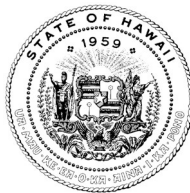


DAVID Y. IGE  
GOVERNOR



DOUGLAS MURDOCK  
CHIEF INFORMATION  
OFFICER

**OFFICE OF ENTERPRISE TECHNOLOGY SERVICES**

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December 27, 2021

The Honorable Ronald D. Kouchi,  
President, and  
Members of The Senate  
Thirty-First State Legislature  
Hawaii State Capitol, Room 409  
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki,  
Speaker, and  
Members of The House of Representatives  
Thirty-First State Legislature  
Hawaii State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the IV&V report the Office of Enterprise Technology Services received for the Hawaii Public Utilities Commission's Content and Document Management System Project.

In accordance with HRS section 93-16, this report may be viewed electronically at <http://ets.hawaii.gov> (see "Reports").

Sincerely,

  
Douglas Murdock (Dec 27, 2021 10:48 HST)

DOUGLAS MURDOCK  
Chief Information Officer  
State of Hawai'i

Attachment (1)



# Content and Document Management System (CDMS) Project

Hawaii Public Utilities Commission (PUC)

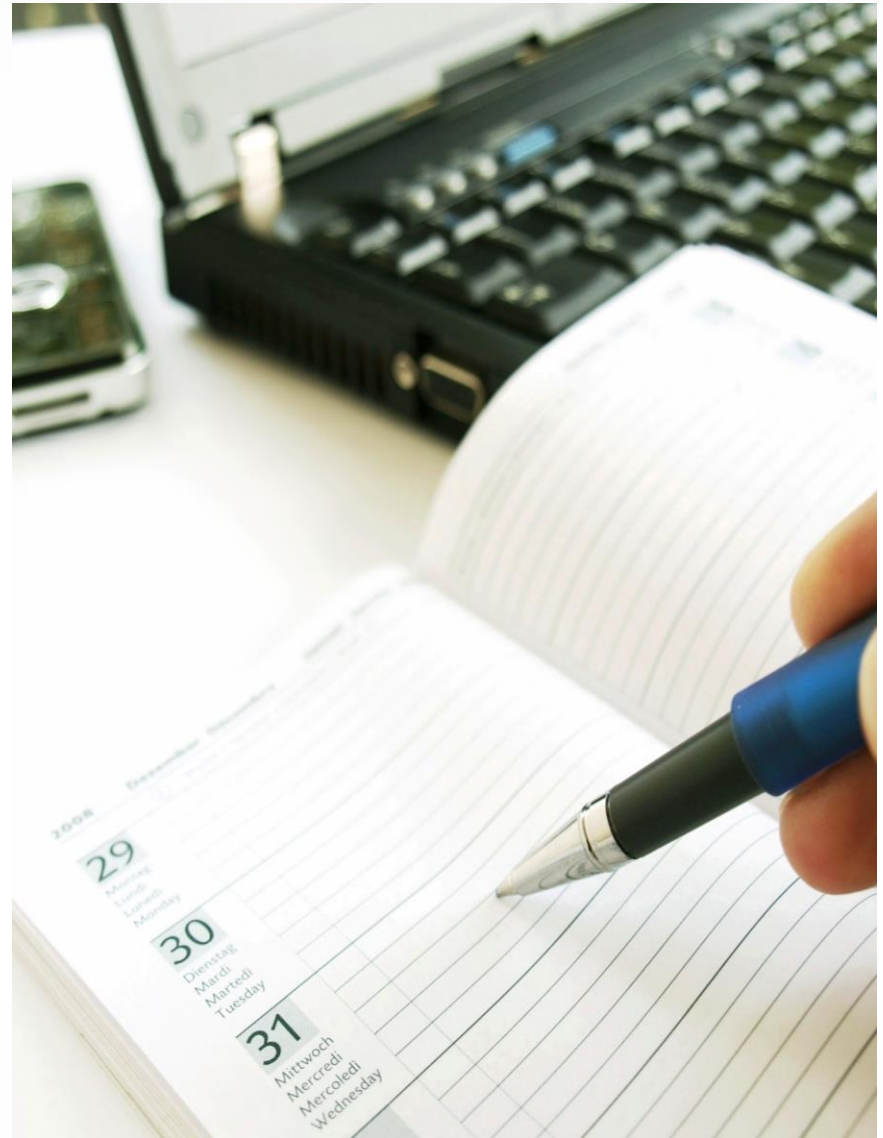
IV&V Monthly Status Report - Final  
For Reporting Period: **November 2021**

*Draft Submitted: 12/05/2021*

*Final Submitted: 12/22/2021*

# Overview


- Executive Summary
- IV&V Findings and Recommendations
- IV&V Preliminary Concerns
- IV&V Scope and Approach
- IV&V Engagement Status
- Appendices
  - A – IV&V Criticality Ratings
  - B – IV&V Inputs
  - C – Upcoming IV&V Activities



# Executive Summary

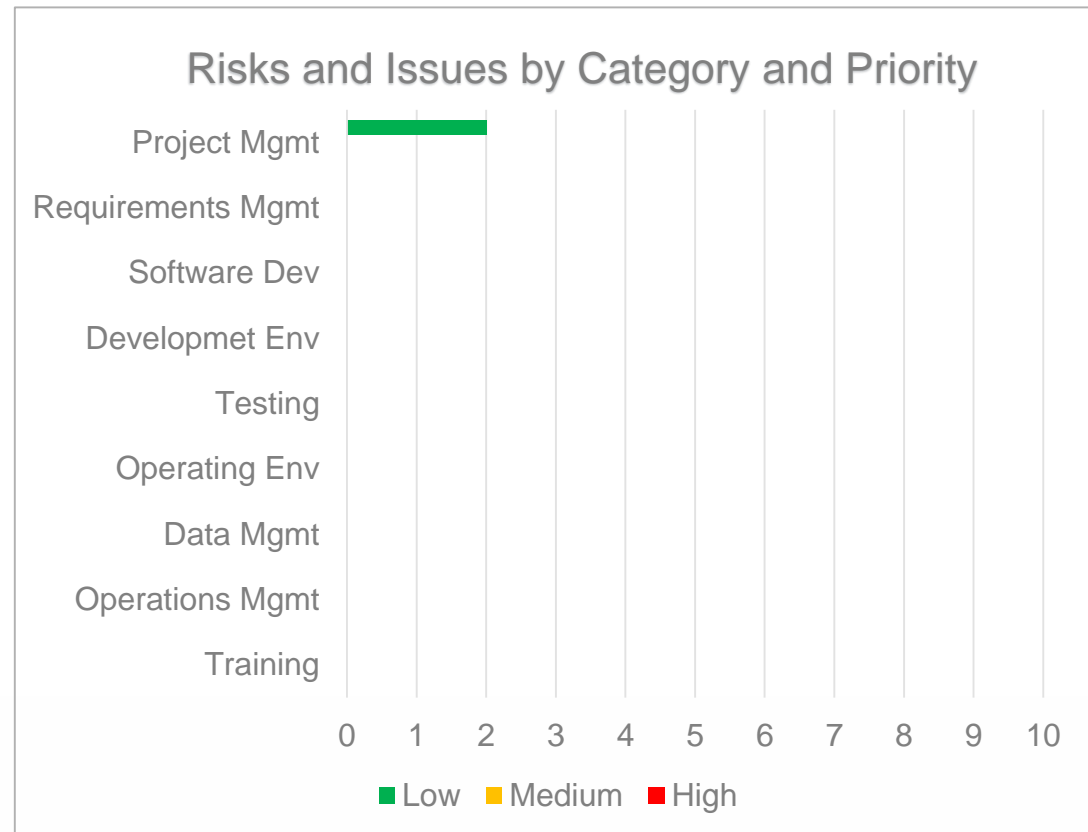
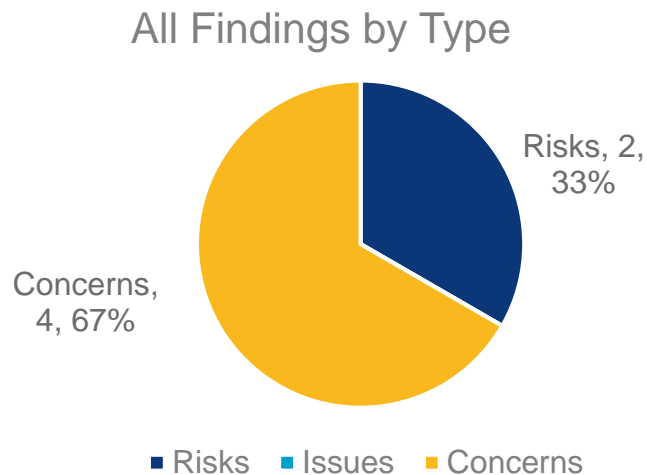
The System Integrator (SI) completed Sprint 2 and demonstrated the filing intake process and system fundamentals which gave users a glimpse into what the system will look like. PUC resources continue to participate despite the risk the Project may not be able to accommodate their busy schedules. IV&V raised a concern that two core project team members could be overallocated, affecting their ability to be effective in their current roles. However, the team members have stated they do not anticipate availability constraints moving forward.

Additionally, the SI revised key deliverables and addressed many of the comments and concerns regarding the initial drafts. While the submitted deliverables were satisfactory, there were deliverable acceptance misunderstandings regarding unfinished components of some of the deliverables, such as the data dictionary and the requirements traceability matrix. The SI and PUC agreed that the acceptance criteria of specific future deliverables will include the completion of these components and will be part of future phases to address this concern. IV&V, the SI and PUC agree that future deliverables could cause extended review periods if deliverables are not at a mutually agreed-upon level of detail, resulting in project delays.

Nov '21	Category	IV&V Summary
	Project Management	<p>PUC resources continue to fully participate in project activities despite initial concerns that the Project may not be able to accommodate their busy schedules.</p> <p>IV&amp;V, PUC and the SI remain concerned that future project deliverables could cause extended review periods and project delays if deliverables are not at an appropriate level of detail.</p>

# Executive Summary

IV&V is monitoring six findings. In this period, an existing preliminary concern was escalated to a risk and a new preliminary concern was created. In total, there are two risks and four are preliminary concerns. The two risks are rated low and are both found in the project management category.



The background is a solid blue gradient. It is decorated with several abstract geometric elements: white-outlined squares of various sizes, some of which are slightly offset from each other, and solid blue squares. Some of these squares are connected by thin white lines, creating a sense of movement or a network. The overall aesthetic is modern and technical.

## **IV&V Findings and Recommendations**

# IV&V Findings and Recommendations - Risks

IV&V ID #14	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
<p><b>Title:</b> Limited PUC resource availability could lead to schedule delays and incomplete system design.</p> <p><b>Observation:</b> Although the CDMS Project is a high priority at the PUC, resource limitations appear to exist throughout the life cycle of the Project. These constraints were communicated to the System Integrator (SI) early in the project for planning purposes.</p> <p><b>Context:</b> System development projects require coordination and engagement between the SI and the client in order to accurately document business needs, processes, user stories, business rules, and anything needed to build a system that meets the client's needs.</p> <p><b>Impact:</b> Schedule delays, increased project cost, implementation of a solution that that does not meet the PUC's needs</p>			
<b>Updates</b>			
<p>November 24, 2021: PUC Stakeholders were engaged in the project during this review period. The Project is also tracking this risk and the project team continues to monitor and mitigate this risk by working closely together to manage resource needs and availability.</p>			

# IV&V Findings and Recommendations - Risks

IV&V ID #14 (cont.)	Type: Risk	Status: In progress	Category: Project Management	
	Rating: Low		Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
PUC PM and SI PM develop a plan to address these constraints. Work closely together throughout the project to plan important meetings based on resource availability.			Long Term	In progress
SI develop fully resourced work plan.			Short Term	Not started
PUC and SI review Sprint Plan and ceremonies to identify specific resources to help identify resource risk that can be addressed before sprint cycles begin.			Short Term	In progress
SI employ agile processes and methodologies so that progress can be made regardless of PUC resource availability.			Long Term	In progress



# IV&V Findings and Recommendations - Risks

IV&V ID #15	Type: Risk	Status: In progress	Category: Project Management
	Rating: Low		Date Opened: September 30, 2021

**Title:** Project deliverables and artifacts that lack sufficient detail could lead to project delays, misunderstandings, inefficient project execution, and rework.

**Observation:** Early SI submissions of project deliverables lacked sufficient detail.

**Context:** Project planning documentation such as the Project Plan, Risk Management Plan, Communication Plan and Change Management Plan, can be effective tools for projects of this size to increase stakeholder understanding of the goals, approach, steps, timelines, roles and responsibilities. Additionally, conceptual designs, requirements traceability matrices, and process maps can also provide important information for successfully developing a system that meets PUC's needs.

**Impact:** Failure to provide sufficient detail in project deliverables can lead to project team confusion, missteps, project delays, misunderstandings, inefficient project execution, and rework.

## Updates

November 30, 2021: During this reporting period the SI satisfactorily updated deliverables that initially did not meet the Project's needs. There were concerns about accepting and paying for deliverables with incomplete components that were going to be completed in a future project phase. The SI and PUC added the completion of those components to the acceptance criteria of future deliverables and will be part of future phases to address this concern. The SI has added a resource to review deliverables before submitting drafts to the PUC to mitigate this risk and the Project will monitor the effectiveness of this strategy.



# IV&V Findings and Recommendations - Risks

IV&V ID #15 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
Although DEDs were developed for all deliverables, the SI should involve PUC before providing the draft deliverable to obtain feedback and expedite review cycles.			Long term	Not started
The SI should perform additional QA of deliverables prior to submission			Long term	In progress

The background is a solid blue color. It is decorated with various abstract geometric shapes, including squares and rectangles of different sizes and shades of blue. Some shapes are solid, while others are outlined. They are scattered across the slide, with a higher concentration on the left side and some on the right.

## IV&V Preliminary Concerns

*(These are not findings, rather, these are observations based on limited information at the time of reporting and require further discovery, research and clarification.)*

# IV&V Preliminary Concerns

ID #16	Type: Preliminary Concern	Status: In progress	Category: Project Management
	Rating: n/a		Date Opened: September 30, 2021

**Title:** Adoption of an aggressive schedule can lead to poor system design, PUC stakeholder frustration, and stretch PUC resources beyond their capacity.

**Observation:** The project has an aggressive schedule with little slack given the volume of deliverables and artifacts, the availability of PUC resources, and the perceived cadence of project meetings and workshops.

**Context:** A schedule with flexibility and sufficient slack to accommodate project changes that impact the schedule such as resource availability, activities that take longer than anticipated, or missed dependencies, typically result in a project that is delivered on time. Projects with aggressive schedules tend to rush project activities to meet deadlines.

**Impact:** Rushed project activities can reduce document and system quality. When activities do not seem thorough, customer frustration can result. A rushed schedule can place unnecessary demand on PUC resources, especially if PUC resources are already fully utilized.

## Updates

November 30, 2021: Although project expectations and communications regarding Phase 3 deliverables nearly delayed Sprint 3/4 activities, this was addressed without any significant delay. Overall, the project is meeting key project deadlines.

# IV&V Preliminary Concerns

ID # 17	Type: Preliminary Concern	Status: In progress	Category: Requirements Management
	Rating: n/a		Date Opened: September 30, 2021

**Title:** Inefficient business analysis activities could lead to rework, schedule delays, SME frustration, and poor system design

**Observation:** PUC and IV&V were concerned that many analysis outputs lacked sufficient quality and comprehensiveness. For example: 1) Feedback from PUC workshop attendees mentioned various workshops and meetings were not very useful, unorganized and unproductive. 2) The workshop cadence seemed slow and did not appear to achieve all intended goals of each workshop session. 3) Although not a contractual requirement, meeting notes from the workshops were not sent to meeting attendees which helps confirm the SI's understanding and shows visibility that the SI understands PUC's needs. 4) Although not explicitly required, PUC requested the SI to review the business documentation provided by a 3rd party prior to conducting the as-is workshops to save time and not start from a blank slate. Despite having access to and reviewing the existing business documentation, PUC observed many questions and time spent on areas that were already documented and PUC was not confident as to how much of the existing documentation was leveraged.

**Context:** Efficient business analysis processes promote effective communication, results in efficient meetings, provides clarity to complex topics, results in good project documentation and overall fosters client trust.

**Impact:** Inefficient analysis activities can have varying negative impacts to the project. For example: 1) Project delays can occur if meetings do not meet intended goals and require additional meetings and time. 2) Rework and redesign can happen if accurate information was not solicited because participants were not sure of their expectations during the meeting. 3) If client frustration happens, client buy-in and acceptance of the new system can be reduced resulting in a lower quality product

## Updates

November 30, 2021: The SI made good progress toward documenting the results of their activities during the analysis phase. Given the hybrid-Agile approach, the documentation contains adequate content to move forward with development. Although the schedule affords additional analysis during development, it is uncertain if that analysis can be completed within the remaining project timeline at this time.

During this reporting period, a key BA left the SI's team and it is unknown if knowledge transfer occurred.

# IV&V Preliminary Concerns

ID #18	Type: Preliminary Concern	Status: In progress	Category: Project Management
	Rating: n/a		Date Opened: October 28, 2021

**Title:** Lack of attention to process improvement can lead to a system that simply automates existing processes instead of improving them

**Observation:** The extent to which the Project intends to focus on process improvements remains unclear. Pain points do not seem comprehensively tracked or considered during design sessions or whether all stakeholders are aware of or are actively utilizing the pain points list. While IV&V recognizes that change is difficult, some stakeholders appear to be hesitant to let go of familiar processes during the design sessions. It remains unclear if PUC has assigned the role of change champion to drive organizational process improvements.

**Context:** IT Projects that assign change champions and prioritize process improvement have an increased likelihood of resulting in systems that meet the organization's future business needs and improve system acceptance.

**Impact:** Lack of attention to process improvement can lead to a final product that fails to provide maximum value to users. Tracking pain points can be an effective OCM strategy for user adoption and increases user buy-in by providing visibility into how pain points are being solved by the system. Also, by identifying and implementing opportunities for process improvement avoids SME frustration and rework.

## Updates

November 30, 2021: The SI indicated they will continue to leverage the Gartner-produced materials that identified pain points and process improvement recommendations. PUC indicated they are open to additional improvements afforded by the Salesforce application. It continues to remain unclear how the Project is tracking process improvements and pain points to ensure they are addressed.

# IV&V Preliminary Concerns

ID #1 9	Type: Preliminary Concern Rating: n/a	Status: New	Category: Project Management Date Opened: November 30, 2021
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**Title:** Key PUC project resources performing multiple roles could lead to schedule delays and significant project disruption.

**Observation:** IV&V has noted that at least two of the PUC project team members perform multiple roles and responsibilities on the project which may impact their ability to be successful if project demands increase.

In addition to serving as PUC's CDMS PM, this position also performs the following roles: Organizational Change Management lead, Process Improvement lead, Business Analyst Co-lead, User Acceptance Test (UAT) Co-lead, and Contract Administrator. In addition to performing ongoing operational responsibilities, the PUC CDMS Technical Lead is the Project IT Sponsor, Data SME, BA Co-Lead, and User Acceptance Test Co-Lead, and is heavily relied on for business analysis.

While these team members have indicated a strong commitment to project success, each has multiple competing priorities. The team members stated their support staff, including the new communications lead, will take on more responsibility to alleviate demands on their time. Also, the team members believe that the overall future workload will lessen.

It remains unclear if PUC staffing levels are appropriate for this project.

**Context:** Typically, Hybrid Agile projects require an increased level of customer engagement through all phases of the project. Overreliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals but also present a risk of significant project disruption in the event of their departure.

**Impact:** If the PUC PM and Technical SME are unable to transfer some responsibilities to other PUC resources, this could stretch them beyond their capacity which may lead to project delays and a decrease in quality in the project tasks they perform.

## Updates

n/a





## IV&V Scope and Approach



# IV&V Scope

- In accordance with PCG's contract for the CDMS Project at the PUC, the subject areas that are within the scope of IV&V activities include:
  - Project Management
  - Requirements Management
  - Software Development
  - Development Environment
  - System and Acceptance Testing
  - Operating Environment
  - Data Management
  - Operations Oversight
  - Training
- As the CDMS IV&V project progresses, PCG's activities will focus on areas that represent highest risk to the Hawaii PUC.

# IV&V Approach and Methodology

- What is Independent Verification and Validation (IV&V)?
  - Oversight by an independent third party that assesses the project against industry standards to provide an unbiased view to stakeholders
  - The goal of IV&V is to help the State get the solution they want based on requirements and have it built according to best practices
  - IV&V helps improve design visibility and traceability and identifies (potential) problems early
  - IV&V objectively identifies risks and communicates to project leadership for risk management
- PCG IV&V Methodology
  - Consists of a 4-part process made up of the following areas:
    1. **Discovery** – Discovery consists of reviewing documentation, work products and deliverables, interviewing project team members, and determining applicable standards, best practices and tools
    2. **Research and Analysis** – Research and analysis is conducted in order to form an objective opinion.
    3. **Clarification** – Clarification from project team members is sought to ensure agreement and concurrence of facts between the State, the Vendor, and PCG.
    4. **Delivery of Findings** – Findings, observations, and risk assessments are documented in this monthly report and the accompanying Findings and Recommendations log. These documents are then shared with project leadership on both the State and Vendor side for them to consider and take appropriate action on.
















Note: This report is a point-in-time document with findings accurate as of the last day in the reporting period.








## **IV&V Engagement Status**

# IV&V Engagement Status

IV&V Engagement Area	Sept	Oct	Nov	Comments
IV&V Budget				The IV&V engagement is deliverables-based and PUC is not at risk of being over budget.
IV&V Schedule				The IV&V engagement aligns with the SI schedule. At this time.
IV&V Deliverables				There are no known risks to upcoming IV&V deliverables.
IV&V Staffing				The IV&V team maintains the proposed team and there are no foreseeable changes.
IV&V Scope				The IV&V project continues to operate within the scope of its engagement.




Engagement Status Legend		
 <p>The engagement area is within acceptable parameters.</p>	 <p>The engagement area is somewhat outside acceptable parameters.</p>	 <p>The engagement area poses a significant risk to the IV&amp;V project quality and requires immediate attention.</p>

# Appendices

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# Appendix A – IV&V Criticality Ratings

See definitions of Criticality Ratings below:

Criticality Rating	Definition
	A high rating is assigned if there is a possibility of substantial impact to product quality, scope, cost, or schedule. A major disruption is likely and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
	A medium rating is assigned if there is a possibility of moderate impact to product quality, scope, cost, or schedule. Some disruption is likely and a different approach may be required. Mitigation strategies should be evaluated and implemented as soon as feasible.
	A low rating is assigned if there is a possibility of slight impact to product quality, scope, cost, or schedule. Minimal disruption is likely and some oversight is most likely needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.

## Appendix B – IV&V Inputs

[illegible]

# Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Deliverable Walkthroughs	Data Conversion/Migration Plan
Standing: Bi-weekly risk meetings	Sprint 3/4 User Stories
Standing: Weekly IVV check-in meetings	
Standing: Weekly project status meetings	
Standing: Daily standups as needed	
Sprint 2 Demo	
Sprint 3/4 Backlog Refinement Meetings	
Data Conversion Meetings	



# Appendix D – Recommendation Periods

Period	Definition
<b>Short Term</b>	These are recommendations that should be completed within the month and/or require less than a month to complete
<b>Medium Term</b>	These are recommendations that should be completed within 2-6 months and/or require 2-6 months to complete
<b>Long Term</b>	These are recommendations that should be completed within 6 months to a year and/or require > 6 months to complete.



**Solutions that Matter**