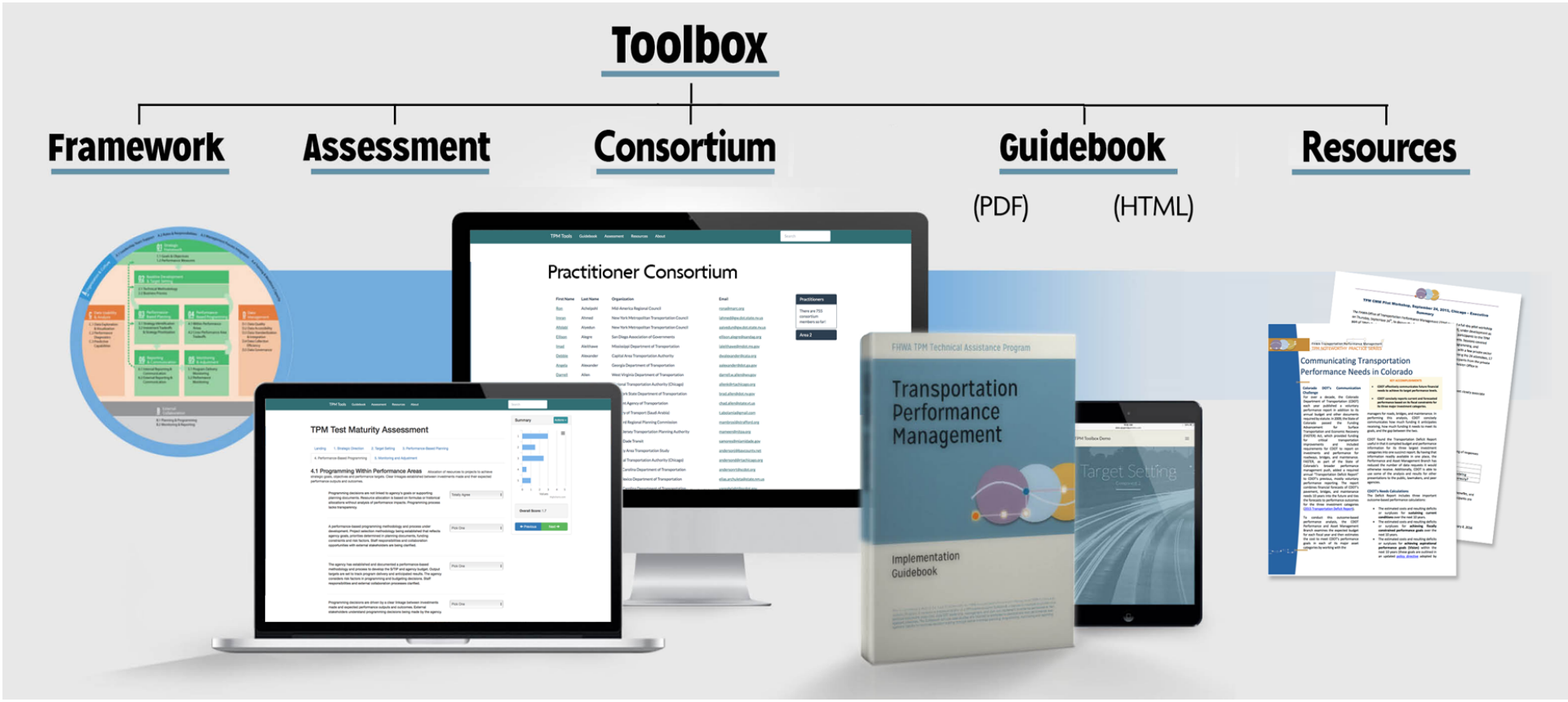
Level	Description	ACTIONS to move to next level:
INITIAL (Level 1)	Performance data quality issues that are identified are addressed on an ad-hoc basis rather than through a systematic process. Metrics for data quality have not been established and quality expectations have not been discussed.	Initiate an effort to develop data quality standards based on anticipated uses for each performance data set.
DEVELOPING (Level 2)	Data quality metrics and minimum acceptable standards are being defined for performance data sets - considering accuracy, completeness, consistency, and timeliness. Data quality assurance and validation methods are being developed.	Define and document data quality standards and protocols for data quality assurance and certification.
DEFINED (Level 3)	Data quality metrics and standards have been defined and documented for performance data sets. Baseline data quality has been measured and a plan for data quality improvement is in place. Business rules for assessing data validity have been defined. Standard protocols for data quality assurance and certification or acceptance have been established.	Share information about the quality of performance data sets with data users. Implement data quality assurance and certification processes.
FUNCTIONING (Level 4)	Users of performance data have an understanding of their level of accuracy, completeness, consistency and timeliness. Standard data quality assurance processes are routinely followed. New data collected are reviewed against historical data to identify unexpected changes warranting investigation. Data collection personnel are trained and certified based on demonstrated understanding of standard practices.	Automate data quality assessment and cleansing processes, and modify data entry applications (where practical) to validate data at the point of input. Regularly assess data quality processes to identify improvements.
SUSTAINED (Level 5)	Data quality assurance processes are regularly improved based on experience and user feedback. Data validation and cleansing tools are used to identify and address missing or invalid values. Business rules for data validity are built in to data entry and collection applications.	

Definition

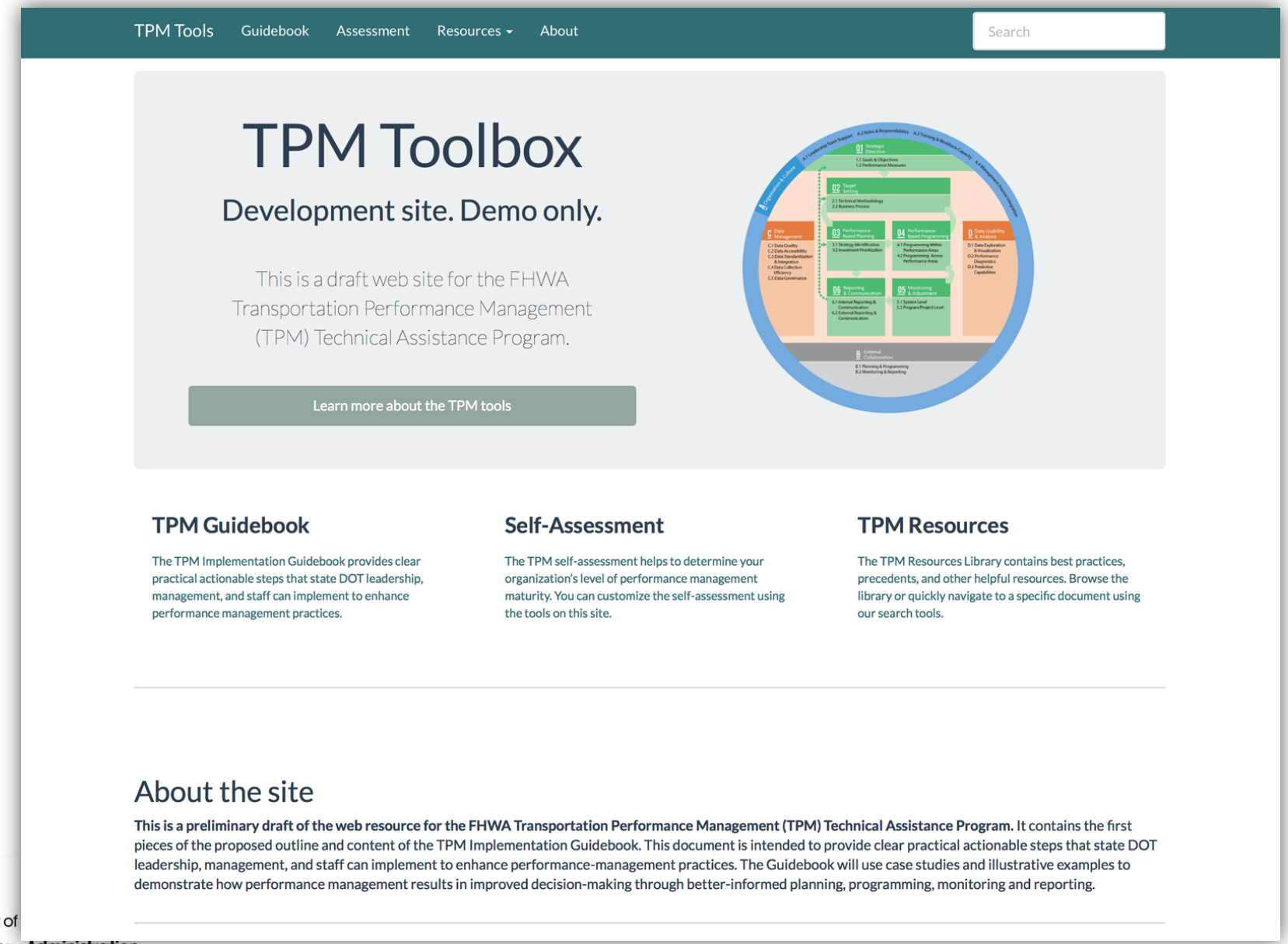
5 maturity level descriptions

Actions to move to the next level (for levels 1-4)

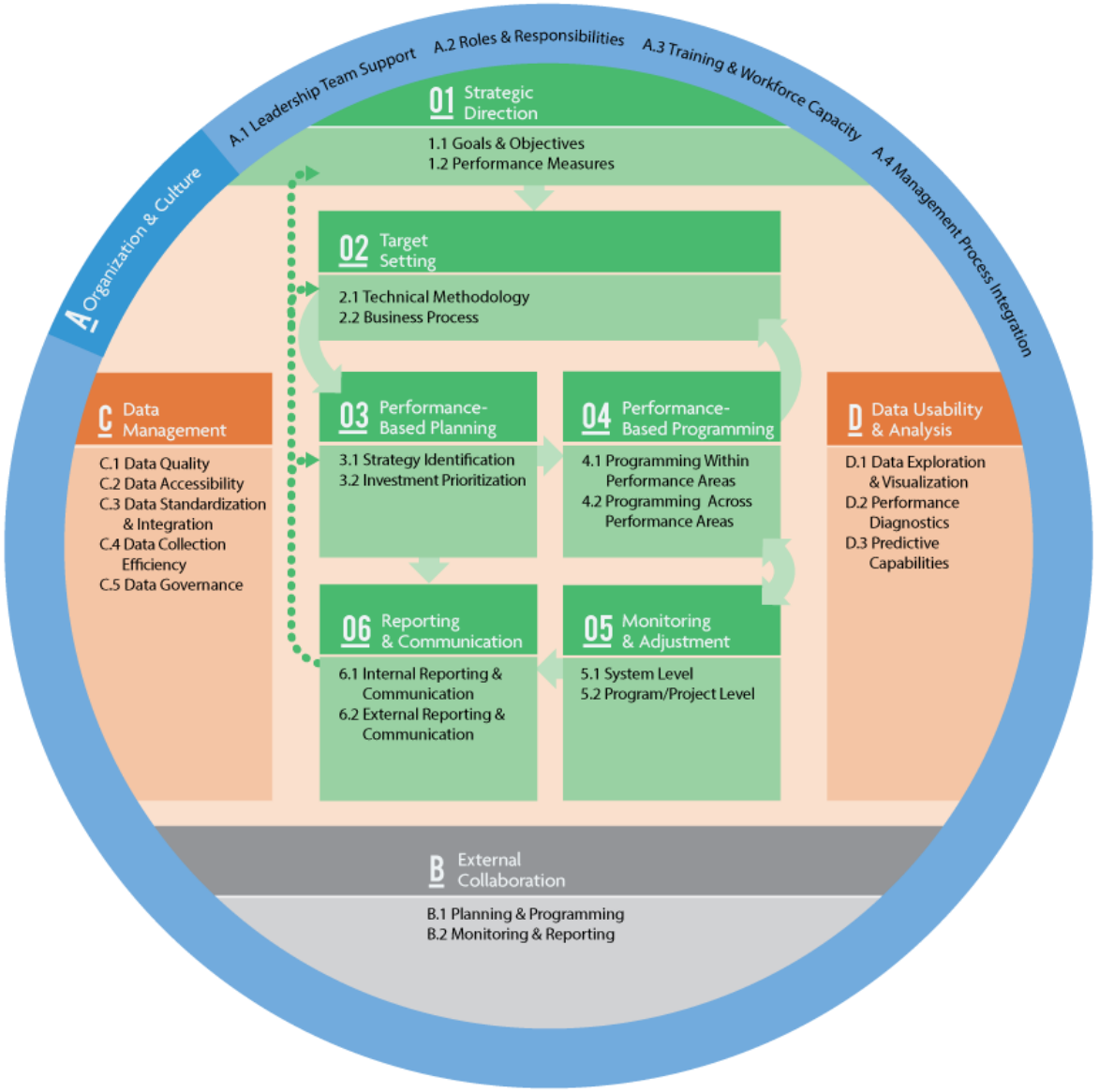
Toolbox Elements

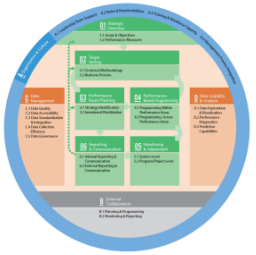


Toolbox Homepage



TPM Framework





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Framework

- Visual depiction of 10 TPM Components and relationships
  - Green are central processes
  - Orange are data-related
  - Gray and blue are supporting/fundamental components

- Data Management and Data Usability & Analysis (Components C and D)
  - Data is critical for performance management
  - Data capabilities support all other agency processes

- Each component broken down into subcomponents
  - Vary in number by component

Self-Assessment

- Interactive online tool
- Agencies use to determine their maturity level (1-5)
  - By Component/subcomponent
  - Within performance area/overall agency
- Results
  - Maturity level
  - Actions to move to next level (from CMM)
  - Excerpts from the guidebook related to Actions

Self Assessment

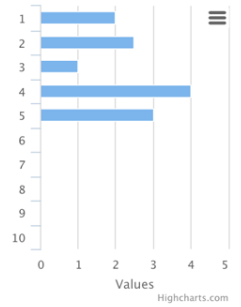
TPM Test Maturity Assessment

Quick Version

Landing | Strategic Direction | Target Setting | Performance-Based Planning | Performance-Based Programming | Monitoring and Adjustment | Reporting and Communication | Organization and Culture | External Collaboration | Data Management | Data Usability and Analysis

	Level 1	Level 2	Level 3	Level 4	Level 5
3.1 Strategy Identification	Strategy identification is not driven by established goals and performance measures or an understanding of current performance and risk factors. There is limited dialogue among stakeholders in developing a full range of strategies.	The agency is defining a data-driven process for understanding current and future performance and identifying and evaluating strategies to achieve performance goals. The agency is working with a range of internal and external stakeholders to define this process.	The agency has identified and documented a process for strategy development including scope, data sources, analysis requirements, stakeholder involvement, roles and responsibilities and buy-in. The agency has identified exogenous factors that may impact strategy effectiveness (e.g. VMT, population, fuel prices).	Strategy identification is driven by goals and based on analysis and review of current and projected performance trends. Strategies are evaluated on contribution across multiple goals and agency priorities. Future projections incorporate consideration of risks. Strategies are formulated with an understanding of the broad agency-wide or regional context. The agency conducts scenario analysis to evaluate impacts of exogenous factors (e.g. VMT, population, fuel prices) on strategy effectiveness. This is a new description.	A collaborative, data-driven process to identify strategies is well-established. Strategy identification is informed by analysis of the effectiveness of alternative strategies (before/after analysis) with respect to established goals. Risk assessments are regularly conducted, resulting in mitigation strategies that reduce the likelihood of negative events occurring that will impact overall performance.
3.2 Investment Prioritization	The agency lacks information necessary to prioritize strategies based on need, risk, resource constraints and effectiveness towards achieving	The agency is defining methods and processes for analyzing tradeoffs based on established agency goals and priorities, relative need across performance areas and alternate investment scenarios. The	The agency has defined methodologies and processes for analyzing tradeoffs and prioritizing strategies based on established goals and priorities. Staff roles and responsibilities have been established. The agency has the necessary data and analysis capabilities in place to analyze tradeoffs across	Agency has applied tradeoff analysis and strategy prioritization process for more than one cycle. Prioritization takes into account synergistic effects across strategies, and the effect of a strategy on multiple goals. Long-range transportation plan and other performance-based plans have been	Agency has applied tradeoff analysis and strategy prioritization for multiple cycles. Process and methodology is periodically refined to provide a better understanding of relative needs and strategy effectiveness on mitigating risk and

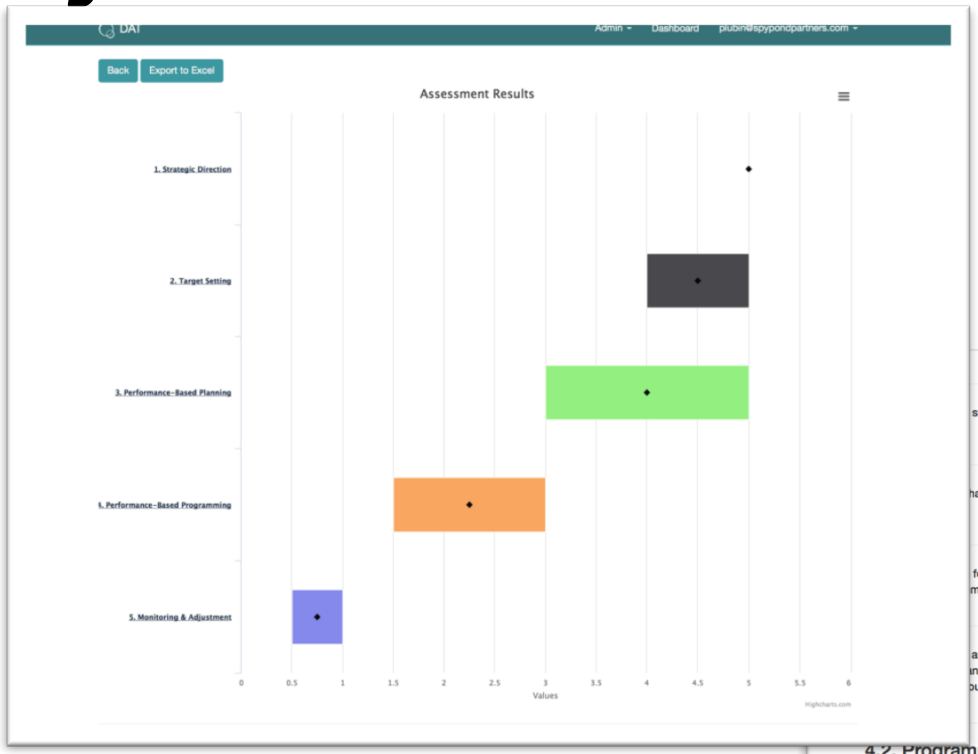
Summary Actions

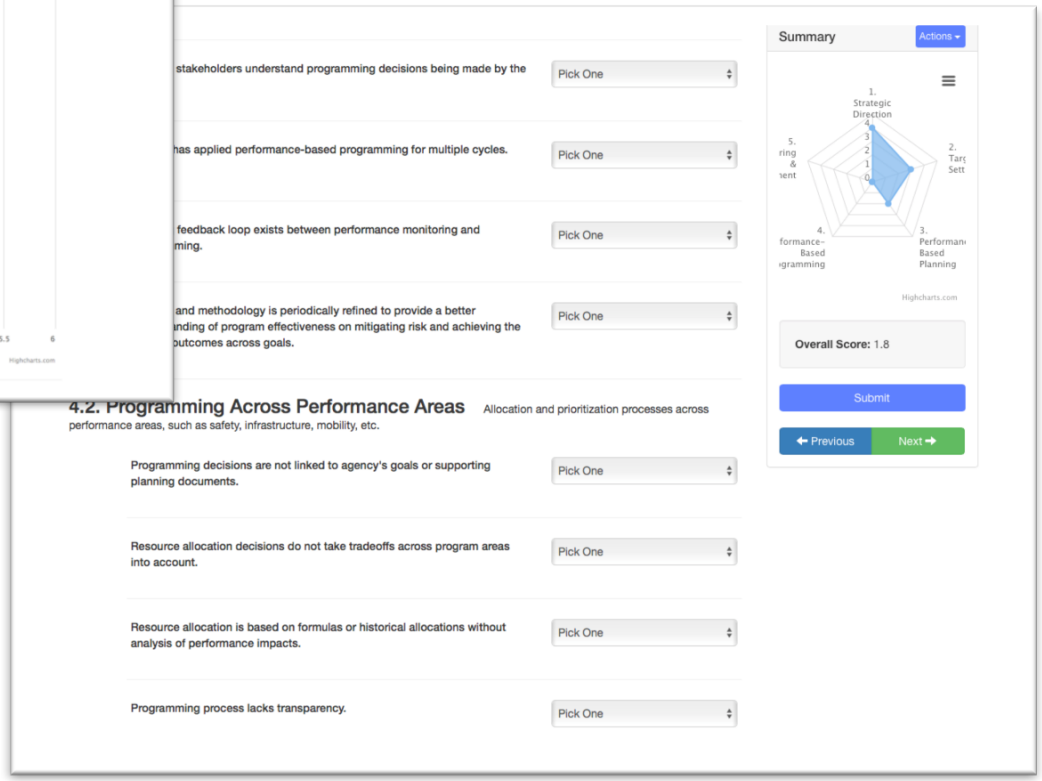


Overall Score: 1.3

← Previous Next →

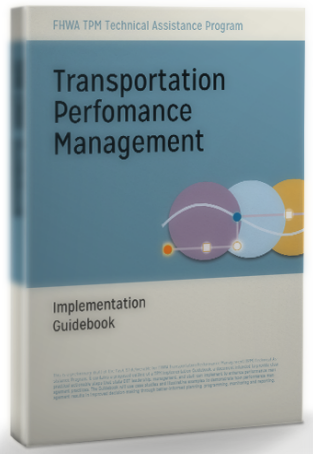
Self-Assessment





Guidebook

- Focuses on "how" rather than "what"
- Majority of guidebook devoted to implementation steps and related agency examples
- Note: not FHWA guidance or intended for compliance
- Self-contained and modular



Guidebook

TPM GUIDEBOOK

Executive Summary
- Guidebook Fact Sheet
- Component Fact Sheets

Introduction
- TPM Overview
- TPM Framework
- Guidebook Overview

Component Chapters (01-06, A-D)

Appendices
- A: Case study index
- B: Relevant resources
- C: Glossary of terminology

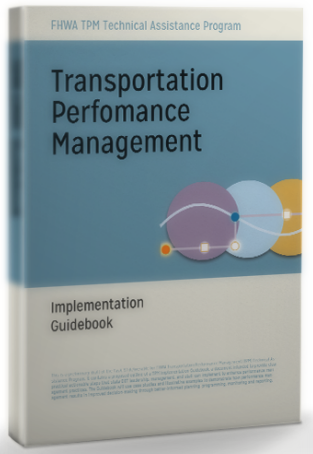
Component 01: Strategic Direction

Overview
- Component Definition
- Relationship to Framework
- Defining Common Terms
- Legislative Context

Implementation Steps
- 1.1 Goals and Objectives
- 1.2 Performance Measures

Resources

Action Plan



Guidebook Fact Sheets

FHWA Transportation Performance Management Implementation Guidebook Fact Sheet

Strategic Direction

A Strategic Direction establishes an agency's direction through well-defined goals and objectives and enables assessment of the agency's progress towards meeting goals by defining a set of aligned performance measures. The Strategic Direction is the foundation upon which all performance management rests and should be included in an agency's business plan.

What it Takes

For a strategic direction to become engrained in the agency culture and embraced by external stakeholders, it should be grounded on four major building blocks:

- Performance information,
- Internal buy-in,
- External buy-in, and
- Continuous messaging of goals.

Performance information ensures selected goals, objectives and measures focus an agency's policy and investment decisions on the appropriate performance areas. In other words, what key area(s) does current performance data and future projections suggest an agency should focus on?

Internal buy-in ensures individual staff can see the connection between their daily activities and progress towards agency goals.

External buy-in ensures agency goals align with regional priorities and are relatable to the public.

Continuous messaging of goals in internal and external communications and in regular business activities cements the strategic direction at an agency.

Implementation Steps

The Strategic Direction is broken down into two complementary subcomponents, each with its own implementation steps:

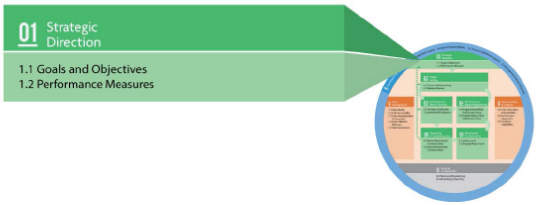
- **Goals and Objectives**: Goals are broad statements articulating a desired end state that provide strategic direction for an agency. Objectives are specific, measurable statements that support achievement of a goal.
- **Performance Measures**: Measures are used to establish targets and assess progress toward achieving established targets. They are indicators that track progress towards goals and objectives. They are manageable and sustainable, and based on collaboration with partners. Measures provide an effective basis for evaluating strategies for performance improvement.

Goals and Objectives	Performance Measures
1. Understand the performance context to create goals and objectives	1. Inventory data, tools, and performance reports
2. Build inclusive internal process to develop goals and objectives	2. Engage internal staff and external stakeholders
3. Engage external stakeholders to refine goals and objectives	3. Evaluate potential measures
4. Evaluate and finalize goals and objectives	4. Establish governance process
5. Document the process	5. Document the process and measure details

Making the Connection

The **Strategic Direction** (Component 01) establishes the strategic direction for an agency and lays the foundation for tracking progress towards goals by defining performance measures. Goals and objectives guide Planning (Component 03) and Programming (Component 04) while performance measures enable Monitoring & Adjustment (Component 05) of agency strategies. The Strategic Direction is the language used for Reporting & Communication (Component 06).

The Strategic Direction and the TPM Framework



For more information on the Strategic Direction and the other components of the TPM Framework visit: http://www.tpmurlexample.com/strategicdirection.php

FHWA TPM Implementation Guidebook Fact Sheet: Strategic Direction

FHWA Transportation Performance Management Implementation Guidebook Fact Sheet

Strategic Direction

Case Study

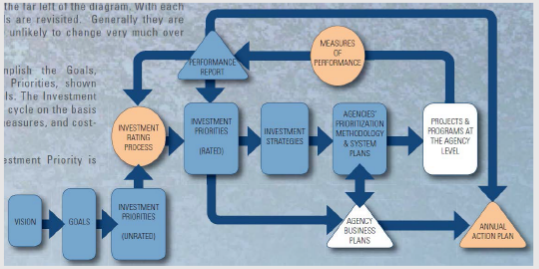
Virginia VTrans 2035 Update

The update to VTrans2035 sought to link projects to VTrans Goals by describing how goals will permeate through the later planning and programming processes. As measurable statements, Investment Priorities are analogous to Objectives. In each cycle, Investment Priorities are rated based on performance measures (which indicate need) and cost-effectiveness. Investment Strategies are key tactics that modal agencies can implement through plans and programs to achieve Investment Priorities and therefore drive attainment of Goals. Specific projects from state and regional plans are linked to Goals through the succession of Investment Priorities and Investment Strategies. The diagram below shows how the VTrans2035 LRTP documents how Goals impact the planning and programming processes.

The VTrans 2035 Update includes the following:

> "Agency processes such as needs evaluations, performance rating, and project prioritization can be shaped in terms that relate directly to VTrans. This consistency...promote[s] the alignment among policies, plans, and funding programs that is necessary to gauge accurately the effects of transportation decisions on system performance."

VTrans 2035 Documentation



Perspectives

"Agency goals should be the steady drumbeat that inspires action—goals should be ingrained in the subconscious of workers so they live the performance management culture."

— Moving from Reactive to Strategic Decision Making, TR News 293 July-August 2014

"Why do we look at performance information? We are investing money in our transportation system and want to know what we get for it. Performance measures let us understand the relationship between investments and results."

— Camelia Ravanbakht, Hampton Roads Transportation Planning Organization

"Bay Area LRTPs have expanded beyond traditional goals like system preservation to now more fully reflect the priorities of our region's residents. Understanding how the Plan addresses key issues like healthy communities and equitable access is critical in an era of integrated planning."

— Dave Vautin, Metropolitan Transportation Commission

Connect Online to Learn More

Visit the TPM Toolbox online to learn more about the Strategic Direction and to take your own TPM maturity assessment: http://www.tpmurlexample.com/home.php

FHWA TPM Implementation Guidebook Fact Sheet: Strategic Direction

Practitioner Consortium

- Database of public agency employees with TPM expertise
- To be used by FHWA/FTA and state agency staff to identify
  - Participants, experts, speakers, peer staff for implementation assistance
- Gathered participant information from TPM events 2010-15
  - ~800 practitioners
  - ~400 on inactive list (private sector, academic, etc.)
- Will allow filtering to find individuals by expertise, geography, agency type, and other characteristics

Practitioner Consortium

TPM Practitioner Consortium

The purpose of the TPM Practitioner Consortium is to identify a pool of transportation practitioners who can support a range of TPM activities (e.g., training material review, workshop participation, guidebook critique, survey response, product review, conference presenting). This consortium is intended to help advance the adoption of performance management principles in the transportation field.

Contact Information

Provide your contact information in order to participate in the TPM Practitioner Consortium.

First Name*
Last Name*
Organization
Email*
Confirm Email*
Phone

Areas of Expertise

Mark any areas where you have particular expertise and/or would like to contribute to future stakeholder activities.

- Setting strategic goals and objectives
- Performance measure development
- Target setting
- Long range transportation planning
- S/TIP development
- Programming and investment decision-making
- Demand forecasting and modeling
- Project analysis/Corridor analysis
- Scenario planning
- Economic impact analysis
- Asset management
- Systems operations
- ITS
- Congestion management
- Safety
- Freight
- Sustainability
- Environment
- Livability
- Climate change

Resources

- Compilation of NCHRP, SHRP (2), FHWA, and other resources
- Provide additional detail and background for 10 TPM Components
- Will be categorized by Component for ease of use

Upcoming Workshops/Exchanges

✓ Peer exchange

❑ Eight CMM workshops

- An opportunity to test tools
- First pilot workshop to be held in Missouri
- This Summer, FHWA will open up applications for remaining workshops