

June 30, 2016

Teresa Fleming/Robert Thompson
State of Nebraska
State Purchasing Bureau
1526 K Street, Suite 130
Lincoln, Nebraska 68508

RE: RFI #52016 – Modernize the DMV VTR System

Dear Ms. Fleming and Mr. Thompson,

Deloitte is pleased to submit the response to this Request for Information (RFI) to modernize the Nebraska Department of Motor Vehicles (DMV) Vehicle Title and Registration System (VTR).

We understand the Nebraska Department of Motor Vehicles need to modernize the existing VTR system. Modernization projects are complex undertakings that our team has successfully delivered from our Modernization Studio in Austin, TX. Automated refactoring allows us to modernize the current system functionality quickly and with little risk, producing a system that is highly familiar to existing users and technical personnel. From this modern platform, new functionality and enhancements can be introduced incrementally based on your priorities at a pace that is manageable for the organization. The resulting system is both familiar and aligned to your business but with the additional capabilities that were difficult to achieve with the legacy technology.

Through this modernization project, Nebraska DMV will have an opportunity to:

1. Analyze your entire portfolio of Nebraska DMV applications
2. Determine your modernization drivers
3. Validate the capability gap assessment
4. Create a modernization strategy

Executing these steps will enable Nebraska DMV to determine a modernization strategy that aligns to your strategic plan. Deloitte has a long history of providing a broad range of professional services to state governments and is one of the world's leading consulting organizations for technology, human capital, and business strategy and operations services.

Thank you for considering Deloitte. We would be pleased to provide additional information, if needed. Should you have any questions, please feel free to contact me at 919-522-4766 or tiperkins@deloitte.com.

Sincerely,

Deloitte Consulting LLP

By: Timothy V. Perkins

Timothy Perkins

State of Nebraska (State Purchasing Bureau)
REQUEST FOR INFORMATION

RETURN TO:
State Purchasing Bureau
1526 K Street, Suite 130
Lincoln, Nebraska 68508
Phone: 402-471-6500
Fax: 402-471-2089

SOLICITATION NUMBER	RELEASE DATE
RFI 52016	May 20, 2016
OPENING DATE AND TIME	PROCUREMENT CONTACT
June 30, 2016 2:00 p.m. Central Time	Teresa Fleming/Robert Thompson

This form is part of the specification package and must be signed in ink and returned, along with information documents, by the opening date and time specified.

PLEASE READ CAREFULLY!
SCOPE OF SERVICE

The State of Nebraska, Administrative Services, Materiel Division, State Purchasing Bureau, is issuing this Request for Information (RFI) 52016 for the purpose of gathering information to modernize the Nebraska Department of Motor Vehicles (State DMV) Vehicle Title and Registration System (VTR).

Written questions are due no later than June 3, 2016, and should be submitted via e-mail to as.materielpurchasing@nebraska.gov. Written questions may also be sent by facsimile to (402) 471-2089.

Bidder should submit one (1) original of the entire RFI response. RFI responses should be submitted by the RFI due date and time.

Sealed RFI responses should be received in the State Purchasing Bureau by the date and time of RFI opening indicated above.

BIDDER MUST COMPLETE THE FOLLOWING

By signing this Request for Information form, the bidder guarantees compliance with the provisions stated in this Request for Information.

FIRM: Deloitte Consulting LLP

COMPLETE ADDRESS: 400 West 15th St Suite 1700

TELEPHONE NUMBER: 512-691-2300 FAX NUMBER: 512-708-1035

SIGNATURE:  DATE: 6/28/16

TYPED NAME AND TITLE OF SIGNER: Eric Reeder, Consulting Managing Director



RFI Response 52016

**Nebraska Department of Motor
Vehicles**

Modernization Response

June 30, 2016

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Information Sought

The State DMV requests information from vendors with experience in design, development, and implementation of modern vehicle title and registration solutions. This section of the RFI provides questions for vendor responses.

Deloitte Consulting is pleased to submit our response to the Nebraska Department of Motor Vehicles (DMV) Request for Information. As a leader in working with DMVs across the country, we appreciate this opportunity to provide information on DMV system modernization. Our discussion of approaches and answers to your questions are based on the experience we have gained in providing services to other DMVs and our viewpoint on current market trends.

Deloitte Consulting LLP is one of the world's leading consulting organizations for technology, human capital, and business strategy and operations services. Deloitte Consulting helps clients take advantage of big opportunities every day. Consultants from Deloitte grow and structure client's business to address key issues such as strategy, technology, and change management. With our unique, collaborative approach, we offer not only industry and functional business performance knowledge, but also offer insight from our consulting alliances. We work closely with clients to improve business performance, drive shareholder value, and create a competitive, sustainable advantage, regardless of where in the world your business takes you.

Deloitte has been working with motor vehicles agencies, transportation programs, transit authorities, and airports around the world since 1993. We are currently working with the Texas Department of Motor Vehicles (TxDMV) to modernize their vehicle registration and titling system, as well as their dealer licensing and management system. We have previously delivered full system components (e.g., driver license, driver enforcement or motor vehicle solutions) in the District of Columbia, Nevada, Montana, and New Hampshire. Additionally, in Missouri, New Jersey, New Mexico, and Pennsylvania, we have deployed supporting motor vehicle solutions (e.g., dealer licensing and management, cash management, document management, and inventory), which are in production today. During this period, we have provided DMV related services to 18 North American jurisdictions.

Deloitte's commitment to the motor vehicle industry is demonstrated by our experienced team and our numerous successful projects. Many Deloitte practitioners have worked on complex motor vehicle system replacement projects. We understand the complexities of the motor vehicle business and are confident that our team's experience, industry-focus, subject matter knowledge, and first-hand understanding of the business clearly sets us apart from our competitors. We have been and continue to be committed to the motor vehicle industry.



Section Highlights

Our Public Sector experience has breadth and depth:

- Served 45 of 50 U.S. States
- Served 17 of the 20 largest U.S. Cities
- Served 12 of the 20 largest U.S. Counties
- Provided services to 18 State Motor Vehicle Administrations (NEBRASKA DMVs) in North America

As a systems integrator, we provide a full range of services that are critical to the successful completion of a DMV modernization project. As important as the software product(s) and solution are, they are only portion of the factors that determine the success of a modernization project. Selecting a business partner with the experience, processes, and tools to organize, manage, and control project activities and organizational changes will be vital to the success of the project. Deloitte brings that experience, those processes, and the tools needed for success. In addition, we bring a team that has the DMV business knowledge as well as the technical knowledge and skills needed for a major technology project.

Motor vehicle and driver license modernization projects are among the most difficult projects to bring to a successful conclusion. Because of the challenges facing motor vehicle agencies and the evolution of the technology, there are four main approaches that we are seeing jurisdictions use for modernizing their systems that fall under Application Modernization. These four approaches are:

- **Refactoring.** Automated conversion of legacy code to a new technology platform (e.g., COBOL to .Java/.NET) without changes to the business processes, followed by modernization of components and services based on a fact-based roadmap.
- **Modified-off-the-Shelf (MOTS).** Transfer code written for one state and moved to another state. Some companies who have transfer code products classify these transfer products as a Commercial-off-the-Shelf (COTS) solutions.
- **Commercial-off-the-Shelf (COTS).** An off-the-shelf Customer Relationship Manager (CRM) package such as Siebel or Microsoft Dynamics that is modified to meet the DMV functional needs.
- **Re-engineering.** A DMV focused solution organizing a collection of application services to integrate with external systems easily, respond rapidly to business needs, and provide flexibility in responsiveness to new opportunities.

Deloitte is the only firm with system implementation experience using three of the four approaches. We are implementing or have implemented systems in the DMV market using Application Modernization, MOTS and Re-engineering approaches. Deloitte also has extensive experience implementing COTS CRM packages in other business domains and understands the complexity and limitations of using those systems for DMVs.



Distinguishing Factors

Deloitte has implemented DMV systems using several approaches

- **Application Modernization** – We have modernized several of TxDMV's systems following our application modernization methodology which includes Application Refactoring, Re-engineering and COTS integration
- **MOTS** – We implemented the 3M Motor Vehicle System in Montana
- **Re-engineering** - Our Texas Driver License project used this approach

1. Approach and Possible Solution

The Current Environment Report (CER), a description of the existing VTR system business and technical environment, is available at this link:

<http://www.dmv.nebraska.gov/dvr/pdf/DMVvtrCER.pdf>

The report will provide relevant background for answering the following questions:

- a. What overall solution would you propose to replace the existing VTR system? Please specify commercial off the shelf (COTS), modified off the shelf (MOTS), or some other software design or approach. The State DMV is interested in any information you can provide about your high-level solution.
- b. How many jurisdictions have adopted your VTR system solution?
- c. Can you share any plans for future releases or a product roadmap, and explain any anticipated future enhancements?

Our Proposed Solution

Our proposed solution for modernizing the Nebraska Vehicle Title and Registration (VTR) system is based on our successful Application Modernization approach we used for the Texas Department of Motor Vehicles (TxDMV) Vehicle Title and Registration (RTS) system. This approach was used to modernize the TxDMV RTS system enabling 700+ screens, 1.4 million lines of code, 3,000 batch jobs and 120 ADABAS Database System files to be refactored to modern technologies in only 24 months. This Application Modernization approach is designed to reduce the risk of failure and cause the least amount of disruption for DMV staff and customers. Deloitte's approach uses automated refactoring technology to quickly upgrade the DMV to a stable, modern technical environment, freeing up time and resources to achieve its three main objectives:

1. To better meet the needs of customers by offering more automated and self-service channels
2. To improve business processes and create capacity to expand and change functionality in the future
3. To provide a more flexible and stable architecture than that of the current legacy environment



Our approach has four specific work streams as illustrated in Figure 1 below. The first work stream is our Fast Improvements for Targeted Transformation for Efficiency and Results (FITTER) for DMV, which is a fact-based analysis of your current business and technical environment across different facets of your business

including Requirements Analysis, Code Analysis, Transaction Analysis, Process Analysis, Data Quality, Customer Analysis, Customer Survey, Change Analysis and Infrastructure Assessment. The information gathered from each of the FITTER DMV focus areas provides critical insight that guides the second work stream, which is the development of a roadmap to provide the overall vision and direction for the remainder of the project. After the first two work streams, which can be completed in the first months after project kick-off, you can have a customized road map for the project.

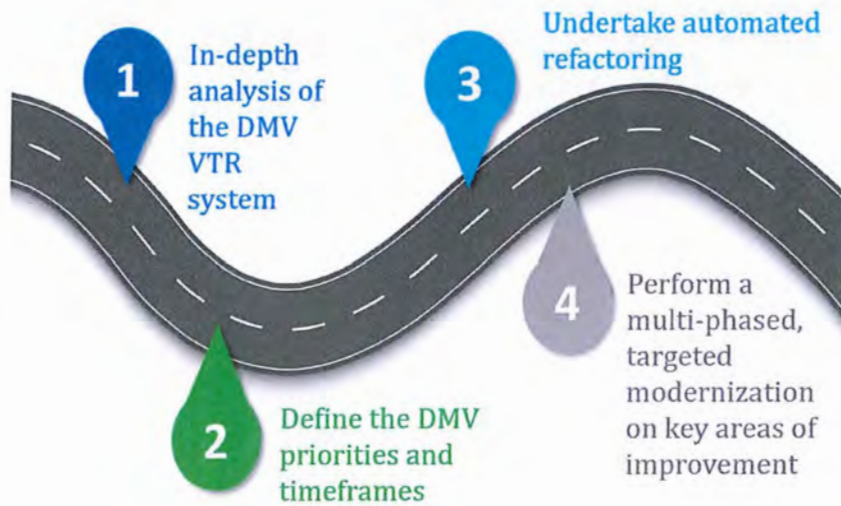


Figure 1 Refactoring & Modernization Phases

The third step, is a quick migration of DMV's current systems and data to a new and better platform that is virtually identical in all ways to the old system, so much so that users may not even notice the change.

It is the last work streams that allows the DMV to focus time and resources on those areas most in need of improvement, things like providing a customer 360 functionality, adding more self-service portals, expanded imaging capabilities, a broad correspondence tool, easy-to-use tools for changing business rules, enhanced case management function, automated routing, a workflow system, and more.

FITTER DMV – Workstream 1

Deloitte's FITTER DMV assessment to provide an independent, fact-based assessment of the Nebraska DMV's complex problems. In parallel with the initial construction of the base system using the automated refactoring approach, we perform an assessment with a focus on the strategy needed to modernize the current legacy systems to allow existing systems to continue to support the Nebraska DMV's rapidly changing business needs. This approach can help Deloitte perform the analysis of the Nebraska DMV's current state, and derive an actionable plan for its future state.

The FITTER DMV assessment, as illustrated in Figure 2 below, has nine focus areas as described below. This assessment provides fact-based current-state information, a prioritized list of transactions that impact the business, and an analysis that can be used for the recommended roadmap to modernization. Not all focus areas have to be assessed, the Nebraska DMV and Deloitte can prioritize and choose from this list.

Requirements Analysis	Code Analysis – Platform Refresh	Transaction Analysis	Process Analysis	Data Quality Analysis	Customer Analysis	Customer Survey	Change Analysis	Infrastructure Assessment
Work Product: Validated migration plan for RFP requirements	Work Product: System Diagnostic Report and Effort Estimate	Work Product: Summary Transaction Information	Work Product: Report of Process Observations	Work Product: Data Quality Scorecards	Work Product: Customer Profile Information	Work Product: Report of Survey Results	Work Product: Report of Process/Policy Areas for Change	Work Product: Current Environment Summary
Benefit: Validation of the approach for VTR Modernization	Benefit: Confirm optimal use of automated refactoring approach	Benefit: DMV insight into transaction volumes by Channel – input into priorities for the roadmap	Benefit: DMV insight into process delays or issues – input into priorities for the roadmap	Benefit: DMV insight into data quality and complexity for Customer Master, Ability or obstacles to migrate to a customer-centric data model	Benefit: DMV insight into demographic distribution of customer base – input into priorities for the roadmap	Benefit: DMV insight into Customer perceptions for customer service and future channel preferences – input into priorities for the roadmap	Benefit: DMV insight into volatility of policies at the DMV – input into priorities for the roadmap	Benefit: Fact-based understanding of technical environment with assessment readiness for modernization

Figure 2 FITTER DMV Assessment Focus Areas

FITTER DMV Focus Areas and Work Products.

Each of the following focus areas produces a work product which is a building block for the final deliverable for the analysis:

- **Requirements Analysis.** Performed to validate the approach to meeting each of the DMV modernization requirements. This allows the team to determine the set of modernization activities and sequence required to implement the ideal To-Be solution. This activity can be performed at a high level to determine the prioritization of the features for the roadmap.
- **Code Analysis - Platform Refresh.** Determines the level of fit for the platform refresh using our automated refactoring tools. This analysis can be performed quickly, even before an RFP is issued to validate whether refactoring is a viable approach. If the Nebraska DMV is willing to share the VTR code base or a sample of the code, we will perform that analysis. The resulting System Diagnostic Report and Effort Estimate is a key input into the roadmap because it indicates the efficiency of the code refactoring tool set against the subject code to create the base target system.
- **Transaction Analysis.** Used to understand how the client's current transactions are delivered. Deloitte can analyze the transaction volume by channel and other relevant criteria. The resulting Summary Transaction Information provides valuable input for prioritizing transactions for modernization.
- **Process Analysis.** Performed to understand bottlenecks in the current system. This input is then used for the roadmap to prioritize transactions for modernization based on bottlenecks.
- **Data Quality Analysis.** Used to quickly determine the expected level of data quality in the current system and items that would impact roadmap plans. It allows Deloitte to identify the degree of data cleanup required as part of the roadmap.
- **Customer Analysis.** Profiles the customer base, including demographics, for different customer types to understand if there are outliers. Customer analysis allows Deloitte to prioritize channel development for modernization.
- **Customer Survey.** Enables Deloitte to obtain initial feedback from the consumers on the perception of DMV customer service and how customers would like to interact with the State. The customer survey allows Deloitte to prioritize transactions for modernization based on customer perceptions and needs.
- **Change Analysis.** Conducted to obtain insight into the areas of the business as well as policies that historically encounter the most change or are expected to encounter the most change in the future. This exercise allows Deloitte to prioritize transactions and technical areas for

modernization (e.g., starting point to identify areas that may benefit the most from externalizing business rules in the business rules engine).

Infrastructure Assessment. Used to understand the Nebraska DMV's current environment. It allows Deloitte to validate the roadmap and prioritize based on technical environment constraints.

Define DMV Priorities and Timeframes – Workstream 2

After the current state assessment is accomplished using the FITTER DMV's nine focus areas, and a set of actionable items has been identified, Deloitte and the DMV can use this knowledge to tailor a draft roadmap to provide an updated Release Plan (or roadmap) that will drive the modernization effort throughout the project.

For large, complex projects like the Nebraska VTR modernization, an iterative implementation approach is critical to the overall success of the project. Depending on the FITTER findings and DMV's priorities, the modernization roadmap is developed. On the roadmap, we usually identify several major releases. There may be further sub-division into minor releases, within the VTR system if needed.

Automated Refactoring – Workstream 3

The third workstream is the refactoring of the legacy code (e.g. COBOL, Natural) from the old language to a new, modern language (e.g., JAVA or .NET) using the automated refactoring tools used at TxDMV. The new modernized code will run on your future state application architecture and even in the cloud if you prefer. Utilizing the automated refactoring approach retains the current business processes while moving the applications to the new platform. The applications (screens, business logic and data) are moved from an older outdated technology to a newer platform that accomplishes the DMV's objective of providing a more flexible and stable architecture than that of the current legacy environment. This workstream can be started simultaneously with workstream 2 if desired. This approach also allows for an earlier return on investment by reducing legacy infrastructure costs, opening data up to modern reporting platforms, removing the burden of desktop support and even the reduction of massive hard copy printing processes.

The transition from the current, legacy, system to a new one is relatively quick. You'll see benefits in as early as 6 months. In the first phase, the new platform will look and feel like the old one to all of the critical Nebraska DMV users, namely customers (Nebraska vehicle owners), DMV staff, law enforcement, insurance companies, car dealers, salvage yards and others. We do this deliberately so ensure consistency as you transition from the legacy platform to the new platform. We find that it eases the organizational change impact on both your internal and external users. It also significantly reduces the risk because Nebraska DMV can confirm the platform operates like the legacy platform prior to releasing it to the end users. Once you've validated that applications perform as expected, we release this version to production users. Addition modernized business functionality is then released to production at your desired pace and within your budget as described in Workstream 4.

Modernization – Workstream 4

The fourth work stream– modernization– will feel very different from any other system modernization. During modernization we change those pieces and only those pieces of the system that require improvement rather than starting from scratch with a COTS or Re-engineering. With our approach



Distinguishing Factors

Deloitte has used an iterative approach for DMV projects

- The Texas DMV RTS project deployed modernized code in 3 major deployments that included 5 geographical components
- The Texas Driver License Reengineering project deployed the new solution to more than 250 offices over a 12 month period

your staff can focus on telling us on what they want the system to do in the future rather than spending countless hours educating us what your current system does today. Customers often like to start this workstream in parallel to the refactoring workstream so that the business users can quickly get their highest priorities addressed. This can be done as early as a few weeks after the Workstream 3 production release.

With our approach, additions or changes are done in a targeted fashion with customized training for only the staff using the new or changed features. There is not a "Big Bang" high-risk approach. Modernization is done across multiple phases at the priority, pace and affordability deemed acceptable by the Nebraska DMV.

The FITTER DMV assessment, in addition to the reasons we've listed above, also provides cash savings. For starters, Nebraska taxpayers will save millions each year that the Nebraska DMV system is run on the refactored system – a significant savings without doing anything else. If you count the money saved by not having to "rip and replace" and spending time doing detailed work flow analysis on Nebraska DMV's entire new system, those savings can climb as high as tens of millions over the first two years after automated refactoring.

Benefits of our Approach

For the Nebraska DMV, which operates across a large physical presence in the State of Nebraska, including its headquarters, field offices and many other sites as well as through valued business collaborators statewide, the automated refactoring Deloitte will deploy will be a revolutionary experience. It allows for immediate and demonstrable progress, especially compared with the slow slog required to re-plan and re-design an agency's workflows and business processes and all of its many interfaces and user needs.

This faster progress comes not only at a lower cost, it also allows agency managers to build momentum with all users and stakeholders, from staff to agency heads to legislators to customers and the insurance companies and other business collaborators who rely on the Nebraska DMV system for their livelihoods.

Public administrators responsible for major systems projects will attest to the risks and organizational change management challenges. They are universal. Employees are reflexively uneasy with new work process. Customers may lack the technical sophistication to adapt well to changed tools. Agency managers forced to spend long hours with programmers explaining in detail how their departments function are unhappy and feel overworked. And those responsible for allocating public dollars will no doubt hear complaints about cost overruns and time delays.

With Deloitte's approach, critical buy-in comes easier because success is quicker and any changes come long after the new system has worked without a hitch. Any discomfort that these changes may bring down the road is not associated with the system itself but instead with the simple and universal truth – which change itself is hard and must be managed carefully. The platform should be the easy part.



What it Means for You

The Application Modernization approach coupled with our FITTER process eases the modernization process

- Reduces risk of large scale delay or failure presented when data cleanup, new functionality design and migration are done simultaneously.
- Creates a non-threatening change scenario for staff, customers and business collaborators.
- Retains existing business processes and rules that are familiar to Nebraska DMV staff and programmers.
- Greatly increases number of possible online transactions thereby increasing customer satisfaction, reducing wait times, freeing up staff to tackle tougher problems.
- Reduces time spent documenting current system, allowing focus on quicker implementation of new and much-needed new functions.
- During the entire transition, agency IT staff can continue to maintain the system as they always have, reducing their stress and apprehension.
- Moving from the legacy system to the new environment allows the DMV to recruit junior developers familiar with these technologies, addressing the growing challenge of planning the succession to an aging state workforce.
- Reduces expenses associated with legacy mainframe operation and maintenance.
- Training is less onerous because it's targeted to specific user groups.

States Using Our Solution

Deloitte and the Texas DMV are currently using our Automated Refactoring and Incremental Modernization approach to modernize the Texas Vehicle Title and Registration System. We have fully deployed the refactored system onto the modernized platform; over the last nine months since refactoring was completed we have deployed application releases which introduced modernizations such as the customer-centric view, single sticker for registration and vehicle inspection, and data analytics, among many other enhancements.

Deloitte's recent automated refactoring of the Texas DMV vehicle registration system is a story about success. The system went live in two years and now Texas DMV saves \$4 million a year on mainframe costs alone and the system's users report high levels of satisfaction. During the current modernization phase, Deloitte is able to spend 100 percent of its time focusing on the system itself and improvements needed to bring Texas into the 21st century. Texas has embraced modernization and now can nimbly and quickly meet the needs of its customers, improve its business processes and they have the capacity to easily expand and change functionality in the future.

Texas also enjoys a vastly improved, flexible and stable architecture. This is a far more successful approach than that of other vendors who spend time and resources recreating a new system that does exactly what the old one already did.

Future Enhancements

We can perform an inventory of the legacy applications and determine whether it is a candidate for refactoring or COTS and then roadmap it accordingly. Examples of these COTS products and services include:

- **Reporting & Business Intelligence Tools** – Our approach is to implement reporting and business intelligence tools such as Crystal Reports, Tableau, Oracle Business Intelligence, etc., rather than writing custom built reporting software. By doing so, we can leverage the upgrades and support for the software package.
- **Correspondence Engine** – DMV's by their nature generate large numbers of forms and documents. By using a correspondence engine our solution takes advantage of enhancements to the product.
- **Financial Processing** – During modernization we look to integrate COTS financial and accounting packages with the modernized system. This allows us to introduce enhancements to those products into the DMV programs.
- **Cloud-Based Services** – Deloitte is building cloud-based services on the Salesforce platform that can be integrated with the refactored system. These services include Customer Relationship Management (CRM) capabilities, resource scheduling and management (e.g., managing hearings for Driver Improvement actions, inspections, etc.), managing inventory, etc. The modern architecture allows us to take advantage of new services as they are introduced.

"It was as if our system was driving our processes rather than the other way around. We realized that, in order to make the changes needed to serve our customers better, we were going to need a more agile system...Our next step is to modernize our business processes and increase end-user engagement to help drive the future of the registration and titling system. Given how much we've learned already, those, along as future projects, will go much more smoothly...This has been a real confidence-builder for our entire team."

Whitney Brewster

Executive Director, Texas Dept. of Motor Vehicles

2. Staff

- a. What are your expected requirements of the State DMV, county treasurer offices, and other stakeholder involvement with the solution design? What specific roles would they have and what kind of availability would they need to provide?
- b. What is your expectation for personnel and/or state staff to be dedicated to the transition from a legacy system to implementation of your solution (such as for testing, training, or conference room sessions)?
- c. What is your expectation of the State DMV's roles and responsibility, especially from a labor, staffing, or full-time equivalent (FTE) standpoint, with respect to data cleansing?
- d. What impact to State DMV personnel from an operation standpoint (post implementation) do you anticipate as a result of your solution's implementation?
- e. What staff from your organization or a hired third-party integrator are typically involved in the implementation of your solution? The State DMV is interested in any information you can provide relative to the integration/implementation team around: Key roles (such as project manager, lead technical analyst, etc.) and overall size of the team.
- f. What lessons learned from prior implementations of your system can you provide around staffing?

Staff Impact Solution Design & Implementation

Our approach and solution reduces the impact on the Nebraska DMV staff and other entities that provide vehicle title and registration services. Our approach is specifically designed to greatly reduce this impact which allows the DMV to focus on continuing to meet your customer's needs and expectations.

During the FITTER phase of the project, DMV Subject Matter Experts (SMEs) can be involved in the fact-based assessment of the focus areas. These differ from the traditional detailed requirements gathering activities in a traditional custom built solution or the fit-gap requirements for a COTS implementation. Examples of the staff requirements for these focus areas are described in Table 1 below.

FITTER Focus Area	DMV, Treasurer & Other Stakeholder Involvement
Requirements Analysis	<ul style="list-style-type: none"> • Subject Matter Experts (SME) will be needed to meet with Deloitte teams to document requirements for new features that will be developed during the Modernization Workstream (4). These SMEs can come from the DMV, from county treasurer offices, or other trusted third party business partners. These sessions are not to be an in-depth analysis of each requirement needed for the entire project. We anticipate the SMEs being involved in a series of full-day requirements workshops over a three week period.
Code Analysis – Platform Refresh	<ul style="list-style-type: none"> • Information Technology experts and staff will be involved in the Code Analysis. IT staff familiar with the legacy code base will be asked to complete a diagnostic questionnaire (e.g., number of lines of code, programs, language, etc.) and participate in 4, half-day sessions to allow our team to gain a better understanding of the legacy code base. • The IT staff will need to provide the legacy code for Deloitte to perform the analysis in our environment. • IT staff and business leaders will need to be involved in a meeting to discuss the results of the code analysis. • When refactoring begins, the IT staff will need to be involved in setting up the target architecture in the state environment. Deloitte

FITTER Focus Area	DMV, Treasurer & Other Stakeholder Involvement
	<p>and the IT staff can work together to install this environment. Deloitte can install the refactoring tools in this environment to perform the actual refactoring of code and implementing in the target environment.</p> <ul style="list-style-type: none"> • Business SMEs can be involved in performing User Acceptance Testing (UAT). UAT in this sense is comparing functionality (e.g., screen flows) in the legacy system to the screen flows in the refactored system
Transaction Analysis	<ul style="list-style-type: none"> • SMEs need to be involved in providing information on transactions by service delivery channel (e.g., online, IVR, office, etc.) SMEs will need to be involved in several half-day sessions to review the data with the Deloitte team.
Process Analysis	<ul style="list-style-type: none"> • The process analysis uses an automated tool to evaluate log and data files to map processes, identify delays in processes, and inconsistencies. IT and business SMEs need to be involved in several sessions to review the availability of these files and data and to review the results. IT staff need to provide these files for Deloitte to run the data through the tools. Normally, we expect about 5 half-day sessions will be required.
Data Quality Analysis	<ul style="list-style-type: none"> • Both IT and business SMEs are involved in the Data Quality Analysis. Using data quality tools, we would profile the data to identify data quality issues. Both IT and SMEs would be involved in several half-day sessions before the analysis to provide the Deloitte team with an understanding of the data, and a session after the analysis to review the results
Customer Analysis	<ul style="list-style-type: none"> • SMEs will be involved in identifying customers (e.g., citizens, dealers, etc.). They can be involved in one full-day session to gather information and another full-day session to review results.
Customer Survey	<ul style="list-style-type: none"> • The customer survey supports the Customer Analysis. Business SMEs need to be involved to develop the survey and identify customers who can be surveyed. This generally requires a couple of half-day sessions to complete these activities. Once the surveys are completed, another half-day session is required to review the results.
Change Analysis	<ul style="list-style-type: none"> • Business and IT SMEs are involved in this process to assess the impact of changes on the roadmap that define the modernization phase. The number of sessions will be dependent on the number of changes on the roadmap.
Infrastructure Assessment	<ul style="list-style-type: none"> • IT SMEs and Deloitte team work together to assess current infrastructure and determine if it can support the new system. This is done during the assessment period and requires IT involvement.

Table 1 Activity Impact on DMV and Stakeholder Staff

Staff Impact – Transition from Legacy

From our experience legacy developers play an integral role because if their domain knowledge of:

- Application code
- Interfaces
- Batch jobs
- Security Architecture
- Job Control Language
- Print outputs
- Reports
- Archive data

A set of legacy developers are usually assigned to the project full time so that they can work with the team side-by-side to gain knowledge of the new language using Eclipse based tools.

Subject Matter Experts from the business play an important role in testing activities like integration and user acceptance testing. Since the refactored

application behaves the same way as the legacy application most of existing functional test cases can be re-used; this reduces the impact to the Nebraska DMV test team. There is usually a DMV test lead assigned full time and additional testers added as testing ramps up.

Organizational Change Management is an important DMV role on these types of modernization projects. Some key activities they perform:

- Stakeholder communication and management with the counties and trusted third-parties
- Developing release notes
- Coordinate training activities
- Developing job aids for staff
- Participate in training needs assessment activities

Staff Impact - Data Cleansing

One of the main reasons agencies like the Nebraska DMV undergo a modernization transformation is to improve the management and quality of the data being administered. During FITTER DMV we can explore legacy data, identify data issues and identify root causes. Using automated tools the legacy data can be exported automatically and converted into a relational database management system on the target architecture. Since the data is being migrated to a similar data structure the focus can be directed towards data quality and away from data transformation. The actual impact on your staff is minimal because it is an automated process as part of the refactoring approach. During the modernization phase data cleansing priorities identified as part of the roadmap can be implemented. The Deloitte team can develop a Data Conversion Plan that describes the process in detail. The legacy data conversion usually involves the DMV Data Architect to validate the approach as well as two or three legacy developers to assist with data extraction.

Staff Impact – Operations (Post Implementation)

We measure project success not just by how well we develop a system, but also by the ease of maintenance and the ability to seamlessly transition the system.

To maintain the application post implementation Nebraska DMV personnel can continue to utilize their in-depth understanding of the functional knowledge and understand the technical components of the modernized application which includes refactored application code, database and build/deployment process. Our refactoring and modernization mechanism that preserves the mainframe application features in web based solution makes it possible to convert your existing mainframe user interfaces and business logic into nearly identical web page renderings and application code on a modern platform. This enables existing Nebraska DMV staff to continue to maintain the system post implementation with minimal learning curve and provides flexibility to onboard new junior staff.

In addition, our approach includes an effective transition with a strong turnover plan and rigorous execution of that plan. Turnover Transition is a collaborative process by which knowledge can be transitioned from Deloitte to Nebraska DMV team members. During this phase the Deloitte team can work closely with DMV team to provide mechanisms to gain knowledge required to do their jobs effectively post implementation.

Staff Impact – Implementation

Table 2 below identifies typical key roles and associated team members that are involved in the implementation.

Key Role	Team Size
Project Manager	(1) PMO Analyst (1) Release Manager (1) Functional/Business Analyst (1) Deployment Lead
Modernization Lead	(10) Application Developers (3) Batch Developers (1) Refactoring Lead (4) Legacy Developers
Enterprise Architect	(1) Infrastructure Architect (1) Data Architect (1) Security Architect (2) Database Administrators (1) Build and Deploy Analyst
Test Lead	(5) Testers (1) Performance tester

Table 2 Key Roles and Associated Team Members

Staff Impact – Lessons Learned

Some lessons learned from other implementations:

- Identify Subject Matter Experts from IT and the business that can participate in testing activities and data validation
- Establish a focus group of county users who can provide feedback on the refactored screens as well as participate in User Acceptance Testing
- Compile and document a complete list of interfaces so that all third party interface partners are identified
- Initiate communication with third party interface partners early on in the project to ensure awareness of timelines and data requirements
- Plan for NMVTIS recertification with AAMVA in the project schedule

3. Training

3. VTR system stakeholders include those who work outside of the State DMV offices and, in many cases, those who are a long drive from State DMV headquarters in Lincoln. Many cannot easily travel to Lincoln for long periods for training. We are interested in the blend you offer between classroom-based training, hands-on training at a county office or some regional location, and computer-based training. For planning purposes, the State DMV asks the following questions:

- a. What approaches to training for internal and external users do you suggest, given the size and complexity of the planned VTR system modernization?
- b. What training do you recommend for State DMV, OCIO or other technical staff who will maintain and/or troubleshoot the system?

Training Approach

Our approach to modernization significantly reduces the training required for three key stakeholders: end-users, existing developers, and new developers. Both refactoring and our iterative custom development approach are designed to reduce the amount of change the organization

must absorb with each release. In our experience, change is hard. Finding ways of reducing the impact of the change to the organization greatly reduces the stress associated with change and increases the overall adoption rate of the new system.

Our Application Modernization approach can take the existing VTR application, run it through the automated refactoring tools, and produces a system with the same functionality and user interfaces as the legacy system on a modern platform. The figure below is an illustration of the before and after screens from one of our refactored systems. The original screen is from the legacy mainframe application while the refactored screen is an HTML version after refactoring. Both your internal staff and other users (e.g., County Treasurer staff) will be able to use the system immediately without training as the screen layouts, transaction flows and rules remain in place in the refactored system.

For new functionality introduced in during the modernization, as part of our Enterprise Value Delivery (EVD) methodology, we include the development of training plans related to enhancements. For this type of training, we traditionally use a "train-the-trainer", learning labs and webinars for any training that needs to be delivered in a classroom session. We recommend involving SMEs that are involved in developing these modernization requirements and performing UAT for the new features. Using these key staff to train staff that can deliver training to the field offices reduces impact on the Nebraska DMV staff.

During refactoring, the VTR System is composed of code that is transferred line-for-line in a syntax that is recognizable by existing legacy developers and can be easily maintained and augmented by new developers. We work side-by-side with your existing technical staff and programmers to develop the skills necessary to maintain the refactored code and make changes during modernization using an integrated development environment. The refactored VTR System's user interfaces becomes Web-based but retains a similar look and feel as the legacy application providing a familiar user experience and that can minimize Nebraska DMV's effort to train and perform change management for end users as shown in Figure 3 below.



Key Benefits

We provide the ability for both existing legacy developers with new JAVA or .NET developers to support the solution together



Figure 3 Comparison of Pre-Refactored and Post-Refactored Screens

Recommended Training

During the project, any products (e.g., business rules engine, correspondence engine, cloud-based services) that are implemented and integrated with the new system will go through our standard implementation processes. Training on the products for both business and technical staff are provided as needed to configure and manage these products.

4. Service Level Agreements

The State DMV requests any standard Service Level Agreements (SLAs) information.

We understand that consistent and reliable service is critical in the implementation, adoption and ongoing use of a refactored application. Our considerable experience and success in establishing and meeting agreed upon Service Level Agreements (SLAs) allows us to take appropriate measures to help maintain system operation and high levels of availability and responsiveness that Nebraska DMV expects for their modernized VTR system.

We view SLAs not only as a contractual agreement, but also as a measurement tool used to improve our performance and quality control efforts.

Our approach consists of five major industry standard processes: Identify, Define, Manage, Review, and Feedback. We use a SLA management framework that focuses on planning for and defining SLAs up front in order to clearly understand what is being measured. The on-going management of the metrics is rounded out with an annual review that provides feedback on the effectiveness of the SLAs. As this is an iterative process, the loop is completed with new/updated SLAs feeding back into the planning/definition process.

We can work collaboratively with the Nebraska DMV to establish the SLAs. This can also include establishing the basis and parameters for determining the System Availability used for monitoring the System Availability. Table 3 defines the SLAs based on the following service priority tiers for defects or service failures.

Service Priority Tier	Priority Description
Priority 1 (P1) - Escalated Priority Level - High Impact	An error that causes the application to fail (i.e., 'crash'). Critical defects may cause the system or significant portions of it to be unavailable. Severe data loss or corruption may occur. Critical defects stop user from conducting work and there are no workarounds available.
Priority 2 (P2) - Elevated Priority Level - Medium Impact	User may still be able to perform most of their steps, but all or a large part of a use case cannot be completed or there are data integrity issues. These defects are characterized by: <ul style="list-style-type: none"> Systemic defects (prevalent in agreed number of screens or batch programs, such as interfaces, conversions, stored procedures of the modernized VTR system).
Priority 3 (P3) - Normal Priority Level - Low Impact	These low impact defects allow the user to continue work with small to no impact to the modernized VTR system; these types of defects are not classified as cosmetic problems.
Priority 4 (P4) - Low Priority Level - Minimal Impact	These defects are cosmetic in nature with minimal impact to the business operations or end users. Defects will not affect the workload of the user. Misspelling and formatting defects are examples of such defects.

Table 3 Proposed SLA Priority

5. Network Configuration

Is there a minimum network bandwidth or capacity required, and what transaction rate will the minimum support? What networking challenges have you encountered when implementing your solution for clients similar to the Nebraska VTR?

Business needs quality bandwidth to render the page contents, drive capacity for heavy content, speed for responsiveness and to address the scalability concerns. The underneath architecture of the refactored VTR application plays a vital role to support the network bandwidth and capacity.

Deloitte has extensive experience in the development and deployment of large, scalable solutions with high network resiliency and similar to the modernization of the Nebraska vehicle title and registration system.

Our proposed solution and approach to modernize Nebraska Vehicle Title and Registration (VTR) system is based on industry standard n tier architecture. The application screens created are HTML 5 based light weight user interfaces which runs on web browsers. These screens provide rich user experience but work in a stateless method where data is sent in regular intervals to the server for processing which keeps the network bandwidth requirement to a minimum.

For example, our solution deployed in Texas for the DMV supports:



Section Highlights

Proven structured approach for network performance and capacity planning:

- Scalable capacity
- Implemented light weight user interface to minimize the impact to network bandwidth

- 3,000 Internal users
- 25,000 Business partner users
- 750 Concurrent users
- Up to 250 Transactions per second

The county offices which processed registration renewal and title transaction for customers with the modernized application operated on a T1 network. The business partner users performing transaction like Vehicle inquiry, Dealer titles used their standard internet connections to access modernized application. The headquarter users included development team, Infrastructure team, VTR business users, support and help desk team used a 50 Mbps network to perform their day to day activities.

6. Hardware and Software Configuration

The State of Nebraska will host this solution within the State network. The following questions pertain to minimum hardware requirements to operate a system.

- a. If Nebraska hosts your system on Nebraska owned, physical hardware: What is the minimum hardware required to operate your system? Please include any information about central hardware (primary servers, failover servers). For each server required in the solution, please provide the following information:
 - i. Server purpose or component description
 - ii. Processor requirements
 - iii. Storage capacity requirements
 - iv. Options for scaling the system component to meet growth needs
 - v. Options for achieving high availability for the system component
- b. If Nebraska hosts your system on Nebraska owned virtual infrastructure: What is the minimum system requirements to operate your system? What virtual environment(s) is/are your solution supported on? Please include information about all system components (primary servers, failover servers). For each component required in the solution, please provide the following information:
 - i. Server purpose or component description
 - ii. Processor requirements
 - iii. Storage capacity requirements
 - iv. Options for scaling the system component to meet growth needs
 - v. Options for achieving high availability for the system component
- c. If your system were to be installed in Nebraska on vendor owned physical hardware:
 - i. How many servers would be installed?
 - ii. Would you provide the rack(s) required for the installation?
- d. What is the minimum county treasurer office or State DMV end-user hardware needed to conduct the business of registering and titling vehicles:
 - i. User hardware: Does your system require specific or proprietary hardware?

- User peripherals: What minimum hardware set up is required per workstation?
- e. Based on the information provided in Section III C of this RFI, what hardware configuration incompatibilities between your solution and the State’s existing environment, or other DMV systems, do you foresee (such as the State Mainframe)?

Software and hardware components are selected to realize the intended business outcomes for the Nebraska VTR system modernization. The hardware and software components are described in further detail below.

Hardware Components

We understand on premise option that the Nebraska DMV may consider to host VTR modernized system at the State Data Center. Through similar implementations in Texas and other states, Deloitte has successfully hosted multiple environments using shared infrastructure. We can bring the lessons learned from this experience to help the Nebraska DMV create a robust and reliable environment. Table 4 provides information regarding the hardware components.



Section Highlights

- Open, standards based
- n-tier architecture

Hardware Item	Environment (e.g., Development, Test, Training, Production)	Detailed Description (e.g., number of processors, amount and type of storage and memory,)	Operating System
Cisco UCS B200 M4 Blade Server or Equivalent	Production	128 cores, 512 GB RAM, 6 TB SAN storage	Red Hat Enterprise Linux Server
Cisco UCS B200 M4 Blade Server or Equivalent	Non-Production (UAT/Load and Stress)	128 cores, 512 GB RAM, 6 TB SAN storage	Red Hat Enterprise Linux Server
Cisco UCS B200 M4 Blade Server or Equivalent	Non-Production (Development, Test, Training)	64 cores, 256 GB RAM, 3 TB SAN storage	Red Hat Enterprise Linux Server

Table 4 Hardware configuration used on systems of similar scale as Nebraska DMV’s VTR system

The above server configurations are modeled to spin up multiple virtual machines to host application servers, database, web servers, DMZ servers, software load balancer, enterprise service bus and identity management/ security servers. This approach remains the same for hosting on physical hardware or virtualized environment. The UAT environment is configured to be a replica of production environment and also serves as back up site for disaster recovery.

The systems in this environment can be configured for High-availability at various layers. The application server can be setup with active-active clustering where two servers are configured to work together to service requests and share overall application load. In an event of a failure on one server the other continues to service all requests. The database server can be setup with active-passive clustering where two servers are sized and configured the same but one remains on standby until a failure occurs on

the active server. In addition, file system clustering, proxy and load balancing are other areas for consideration to achieve high availability.

The Nebraska VTR system modernization can be a web based application so that it does not require any specific or proprietary hardware. County treasurer office or the Nebraska DMV end-user can use the standard performance desktop and laptop to conduct the business of registering and titling vehicles. Standard performance system is generally equipped with Quad Core processor, 3.30GHz and 8GB RAM.

Based on the information provided in Section III C of this RFI, we do not see any hardware configuration incompatibilities between our solution and the State's existing environment, or other DMV systems.

Software Components

Deloitte has an independent systems integrator perspective that is not constrained to a particular product vendor. Our standard technology stack benefits from the latest advances in technology. We have extensive working experience with each of the products and tools. Table 5 provides the features of our key software components.

Software Component Name	Description	Software Vendor
Apache Tomcat	Apache Tomcat is an open source webserver which provides servlet containers to deploy web application	Apache Software Foundation
JBoss Enterprise Application Platform (EAP)	JBoss EAP is a subscription based open source application server platform for deploying highly transaction applications in a distributed environment	Red Hat
Relational Database Management System (RDBMS)	Database system – Oracle or DB2 or SQL Server	IBM,Oracle,Microsoft
Apache JMeter	Apache JMeter can be used to test performance both on static and dynamic resources (files, Servlets, Perl scripts, Java Objects, Data Bases and Queries, FTP Servers and more).	Apache Software Foundation
Apache Maven	Apache Maven can manage a project's build, reporting and documentation from a central piece of information. This will be used only during the implementation phase.	Apache Software Foundation
Selenium WebDriver	Selenium is an open-source widely used tool that automates web browsers for testing web-based systems.	SeleniumHQ
JProfiler	JProfiler's helps you resolve performance bottlenecks, pin down memory leaks and understand threading issues.	ej Technologies
Jama	Jama is collaborative requirements management tool.	Jama Software
JIRA	Jira is bug/issue tracking and task and project management tool.	Atlassian
Bamboo	Bamboo is a continuous integration and delivery tool that ties automated builds, tests and releases together in a single workflow.	Atlassian

Software Component Name	Description	Software Vendor
SubVersion	Version control system designed to handle everything from small to very large projects with speed and efficiency.	Apache Software Foundation
innoWake maxenso™ tool suite	maxenso™ The maximum enterprise solutions allow modernizing the development environment and the entire application with enterprise strength tools. In addition, the toolset takes COBOL, Natural, or PL/1 applications to Java and .NET using full automation.	innoWake

Table 5 Software products used for modernization of systems of similar scale as Nebraska DMV's VTR system

7. Database Requirements

- a. What database structure does your system utilize? Are there any requirements or prerequisites for your solution's database or database structure?

Deloitte can use a variety of database servers including DB2, Oracle, and SQL Server. The final selection depends on the requirements of the Nebraska DMV. The current database challenges we experience at State DMV's and how a RDBMS addresses these challenges are listed in Table 6 below:

Current Challenges	RDBMS Advantages
Data integrity due to lack of RI and constraints	Primary and foreign keys and constraints are enforced.
Lack of standards	Support ANSI SQL and industry XML standards.
Lack of normalization	Support normalization to the 6th Normal Form.
Need high volume transaction processing	RDBMS supports multi-terabyte implementations for leading companies.

Table 6 Current DB challenges vs. RDBMS advantages

8. Data Cleansing & Conversion

- a. What experience do you have consolidating separate county and state databases into a single statewide title and registration database?
- b. Are there specific tools or techniques you use for consolidating registration and title data?
- c. Are there specific tools or techniques you use for cleansing registration and title data? For example, in Nebraska's current environment, data for the same vehicle may be contained in separate county databases, such as when a customer moves from one county to another. The expectation is having multiple records opens the possibility customer and/or vehicle information in those records may contain discrepancies. How would you recommend the State DMV approach resolving this issue?
- d. In your experience what specific data elements have caused the biggest issue(s) with conversion?
- e. What timeline should the State DMV plan for with respect to data cleansing?

A successful implementation of a new application for the TxDMV is inherently contingent upon the successful conversion of legacy data into the new VTR solution. With multiple legacy VTR systems and applications that integrate and support various functions for the Nebraska DMV, the conversion requires a team with experience. In the refactoring phase, a set of automated data migration tools is used to transfer the data to the target architecture where the legacy system integrity is retained and is integrated with the refactored code which greatly reduces risk compared to using a traditional data conversion approach. Deloitte is a proven systems integrator with the in-depth motor vehicle experience to convert this data, including encrypted data, into an enterprise-wide new VTR solution seamlessly and with high quality.

Deloitte's Application Modernization approach to data has distinct advantages:

- Data Automated Refactoring using specialized tools
- An established data conversion methodology
- An experienced data team with motor vehicle experience
- A set of sophisticated tools to access, transform, and profile legacy data

Database Consolidation Experience

We have experience in other jurisdictions in consolidating registration and title data. For example as the customer master record is created, an operational data store (ODS) is modeled, established, and maintained using the same data quality and data transformation tools and techniques. As legacy applications (or components of legacy applications) are replaced with new services, the ODS becomes the system of record for the affected data.

Consolidation Tools and Techniques

We can utilize a Master Data management approach for customer data. This can be implemented as part of the Modernization phase as defined in the roadmap as part of FITTER DMV. One technique for data consolidation is modeling the customer record in its various forms in a Master Data Management (MDM) tool to define an application independent 360-degree view of the customer. Then, using a combination of data quality and data transformation tools, customer data from relevant source systems can be merged and reconciled into a single golden customer record. After creation of the golden customer record, these same tools, plus data synchronization, maintain the golden customer record across new and legacy applications.

Cleansing Tools and Techniques

The Deloitte team has experience using a variety of tools like Informatica to support the data cleansing of registration and title data. These tools allow



Proven Experience

Texas DMV Vehicle Title and Registration Refactoring Project:

- Successfully converted 120 ADABAS files to DB2
- Implemented IBM Cognos as the new reporting platform
- Implemented Informatica Powercenter to create an enterprise data warehouse

us author and implement data transformation rules to extract, transform and load data. Using a Master Data Management (MDM) approach described above can reduce the impact of discrepancies in customer data at the counties. This would be defined as part of the FITTER DMV and documented in the Data Conversion Plan.

Issues with Specific Data Elements

Using the automated data refactoring approach, we have not found issues with specific data elements.

Data Cleansing Timeline

Deloitte can work with the Nebraska DMV to develop a Data Conversion Plan that outlines the overall timeline. Data analysis is also part of the FITTER DMV approach that takes place during the Inception Phase of the project.

9. Fees and Taxes

- a. Are you aware of modernized solutions to ensure tax situs location is accurately determined and/or improve collection and distribution of local revenue?
- b. Does your solution include a point-of-sale (POS) or cash drawer component to manage collections?
 - i. How are electronic and credit card payments handled in the system?
 - ii. How are refunds and credits handled in the system?
 - iii. If you are providing a POS, what are its inventory tracking and management capabilities?

Using our Application Modernization approach, the current functionality for identifying fees and taxes would remain the same in the refactored system. As part of the modernization phase, enhancements can be made to the system for processing payments, distributing funds to the appropriate accounts, and managing fee and tax structures. We can look at a couple of options to address how fees and taxes are collected processed and managed.

- **Business Rules Engine** – One of our recommended activities during modernization is the introduction of a business rules engine as defined in the roadmap. Storing the rules regarding fees, taxes, amounts, accounting information, etc. can be migrated to the rules engine. Doing so eases the management of these fees and taxes to the extent that super users may be able to manage the fee tables. New fees and rules can be date affected prior to implementation.
- **Service Oriented Architecture (SOA)** – The new environment can be built on a SOA. While refactoring delivers all existing interfaces to external financial systems, the SOA architecture can allow us to modernize these interfaces using web-services. This SOA can ease the process for building interfaces to the state's financial systems.
- **Third Party COTS Packages** – There are COTS financial and payment processing software packages and services that can be used to provide these services. Third party products also have the functionality to manage inventory throughout the VTR system. During modernization, COTS packages can be evaluated for use with the new system.

10. Electronic Transactions/Interfaces

- a. How does your system incorporate:
 - I. Electronic Lien and Title (ELT),
 - II. National Motor Vehicle Title Information System (NMVTIS)
 - III. Dealer and fleet processing,
 - IV. VIN/HIN validation,
 - V. MSRP values,
 - VI. Address validation, and
 - VII. Other third-party data providers and stakeholders?
- b. Does your system include a document management and imaging solution? If so, please provide a brief explanation?
- c. Are there best practices or interface standards the State DMV should be considering?
- d. Are there other interfaces your solution requires/provides which are not identified in the CER?

Incorporating Interfaces

Interfaces are a valuable component of the Nebraska DMV operation and Deloitte has worked with all of the interfaces listed above. Through automated refactoring most of the existing interfaces are converted as is to the target platform. Table 7 below outlines the implementation process.

Interface Name	Implementation Process
Electronic Lien and Title (ELT)	Interface would be refactored as is
National Motor Vehicle Title Information System (NMVTIS)	Interface would be refactored and requires recertification with AAMVA
Dealer and fleet processing	Interface would be refactored as is
VIN/HIN Validation	Retire legacy component. Discuss the new architecture with vendor to determine the JAVA equivalent product or service
MSRP Values	Interface would be refactored as is
Address Validation	Retire legacy component. Discuss the new architecture with vendor to determine the JAVA equivalent product or service

Table 7 Interfaces and Implementation Process

Document Management

Our solution does not include a document management or imaging solution. We have implemented and integrated with these systems in other jurisdictions.

Interface Standards

Deloitte utilizes the Web Services Standard for interfaces. We can work with Nebraska DMV to define the target standards like SOAP, XML or REST. We have implemented these standards in other jurisdictions.

Other Interfaces

Refactoring the existing interfaces allows them to be migrated to new platform as is.

11. Customer Relationship Management

Does your solution include a Customer Relationship Management (CRM) function for tracking correspondence and customer touch points?

The current capabilities for performing CRM functions will remain the same in the refactored system. For the modernization phase, we can look to integrate the modernized solution with a cloud-based CRM package (e.g. Salesforce). We are currently building services on the Salesforce platform to leverage its CRM capabilities and to add resource scheduling capabilities. We believe using a software-as-a-service solution provides a cost effective method for providing CRM capabilities.

12. General

- a. What timeline would you suggest the State DMV and its stakeholders plan for each of the following:
 - I. Planning
 - II. Development
 - III. Implementation
 - IV. Integration
- b. What three things about your solution make it different/unique from other solutions/your competition?
- c. What do you often hear are the three most common complaints/weaknesses of the system you propose?

Timeline

Our comprehensive approach to Application Modernization combines our unparalleled refactoring technologies with the project management, technology implementation and governance, organizational understanding, and industry experience that is required to deliver a successful project. The approach to delivering Application Modernization projects is directed by the Deloitte Enterprise Value Delivery (EVD) method. We have used this methodology effectively on numerous technology projects, including large mainframe transformation transformations and complex modernization project implementations.

Through our Application Modernization approach, Deloitte could plan a two year implementation of the Nebraska VTR system and then start implementing the prioritized modernization initiatives from the roadmap. Figure 3 below provides an estimated timeline.

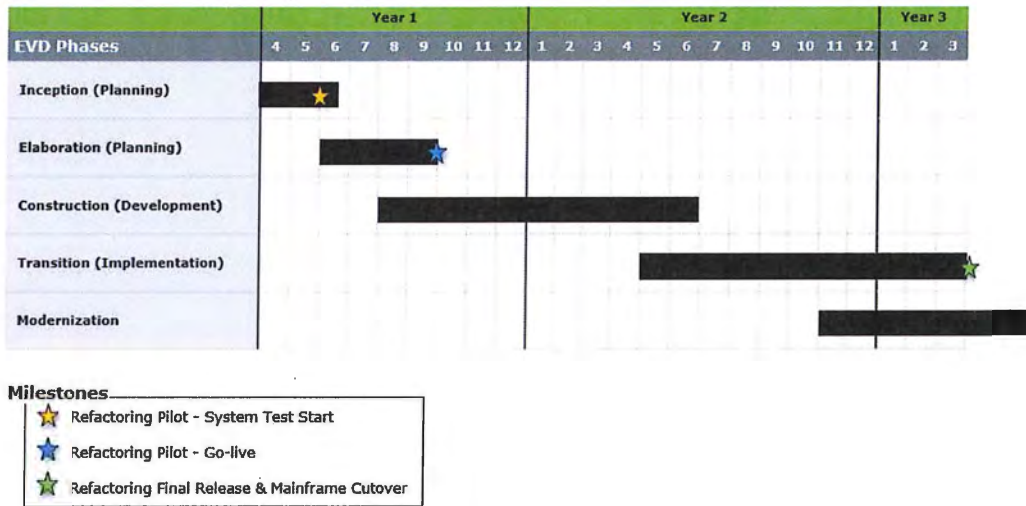


Figure 4 Estimated timeline for a refactoring and modernization project

Unique Solution

Application Modernization offers an alternative to the traditional custom development “pure re-engineering” or commercial of-the-shelf mainframe modernization approaches. Automated refactoring improves the underlying technical implementation with modern, more agile and sustainable technology like Java or .NET, while preserving the existing application functionality. This establishes a solid foundation for future business enhancements while providing value in the short-term.

Automated refactoring transitions your system to a stable, modern, lower-risk environment where tools and resources are readily available, and frees up your organization of the mainframe environment limitations and the high costs. You will also gain the flexibility to align further system modernization investments with your organization’s objectives and budget allocations.

As part of automated refactoring, the structures (databases, source code and application screen modules) on the legacy application platform are refactored to the new platform on a one-to-one basis. This method helps in migrating code, batch, and data in a 100% automated approach that results in a functionally equivalent system on a modern platform,

1. Automated Code Migration - Source code is transformed so that it performs in the same manner as the legacy environment
2. Automated Data Migration – System data is transformed so that it retains the legacy system integrity and is integrated with the refactored code

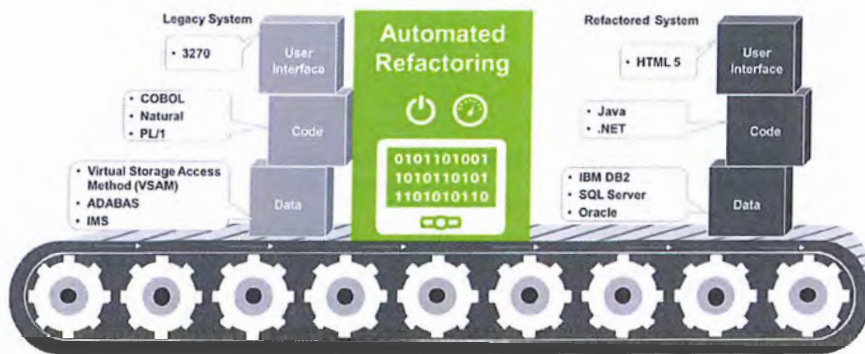


Figure 5 Automated Code and Data Migration

Potential Benefits of Automated Refactoring

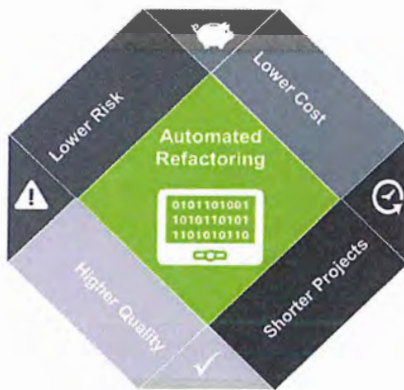


Figure 6 Potential Benefits of Automated Refactoring

1. Lower Risk:

- a. No new requirements to define
- b. No missed functionality
- c. Minimal end user training
- d. Modernize at your own pace

2. Lower Cost:

- a. 100% Automation reduces number of developers required to refactor application
- b. ROI realized earlier due to ability to release high value functionality early in the project
- c. Avoids vendor lock-in and costly ongoing COTS maintenance fees, thereby reducing the total cost of ownership

3. Higher Quality:

- a. 1 to 1 functional test scenarios result in high quality releases
- b. No interruption to current business process

4. Shorter Projects:

- a. Streamlined SDLC results in shorter projects
- b. Automated code generation speeds up delivery

Perceived Weaknesses

Perceived Weaknesses	Reality	Benefits
<ul style="list-style-type: none"> The initial code that is refactored is procedural 	<ul style="list-style-type: none"> Procedural code enables the high level of automation 	<ul style="list-style-type: none"> Allows the remaining legacy developers to support it Leads to further refinement of code during modernization
<ul style="list-style-type: none"> Automated refactoring process does not include many system enhancements 	<ul style="list-style-type: none"> Automated refactoring is highly efficient because it does not introduce enhancements 	<ul style="list-style-type: none"> Promotes reduced organizational impact and enables an efficient first phase with quick wins Allows the needed enhancements to be introduced incrementally, at the right pace
<ul style="list-style-type: none"> The modernized system cannot match the performance achieved on the mainframe 	<ul style="list-style-type: none"> Achieved like or faster performance using the modernized platform based on prior experience 	<ul style="list-style-type: none"> Modernization provides opportunities for enhancing performance by leveraging capabilities for parallelism

Table 8 Perceived Weaknesses of Automated Refactoring

13. Budget

a) The State DMV requests the following information for budgeting purposes:

- II. One-Time:
 - a. Solution Design
 - b. Implementation
- III. Annual, Recurring:
 - a. Ongoing Maintenance
 - b. Ongoing Support

Please see the Table 9 on the next page.

The State DMV emphasizes and understands figures provided in the following table are for budgetary purposes only and are not in any way binding.

The services and software pricing provided in this section represent high level estimates.

Budget Sheet

*This non-binding response is submitted strictly for informational purposes only and may be subject to change.

Estimated Budget	One Time			Annual, Recurring	Annual, Recurring		
	Estimated Budget Range - Low	Estimated Budget Range - High	Description or Comment		Estimated Budget Range - Low	Estimated Budget Range - High	Description or Comment
Software Licenses/ Subscriptions	1.2 Million	1.5 Million		Annual software subscriptions or license renewals	200,000	350,000	
Implementation or Integration Services (including design, testing, and deployment)	5 Million	10 Million		Software, patches, fixes and upgrades	200,000	500,000	
Data Migration	700,000	2 Million		Vendor Staff Costs (those human resources costs required to maintain the solution, including software and operating system updates, hardware break/fix services and help desk services)	1.5 Million	5 Million	
Training (for both state offices and regional base training for county treasurers, and including preferred method of the vendor)	700,000	3 Million		Other			
Hardware	150,000	250,000		Total Estimated	\$1.9 Million	\$5.85 Million	
Project Management	2 Million	4 Million					
Other (please specify)							
Total Estimated	\$10.1 Million	\$20.7 Million					

Table 9 Estimated Budget Sheet

14. Summary

Deloitte's Modernization Studio has an experienced team that can lead the Nebraska DMV through the modernization of the VTR system. Application modernization is a component of an overall modernization strategy. Automated refactoring provides a proven path to modernize systems that are on the mainframe today. Deloitte can provide a strategy to ensure that the Nebraska DMV has a roadmap that can be executed against so that it meets the needs of IT as well as the business.

**This non-binding response is submitted strictly for informational purposes only and may be subject to change.*

FORM A

VENDOR CONTACT SHEET

Request for Information Number 52016

Form A should be completed and submitted with each response to this solicitation document. This is intended to provide the State with information on the vendor's name and address, and the specific persons who are responsible for preparation of the vendor's response.

Preparation of Response Contact Information	
Vendor Name:	Deloitte Consulting LLP
Vendor Address:	150 Fayetteville St Ste 1000 Raleigh, NC 27601
Contact Person and Title:	Timothy Perkins
E-mail Address:	timperkins@deloitte.com
Telephone Number (Office):	919-546-8000
Telephone Number (Cellular):	919-522-4766
Fax Number:	919-833-3276

Each vendor shall also designate a specific contact person who will be responsible for responding to the State if any clarification of the vendor's response should become necessary. This will also be the person who the State contacts to set up a presentation/demonstration, if required.

Communication with the State Contact Information	
Vendor Name:	Deloitte Consulting LLP
Vendor Address:	150 Fayetteville St Ste 1000 Raleigh, NC 27601
Contact Person and Title:	Timothy Perkins
E-mail Address:	timperkins@deloitte.com
Telephone Number (Office):	919-546-8000
Telephone Number (Cellular):	919-522-4766
Fax Number:	919-833-3276