

The State of North Dakota



**proudly submits to the NASCIO Awards
Committee**

Legislative Assembly's LEGEND Project

**in the Cross-Boundary Collaboration and
Partnerships category**

B. Executive Summary

North Dakota's Legislative Council (NDLC) implemented an XML-based integrated framework of applications to replace the legislature's legacy mainframe core business processes, which included bill drafting, bill amendments, resolutions, session management, daily calendars and journals, bill status reports, session laws, and other legislative publications.

The business case was created in August 2005, and an initial project associated with the business case failed after the vendor bowed out of the project in October 2008. Regrouping from this setback, the NDLC then partnered with the State's Information Technology Department. Together, the two agencies procured a new vendor, Propylon Systems, and the three entities kicked off the execution of their Legislative Enterprise System North Dakota (LEGEND) in June 2009. The new application was deployed in time to be utilized to manage the 62nd legislative session, which began in December 2010.

LEGEND is an open-source based integrated framework of applications. It provides the functionality of core business processes, including drafting of bills, amendments, and resolutions, daily journals, legislative workbench, bill status reports, session laws, North Dakota Century Code and other legislative publications.

The ability of North Dakota to collaborate not only between government agencies, but also between the different branches of government allows us to provide better services at lower costs to the citizens of North Dakota.

We hope you find our submission of value to your state and appreciate your consideration for an award in this category.

Sincerely,

Lisa Feldner
ND CIO

Jason Steckler
*Legislative Council Administrative
Services Director*

C. Description

The information technology systems that were used in the North Dakota Legislative Branch prior to the deployment of the LEGEND solution (implemented to support the legislative session that began in December 2010) were designed and built over a period of several years beginning



in the 1960's. The resulting custom-built applications were based on the unique requirements of the North Dakota legislative process and fully supported the various activities. The primarily mainframe-based legacy systems provided much of the required functionality to support the legislative process. However, many other computer systems were developed over time to support the entire legislative process (which still included many manual processes).

The problem of technology obsolescence and loss of knowledgeable support personnel affects the State of North Dakota legislature and related support agencies. The impact is a system that will be unsupported (operations and maintenance) in the near future and a significant risk of loss of critical systems that support the legislative process.

NDLC is at great risk of having systems that are unsupported in the near future due to the age (25+ years old) of key computer programs and related technologies. In addition, NDLC is in danger of losing support for these mission critical systems due to the loss of key personnel (retirement or job change) and since certain critical system technologies (BookMaster, ISPF, REXX) may become, in practice, unsupported within the next four years.

The risk of loss of support is amplified by the strong possibility that it may take as many as four years to completely renovate the entire software platform. A new solution and renovation plan had to be developed and implemented as soon as possible.

There are always significant challenges when moving from a mainframe legacy system that has been customized over 20 years to a new web based system. This project mixed the best of agile and waterfall project methodologies to ensure legislative staff was heavily involved throughout the life of the project while maintaining the scope and schedule.

Another challenge was the time constraint. The project had to complete between the biennial legislative sessions. Again the mixed project methodologies helped mitigate this risk.

Solution

This project was the follow-up to a previous failed effort. The state recognized that the best solution was a tight collaboration between the Legislative Council/Assembly staff, the Information Technology Department, and a proven vendor with experience deploying similar solutions. The state issued a Request for Proposal and awarded to Propylon (www.propylon.com).

LEGEND is an open-source based integrated framework of applications to replace the legislature's legacy mainframe core business processes, which included drafting of bills, amendments, and resolutions, daily journals, legislative workbench, bill status reports, session laws, North Dakota Century Code and other legislative publications.

LEGEND leverages open source technology such as: Subversion, Python, Django, ActiveMQ, Java, NetBeans RCP, Open Office, XML, and JSON. Most of these technologies are utilized as part of the Propylon Legislative Workbench, the basis of LEGEND.

Some of LEGENDs features include:

- Enhance ease-of-use – LEGEND now provides a dashboard and user interface for Legislative Council staff to manage workload, workflow and create documents. Documents are displayed in a WYSIWYG format enhancing usability.
- Document versions – LEGEND provides drafters, legislators, and the public a marked-up version of each bill modification, allowing everyone to easily identify and review modifications to legislation.

The project used the state's project management methodology (<http://www.nd.gov/itd/services/project-management>). The project also fell under the mandated Large Project Oversight process (<http://www.nd.gov/itd/services/project-management-oversight>.)

One of the key success factors was the tight working relationship between Legislative staff, the Information Technology Department and Propylon. They formed an



extraordinary team and utilized a unique blend of agile and waterfall development methodologies. Team members worked side-by-side and utilized technology to work with team members abroad.

Project team members used Skype to communicate project or environment (SIT, Model Office, and Production) information quickly and easily, allowing tasks to be completed much more quickly than waiting for email responses. Basically, real-time responses to every posting became the norm. With several project team members being located in Ireland, communication generally occurred 24x7 which kept the project moving. Another nice feature was the fact that you could access the conversations on your mobile phone and if you did happen to be offline for an extended period of time the conversation was echoed back to you upon your next login.

The team also utilized Go-To-Meeting as part of their collaboration.

The use of open source software was another innovative move by the project team. Open source software is going to help keep long-term costs down.

LEGEND allows the following functionality

- Drafters can access the system locally or remotely.
- Drafters have ability to create a digital work requests and self-assign or provide to division manager for assignment
- Bill drafting

- Bill amendments
- Resolutions
- Produce daily journals
- Supply data to the legislative workbench
- Produce bill status reports
- Produce session laws
- Produce North Dakota Century Code
- Produce other legislative publications.



Schedule/Budget Metrics

The project began execution on June 29, 2009. The go-live date was November 2010 with a project end date of May 2011. The project implemented on schedule but the project end date was delayed due to the need for a special session. This was a 16% over schedule variance.

The original budget was \$5,318,181. Due to positive schedule variance, an additional \$434,316 of scope was added to the project for a final budget of \$5,752,497. Funding came from a previously identified management reserve fund. The actual cost was \$5,474,497 for a 4% under budget variance to the final revised baseline and 3% over budget variance to the original budget.

Propylon has deployed the base solution in two other states.

The project utilized a number of methods to keep stakeholders informed and ensure they were ready for the rollout. They produced a monthly newsletter with project status, interesting facts and team member profiles.

Another key communication point was the Model Office. This was a setup for stakeholders to test out the various functions of the product throughout the development cycle. Model Office was used to demonstrate functionality, test prototypes, and perform user acceptance testing. A select group of users performed a "mock session" using the model office to fully vet the implementation prior to the "real" legislative session beginning and utilized the product knowledge and lessons learned for the 2011 session.

D. Significance

Just the act of starting the system from scratch drove innovation in the business processes. Business analysts were key members of the project team.

Legislative branch staff was significantly impacted by the project. The bill drafting process became more efficient with workflows & procedures. The new system allows the professional staff (legal and fiscal) to create their own drafts. The drafting/amendment workflow turnaround time was significantly reduced. The system automatically produces amendment instructions based on changes applied from the original section of the law. Because the system tracks changes, bill engrossments are able to be completed more accurately and quickly. Data quality has also been improved due to validation checks. There was significant improvement to the daily journal module authoring process allowing the journal clerk to immediately see journal module language/formatting.

We estimate we went from 25% to 80% staff utilization of drafting functionality.



Legislative Workbench allows legislators to view a dashboard page of their sponsored legislation, including scheduled committee hearings, the latest bill status, access to constituent view feedback, and the ability to see the amendment in context (change tracking) and all other session documents.

Citizens have the Constituent View module and the Session Links page available 24x7. The public now have the ability to submit their viewpoint on legislation 24x7 to their district representatives. Prior to the implementation of LEGEND, they could only call in from 8-5 or send letters.

Legislative Council staff and legislators fully used the system to manage the 2011 regular session and 2011 special session.

E. Benefit of the Project

LEGEND has provided significant benefits to North Dakota.

By replacing these legacy applications, the NDLC realized business value in the following ways:

- Reduce the risk of the system becoming obsolete and/or unusable due to subject matter expertise obsolescence for maintenance and enhancement of the system. The legacy system had very limited resources knowledgeable in the technology. In the new system, maintenance and administration expertise is now shared across multiple personnel at the State level. State staff did everything required to configure and support the system for the 2011 special session, which indicates that future legislative sessions will be able to be fully supported by the State as well.
- Enhanced ease-of-use via document management. System now utilizes a document management system. Users are accessing documents that appear on their “dashboard” in the system and access and ease of use is high.
- Enhanced level of service to North Dakota legislators and other stakeholders by
 - provided the ability for automatic enrolling and engrossing
 - provided the ability to display amendments in context
- Better manage cost by
 - Remove the system from the mainframe in order to avoid technology obsolescence and exponentially increasing costs. Do not have any mainframe costs associated with Bill Drafting any longer. Actual number of mainframe applications eliminated is toward the 90% to 95% range.
 - Level costs throughout the biennium via hosted servers instead of the mainframe which has a huge peak at the end of the biennium when the legislature is in session. 2009 Session legacy/mainframe costs (Jan-Apr) totaled \$186,104. 2011 Session LEGEND hosting costs (Jan-Apr) totaled \$39,913.

- Reduce maintenance costs due to having a modern and fresh code base. Mainframe consultant costs since 2007 totaled \$32,136. This was for expertise/maintenance that was no longer available within normal support channels. Have not paid a mainframe consultant cost since the new product has been in use.

Hosting fees have dropped from \$400k to \$240K per biennium. The focus of the project was primarily on improving business processes and avoiding technology obsolescence.

Other benefits are:

- Office services staff can make changes or corrections that previously required assistance by IT personnel.
- Staff was able to produce all LEGEND outputs such as bill drafts, amendments, engrossments, and enrolled bills in a timely manner with reduced effort.
- Daily journal publication and bill status posting were completed each day within a several hours of each daily session adjourning.
- The initial accuracy of the Century Code publication from the system was significantly higher reducing workload and time to publication.

North Dakota Legislative Branch