NextGen PAL Stage 1b:
Proof of Concept

NextGen PAL is a proposed update to the California Department of Technology (CDT)'s Project Approval Lifecycle (PAL) process that oversees information technology (IT) projects at the State of California. NextGen PAL revises the current PAL process by proposing:

1. Low-overhead "discovery" and "prototype" phases;
2. A smaller process ("PAL Lite") for smaller projects; and
3. Caps on the overall size of all projects.

To implement NextGen PAL, this project recommends updating several stages of the current PAL process, including the Stage 1: Business Analysis form. This document details proposed revisions to the Stage 1: Business Analysis form as part of a new sub-stage 1b: Proof of Concept.

Overview of POC Phase

What is the Proof of Concept (POC) phase?

We propose a Stage 1b: Proof of Concept (POC) phase within the PAL process. During the POC phase, project teams should rapidly evaluate the feasibility of their technology projects on a small scale. By building pieces of their technology proposals beforehand, project teams will understand whether their solutions are viable early on. This POC phase differs from a scorecard because it is meant to be iterative. By allowing for multiple cycles of POC, solutions are refined at a small scale before large-scale expenditures are committed.

Though the POC is intended as a learning process, it may yield functional products for the projects. This is particularly the case for commercial off-the-shelf (COTS) applications and implementations, such as software-as-a-service (SaaS).

Why include a POC?

By completing POCs, teams are able to test their assumptions, try potential solutions, and gather data on their problem statements. This exercise forces teams to think about their solutions from end-to-end and identify problems early on. Teams are enabled to gather important information about the full-scale execution of a large project using few resources.

What is the output of a POC?

A POC should have two outputs: (1) learnings and (2) a prototype. Learnings are the pieces of knowledge that the project team gains through the planning and execution of the POC. They inform the team's future actions, and are the primary value derived from the POC stage.

POCs should also result in an actual prototype. Prototypes may be technologies, devices, infrastructures, or even just processes. Some POC prototypes will be nearly ready for production, while most will be raw, small, and unfit for deployment. Each is an opportunity for the team to learn.

Does the POC only happen once?

The POC phase should occur at least once, but depending on it's outcome and the complexity of the project, additional low-cost POC cycles may be warranted.

What is the difference between a POC and a request for proposal?

A request for proposal (RFP) is a structured exercise during which a series of vendors propose solutions to a predefined series of requirements. This exercise assumes two things: first, that the requirements are correct; and second, that the vendors can deliver a workable solution. In reality, these assumptions may not hold true. Unlike an RFP, a POC phase will allow teams to test their requirements against a narrow set of potential solutions to validate the requirements. It is expected that after a POC is complete, teams may need to conduct an RFP with refined requirements.

POC Report Form

We propose that CDT require project teams to submit the following report form after their POC has been developed and tested. Ideally, this document will be delivered to stakeholders after a demo of the tool has been conducted and evaluated, and after key stakeholders have provided feedback on the demo.

The report form records the function, process, and outcome of the POC. Much like a research paper, it is intended to record the team's experience with both the concept and execution of the POC and to make the team's conclusions durable. It also exists to ensure that both the current and future teams can learn from the POC. This document, not the POC itself, is the enduring and critical output of Stage 1b. The report is not a scorecard intended to evaluate particular vendors, but instead to evaluate a particular solution approach.

Length: There should be a hard limit of six pages for the body of the POC report form. A six page limit makes critical information from the POC process easier to disseminate and consume. Appendices may be added for additional detail beyond the six page limit.

Outline of the Report Form:

1. **Executive Summary:** The executive summary should be no more than a paragraph and state the problem statement, the evaluated solution, and the general outcome of the POC. It should also include:
   a. Background information, such as who is involved, and why the team selected the problem;
   b. A problem/opportunity statement that describes the problem the project team is trying to solve;
   c. A brief description of the proposed solution; and
   d. A conclusion of what was learned from the POC process.

2. **Background:** The background section should be 1-3 paragraphs, and should tell the reader who is conducting the project and why. It should more specifically include:
   a. A high-level description of what the project team is hoping to accomplish;
   b. A description of what problem the project team is trying to solve, and reasoning for how this problem was selected;
   c. A list of who was involved in creating the POC, and why they were the right people to be involved; and
   d. Information about whether others have tried to solve this problem in the past. If there have been other attempts at solving this problem, the team should include more information on past attempts and their outcomes.

3. **Problem Statement:** The problem statement section should be 1 to 2 paragraphs and include critical information on the problem the project team is trying to solve. It should incorporate:
   a. A clear problem statement;
   b. Metrics for how success is measured;
   c. Language explaining why this is an important problem and what happens if the problem isn't solved; and
   d. What subset of the problem the POC is intended to address.

4. **Solution Approach:** The solution section should be 2 to 3 paragraphs and include information on what the project team will do to address the problem, and why the POC phase is important to that solution. It should more specifically include:
   a. What the POC's scope is in relation to the full project solution the team is proposing;
   b. A brief statement of the benefits and risks of the proposed solution; and
   c. Language explaining why this solution was chosen over alternatives.

5. **Description of the proof of concept:** The POC description section should be roughly 1 page and include information on what the project team is building, and how it relates to their final solution. It should more specifically include:
   a. A description of what the project team set out to build;
   b. A description of the tool's context, such as inputs and outputs;
   c. The methods by which inputs are transformed to outputs; and
   d. A description of the critical points the POC is meant to address.

6. **Outcome:** The outcome section should be roughly 1 page and describe the outcomes of the POC process. It should include information such as:
   a. What was built;
   b. Whether the POC was successful in addressing the scoped problem, and how we know whether that is true;
   c. What the core challenges were during the POC phase, and whether building the prototype was harder or easier than expected;
   d. What feedback the team received from stakeholders; and
   e. A description of what should stay the same and be done differently while building the full solution.

7. **Mandatory appendices:** The POC report form should also include mandatory appendices to include:
   a. A context diagram for the solution with clearly labeled inputs, outputs, and dependencies;
   b. A timeline for the POC phase;
   c. A statement of work for the POC phase;
   d. Screenshots of potential software tools that are being built;
   e. A list of success metrics;
   f. A risk analysis assessment; and
   g. Stakeholder feedback.