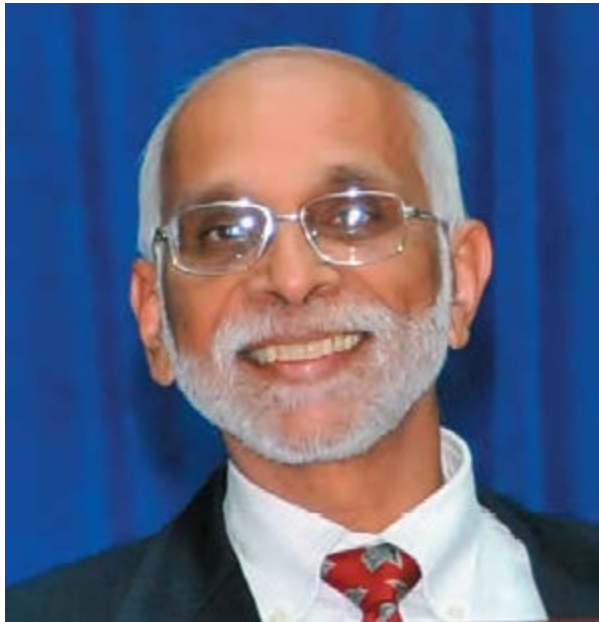


Concept Design for an Online Information Source for Major Surface Transportation Projects: A Discussion Paper

Presented by Benjamin Perez and Jagannath Mallela, WSP
June 27, 2017

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Discussion Paper Overview



Legislative Context

- To the maximum extent possible, the FAST Act directs FHWA and the Bureau to:
 - Identify procurement thresholds for transportation project cost and schedule increases
 - Measure cost and delivery schedule changes
 - Monitor how performance outcomes vary with different procurement methods
 - Collect project-specific information and make it openly available on the internet
- *This research addresses considerations for a first step*



A Two Tiered Project-Specific Approach to Data Collection

- Tier 1 provides basic descriptive and project outcome information collated from existing sources
- Tier 2 elements would support advanced research and analysis using information not captured in existing repositories
- Based on feedback from industry stakeholders, initial focus on compiling Tier 1 data
- The Tier 1 and 2 elements could be adjusted based on availability and data quality
- Tier 1 -- First increment would test approach, usefulness and burden
- Tier 2 information retained for potential use by other researchers



A Two Tiered Project-Specific Approach to Data Collection

- Comprehensive Information Source Tier 1
 - Provides benchmark information on project delivery
 - Uses existing data sources for all major projects
 - FHWA Center for Innovative Finance Support Data
 - FHWA Major Project Database
 - FHWA Highway Performance Monitoring System (HPMS)
 - FHWA National Bridge Inventory (NBI)
- Comprehensive Information Source Tier 2
 - Provides detailed data for in-depth analysis
 - Could be assembled from project documentation where available based on Tier 1 experience



Governance and Platform

- Decisions regarding these aspects will:
 - Be critical to functionality
 - Assert role of contributors, data owners, and managers
 - Have implications for sponsors' commitment and resources needed
- Paper provides basic options and makes recommendations





Discussion Paper Development



Information Source Target Audiences

- State DOTs
- Metropolitan Planning Organizations
- Transportation Procurement Practitioners
- Public Policy Officials
- Academics
- Private Sector Partners





White Paper Organization

Executive Summary

Chapter 1: Online Information Source Structure and Purpose

Chapter 2. Information Source Projects

Chapter 3. Tier 1 Data Requirements and Sources

Chapter 4. Online Information Platform

Chapter 5. Long-Term Maintenance and Enhancement

Chapter 6. Recommendations and Next Steps

Appendix A: FHWA Major Projects

Appendix B: Tier 2 Data Requirements and Potential Sources



White Paper Review Process

- First Draft Delivered January 6, 2017
 - Reviewed by 10 industry and academic experts
- Second Draft Delivered March 3, 2017
 - Subject of a Round Table Reviewed on March 28, 2017 attended by industry experts
- Final Draft Delivered June 6, 2017
 - Reflect Round Table input and final FHWA comments and edit





Information Source Goals

- Understand project procurement outcomes
- Facilitate benchmarking analysis
- Inform decision-making
- Validate decision-making
- Facilitate industry and academic research

We address these goals by providing data to answer 21 Core Research Questions



21 Core Research Questions

- Used to identify potential data to be included in the Information Source
- Information Source is an interim step -- provides data to help answer the questions, not the answers



Comparing Outcomes for P3 and Non-P3 Procurements

- Cost performance
- Risk mitigation
- Scope evolution for P3 and non-P3 delivery
- Schedule certainty
- Procurement and oversight requirements
- Life cycle costs
- Financing costs



Comparing Outcomes for P3 and Non-P3 Procurements *(cont'd)*

- Design and construction quality
- Maintenance quality
- Service quality
- Local subcontractor and disadvantaged business involvement
- Labor rates





Information Source Projects



FHWA Major Projects

- Cost of \$500 million or more using Federal funding
- 104 current projects
- 33 completed projects
- A variety of procurement models
 - Design-bid-build (DBB)
 - Design-build (DB)
 - Design-build-finance-operate-maintain (DBFOM) concession





Tier 1 Data



Tier 1 Data

- Higher level benchmark library
- Intended for decision-making assistance and project performance review
- To be assembled for all FHWA Major Projects



Relational Database Structure

DESCRIPTIVE PARAMETERS

PROJECT INFORMATION	LEGISLATIVE INFORMATION	AGENCY POLICY & CAPACITY
Project Name	Design-Build Authority	Dedicated P3 Team
Location	P3 Authority	Number of employees on P3 Team
Cost		Number of Closed P3 Procurements
Procurement Model	Sunset Provisions	Number of Active P3 Procurements
Concession Length	Toll Conversions	Value For Money (VFM) Analysis
Project Type	Concession Term Limits	Risk Transfer Analysis
Length		Financial Feasibility Study
Lanes	Non Compete Clauses	Internal P3 Advisory Committee
Lane Miles	Hot Operations	External P3 Advisory Committee
Interchanges		Financial Self Sufficiency Required
Toll Status	Legislative Approvals	Local Revenue Measure
Setting	P3 Advisory Body	Public Subsidies
Topography		Revenue Sharing
Utilization	Unsolicited Proposals	Tolling New Highway Capacity

PROJECT PERFORMANCE DATA

DEVELOPMENT PHASE	PROCUREMENT PHASE	IMPLEMENTATION PHASE	OPERATIONS & MAINTENANCE
NEPA	Location	Design and Construction Elements	Technical Performance
Initial Value For Money (VFM) Analysis	Level of Project Design	Cost Estimates	User Benefits
	Request for Information (RFI)	Financial Close	Service Quality
Risk Assessment	Industry Forum	Sources of Finance	Financial Performance
Benefit Cost Analysis		Revenue Sources	Defaults
Financial Feasibility Analysis	Request for Qualifications	Claims and Disputes	Bankruptcies
	Environmental Review	Resolution Mechanisms	Renegotiations
Traffic	Request for Proposals (RFP)	Project Sponsor Staffing	Financial Restructurings
Safety	Project Sponsor Staffing	Construction Partnering	Sources of Finance
	Alternative Technical Concepts (ATCs)	Quality Assurance	Asset Sales / Transfers
Costs	Commercial Close	Liquidated Damages Cost	Project Sponsor Staffing
		Change Orders	Pavements
		Value Engineering	Bridges and Culverts
		Work Zone Performance	Mobility and Safety
			Roadway Incident Clearance
			Maintenance Performance
			Handback Quality
			Agency Maintenance Costs



Tier 1 Data

- Can be assembled from EXISTING repositories
 - FHWA Center for Innovative Finance Support Data
 - FHWA Major Projects Database
 - FHWA Highway Performance Monitoring System
 - FHWA National Bridge Inventory
 - Electronic Municipal Market Access (EMMA)Website
 - State DOT project delivery websites
 - National Conference of State Legislatures



Questions





Online Information Platform



Online Information Platform

- **Purpose:**
 - Compare project performance outcomes for different delivery methods
- **Content:**
 - Data collated from multiple sources over time
 - Alphanumeric information, documents, maps, images, URLs
- **Relational database structure:**
 - Use non-proprietary software and coding practices
 - Avoid third party add-ons
 - Streamline ongoing maintenance costs



Online Information Platform

- Support the following functions
 - Search Filters
 - Display Tables
 - Sortable Columns
 - Reporting
 - Data Upload and Export
 - Online Help and Tool Tips
- The Information Source's governing structure will influence its design



Data Management Questions

- Do the data already exist?
- How will the data be obtained or collected?
- What is the schedule and budget for data collection?
- How will the data be checked and certified?
- Can the data be made publically available?
- How will the data be stored, accessed, and protected?



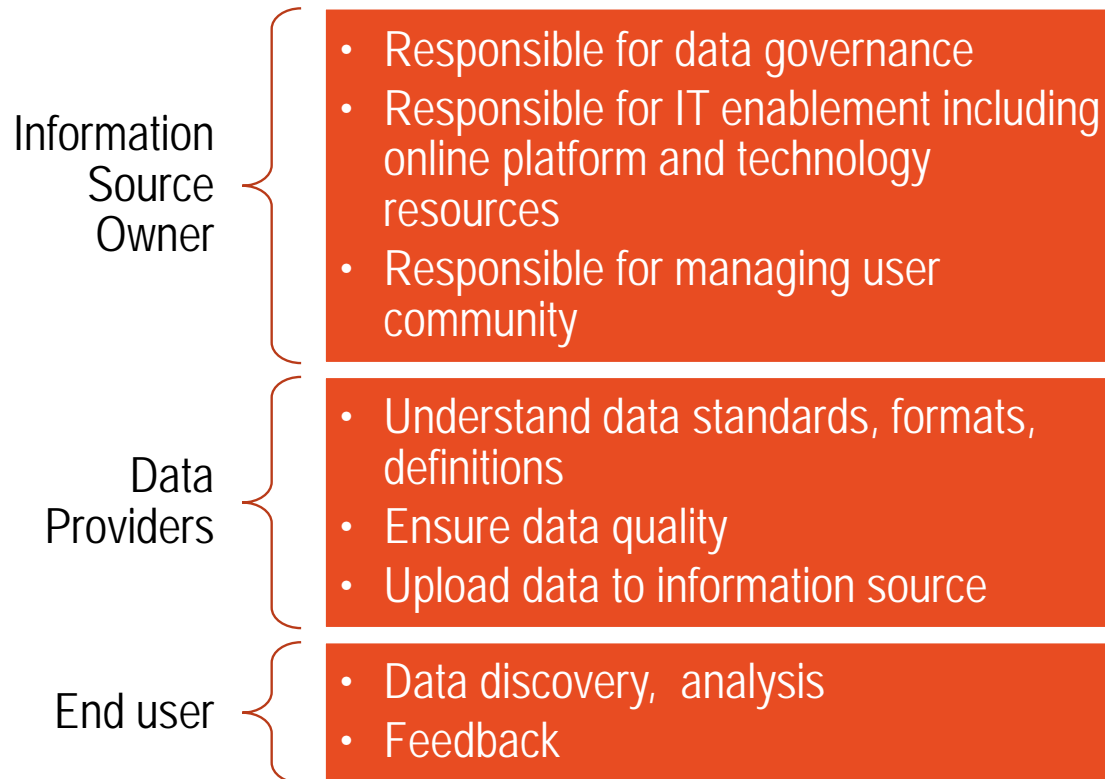


Data Management Plan Options

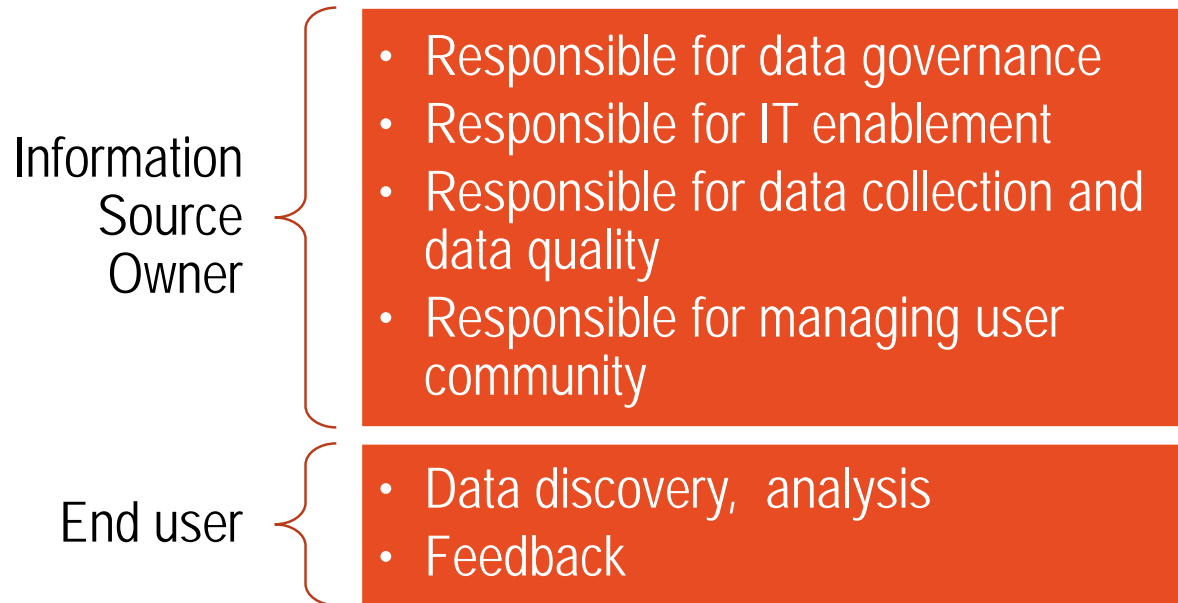
- Distributed Responsibility
- Total Ownership
- Hybrid Approach



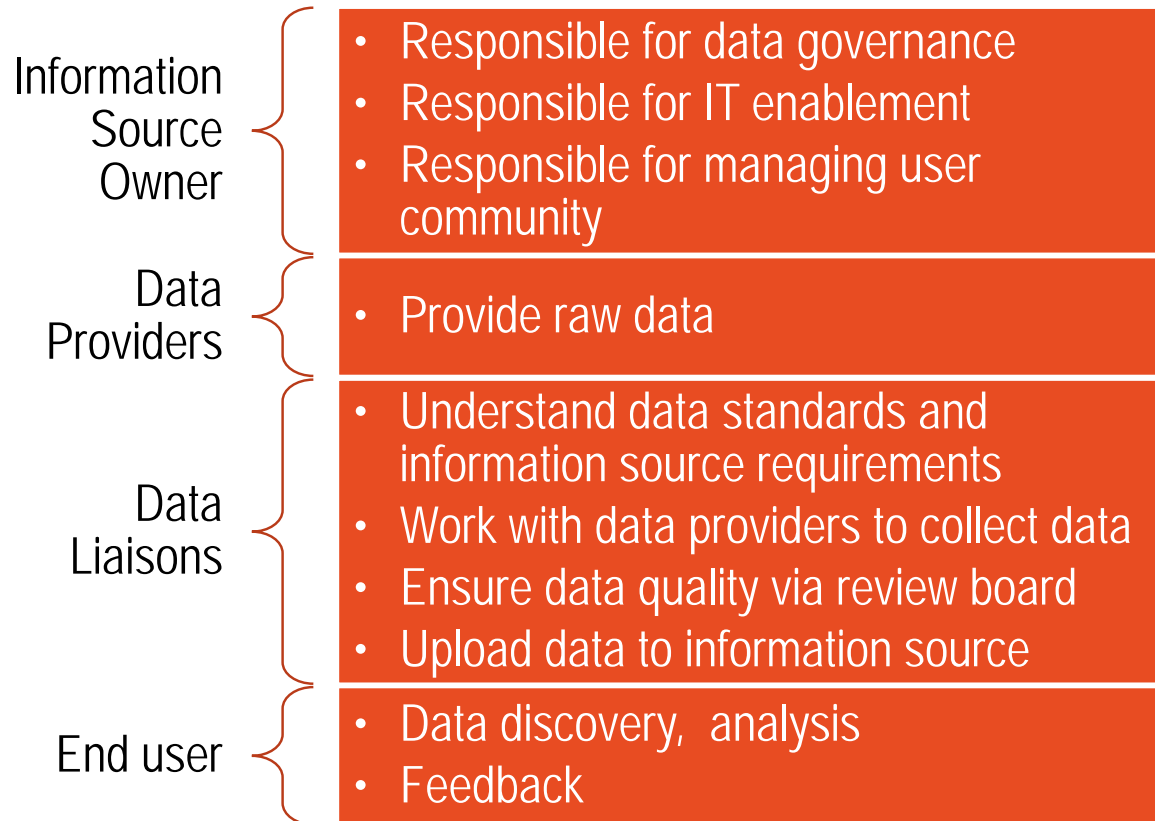
Distributed Responsibility



Total Ownership



Hybrid





Recommendations and Next Steps





Recommendations

- The information source would be most useful in informing higher-level public policy decisions
- Focus on compiling Tier 1 information
- Conduct a pilot as a proof of concept
 - Confirm what information is available and the level of effort to collect it



Contact Information

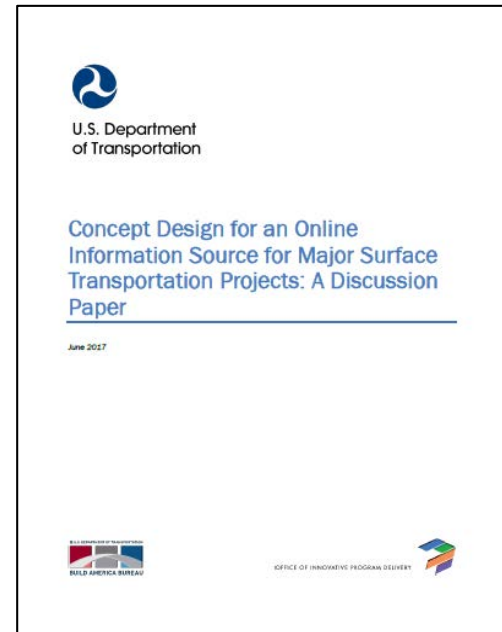
Website:

<https://www.fhwa.dot.gov/ipd/p3/>

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Download Discussion Paper:

https://www.fhwa.dot.gov/ipd/pdfs/p3/online_info_for_surface_transportation_projects.pdf



Questions

