

## Executive Summary

In response to concerns from the Legislature and the Governor's Senior Staff, as stated by numerous stakeholders, including the public, County Clerks, vehicle dealers, lending institutions and insurance companies, the Department of Safety launched a re-engineering project to eliminate the problems associated with the state's current Title and Registration system. This re-engineering project was known as the Title and Registration User's System of Tennessee (TRUST)

Over the last several years it became apparent that the existing Title and Registration system was unable to keep up with the growing workload being placed on it, and the associated processes have become slow, backlogged and labor intensive.

The State of Tennessee's Office for Information Resources (OIR) was charged with developing a project strategy and methodology to implement a Title and Registration system that would keep up with the growing demand placed on the State of Tennessee.

To accomplish this, OIR integrated both a short-term and long-term development and implementation strategy. The short-term strategy created a new technical infrastructure to support new system functionality used to ease the use of its business users. All this was accomplished within a very short period of time and well under budget. The long-term strategy integrated additional functionality while not interfering with the business user's daily workload. Additionally, this strategy provided a medium for a product rollout strategy that minimized risks. Altogether, the short-term risks were accomplished on time and under budget.

To reduce the "time to market", this project leveraged the latest proven J2EE technologies and IBM Rational development methodologies. This use of technology allowed the business users to see and feel the product early and take ownership of the product, thus becoming a part of the project's success.

A series of "Town Hall" meetings with county clerks were held to address the expectations of the business groups. These meetings allowed the county clerks an open forum to have questions answered about the progress of the application, as well as providing a direct input into the specific items that they needed to be addressed. All this was performed while technical teams pushed forward completing technical design requirements.

Within one year, four of eight phases have been implemented on-time and under budget. Additionally, the business community and senior administrative staff are extremely pleased to see progress and to hear that *their* project is being well received by the business community.

Altogether, this project has been, and remains, successful due to the creation of a sound and proven strategy, a solid methodology, strong project management and continual monitoring of the customer expectations. The customer backlog of title and annual registration transactions has been reduced from six months to two weeks.

## **A. Description of Project**

Currently, there are approximately five million vehicle registrations and three million titles processed annually, with the title and registration division generating \$250 million in yearly revenue. In the fall of 1997 the division's backlog reached an all time high of six months, creating an unacceptable wait time to receive a title. While the backlog had been reduced in the past, it was only reduced through the use of overtime and the addition of temporary staff. When staff reductions occurred it resulted in an increase to the backlog of work. It was obvious that staffing was not an acceptable solution to the systemic problem of poor processes and inadequate technology. This led to a re-engineering effort of the existing legacy application.

The largest shortcoming of the legacy Title and Registration application was centered on the use of vehicle title number and not the citizen. In order to shift this focus to the citizen, the project established a proper data model for the new Title and Registration system. While the legacy application had been constructed on a hierarchical database structure, the new model needed to shift to a relational model. The project team quickly realized that this component was essential for success and time was needed to execute the plan. In the end, a quick success was needed to rally support from the stakeholder groups.

Replacement of the antiquated microfilm document capture application was the next focus of the project. For years, the Title and Registration division has been retaining the business records on microfilm. The image retrieval process was very time intensive. For example, when supporting documentation was needed from a county clerk, a call was placed to the central office, the proper roll of film was retrieved, the image looked up, the image printed and then faxed back to the clerk. This was an issue, especially if the customer was standing in front of the clerk at the time.

The first phase of the project was to replace the microfilm retention with the state-of-the-art document imaging system. This would provide every county clerk access to the document repository, from their own office while the customer was standing in front of them. This effort was then tackled as phase one.

While phase one was being developed, tested, implemented and rolled out, the technical team was working to make the paradigm shift from the hierarchical model to the relational model. The risk of this phase was enormous, yet through the dedication of the team, this was executed with zero downtime or impact to the end user.

Altogether, the completion of this phase put into place the capability to address problems within the system by establishing the proper data architecture.

### **Technical Description:**

With a strong plan in place directing the project, the decision to leverage today's current relational database technology with improved data attributes was made. This goal was achieved through IBM's Universal DB2 Database Management System. The new application was architected to support the future delivery of motor vehicle services via alternate channels, such as self-service kiosks and internet transactions. The ability to provide customers with additional options provides a new level of customer service while also being cost effective for the state.

Moreover, it was important to realize that as technology evolves and becomes more prevalent in our everyday lives, there will be a greater expectation for new and more accessible means of service delivery.

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In the end, an implementation strategy was created to allow for an incremental deployment plan by releasing eight distinct, stand-alone phases. The eight phases were used to reduce overall risk. To gain consensus with the stakeholder groups, this approach was presented to each of the 95 county court clerks in a series of town-hall meetings.

The following is a description of the first five distinct phases used in the project:

- **TRUST Phase I** replaced the present microfilm data storage capabilities with a new imaging system. This deployment gave the customer the ability to electronically save and store all the documents associated with car titles and registrations. This phase also gave the county clerk the ability to retrieve the scanned documents at each of their workstations. This eliminated phone calls, filing time, and most importantly the waiting time of the citizens being served.
- **TRUST Phase II** was the deployment of new workstations and printers in each of the 144 title and registration service locations across the state of Tennessee. It also included the installation of new high-speed telecommunications lines with each of these sites.
- **Trust Phase III** established the proper data model for the future while still supporting the legacy system. This data model provided both the technical shift needed and the ability to move the focus from the vehicle to the customer from a business standpoint.
- **Trust Phase IV** modified the front end processing to be web capable. All supporting documents are now bar coded to allow a county clerk to simply scan the bar code in order to pre-populate the data entry screens. No search process is necessary.
- **Trust Phase V** will expand the capabilities of the system established in Phases III and IV by adding a statewide point-of-sale system which included cash drawer, barcode reader, credit card reader, electronic signature capture pad, receipt printer, and check franking device in each office. This allowed a transaction to be initiated on the workstation, processed, fees figured, cash drawer operations performed and daily balancing performed. It also included the creation of the proper financial reports, including automatic and / or manual updates to the state's financial system. An integrated inventory system also tracks controlled stock (plates, placards, etc.) in all phases of the supply chain, from order through sale.

### **B. Significance to the Improvements of the Operation of Government**

The heart of the re-engineering project was the replacement of the division's twenty-five year old mainframe system. This presented the division some unique complications and obstacles. These obstacles included:

- A lack of edits adds to data integrity problems, thus leading to multiple records for the same information. A tremendous amount of effort is required to clear resulting errors.
- Inability to do ad-hoc reporting. This was especially problematic for management, as they had little to no data from which to manage the operation.
- Missed opportunities to collect revenue owed, such as child support, because no links existed to other state systems.

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- Enhanced compliance with financial responsibility requirements.
- Poor tracking of controlled stock
- Poor financial reporting.

The new distributed system added functionality that included:

- **Improved Accountability:** Through the integration of systems that were previously stand alone applications, the state is able to recognize and realize revenues that previously went uncollected.
- **Improved Credibility:** The State can now offer information to the citizens instantly. Information ranging from a history of the previous owners of a vehicle, the complete listing on all of their vehicles owned and instant retrieval of the documents related to their titling of the vehicles.
- **Enhanced Accounting and Inventory Control:** Through the use of the integrated Point of Sale application, not only is there a tighter control mechanism in place for the accounting of all money collected, but the controls are now available to track a vehicle license plate all the way from manufacture to the actual check that was written to purchase the plate.
- **Improved Relationships and Processes:** With the continued use of the new application, county clerk offices now have the ability to enter vehicle registration transactions real-time into the system. This yields a better communication between offices, helping to reduce fraudulent vehicle registrations.

### **C. Customer, Service Recipient, Taxpayer, Agency Benefits**

**Customer Benefits:** The State of Tennessee has greatly improved their processing efficiencies with the replacement of paper documents with scanned images. The State also can now capture a Title and Registration transaction with all the appropriate financial controls in place to ensure regulatory compliance. The State now has the ability to safeguard and account for all the controlled stock and track each inventoried item as it moves from the manufacturer to the county and then to the customer. The State has gained visibility to the work in process with the help of automated workflows that drive the work to the appropriate person in an efficient manner.

**Improved Service Levels to the Agency and County Clerk Offices:** The county clerks can now provide greater customer service by having the ability to take credit/debit cards for payments. They can also reduce the wait time by having the ability to scan a bar code to find and pre-populate the data fields needed to process a transaction.

**Taxpayer Benefits:** The cost savings associated with eliminating an outside vendor who supplied much of the new functionality now provided in the new TRUST system will be significant. Also, the efficiencies gained with the system will improve customer service levels and make the process of applying, renewing and processing Title & Registration requests much easier.

## **D. Return on Investment (ROI), Short - Term / Long - Term Payback**

Heightened program and service efficiencies resulted in significant reductions in expenditures, while maintaining or increasing service levels (See sections B and C).

1. **Return on Investment (ROI):** The annual return on investment was 10% for this project.
2. **Estimated Short-term Payback:** This project will break even in year six.
3. **Estimated Long-term Payback:** This project's Net Present Value (NPV) using 10 years and a five percent discount rate is \$4.6 million.
4. **Increased Service Demand:** Staff requirements should remain stable, while service demand continues to increase.
5. **Savings and Cost Avoidance:** Total hard dollar benefits recouped in direct cost reductions as well as the ability to perform more work without the addition of staff is equal to \$1 million over the next ten year period. Total soft dollar benefits conservatively total \$12 million over 10 years. The soft dollar benefits include efficiencies that OIR and the state's agencies experience using a more up-to-date system. The soft dollar benefits also reflect the effects of pervasive process improvement. Additionally, it includes estimated cost avoidance resulting from a more up-to-date system being implemented.