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2023 RESEARCH PROJECT STATEMENT

Research Topic:

LIMMS Development Planning

Research Budget and Timeline:

- \$300,000
- 18 months (of which final 3 months are for review)

Problem Statement and Objectives

The Laboratory Information Materials Management System (LIMMS) was designed as a secure platform to streamline and centralize materials data collection and provide tools to analyze patterns and trends statewide. The current design of LIMMS limits the expected benefits of the system and does not meet MassDOT security standards. MassDOT has an opportunity to investigate alternative software that can meet or exceed MassDOT's design and security requirements.

The purpose of this project is to conduct a gap analysis that will examine the needs of LIMMS users from system design and functionality to security. The analysis will take into consideration the multiple platforms used by MassDOT users currently for material and contract management (including material inspection, material testing, and material documentation systems). The analysis will also identify LIMMS or material management products used by other DOTs nationally. The gap analysis report findings will be used to develop a Request for Information (RFI) with a detailed and accurate scope of work for a sustainable and efficient LIMMS system. The purpose of the RFI is to identify vendors with a LIMMS product that meets the current and future needs of MassDOT. Findings will be used to inform the selection of future LIMMS software vendors.

Anticipated Outcomes and Deliverables:

Outcomes: A gap analysis report and Request for Information will inform a future RFQ process by providing a detailed scope of work and identifying vendors that can meet the needs of LIMMS users, including MassDOT IT Security, address current system deficiencies, and support future growth. Further, the detailed scope of work will ensure cost and time estimates for implementation of a new or improved LIMMS system will be accurate.

Deliverables:

1. Develop a timeline for all deliverables to be reviewed and approved at the start of the project.
2. Compile a list of LIMMS vendors and products used by DOTs around the country for material inspection, testing and documentation.
3. Conduct a gap analysis through a series of workshops with current LIMMS users and MassDOT leadership. This step must include a meeting with the MassDOT security team

to clarify and emphasize the role of security in this project. This step must also include a review of the multiple platforms and systems currently utilized by MassDOT for material management including the LIMMS system (See Addendum). A summary of findings shall be made available to MassDOT prior to the formal gap analysis report.

4. Compile a gap analysis report based on findings from the workshops, interview with security, and review of MassDOT platforms. The report shall include a recommendation for a future system architecture design and integration with other MassDOT systems considering analysis findings.
5. In coordination with MassDOT, develop a Request for Information (RFI) with a detailed and accurate scope of work based on gap analysis and system analysis findings and recommendation.
6. Compile a list of prospective vendors with the potential to meet the requirements of the RFI. The list should include a brief description of the vendor's LIMMS or other products.
7. Final report summarizing research activities, results, and recommendations.
8. Final presentation to key stakeholders.

Addendum

Systems currently used in material management include:

- LIMMS – Laboratory Information Materials Management System. The system pulls contract information from TISH to create a materials testing plan (Test Plan RMS360), documents sample information, documents test data and results, can be used to generate reports, and includes a repository of all material management information created in LIMMS.
- SAM – Site Application Module. The system allows resident engineers to create milestone events for contracts and allow the events to be electronically approved. In addition to creating events, this system can also be used to generate various summary and contract specific reports. The use of these forms provides a standardized electronic means of documenting changes to the status of the various types of contracts. It is also used to create estimates and pay slips, and to update quantities of construction materials used.
- Highway CMS – Contract Management System. CMS is used by MassDOT HQ to manage vendors and construction contracts, and to approve the estimates and pay slips created in SAM.
- TISH – Transportation Information Superhighway. The database used by several custom systems written for the Highway department including ProjectInfo, SAM, and Highway CMS. It is the central repository for information about Contracts and Projects. Contract information is pushed to LIMMS via TISH.
- Global Bid Item List – An organizational system for contract line items. Items are identified by a unique number, includes item descriptions, and indicates units of measure, project quantities, and special or standard provisions.
- SharePoint
 - QA SharePoint site – internal site for submission of material documentation.
 - Project Control SharePoint site – external site accessible by project contractors for submission of material documentation.