STATE CIO AWARDS SUBMISSION

State: Oregon
Agency: Oregon Medical Board (OMB)
Awards Category: Legacy Modernization
Oversight: Level 1, no oversight
Project Title: Modern Techmed: Extending Legacy Systems with a Modern User Experience
Project Dates: August 2024 - April 2025
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Executive Summary

The Oregon Medical Board's "Modern Techmed" project demonstrates how a critical legacy system can be revitalized through targeted modernization without disrupting core functionality or requiring significant investment. Faced with an aging, out-of-support system (Techmed) built in the early 2000s that relied on deprecated technologies, OMB took an innovative approach to extend the life and usability of this essential application.

Our internal IT team designed and implemented a modern interface that seamlessly integrates with the existing backend infrastructure. This strategic approach preserved the agency's investment in the core system while delivering a dramatically improved user experience for the 40 staff members who rely on Techmed for nearly all aspects of their daily work.

The Modern Techmed project represents an interim step toward full system replacement, providing immediate usability and compatibility improvements while the more time-intensive, complete modernization is planned and implemented. This approach not only addresses immediate technical challenges but also establishes a foundation for future development.

Project Narrative

IDEA

What problem or opportunity does the project address?

The Oregon Medical Board has relied on Techmed, developed by GLSuite in the early 2000s, to support virtually all agency operations, including licensing, investigations, case management, payment processing, and public records requests. In 2015, OMB ceased receiving support from the vendor and has been internally maintaining the application ever since.

While the core system remains functionally sound, the user interface presented increasingly critical challenges:

- Reliance on ActiveX controls and Internet Explorer, both deprecated technologies
- Growing compatibility risk as browser support for Internet Explorer diminishes
- Server-side processing that required page refreshes for basic operations like field validation
- Outdated user interface design that reduced staff efficiency with very little ability to modify.

Why does it matter?

The medical licensing and regulation responsibilities of the OMB are essential to ensuring qualified healthcare providers serve Oregonians safely. Techmed is the technological backbone that supports these critical public protection functions. The degrading user experience and reliance on unsupported technologies presented significant risks:

- Growing security concerns as underlying technologies reached end-of-life
- Potential browser compatibility issues if Microsoft made changes to IE support in Edge
- Increasing technical debt and maintenance challenges

A complete system replacement will require substantial time to develop. Modern Techmed provides a bridge solution that provides immediate value for staff, reduces operational risk, and lays the groundwork for the future system.

What makes it different?

Modern Techmed stands out for its pragmatic balance of innovation and preservation:

- Targeted modernization of the user interface while preserving stable core functionality
- A modern frontend on top of a legacy system
- Exclusive use of in-house expertise rather than expensive vendor contracts
- Zero-disruption approach that requires minimal retraining for staff
- Utilization of open-source technologies (Vue.js, Bootstrap) to eliminate licensing costs

What makes it universal?

This project addresses challenges nearly universal to state government:

- Aging, mission-critical systems that cannot be easily replaced
- Budget constraints that limit options for full system replacements
- Need to balance modernization with operational continuity
- Technical debt accumulated over decades of evolving technology

IMPLEMENTATION

What was the roadmap?

The project followed a strategic roadmap with clearly defined phases:

1. **Assessment and Strategy (1 month):** Analyzed existing architecture, documented core functionality, evaluated modern technology options, and developed a low-risk modernization strategy
2. **Technical Foundation (1 month):** Set up Vue.js & Bootstrap, built the integration layer for frontend-backend compatibility, and implemented XML-to-JSON conversion.
3. **Incremental Development (5 months):** Prioritized screens based on usage, developed modern replacements for each interface component, and conducted iterative testing with stakeholders
4. **Validation and Refinement (3 month):** Comprehensive testing across browsers and devices by key stakeholders and Subject Matter Experts with final refinements based on feedback

Success was measured against specific criteria:

- Functional parity with the legacy interface
- Modern user experience design
- Elimination of dependencies on deprecated technologies
- Performance improvements in key workflows

Who was involved?

The project relied on a small but highly effective team:

- **IT Department:** Two internal developers led the technical implementation
- **Business Analyst:** Served as the bridge between technical and business needs
- **Department Managers:** Provided domain expertise and validated functionality
- **Subject Matter Experts (SMEs):** Provided detailed insights into workflow requirements

Key to success was the extensive involvement of actual system users throughout the development process, with regular demonstration and feedback sessions.

How did you do it?

The technical approach was elegant in its simplicity yet powerful in its impact:

- **Resources:**
  - The project was completed using existing internal staff with no additional budget required
  - The implementation required no additional server resources or licensed software, relying entirely on open-source technologies.
- **Technical Architecture:**
  1. Analyzed existing .aspx pages to understand communication patterns with the server
  2. Developed a middleware layer allowing the modern frontend to communicate with the legacy backend
  3. Implemented XML-to-JSON conversion using open-source libraries
  4. Built the new user interface with Vue.js and Bootstrap, incorporating modern interaction patterns
  5. Used NPM for dependency management and Git for version control
- **Technical Innovations:**
  - Utilized modern designs, search controls, and calendars to improve efficiency and effectiveness

IMPACT

What did the project make better?

The Modern Techmed project has transformed the daily work experience for OMB staff:

- **Immediate Validation**: Field validations now occur instantly, preventing errors and reducing processing time
- **Efficient Data Entry**: Auto-completing dropdown lists replaced cumbersome full-page selectors

- **Improved Information Architecture**: Modern design principles make information easier to discern and navigate, with color schemes that visually indicate required actions or completed tasks
- **Browser Freedom**: Staff can now use any modern browser rather than being tied to Internet Explorer, eliminating compatibility risks and future support concerns
- **Enhanced Workflow**: Responsive design with interactive elements like hover highlighting provides visual feedback, while intelligent menu enablement prevents errors by disabling options until records are fully loaded
- **Dynamic Content Management**: Previously fixed-size elements like comment boxes and content summary areas (sub-forms) can now be enlarged to fit the content, improving readability and efficiency through reduced scrolling

The transformation is evident in the comparative screenshots (see below), which illustrate the dramatic usability improvements while maintaining familiar functionality.

How do you know?

The impact of the Modern Techmed project can be measured both quantitatively and qualitatively:

- **Efficiency Gains:** Early testing shows measurable time savings in common workflows:
  - Form validation errors are now identified immediately rather than after page submission
  - Search operations with auto-completing fields reduce selection time
  - Navigation throughout records is streamlined, reducing clicks and page loads
- **User Experience:** Department managers have recognized that the revised interface will save several hours of staff time each month for the cash receipts process
- **Cost Effectiveness:** By utilizing internal resources and open-source technologies, the agency avoided substantial costs of external consultants (estimated at $150-250/hour), commercial software licensing, and extensive staff retraining
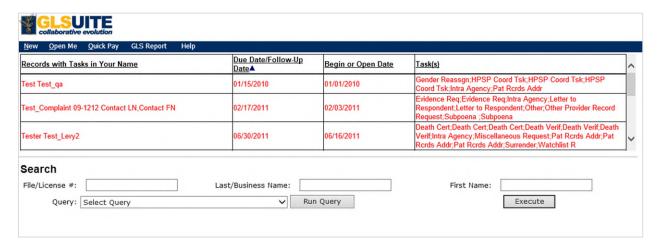
What now?

The Modern Techmed project serves as a strategic steppingstone in the agency's broader technology roadmap:

- **Foundation for Full Modernization:** This project demonstrates the capability of the agency's internal IT team to tackle complex modernization efforts, building confidence for the planned complete system replacement
- **Knowledge Building:** The project has enhanced the agency's internal capacity for modern application development, creating a foundation of expertise that will serve future initiatives

Modern Techmed exemplifies how targeted modernization can deliver immediate benefits while building toward a larger transformation. It represents a wise stewardship of public resources, extending the life of existing investments while improving service delivery.
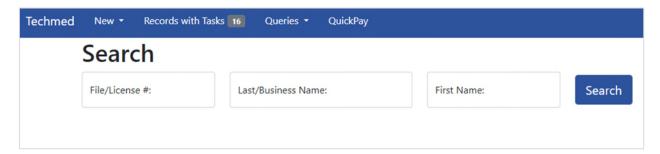
Visual Comparison of Legacy vs. Modern Techmed
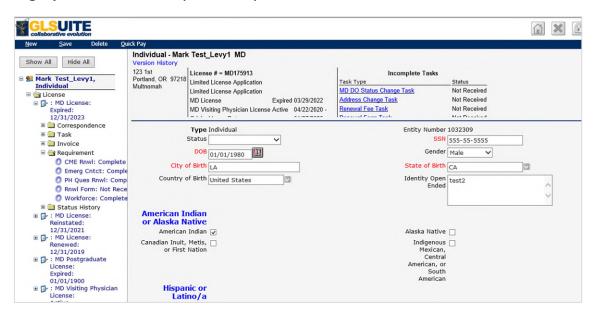
Legacy Home Screen (circa 2002)

The original Techmed interface relied on outdated UI elements, requiring Internet Explorer and ActiveX controls
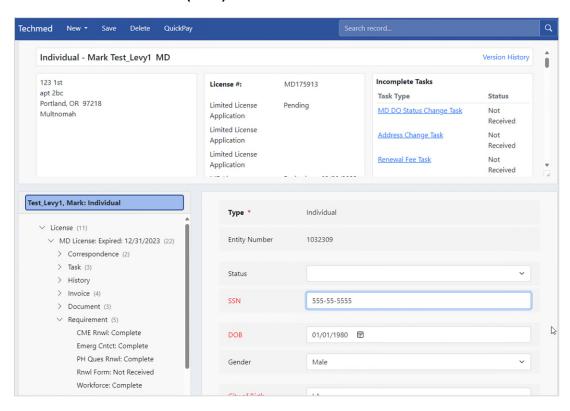
Modern Home Screen (2025)

The modernized interface provides a clean, intuitive search experience compatible with all modern browsers

Legacy Individual Screen (circa 2002)

The legacy system used outdated form controls and dense information presentation that was difficult to navigate

Modern Individual Screen (2025)

The new interface offers improved information architecture and task management, with modern form controls