

Evaluation, Comparison, and Improvement Recommendations for Caltrans Financial Programming Processes and Tools

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Introduction

The California Transportation Improvement Program System (CTIPS) is the main tool used by Caltrans' Division of Financial Programming to support the business of transportation programming. It is a multi-agency joint-use project programming database system applied to develop and manage various state and federal transportation programming documents, as required under the state and federal laws.

The goal of this project is to evaluate the current financial programming processes and tools, i.e., CTIPS, and explore various new solutions and options that will maintain the current functionality of CTIPS, meet legislative guidelines for ADA compliance, ensure security of the system against attacks, and also have sufficient scalability and capabilities for integration with other systems that share CTIPS data and enhancement in the future. Our research project will help Caltrans make an informed decision

about modernizing and upgrading an essential programming database, and get a comprehensive picture of the unbiased options that can help structure the existing functions and potential upgrades to the California Transportation Improvement Program System (CTIPS).

Study Methods

To achieve the goal of this project, the research team completed the following tasks: identifying the risks associated with the current financial programming processes and tools, i.e., CTIPS; identifying opportunities for improvements to the financial programming processes and tools (i.e., CTIPS); comparing the processes in California with currently recognized best practices—as well as with the processes and tools used in the other 49 states in the US; and making recommendations for the improvement of the financial programming processes and tools (i.e., CTIPS). This research provides an overview

of the current Caltrans financial programming processes and tools and analyzes and assesses the existing financial programming business processes. This is based on the review of current and historical documents, interviews, and surveys of the customers of the Division of Financial Programming. This project incorporates research on the national market for programming systems as used by the Departments of Transportation (DOTs) of the fifty states and the District of Columbia (DC). This is based on a survey and investigations of the processes and approaches used by the states and DC to perform functions similar to the processes in California. The survey covers a variety of questions and areas, such as whether there is a dominant commercially available system; security practices; programmatic usage; financial interfaces; other interfaces; and input methods.

Findings

Results of this research have concluded that there are no dominant commercial systems in the market for DOT STIP programming, although there is one product that is used by six of the seventeen DOTs that do utilize commercial systems. Results show that a clear majority of DOTs use their own in-house systems, and most DOT STIP programming systems appear to have room for improvement in their financial interfaces.

Policy/Practice Recommendations

The research team recommends mid-level business-based requirements for a future CTIPS replacement system and associated processes. Our recommendations spread across a variety of areas, such as automation and workflow; batch upload; Caltrans IT strategy; compliance and audits; custom reports and information for RTPAs, MPOs, and Caltrans units; data storage, dates, and milestones; data validation and integrity; federal processes and systems; Geographic Information System interface; hand entry of data; interfaces with Caltrans systems; interfaces with RTPA and MPO systems; notifications and alerts; replacement of existing systems; security; splits and combines / project identification; statewide reports and reports to the CTC; training, coordination, and information sharing; and use of funds.

We identify the risks associated with the tools used by the current financial programming processes (i.e., CTIPS),

identify opportunities for improvements to CTIPS, and then make recommendations for the improvement of CTIPS. Our recommendations cover 11 different areas, such as hosting environment; vendor selection; ADA compliance; security improvements; scalability and flexibility; database and user access; ML/AI and data analytics features; procurement platform; product license and price; migration plan; and project management. Results indicate it would almost certainly be cheaper, and less risky, to replace CTIPS rather than attempting to recode the existing system.

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2058



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