

THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

LOCATION:
*Jefferson City, Missouri,
United States*

YEAR:
2006

STATUS:
Laureate

CATEGORY:
Transportation

NOMINATING COMPANY:
IBM Corporation

ORGANIZATION:

Missouri Department of Transportation - Motor Carrier Services

PROJECT NAME:

MoDot MCS

Summary

With the diversity of motor carrier loads, routing requirements for materials and load dimensions, coupled with the complexities of Federal and State regulations, motor carriers face a daunting time consuming task to ensure regulatory and tax compliance. The complexity for the carrier and states is further complicated by disparate business processes, across multiple agencies, leveraging nonintegrated applications. The Missouri Department of Transportation Motor Carrier Services recognized the challenge and leveraging the input of their customers began seeking solutions. Motor Carrier Services (MCS) is the single point of contact for motor carrier functions for the State of Missouri. Working with IBM, MCS developed a One-Stop Motor Carrier customer relationship application that will better serve its customers. This includes accepting and reviewing applications, issuing credentials to approved carriers, collecting required fees, enforcing state and federal rules and regulations related to the movement of commercial vehicles in and through the state. The solution will dramatically reduce the administrative time of carriers, improve revenue to the state by improved visibility across all customer interactions and improve road safety by better auditing of carrier regulatory compliance.

Introductory Overview

The Missouri Department of Transportation has a long history as a state department dating back to 1913. In comparison, Motor Carrier Services division is the new kid on the block that was created in 2002. Prior to that date, four different state agencies at various different locations housed six motor carrier programs. As a one-stop shop agency, MCS collects approximately \$148 million in fees and issues over 250,000 credentials annually for the state of Missouri and all other states and Canadian providences and distributes approximate half of the funds to the various other agencies. Safety is key in determining who transports property or passengers in the states. A top-notch safety program helps to reduce accidents, fatalities and serious injury. 9/11 opened the eyes of this industry to its vulnerability of terrorism. MoDOT as a result is implementing a pilot security program for motor carriers in cooperation with the Transportation Security Administration (TSA) and the Commercial Vehicle Safety Alliance (CVSA). This program will not only evaluate current security systems motor carriers have in



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place but will provide an opportunity for improvement on those programs. If successful, this pilot will become a CVSA international program.

The transportation industry is the backbone of the United States. Our economy depends on the ability of this industry to move goods in a timely and efficient manner. Transporters of freight by truck moved 9.8 billion tons in 2004. As demand for transportation continues to increase, this industry needs to be able to react to the market place not in a matter of hours but in minutes. Time is one of their most valued commodities.

Government sectors often perform a juggling act of trying to guard the interests of its citizens, meet customer needs, protect its infrastructure and be accountable for its use of tax dollars. Frequently those tax dollars are not sufficient to keep up with the changes in technology. Many times, the use of technology by the regulated surpasses the technology in use by government. In order for MCS to help meet the mission of MODOT of "Providing a world-class transportation experience that delights its customers and promotes a prosperous Missouri", new and innovative ways of doing business and meeting the needs of the customer are paramount.

With the backing of industry, MoDOT's commission approved a plan to completely integrate the "one-stop shop" for Motor Carrier Services customer end users. A single Internet portal sharing a centralized RDBMS comprises the core elements of the application. The different modules (Payment Processing, Safety and Compliance, Overdimension/Overweight System, International Fuel Tax Agreement, International Reciprocity Plan, Operating Authority, Hazardous Waste and Waste Tire) are integrated as a whole entity in the IBM WebSphere application server environment with seamless interfaces to one another.

The project began in earnest in August 2004.

Benefits

The MoDOT recognized that to achieve the greatest benefit to their customers there would have to be a shift from the conventional governmental agency centric view of the customer to a customer centric view. This approach would yield the greatest benefit not only for the agency but also the customers they serve. By coupling this strategy with a flexible adaptive technology a number of key benefits have been realized.

- Positive economic impact to the customer
 - Ability to quickly add equipment as demand for service increases. Expanded customer service (24/7) allows equipment to be added by the customer, at the location of their choice and immediate issuance of credentials needed to put the equipment on the road.
 - Information is quickly shared to road enforcement officers and other public/private partnerships that allow the motor carrier to be verified on mainline highways at highway speeds to bypass enforcement checkpoints. The elimination of down time increases motor carriers' productive time and fuel savings.
 - Electronic document issuance of credentials. This process eliminated the need for contacting state agencies on lost credentials. Mailing is no longer the choice of delivery and fast response saves time and money.
- Ensure compliance across programs.



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-Three antiquated and non-integrated mainframe systems created redundancy and lack of ability to verify compliance across programs. By ensuring compliance in all needed programs, the customer was provided better service and had a greater assurance that all requirements were met.

- More effective enforcement

-Access to this system by road enforcement gives immediate verification of state and federal compliance. The carrier snapshot also includes the ability to view temporary permit documents at the roadside for any Missouri customer.

-Data sharing between state and federal agencies ensures that safe motor carriers are traversing the national and state highway systems.

- Compliance with federal mandates

-This system will be in and maintain compliance with federal architecture standards guiding principles and all requirements for the deployment of Commercial Vehicle Information System and Networks (CVISN).

- Change in state processes/additional functionality

-Electronic capture of data allows state agencies to increase efficiency and to implement streamline processes. It allows the division to better manage and redirect its resources as needed.

As a result of implementing this system, the division, which also functions as a motor carrier call center, will be able to incorporate the Internet Protocol phone system with the web application to prompt and display customer profile information when a call is received.

Application - As mentioned in the technology section, the system architecture was designed to be loosely coupled so that future integration efforts could be performed with ease. MQSeries and Websphere was the solution to decouple the tight integration points and provide a seamless architecture that can meet MoDOT present and future integration requirements.

Organizations & Global Communities - MoDOT as a result is implementing a pilot security program for motor carriers in cooperation with the Transportation Security Administration (TSA) and the Commercial Vehicle Safety Alliance (CVSA). This program will not only evaluate current security systems motor carriers have in place but will provide an opportunity for improvement on those programs. If successful, this pilot will become a CVSA international program.

The Importance of Technology

Missouri recognizes the importance of technology from the top down. In the inaugural address of our governor in 2005, he stated "Taxpayers deserve a government that harnesses technology to better serve the people." He followed up in his state of the state address in January 2006 with a commitment to "... making Missouri a national leader and a model for other states" and giving taxpayers "... full value for their hard-earned tax dollars." MoDOT shares that belief and has committed approximately \$10 million in funding and additional commitments in staffing to implement this project.

As the need to share real-time data for enforcement and to quickly respond to industry needs to comply with state and federal requirements, technology is needed to place all of the programs



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under MCS into one robust, seamless system.

In designing this solution, IBM used best practices around integration, federal architecture standards and best of breed modules from our partners Bentley, AccPac and CACI. Preferences were given to Commercial off the Shelf (COTS) components vs. Custom developed code. Custom coding was needed for two of the programs. Some COTS components needed to be modified to meet state law and architecture standards. The system architecture was designed to be loosely coupled so that future integration efforts could be performed with ease. MQSeries and Websphere was the solution to decouple the tight integration points and provide a seamless architecture that can meet MoDOT present and future integration requirements.

A single Internet portal sharing a centralized RDBMS comprised the core elements of the application. IBM integrated CACI's International Registration Plan (IRP), International Fuel Tax Agreement (IFTA) - Fuel Tax Licensing, Single State Registration Systems (SSRS), Interstate Exempt/Intrastate Regulatory Authority (IE/IR) applications, Bentley's Overdimension/Overweight (OD/OW) Non-divisible Load Permits and Hazardous Waste/Waste Tire Transporter (HW/WT) applications, and ACCPAC's payment processing application into one robust, seamless Motor Carrier Services system for MoDOT. One of the key technical benefits was the solution could easily leverage existing data, easily plug into the existing infrastructure, and be configured quickly to meet unique requirements.

The One stop system is in compliance with federal architecture standards guiding principles and all requirements for the deployment of Commercial Vehicle Information System and Networks (CVISN).

By employing state of the art technology the Motor Carrier Services unit will allow the Motor Carriers of Missouri the ability to do business more quickly and efficiently 24 hours per day seven days per week every day of the year. This allows the constituency to do business with the state when it is convenient for them to do so and not be bound by governmental hours of operation. This also allows them to get services from the comfort of their homes or offices in which they work instead of standing in long lines.

The solution also provides an electronic log book (electronic register facility) to track enforcement actions, education contacts, compliance reviews, violation found, legal action taken and staff assigned.

Originality

Besides the exceptional way multiple agencies and business processes were brought together (described in, "How is it original", the design of the system was unique for the industry and state. A single common customer base is central to the application. This core application retrieves federal data as the starting point of building the customer account. All program activities are trailed in a single location within the customer base to see at a glance the overall status of the customer. All of the programs feed and tie information off of core data. A COTS accounting package receives and sends messages through the payment portal to and from the various programs. Due to the number and type of programs, interaction between sections within MoDOT, other state and federal agencies are required at various points through the processes. This system was designed to allow that interaction by direct access to the system for entering approval or assigning work tasks. The system design included scheduling work tasks for field staff that



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are initiated by applications filed via the web, complaints received or other safety initiatives.

Although a limited number of states have implemented a one-stop shop agency, Missouri did it in a unique way and with a broader depth of more motor carrier programs than any other state. Representatives of various state agencies recommended to the governor a better way of doing business and meeting its citizens needs without turf considerations. The governor initiated an executive order to implement those recommendations. In the next session that followed, legislation was passed to further those recommendations.

In addition to support of the governor's office and state agencies, Missouri had support from the motor carrier industry. Industry was a part of the initial team and continues to support this project to its completion. For the work completed, the team received the "Governor's Award for Quality and Productivity" in 2002.

Success

MCS views success through its customers. This project is still in development with a finish date of June 2006. Measurements of success are still to be seen but some early results are more than expected or anticipated. Within three months of implementation of on-line submission of OD/OW permit requests, approximately 75% of all approved permits per day are initiated from the web. Permit fees generated by this program have doubled due to the expanded data capture for accurate determination of the types of permits needed. Current results also indicate about 12% of OD/OW permits are submitted while the office is closed.

Another program that is scheduled for implementation within the week is also anticipated to be a major hit from our customer base. Under the IFTA program, customers are used to preparing quarterly tax returns for submission from a CD product previously distributed by our division. MCS division currently ranks 8th in the number of visits to MoDOT's website.

Other early success stories include the ability of the customer to replace vehicles/trailers in large numbers. One of Missouri's large motor carriers recently added 200 trailers (some on a weekend) and received temporary credentials immediately. Another large company has stored the electronic copy of the credentials (previously required to be an original paper copy) in their system. Some of their trucks are equipped with computers and have Internet and printing capability in the cab of the vehicles. Drivers who need a copy of the credential can by password and id, accesses the credential stored within their company's system and produce it as needed.

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Difficulty

As IBM and MoDot approached this project, several major challenges had to be addressed and everyone of them successfully resolved for this project to be successful. From combining 4 different organizations (and 6 functional areas) into a common organizational go-to-market model, integration of four disparate applications/organizations who individually were best of



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breed in the marketplace, but had never been brought together into a single common system to support the needs of the motor carrier industry, to defining the knowledge base required to best support the customer set and gain maximum acceptance and value from their input and achieve significant user accessibility while at the same time deploying the application system while the MoDot agents still had to do their day jobs.

The challenges around the technology and integration were significant on this project, but equally challenging were the organization change issues (that impacted internal and external users of the system) of deploying a brand new integrated application. This was truly the example of driving a car down the road while changing the tires – the day to day business could not be stopped, the customer requirements still had to be met while at the same time we needed to design, build, educate, deploy and test as well.

Over several years representatives of various state agencies recommended to the governor a better way of doing business. The governor initiated an executive order to implement those recommendations. In the next session that followed, legislation was passed to further those recommendations. Budget consideration both federal and state had to be considered for the implementation and support. This consideration required extensive evaluation of the benefit of the solution and recommendation to the MoDOT Commission. Along with key representatives of MCS and IBM supported the presentation to the commission.