



# IMPLEMENTATION PLAN

## Digital Construction Management Technology

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Office of Performance and Innovation



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## Overview

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The California Department of Transportation's (Caltrans) Division of Construction provides support, guidance, and tools to the districts, enabling them to safely, sustainably, and efficiently deliver construction projects that improve California's economy and livability. The division supports contract administration and construction management activities statewide for Caltrans districts, contractors, and local agencies. These activities include:

- Construction safety
- Contract administration
- Dispute resolution
- Environmental compliance
- Material quality assurance
- Labor compliance
- Communication and collaboration
- Policies, procedures, and publications

Assembly Bill 1037 (AB 1037) enacted September 23, 2022, mandates the use of digital construction management technologies (DCMT) in infrastructure projects to achieve key objectives, including reducing project delivery time, decreasing costs, improving worker safety, enabling remote work, and building more sustainable infrastructure.

Digital construction management technologies in AB 1037 are defined as:

*"...cloud-based mobile platforms used on construction sites by owners and contractors for the collection and organization of and managed accessibility to, accurate data and information related to a construction project, including for project site preparation, field execution, construction project management, document management, coordination and collaboration among stakeholders, inspection, and commissioning and handover to owner."*

Currently, documentation for many processes is manual, paper-based, and therefore lacks interoperability, potentially contributing to inefficiencies, delays, and increased risk of errors.

This implementation plan is primarily focused on the adoption of a DCMT to document processes that fall within the Construction project administrative and management scope; it does not address Caltrans building information modeling for infrastructure (BIM4I) needs. While there is an overlap in technology and applications for these efforts, a separate BIM4I implementation plan was developed in a Caltrans-wide effort that can be found on the Caltrans Project Delivery website (<https://dot.ca.gov/programs/project-delivery>). In the future, it is expected that the data captured in DCMT will integrate with BIM4I efforts.

The integration of DCMT is expected to significantly augment Construction's operational efficiency and effectiveness, by fostering cost-effectiveness, promoting safety, enabling remote work, and driving sustainable infrastructure development.

This plan is a tool for transitioning from traditional construction management methods to digital ones. The implementation of this plan will aim to fulfill AB 1037's objectives and contribute to California's infrastructure advancement, continuing to improve standards for engineering projects across the state.



## Implementation Strategy: Phased Approach

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The implementation strategy for a DCMT adopts a phased approach. The objective is to fully integrate electronic construction contract administration (e-construction) technologies and advancements in stages. To optimize resources, this strategy maximizes reasonable use of existing systems, infrastructure, and data during the initial phases.

Each phase will include an assessment of the need for system replacements or upgrades. Ongoing evaluation of existing assets and technology is integral to this approach.

Use of existing resources helps minimize cost and complexity, thereby facilitating smoother technology adoption among staff.

## Objectives of Implementation Plan

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The objective of this implementation plan is to provide a roadmap and tools for adopting a DCMT for processes that fall within the Construction project administrative and management scope in alignment with AB 1037.

This plan consists of five parts:

1. Current State Assessment
  - Assess current state of construction management practices and technology in the divisions related to e-construction.
  - Identify categories for phased implementation and future development within the DCMT.
  - Identify key processes that can be digitized.
  - Identify current use of construction administration technologies.
2. Technology Selection
  - Identify the technologies that meet the bill’s definition of “digital construction management technologies,” ensuring they are cloud-based mobile platforms capable of managing data and information related to construction projects.
  - Make sure the chosen technology allows for coordination and collaboration among stakeholders, project management, inspection, and commissioning and handover to owner.
3. AB 1037 Implementation Requirements
  - Identify key milestones of AB 1037 and division phasing.
4. Implementation Phases
  - Create a general structured approach to digitizing identified processes.
  - Detail a high-level overview of the phases currently identified
5. Monitoring and Evaluation
  - Develop metrics or data tracking systems to quantify the benefits of the technology as required by AB 1037 of 2022.
  - Regularly check these metrics and adjust the implementation strategy as needed.
  - Develop a planning tool capturing this plan key data, including categories, processes, phases, and management priorities for continual adaption and improvement.

## Part 1: Current State Assessment

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This section serves as the foundational analysis for the strategic implementation of the DCMT within Construction. This evaluation provides a high-level overview of existing construction management practices. Through this assessment, we will pinpoint the key categories and core processes for phased digitization and further development.

For a list of key Construction processes, see Appendix A, “DCMT Implementation Process Matrix.”

### Categories and Core Processes for Digitization

The primary processes of the Division of Construction have been organized into the following categories. These categories were developed with a focus on the division’s construction administration and project management responsibilities.

This comprehensive categorization was developed to assure that all pertinent facets of Construction contract administration and project management practices are systematically addressed, leaving no essential components overlooked.

This deliberate structuring not only aids in the modular visualization within the eventual application interface envisioned as distinct tabs for ease of access, but also serves to guide the development of a well-organized and efficient system. The category approach provides a framework for the assembly, understanding, and strategic planning of the ultimate system, enhancing both communication and operational efficiency.

The following categories and process examples are subject to change. A current list can be found in Appendix A, “DCMT Implementation Process Matrix.” See Part 5, “Monitoring and Evaluation,” of this report for more information.

#### Category: System and Technology Administration

Centralized control for user management, security, system settings, user onboarding, customization, and system maintenance tasks.

Process examples:

- User roles, permissions, access
- Project startup and closeout

#### Category: Document Management

Centralized repository where construction project information is housed.

Process examples:

- Archiving – full record of information transactions
- Published documents — policies, procedures, and publications

#### Category: Project Scheduling

Planning, sequencing, and timing of tasks and activities. Use will vary for internal and external users. It may encompass establishing schedules, allocating resources, and setting project benchmarks.

Process examples:

- Critical path method scheduling
- Weekly statement of working days

#### Category: Cost Management and Billing

Oversite of project finances, including extra work billing system and change order processes.

Process examples:

- Change orders
- Extra work billing processes
- Contract payments

#### Category: Quality Control and Inspection

Monitoring and verification activities to assure adherence to project design specifications. Includes tool data integration into DCMT.

Process examples:

- Daily reports
- Tentative agreements

#### Category: Project Communication and Collaboration for Construction Contract Administration

Hub for all stakeholders to have consistent, transparent lines of communication. Includes streamlined sharing of documents, such as project plans, contracts, drawings, and inspection reports.

Process examples:

- Submittals with approval, rejection, and tracking
- Electronic forms

#### Category: Dispute Resolution

Protocols and practices to resolve disagreements and conflicts, promoting timely and efficient resolution while minimizing project disruptions.

Process examples:

- Request for information
- Dispute resolution and electronic potential claim record



Category: Safety and Safety Compliance

Protocols and practices that promote the protection of the public and personnel.

Process examples:

- Incident reporting
- Construction Zone Enhanced Enforcement Program

Category: Environmental Compliance

Adherence to environmental regulations.

Process Examples:

- Incident reporting
- Stormwater pollution prevention plan

Category: Resource Management, internal

Internal allocation, use, and tracking of project resources, both human and material.

Process examples:

- Staffing resource assignments
- Equipment and resources tracking

Category: Stakeholder Management, external

Processes assuring consistent communication, engagement, and consideration of all parties invested in the project.

Process examples:

- Stakeholder identification, including agencies, tribes, and local governments
- Subcontractor changes

Category: Quality and Change Management, internal

Planning, assurance, control, and improvement initiatives to maintain and elevate the quality of services delivered.

Process examples:

- Feedback mechanisms for continual improvement
- Constructability reviews

Category: Field Building Information Modeling Tools and Data:

Data integration with building information modeling (BIM) tools used by staff and contractor that aid in field execution tasks and site preparation. Category for data integration into DCMT common data environment.

Process Examples:

- Automated machine guidance
- Unmanned aerial systems

## Current and Completed Implementation

At the time of this report, Construction successfully implemented several applications for the digitization of construction processes and is working on the development and implementation of several others.

These include, but are not limited to:

- Falcon Document Management System (FalconDMS)
- internet Extra Work Billing System (iEWB) – sunsetting
- Electronic Potential Claim Records system (ePCR)
- Reporting –digital reporting dashboards
- Construction Safety Checklist
- Weekly Statement of Working Days (eWSWD)
- Daily Report Application
- Construction Administration Database (CADb) – sunsetting Access database tool
- Form data collection
- Project Data Management System (ProDMS) – daily report, tentative agreement, project assignment tool developed in MiniWheat

Please see Appendix A, “DCMT Implementation Process Matrix,” for more information on current and completed processes, and Part 5, “Monitoring and Evaluation,” of this report for information on the “DCMT Implementation Process Matrix.”

## Part 2: Technology Selection

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As previously highlighted, this implementation plan is focused on the adoption of the DCMT, specifically for project administration and management processes. The DCMT platform of choice must integrate with various construction management tools, from those used for project oversight to critical document control, and it should be well-established in the industry. The platform will be cloud-based, to align with the definition of DCMT in accordance with AB 1037 of 2022, which emphasizes mobile platforms for comprehensive project management.

The selected platform must be:

- Capable of digitizing construction administration processes.
- Adaptable to serve as a replacement for the Contract Administration System (CAS).
- Configurable for adaptable, low-code technology functions.
- Able to support open standards for data modeling in a common data environment.
- A central source of project data.
- Integration-ready with Building Information Modeling for Infrastructure (BIM4I) technology.
- Compliant with the Americans with Disabilities Act.
- Able to protect sensitive data with advanced security protocols.
- Dedicated support staff for continuous improvements and to maintain or update the system with new technology.
- Scalable to accommodate increasing projects, users, and data without performance degradation.

The identification, procurement, and initial adoption of this technology is currently underway and identified as Phase 1 of this implementation plan. Further insights into Phase 1 are elaborated in Part 4, “Implementation Phases.” Procurement of the DCMT for Phase 1 actions is expected to be completed mid-2024.

### Currently Available DCMT Technologies

In a broader context, Construction also has access to other DCMT technologies. While they overlap with the project administration and management category, they are not suited as the primary platform for all division needs. These technologies include:

#### [Environmental Systems Research Institute](#)

The Environmental Systems Research Institute (ESRI) is a specialized geographic information system (GIS) software solution focused on location intelligence and mapping. ESRI is primarily suited for Construction’s BIM4I needs, including 3D modeling and BIM tool integration, which assist staff and contractors in field execution tasks and site preparation. While ESRI can also support limited project administration and management tasks, its core functionality lies in GIS integration not as a project management and administration solution. However, ESRI will be used when GIS integration is ideal for project administration and management tasks.

#### [Project Data Management System](#)

Our in-house developed Project Data Management System (ProDMS) will be instrumental for specific development needs, such as managing daily reports and other operational data.

ProDMS excels in digitizing existing Caltrans processes as-is while adhering to current policies as

outlined in the Caltrans *Construction Manual* and *Bridge Construction Records and Procedures Manual*. Its use reflects our commitment to leveraging internal capabilities alongside external technological advancements to create a well-rounded, effective digital construction management ecosystem.

#### Strategic Technology Integration Overview

Choosing the right DCMT technology for a specific process is a strategic decision and will be based on each system's unique strengths and the needs of the division for that process. While most of our processes will be managed within the DCMT procured in Phase 1, we anticipate using all the discussed solutions to various extents. This multi-technology approach assures compliance with legislative mandates.

The integration and complementary use of these technologies will be further explored in the upcoming Phase 1C, the DCMT vs GIS Form Redirection Workplan.

## Part 3: AB 1037 Implementation Requirements

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AB 1037 mandates a structured incorporation of digital construction management technologies (DCMT) to modernize transportation infrastructure projects within the state. This section includes key milestones of both AB 1037 and Construction’s phasing.

Essential milestones to meet the objectives of AB 1037 include:

1. January 1, 2024 — Development and Posting of the Implementation Plan: Caltrans must develop and post an implementation plan for DCMT on its website
2. January 1, 2025 — Guidance, Policies, and Procedures: Establishment and dissemination of guidance, policies, and procedures for using DCMT.
3. July 1, 2026 — Predevelopment Stage Adoption: Commencement of DCMT use during the predevelopment stage.
4. January 1, 2028 — Final Design Stage Adoption: Integration of DCMT through the final design of project development.
5. July 1, 2029 — Construction Stage Adoption: Full use of DCMT throughout the construction phase
6. December 1, 2029 — Legislative Reporting: Caltrans must report to the Legislature the status of DCMT implementation, project details, benefits observed, and any implementation challenges.

Division of Construction DCMT implementation milestones are anticipated as follows:

1. June 30, 2024 — Procure DCMT
2. June 30, 2026 — Phase 1 Complete
3. June 30, 2027 — Phase 2 and 4 Complete
4. January 1, 2028 — Phase 3 Complete
5. January 1, 2029 — Phase 5 Complete

For more on phases, see Part 4, “Implementation Phases,” of this report.

## Part 4: Implementation Phases

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The Division of Construction implementation strategy for a DCMT adopts a phased approach. The objective is to fully integrate e-construction technology to replace less functional systems.

To optimize resources, this strategy maximizes reasonable use of existing systems, infrastructure, and data during the initial phases. Use of existing resources is intended to minimize cost and complexity, thereby facilitating smoother technology adoption among staff.

Note that after completion of Phase 1B, a new DCMT platform will be procured, implemented, and available for continuous development of following phases.

The Implementation Phases section addresses two areas:

- Phase Workflow — An overview of a general structured approach we have delineated that can be applied to each identified phase, or phase part
- Phasing Plan — A high-level overview of the phases currently identified

As a living document, this outline is adaptable, reflecting our commitment to flexibility and responsiveness to changing priorities and technological landscapes.

### Phase Workflow, General

Each phase will necessitate the evaluation and potential re-engineering of the existing process and workflows, as well as system upgrades and replacements, to assure a smooth transition and efficient optimization to the new DCMT.

The general steps are:

1. Analysis of Existing Processes:
  - a. Document and analyze the current workflows and processes to understand their intricacies and dependencies.
2. Process Optimization:
  - a. Identify areas where processes can be streamlined or re-engineered to better fit with the new technology. This might include simplifying complex workflows, removing redundant steps, or automating manual tasks.
3. Prototyping and Validation:
  - a. Create prototypes or use sandbox environments to model how the re-engineered processes will work with the new technology.
  - b. Gather feedback from stakeholders and end-users to validate the proposed changes and make sure they meet business requirements.
4. Testing:
  - a. Conduct comprehensive testing to verify that the new system with the revised processes meets all functional and performance requirements.
5. Training and Deployment:
  - a. Provide training to end-users to familiarize them with the new system and processes.
  - b. Deploy the new technology in a controlled manner, possibly using a phased approach to monitor and address any issues that arise during the transition.

## Phasing Plan

This section outlines our approach to adopting the DCMT. We begin with Phase 1, piloting and procuring a DCMT and replacing the sunsetting Extra Work billing System. Phase 2 focuses on enhancing cost management and billing procedures. Phase 3 involves linking DCMT with our accounting system and retiring old processes so the Construction's systems can be completely disconnected from the Contract Administration System (CAS). Phase 4 is a flexible stage, addressing remaining key processes and adapting to our division's needs, as detailed in Appendix B, "Performance Tracking Framework."

This phasing plan is flexible and will evolve with the state's needs and technology changes.

### Phase 1 – Integrate DCMT with Existing Systems and Infrastructure

At the completion of this phase, a DCMT will be identified, procured, integrated into the existing technology stack, and implemented statewide for extra work billing.

- Phase 1A: DCMT Pilot
- Phase 1B: iEWB Replacement Project
- Phase 1C: Develop DCMT vs GIS Form Redirection Workplan

### Phase 2 – Cost Management and Billing

At the completion of this phase, foundational cost management processes will be complete and available for use.

- Phase 2A: Progress Payments
- Phase 2B: RFI and ePCR Replacement
- Phase 2C: Change Orders
- Phase 2D: Materials on Hand
- Phase 2E: Rental Rate Provider

### Phase 3 – Division CAS Disconnect

At the completion of this phase, the Division of Construction will be independent from the CAS system. Please note, it may be necessary to continue to push data to or pull data from the existing CAS system, depending on the status of CAS as it relates to other divisions within Caltrans.

- Phase 3A: Project Closeout
- Phase 3B: Contract Termination
- Phase 3C: Other systems as identified in "analysis of existing systems" step

#### Phase 4 – Basic Forms

At the completion of this phase, there will be an integrated form module. This module will be for basic forms requiring only moderate automation and workflows. These forms will be identified in the DCMT vs GIS Form Redirection Workplan. Examples are:

- Phase 4A: Environmental compliance, incident reporting
- Phase 4B: Staking and survey requests
- Phase 4C: Safety incident reporting
- Phase 4D: Resident Engineer’s Report of Assignment
- Phase 4E: DCMT vs GIS Form Redirection Workplan actions from Phase 1C not completed to this point

#### Phase 5 – Continued Improvements

This phase is for continuing development of e-construction systems and tools. Currently, the following processes have been identified for automation.

- Phase 5A: Alternate Dispute Resolution and Partnering
- Phase 5B: Rental Rate Calculator
- Phase 5C: Submittal Hub
- Phase 5D: Material Quality Assurance



## Part 5: Monitoring and Evaluation

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Monitoring and evaluation are crucial components of the implementation strategy and this implementation plan to make sure that the DCMT is serving its intended purpose and meeting organizational objectives.

The section is in 2 parts:

- DCMT Implementation Process Matrix – creation of an evolving planning tool, constantly refined to match state priorities and new technology, facilitating an easy and efficient shift to digital construction management.
- Performance Tracking Framework – details the systematic approach to assess the efficacy and effect of the DCMT deployment

### DCMT Implementation Process Matrix

The DCMT Implementation Process Matrix serves as a critical instrument in the strategic rollout of the DCMT within the organization. The matrix relates and aligns the many aspects of this implementation report into a single spreadsheet.

This spreadsheet is organized into columns, each providing vital information for the phased implementation and future development of digitized processes:

- Category — High-level primary categorization of Construction’s contract administration and project management responsibilities.
- Process Name — primary processes identified for digitization of Construction’s contract administration and project management responsibilities.
- CAS Replacement Related — indicates whether a process is required to the replacement of the current Contract Administration System (CAS).
- Existing Technology — identifies technology currently in use, which is instrumental in identifying opportunities for technological upgrades or enhancements.
- Phase — assigns a stage for each process.
- Caltrans Priority — reflects the importance or urgency assigned to each process by Construction management
- Notes — clarifying remarks or considerations that may affect the digitization process, such as specific user requirements or regulatory compliance issues.

This matrix is a planning tool and a dynamic, living document that will be continually updated to reflect the most current priorities and technological changes. It is designed to assure a cohesive and coordinated approach to adopting digital construction management technologies across the state, thus maximizing efficiency, reducing the risk of project disruptions, and promoting a smooth transition from traditional to digital construction documentation practices.

See Appendix A, “DCMT Implementation Process Matrix.”

## Performance Tracking Framework

The Performance Tracking Framework proposed in Appendix B, details the systematic approach to assess the efficacy and effect of the DCMT deployment. The document outlines key performance indicators (KPIs) for gauging the success and adoption of DCMT across the organization, including:

- User Adoption Rate — This KPI measures the pace and extent to which staff members are using the new system, indicative of the system’s acceptance.
- Error Rate — This metric keeps track of the frequency and types of errors encountered, providing insight into the system’s functional robustness.
- System Uptime — System uptime is a critical indicator of reliability, reflecting the availability of the DCMT to users.
- Stakeholder Satisfaction — This qualitative measure captures the perceived value and satisfaction of all stakeholders with the DCMT, which is crucial for long-term success.
- Time-to-Resolution — This KPI measures the efficiency of the system in resolving issues or disputes, an essential factor for maintaining project momentum.

To support these KPIs, feedback loops will be established to capture the experiences and insights of end-users and stakeholders. This feedback will be obtained through structured surveys, in-depth interviews, and direct observation methods.

The document will also delineate the methodologies employed to monitor each KPI. For instance, system logs will be analyzed to ascertain user adoption rates, and automated tools will be leveraged to log and track errors within the DCMT. System uptime may be monitored via dedicated tools, while stakeholder satisfaction will be gauged through regular feedback mechanisms. Additionally, the responsiveness of the system in issue resolution may be tracked using a ticketing system.

See Appendix B, “Performance Tracking Framework.”

This appendix is designed to be a living document, updated with real-time data to provide an accurate reflection of the DCMT’s performance and to inform strategic decisions regarding system improvements and user training initiatives.

## Appendix A: DCMT Implementation Process Matrix

DCMT Implementation Process Matrix

Category	Process Name	Existing Technology	Phase	Caltrans Priority
Cost Management and Billing	Rental Rate Calculations	Equipment Rental Rate Calculator (EQRR)	complete	LOW
Cost Management and Billing	Extra Work Billing (iEWB) Replacement	iEWB (Sunsetting)	1B	HIGH
Cost Management and Billing	Progress Payments	CADb (Sunsetting)	2A	HIGH
Cost Management and Billing	Change Orders	N	2C	HIGH
Cost Management and Billing	Materials on Hand	N	2D	LOW
Cost Management and Billing	Rental Rate Provider	Equipment Rental Rate Calculator (EQRR)	2E	MED
Dispute Resolution	Dispute Resolution —eADR	N	5	MED
Dispute Resolution	Partnering	N	5	LOW
Dispute Resolution	Dispute Resolution - ePCR	ePCR	2B	MED
Dispute Resolution	Request for Information (RFI)	N	2B	HIGH
Document Management System	Archiving	Falcon	complete	NA
Document Management System	Secure Storage	Falcon	complete	NA
Document Management System	Version Control	Falcon	complete	NA
Environmental Compliance	Incident Reporting	N	4	MED
Field BIM Tools and Data	Automated Machine Guidance	Trimble	N/A	MED

**DCMT Implementation Process Matrix (cont.)**

<b>Category</b>	<b>Process Name</b>	<b>Existing Technology</b>	<b>Phase</b>	<b>Caltrans Priority</b>
Field BIM Tools and Data	Unmanned Aerial Systems	Varies	NA	MED
Field BIM Tools and Data	Digital As-Builts	Varies	NA	MED
Field BIM Tools and Data	Digital Construction Inspection - GNSS	Varies	NA	MED
Project Communication and Collaboration	Submittal Hub: Review, Versioning, Review	N	5	MED
Project Communication and Collaboration	Project Assigning, Setup, and Management	ProDMS - Miniwheat	1A	HIGH
Project Communication and Collaboration	Project Closeout		3A	LOW
Project Scheduling	Staking and Survey Requests	N	4	MED
Project Scheduling	CriticalPath Method Scheduling	Industry Standard	complete	NA
Project Scheduling	Milestone Tracking	Industry Standard	complete	NA
Project Scheduling	Monitoring Delays	Industry Standard	complete	NA
Project Scheduling	Weekly Statement of Working Days	eWSWD	complete	NA
Quality and Change Management (Caltrans internal)	Constructability Reviews	Bluebeam Pilots	NA	LOW
Quality and Change Management (Caltrans internal)	Feedback Mechanism for Continual Improvement	N	1A	HIGH
Quality and Change Management (Caltrans internal)	Help Desk	N	1A	HIGH
Quality and Change Management (Caltrans internal)	Monitoring and reporting	N	1A	HIGH

**DCMT Implementation Process Matrix (cont.)**

<b>Category</b>	<b>Process Name</b>	<b>Existing Technology</b>	<b>Phase</b>	<b>Caltrans Priority</b>
Quality Control and Inspection	Material Quality Assurance	N	5	LOW
Quality Control and Inspection	Safety	Construction Safety Checklist (Form CEM-0606)	complete	NA
Quality Control and Inspection	Daily Reports	ProDMS	in progress	NA
Quality Control and Inspection	Tentative Agreements	ProDMS	in progress	NA
Resource Management (internal)	Equipment and Resources Tracking	N	4	LOW
Resource Management (internal)	Staffing Resource Assignments	ProDMS - MiniWheat	1A	LOW
Safety and Safety Compliance	Incident Reporting	N	4	HIGH
Safety and Safety Compliance	COZEEP	N	4	H
Safety and Safety Compliance	Safety Checklists	Electronic Const Safety Checklist (CEM-0606)	complete	NA
Stakeholder Management (external)	Disabled Veteran Business Enterprise	N	4	LOW
Stakeholder Management (external)	Stakeholder Identification		4	LOW
Stakeholder Management (external)	Subcontractor Changes		4	LOW
Stakeholder Management (external)	Labor Compliance	LCPTracker	complete	NA
System and Technology Administration	Contract Termination		3	LOW

**DCMT Implementation Process Matrix (cont.)**

<b>Category</b>	<b>Process Name</b>	<b>Existing Technology</b>	<b>Phase</b>	<b>Caltrans Priority</b>
System and Technology Administration	Administrative Configuration		1A	HIGH
System and Technology Administration	User roles, permissions, access		1A	HIGH
System and Technology Administration	Project Setup and Management	ProDMS - Miniwheat	1A	HIGH
System and Technology Administration	Audits		1B	HIGH
System and Technology Administration	System Feedback and Improvement		1B	HIGH
System and Technology Administration	Project Closeout		3B	
System and Technology Administration	Training and Support	NA	NA	NA

## Appendix B: Performance Tracking Framework

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Monitoring and evaluation are crucial components of the implementation strategy to verify that the DCMT is serving its intended purpose and meeting organizational objectives.

### Key Performance Indicators

To monitor the success of DCMT, the following key performance indicators (KPI) may be used:

- User Adoption Rate — Measures how quickly and extensively staff are using the new system.
- Error Rate — Tracks the number of errors or issues arising from using the DCMT.
- System Uptime — Measures the system's reliability and availability.
- Stakeholder Satisfaction — Gauges the satisfaction levels among all parties involved in the project.
- Time-to-Resolution — Measures how quickly system issues or disputes are resolved.
- Feedback Loops — Feedback from end-users and stakeholders will be collected through surveys, interviews, and direct observations. This feedback will be crucial for ongoing improvements and should be analyzed along with the KPI.

### Monitoring KPI

The following are possible methods for monitoring each of the mentioned KPI:

#### User Adoption Rate

Method: Monitor system logs to determine the number of active users. Measure this against the total number of users who could be using the system.

#### Error Rate

Method: Implement automated error logging within the DCMT, if possible, coupled with user-reported issues. Count the number of errors and compare this with the total number of transactions.

#### System Uptime

Method: Use system monitoring tools to measure uptime, if possible. Calculate the uptime percentage by taking the system's uptime and dividing it by the total time: uptime plus downtime.

#### Stakeholder Satisfaction

Method: Use surveys, interviews, and focus groups to measure stakeholder satisfaction. Compare results over time.

#### Time-to-Resolution

Method: Use a ticketing system to measure the time taken from when an issue is reported to when it is resolved.