Anatomy of a Failed Project: What Difference can Auditors Make?

NSAA Information Technology Workshop & Conference
September 25, 2019
Agenda

1. A little about us
2. Introduction to MNLARS - A Project Gone Wrong
   • Video (3 min)
3. Project Timeline
4. What difference can auditors make?
Program Evaluation Division:
- Staff of 16 full-time professionals
- Annual evaluations topics selected by Legislative Audit Commission.

Financial Audit Division:
- Staff of approximately 36 auditors, most are CPAs
- Issues audit opinion on the state’s financial statements
- Single Audit
- Internal control and compliance audits
- IT Audits
Mark Mathison

• Accountant, Financial Auditor, IT Auditor, Information Security Manager, IT Audit Director
  – Passion for Data Analytics and SharePoint uses
• Family, Music, Fishing, Hiking, Cars
Joe Sass

St. John’s University, B.A., English and Secondary Education
Minnesota State University, Mankato, M.A., Technical Communication
  • English, Communication Arts and Literature Teaching License
  • Certified Scrum Master

Over 10 years of diverse technical experience in IT:
  • Hardware and Software Support
  • Quality Assurance
  • Technical Writing
  • Training
  • Application Development
  • Program Management
  • Report Development
  • System Administration
  • Agile Scrum Projects
  • Application Accessibility

Personal: Family, Computers/Technology, and Projects
MNLARS Project Introduction

• MNLARS: Minnesota Licensing and Registration System
• Replaces and modernizes Minnesota’s 30 year-old legacy driver and vehicle systems
• 10+ years, $100+ million, and it’s not done yet…
MNLARS Goals and Vision

• MNLARS Goals:
  – Efficient business processes and service delivery
  – Effective integration of driver information and motor vehicle information
  – Stable, flexible, secure web-based information system
  – Electronic communication with other information systems

• Vision
  – DVS customers are satisfied
  – DVS employees are supported and productive
  – DVS partners are well informed and well supported
  – DVS fulfills its fiduciary responsibilities
Deputy Registrars

- Locations appointed by the Commissioner of Public Safety to provide services to the public on behalf of the agency
- 174 Deputy Registrars throughout Minnesota
- Mix of public and private entities
- State Statute 168.33: “(...) if not a public official, a deputy shall retain the filing fee”
Development Style

Waterfall
- Sequential stages
- Upfront planning
- Comprehensive documentation
- Best where requirements are well-understood
- Big bang

Agile
- Iterative cycles
- Stakeholder involvement throughout
- Best where requirements are less understood
- Incremental releases (small bangs)
MNLARS Project Timeline

- Project 2007 – present
- 3 Governor, 3 Commissioners (DPS), 5 State CIOs
- 8 audits/evaluation reports
- Many vendors and staff
- Variety of legislative involvement
- Many frustrated stakeholders
May 2008: Minnesota Legislature approves $1.75 technology surcharge to fund MNLARS

July 2009: Publish Request for Proposals (RFP) for MNLARS Requirements Vendor

Jan. 2010: Industry analysis conducted

Dec. 2009: Begin requirement sessions

Dec. 2010: Begin negotiations w/ 3M as MNLARS System Vendor

July 2011:
- Unable to reach agreement with 3M, end negotiations
- Legislature approves additional funding thru 2016
- MN Legislature Consolidates IT for Executive Branch

March 2007:
- OET conducts system analysis on DVS systems and recommends replacement

May 2009:
- Legislature prohibits DVS from taking any action related to REAL ID

Sept. 2009:
- Contract with a Requirements Vendor

March 2010:
- Begin work on MNLARS System Vendor RFP
- Publish RFP
- Receive responses from 3M and HP

Oct. 2010:
- Develop Best & Final Offer

May 2010:
- Publish RFP

July 2010:
- Receive responses from 3M and HP

Aug. 2011:
- Contacted HP to see if still interested in MNLARS project.

October 2011:
- Begin negotiations with HP

August 2011:
- Enterprise IT portfolio report.
- MNLARS is noted
- Estimate cost of $48 million
- Start date of 07/01/2009
- End Date of 06/30/2012
- Green status
Stage III (Design/Build/Implement)

- April 2012: Enter into contract with HP
- Jan. 2013: Begin R2 Requirement Sessions
- Sept. 2013: Conduct Super User training for deputy registrars
- April 2013: R1 Readiness survey sent for Autumn deployment of R1
- March 2014: Deploy R1
  - DVS staff issue first permits
  - Conduct deputy registrar pilots
  - Adopt Agile for all development
  - Establish scrum teams for remaining R2 increments
- Jan. 2014: Begin Agile pilot for R2
  - Finance module
- April 2014: Begin R1 rollout to dep. registrars
- March 2014: Deploy R1
- Oct. 2013: Delay R1 (Until spring 2014) to fix bugs discovered during UAT
- May 2014:
  - Suspend rollouts to fix fee calc. issues
  - Receive results of software dev., methodology & project governance audit
- August 2014: Transition project management & governance to state
- Sept. 2014: Complete R1 rollout to deputy registrars – suspend Scrum
- July 2014: Notice of intent to end HP contract
- Oct./Nov. 2014:
  - Begin planning for new project roadmap
  - Begin DVS/MDRA Strategic planning meetings
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<th>Year</th>
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<tbody>
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<td>2015</td>
<td><strong>Jan. 2015:</strong>&lt;br&gt;New MNIT Commissioner&lt;br&gt;Enterprise IT portfolio report.&lt;br&gt;- MNLARS is noted&lt;br&gt;- Recognized as a program&lt;br&gt;with 55 individual projects&lt;br&gt;- Estimate cost excluded&lt;br&gt;- End Date changed from 06/30/2012 to 12/31/2017&lt;br&gt;- Yellow status</td>
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<td><strong>Feb. 2015:</strong>&lt;br&gt;- Team Kickoff - Restart</td>
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<td><strong>April 2015:</strong>&lt;br&gt;- Minimum Viable Product (MVP) discussions begin</td>
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<td><strong>May 2015:</strong>&lt;br&gt;- Start DVS/MDRA Communications Committee&lt;br&gt;- Sizing discussions, release planning</td>
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<td><strong>June 2015:</strong>&lt;br&gt;- Site Visits to deputy registrars</td>
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<td><strong>July 2015:</strong>&lt;br&gt;- Establish MDRA Stakeholder Group</td>
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<td><strong>Aug. 2015:</strong>&lt;br&gt;- Start PI 1&lt;br&gt;- SAFe Training</td>
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<td><strong>Sept. 2015:</strong>&lt;br&gt;- First System demo</td>
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Stage III (Design/Build/Implement), continued

June 2016:
- Reestablish regular Stakeholder meetings with Deputy Registrars and Dealers

Nov. 2016: Hold 3rd Try It

April 2017:
- Legisature rejects Gov’s request to extend technology surcharge for ongoing maintenance.

May 2017:
- Legislature reverses 2009 prohibition of REAL ID.
- Requires implementation by Oct 2018

June 2017:
- Dep. Reg. Wellness Checks
- OLA issues first MNLARS Audit Report

July 2017:
- Business/Technical Rehearsals
- 7/24 MNLARS Opened for users
- 7/24 Close legacy functionality
- 7/27 Start daily calls with DR
- 7/27 First Hotfix

Aug. 2017:
- Refresher Training for Dep. Reg
- Code Changes: 8/3, 8/8, 8/14, 8/17, 8/22, 8/25, 8/31

Jan 2017: Enterprise IT portfolio report.
- MNLARS is noted
- Estimate cost excluded
- End Date changed from 12/31/2017 to 03/31/2018
- Green status

April – June 2017 User Training

Apr. 2016:
- Reestablish regular Stakeholder meetings with Deputy Registrars and Dealers

2016

2017
Stage III (Design/Build/Implement), continued

**Sept./Oct 2017:**
- Hold Statewide Q/A Sessions for Dep. Reg
- Code Release 9/23, 10/23, 10/24, 10/26, 10/29, 10/31
- Uptime hits low of 67%

**Nov. 2017:**
- 11/8 Release 1.10.1
- 11/15 Senate hearing on MNLARS issues
- Contract with FAST for COTS Driver License System

**Dec. 2017:**
- 12/3 Release 1.10.2
- 12/17 Release 1.10.3
- Metro Stakeholder Meeting

**Feb. 2018:**
- New MNIT Commissioner
- Governor requests $10M emergency funding & tech surcharge for ongoing maintenance

**Sept 2018:**
- OLA issues audit report “MNLARS Transaction Accuracy”

**Oct. 1 2018:**
- DVS goes live with FAST DS

**Nov 2018:**
- OLA issues audit report “MNLARS Outages & System Slowdowns”

**March 2018:**
- Legislature approves emergency funds.
- Establishes oversight committee
- Mandates qtrly reporting
- Requires legislative audit

**Jan. 2018:**
- Statewide Stakeholder Meetings
- More Legislative hearings
- Release new MNLARS roadmap.
- New end date 12/2019

**2018**
April 2019
- New MNIT Commissioner
- OLA issues audit report
  “MNLARS Title Backlogs and System Funding”

May 30, 2019:
- Legislature approves new technology fees,
- sets forth new system requirements,
- mandates audits and
- sets up new oversight committees

May 2019:
- 5/1 Independent report recommends replacing MNLARS with COTS solution.
- “Gov. Walz Pulls The Plug On MNLARS”

June 2019:
- State issues new RFP seeking vendor to replace MNLARS

Aug 8, 2019:
- MN hires a Colorado-based technology company to replace the troubled MNLARS.

Sept. 5, 2019:
- First status reports due to oversight committee

Feb. 2019:
- Governor requests additional $50 million for MNLARS
- Governor establishes Blue Ribbon Council on IT
- OLA issues audit report “Factors that Contributed to MNLARS Problems”

March 2019:
- Legislature approves deficiency funding
- mandates independent expert opinion on system viability

Feb. 2019:
- Legislature approves deficiency funding
- mandates independent expert opinion on system viability

Jan. 2019
- New Governor
- New DPS Commissioner

2019

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Minimum Viable Product (MVP)

• “Just enough” features/functionality to satisfy early users and gather feedback for future improvement.
• Generally applied when developing a new product
• The MNLARS MVP did not address all necessary functionality, leaving significant gaps
MNLARS Master List

- Prioritized list of stakeholder (deputy registrar) requirements
- Intended to fill in the pieces missing from the MVP
- Quarterly requirement to report on status of Master List fixes
- Did not include back-office functions, infrastructure, or security
- Were these items the true priority?
The story continues…

2019 Vehicle Title and Registration System (VTRS) legislation:

• Freezes MNLARS development
• Mandate replacement with a commercial off-the-shelf (COTS) application
• New reporting requirements for OLA
What difference can auditors make?
Governance and Oversight

- Need good business governance
- Need good IT governance
  - State (Executive / Legislative) – Agency – Program
    - TAC/Blue Ribbon & Legislative Oversight – (Absent) – MNLARS Executive Steering

- Measures of success
- Demand standards
Business Process Review

- Ensure business processes are reviewed first
- Challenge old ways of doing things
  - Custom systems allow programming to your business processes
  - COTS may require you to change to meet the software
- Batch or On-line Process – evaluate pros/cons
- Ensure that key stakeholder SMEs are engaged in the review
  - Developers cannot program what they do not know
Software Development Lifecycle (SDLC)

• Need to be well-defined – have consistent development methodologies
  – Tools for tracking requirements, defects, and coding changes
• QA – Need for methodical testing
  – Regression testing
  – Performance/load testing
  – Include business staff/stakeholders (User Acceptance Testing)
  – Ensure that testing/staging environment mirrors production
• Includes Information Security
• Training
Project Management

- Resources, allocation, & coordination:
  - Are the right resources available?
  - Are the right stakeholders engaged?
  - MNLARS had too many contractors without proper oversight/management
- Timelines
- Contingency planning (including rollback)
- Communication and Reporting:
  - Project status
  - Deliverables
  - Issues
Independent Verification

• Trusted source
• Audit long-term projects before move to production
  • Requires good inventory of enterprise projects
• 10,000 ft view
• Plans of action by governance to correct issues
Spending Oversight

Total cost of ownership (TCO)

- DPS and MNIT do not have a long-range funding model for MNLARS:
  
  Agencies should work with the Legislature to develop a responsible funding model to pay the ongoing support costs for systems. Before making major computer system investments, legislative committees should gain an understanding of the long-range cost model and proposed funding strategy.

- As project progresses/changes, necessary to re-evaluate work efforts to funding budget

- Large enterprises need tools to assist with cost estimations
States that Share Vendor Solutions

• Minnesota is now 1 of 16 states using a FAST DS/VS solution

• Pros:
  • Quickly implement an off-the-shelf application
  • Take advantage of experience and lessons learned in other states
  • Strength in numbers

• Potential Cons:
  • Customization is problematic
  • One voice in many
  • Reliance on a single vendor

• Opportunities for collaboration?
Thank you

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Joe Sass – joe.sass@state.mn.us
OLP Report Appendix

The following slides provide context of relevant audit reports
Reports: Minnesota Licensing and Registration System (MNLARS)

• Published June 2017
• Key Findings:
  • DVS and MNIT have not established a specific implementation schedule for MNLARS.
  • Based on our limited review, we found that DVS and MNIT are developing the key controls needed to adequately protect the integrity of MNLARS.
  • Project delays and vague communication, particularly about timelines, have eroded confidence in MNLARS and its development process.

https://www.auditor.leg.state.mn.us/sreview/mnlars.pdf
Reports: MNLARS Transaction Accuracy

• Published September 2018

• Key Findings:
  • While MNLARS generally calculated certain types of transactions correctly, inaccurate vehicle registration data within MNLARS and user errors resulted in some owners of similar vehicles being charged different tax amounts.
  • There are several reasons for inaccuracies in MNLARS, including inaccurate data and programming errors within MNLARS, user errors, and complex laws.
  • There were 130 different base values in MNLARS for 2,055 Ford F-150 model year 2018 pickup trucks.

https://www.auditor.leg.state.mn.us/sreview/mnlarsaccuracy.pdf
Reports: Outages and System Slowdowns

- Published November 2018

Key findings:

- The Department of Public Safety and Minnesota IT Services misreported a small number of system outages.

- The Department of Public Safety and Minnesota IT Services have not clarified system availability expectations with their stakeholders.

- The Department of Public Safety and Minnesota IT Services did not report system performance statistics for all stakeholders.

- The Department of Public Safety’s and Minnesota IT Services’ monitoring tools do not measure all end-user outages.

https://www.auditor.leg.state.mn.us/fad/pdf/fad1816.pdf
Reports: Factors that Contributed to MNLARS Problems

- Published February 2019
- Key findings:
  - DPS did not streamline business processes before it initiated development of the MNLARS software.
  - From 2008 until the time MNLARS was released, the Legislature provided DPS with all of the funding DPS said it needed to build MNLARS.
  - DPS leaders did not ensure prior to release that MNLARS could meet the department’s business needs.
  - MNIT did not have adequate policies and processes for overseeing agency-based software development.
  - Until 2018, the MNLARS project did not directly involve key stakeholders in the project’s governing bodies.
  - There was insufficient testing of MNLARS prior to its release.
  - MNIT relied too heavily on two managers, and DPS relied too much on staff within the agency who had other assignments.

https://www.auditor.leg.state.mn.us/sreview/mnlarsfactors.pdf
Reports: Title Backlogs and System Funding

• Published April 2019
• Key Findings:
  • Continued reliance on centralized document scanning and mail services adds time to the title processing workflow.
  • MNLARS lacks functionality to effectively manage the unmatched document inventory.
  • DPS has not been able to keep the title backlog from growing with its current staffing level.
  • DPS and MNIT do not have a long-range funding model for MNLARS.

https://www.auditor.leg.state.mn.us/fad/pdf/fad1907.pdf