

Driving to Success

The DMV's Quest for Modernization

WHITE PAPER:

STATE AND LOCAL GOVERNMENT



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ABSTRACT

MOTOR VEHICLE ADMINISTRATIONS (MVAS) ARE FOCUSED ON JUDICIOUS AND EFFICIENT MANAGEMENT OF DRIVER AND VEHICLE REGISTRATIONS, PERMITTING, AND TITLING. SINCE THIS FUNCTION IS INHERENTLY A STATE-LEVEL OBLIGATION, THERE ARE OVER 50 SUCH AGENCIES IN THE UNITED STATES AND ITS TERRITORIES, EACH WITH A SLIGHTLY DIFFERENT WAY OF CONDUCTING BUSINESS. SINCE MOST ADULT AMERICANS DRIVE, MOST HAVE DRIVER'S LICENSES. THE TOTALITY OF DRIVER'S LICENSE DATABASES IS PROVING TO BE ATTRACTIVE TO NATIONAL AND FEDERAL AGENCIES SEEKING TO REGISTER, CONNECT, AND CONDUCT INTERSTATE BUSINESS AND REGULATORY AFFAIRS.

THE NUMBER OF SUCH INTERESTED INSTITUTIONS HAS MULTIPLIED OVER TIME, SO THE BURDEN ON STATE-LEVEL DEPARTMENT OF MOTOR VEHICLE (DMV) DATA ADMINISTRATORS HAS INCREASED MANIFOLD. IN ADDITION, THE BUSINESS PROCESSES OF THE DMV HAVE CHANGED AS THE PUBLIC HAS CHANGED THE WAY IT DOES BUSINESS. FOR EXAMPLE, BETWEEN 2002 AND 2008, INTERNET-BASED REGISTRATIONS HAVE INCREASED MORE THAN EIGHT-FOLD, WITH A 15% GROWTH RATE IN 2009 ALONE. MOST STATES OFFER SOME SORT OF WEB-BASED REGISTRY OR RENEWAL SYSTEM.

EVEN SO, MOST DMVS STILL OPERATE BACKROOM FUNCTIONS ON LEGACY INFORMATION TECHNOLOGY. IN A 2008 NATIONAL SURVEY ON LEGACY SYSTEMS AND MODERNIZATION, 29 STATES RESPONDED THAT NEARLY HALF OF THEIR LEGACY SYSTEMS WERE IN TRANSPORTATION SYSTEMS, THIRD BEHIND ADMINISTRATIVE SYSTEMS AND FEDERAL INTERACTION SUPPORT.¹ THE MULTIPLICITY OF SYSTEMS AND THE VERY LARGE VOLUMES OF USERS ENGENDERS INHERENT DATA QUALITY PROBLEMS, WHICH APPEAR PERSISTENT, WITH ONLY SOME RECENT EFFORTS TO AMELIORATE.^{2,3} RECESSIONARY BUDGET PRESSURES HAVE EDGED DMV RENEWAL PROJECTS, PARTICULARLY THOSE RELATED TO REAL ID, AWAY FROM THE HIGHER PRIORITY LISTS FOR STATE DECISION-MAKERS. AS OF APRIL 2010, THERE ARE FIVE STATES (VIRGINIA, IDAHO, ALASKA, DELAWARE, AND CALIFORNIA) CONTEMPLATING SIGNIFICANT MODERNIZATION EFFORTS FOR THEIR ENTIRE DMV SYSTEMS.⁴

THIS PITNEY BOWES BUSINESS INSIGHT WHITE PAPER DESCRIBES VARIOUS METHODS WITH WHICH DMV DATA ADMINISTRATORS MAY BE ABLE TO ESTABLISH MORE PRODUCTIVE, RULES-BASED, DATA QUALITY AND COMMUNICATION MANAGEMENT, WHETHER OR NOT CONTEMPLATING SYSTEMS MODERNIZATION.

THE EFFECT OF DATA QUALITY PROBLEMS IS NOT ONLY IN THE EXPERIENCE OF UNNECESSARY COST, BUT ALSO THE REDUCTION OF SAFETY

Review of DMV Services Provided

Motor Vehicle departments fulfill a variety of functions that fulfill the needs of the public, the state legislature and executives, the judicial branch, and increasingly, the federal government.

These include:

- Vehicle Registrations, Licensing, and Inspection – as a primary function, this includes the administration of the safety and technical compliance of motor vehicles of all kinds. It also includes the primary function of the collection of fees and taxes from vehicle owners.
- Driver Licensing – since the operation of a vehicle is a privilege and not a right, the DMVs must administer the competence of private and commercial vehicle drivers.
- Service Registrations – this includes the administration and taxation of transportation-related services.
- Tax Collection – some DMVs are required to collect taxes on various transactions that are only tangentially related to the operation of a motor vehicle, such as excise taxes, common services fees for emergency services, or legislature imposed fees to support the development of other public services.
- Voter Registration – since no other department registers such a broad base of the voting public (other than tax departments), DMVs are often called upon to effect voter registrations.
- Accident/Incident Analysis – public transportation safety administration requires the capture and causal analysis of accidents and injury incidents on public thoroughfares.

Defects in DMV Processes Due to Poor Data Quality

With such high volumes and critical functions, it is important that the data captured and administered by DMVs be accurate and complete. The continuous increase in volumes of both constituents (often referred to as “customers”) and legislative demand has caused data quality to suffer.

While many DMVs use address validation subsystems – the most commonly required form of data quality assurance – many still do not, or they use inferior methods. The frequency of address data updates poses a significant challenge for inflexible legacy systems.

Beyond location verification, there are a host of persistent and nagging data quality problems in the interaction with DMV and other data systems⁵ – illegibility of handwritten forms, incompleteness, duplicate registrations, inconsistencies, entry errors, and data representation problems. The effect of these data quality problems is not only in the experience of unnecessary cost, but also the reduction of safety.^{6,7}

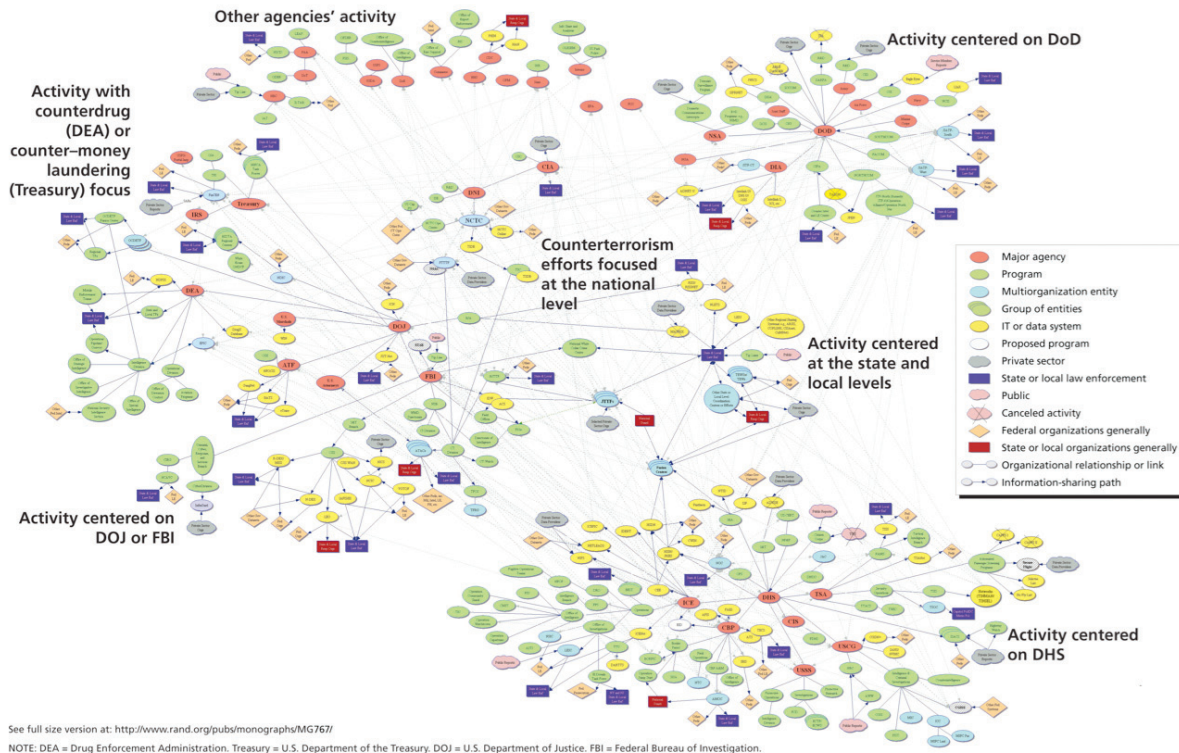
Data quality problems also compound over time. For example, consider that 15 percent of all records in a database experience at least one change in a field per year. After three years, 45 percent of the records will change. This means that if the database is not continuously corrected, a minimum of 45 percent of the database will be in error.

Increasingly, national organizations that attempt to integrate state DMV information into comprehensive databases are insisting that the originators of data (i.e., state DMVs) comply with basic data quality requirements.⁸ Data quality is best ensured at the source, not downstream, where the expense of remediation is a multiple of the cost of error avoidance. This hard reality places the onus for universal data quality squarely on state DMV data administrators.

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 NOTE: DEA = Drug Enforcement Administration; Treasury = U.S. Department of the Treasury; DOJ = U.S. Department of Justice; FBI = Federal Bureau of Investigation.
 DHS = U.S. Department of Homeland Security; DoD = U.S. Department of Defense; IC = intelligence community.
 RAND MG767-B.1

Managing Identities

The special emphasis placed on driver's licenses for identity validation by the DHS places a special responsibility on the point of issue. An enormous security apparatus has been developed around identifying, managing, and containing threats based on identities. The entire apparatus depends on "state or local organizations" to correctly originate identities. The image above shows an example of this byzantine complexity. The small red square boxes, essentially DMV's, originate identity data.

Name variations, variant address histories, and other ambiguous information present challenges for both legacy systems and software, in general. Since the vast

majority of errors are input during data entry, business process changes, such as verification layers, can inhibit these difficulties. However, the proliferation of demand for this data from DMV data administrators requires high confidence methods that can be implemented without a significant increase in man-hours or effort. For example, easily maintained systems used in Master Data Management (MDM) systems, Office of Foreign Assets Control (OFAC), and other regulatory compliance systems that require a first and second level identity check based on multiple, potentially fuzzy, data inputs.

Changes in legislation cannot require extensive system programming, as this will simply break the bank, so to speak. DMV data administrators must be able to adapt in

UNDERSTANDING LOCATION IS A VITAL PART OF THE DMV'S COMPLEX MISSION

A Short Survey of Major DMV IT Systems

Commercial Drivers License Information System (CDLIS) –

The rigorous administration of commercial driver's licensing is borne out of public safety concerns: it is in the public interest to ensure that drivers of large vehicles are suitably qualified. AAMVAnet, a network of state-level CDL databases, is a subscription IT service managed by the American Association of Motor Vehicle Administrators (AAMVA).

National Motor Vehicle Titling Information System (NMVTIS) –

This system contains just 78% of national DMV vehicle data, so not all states interact with the system. It is a common exchange for vehicle status tracking also operated by the AAMVA under Department of Justice legislation. States can embed title check transactions within their individual system title transaction. Currently, only seventeen states provide data to the NMVTIS.

Real ID and Ancillary Subsystems (e.g. SAVE) – In a 2006 assessment of the impact of REAL ID, the authors found that, "DMVs are required to independently verify the validity of an applicant's identification documents with the appropriate issuing agency." This implies that for each of 245 million Americans, the states must contact all issuers of birth certificates and any other name records. The Department of Homeland Security (DHS) cost estimates have ballooned to over \$23 billion over 10 years, with only \$60 million appropriated in FY2010.

The development of a central REAL ID hub represents a switchboard to which states can submit verification transactions, and presumably receive central identification numbers. For a DMV data administrator, this represents yet another complex data quality management sequence that must be integrated into an existing complex data universe.

Other similar verification interfaces include US State Department checks for citizens born overseas, Electronic Verification of Vital Events Records for verification of key life events that affect licensing and status issues, Social Security Online Verification, and Systematic Alien Verification for Entitlement (SAVE). Each system interface requires a new or legacy DMV system to interact in specific terms, and requires DMV data administrators to track their changes in protocol and data content.

such a way that a change in rules does not imply a change in interface – that access and interpretation rules are independently connected. Changes in source and target data structure formats will not necessitate changes in rule processing, and conversely, a change in a DMV's data quality processing rules cannot require an impact on its data connection definition. To do otherwise brings the entire system into doubt.

Location Intelligence and the DMV

14% of Americans change their primary address annually – about 40 million each year. Corporate relocations alone account for an annual spend of \$21 billion – an industry twice the size of domestic move box office receipts, for instance. And, nearly a third of people who move do not report their address change to either the postal service or the DMV. This implies that approximately 10 million DMV records each year are incorrectly updated. The United States is a very mobile society.

Understanding location is a vital part of the DMV's complex mission. From residence addresses and vehicle storage locations to incidence locations, DMV databases are full of information about places. The volume of continuous change of population, however, makes this information quickly obsolete, to the detriment of the DMV's mission.

For instance, some suspended professional drivers circumvent their suspension by changing their registered locations. As the AAMVA notes in the State of Arizona,⁹ "Many Suspended/Revoked drivers do not receive notification of the changed status of their driving privileges due to unreported relocation or other circumstances. Even though the driver is responsible for notifying the DMV of address changes, [some states are] in the process of taking a proactive approach by tracking address changes in cooperation with the U.S. Postal Service."

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As we've shown, a substantial portion of the public does not notify the USPS of address changes. In fact, in Pitney Bowes Business Insight's experience, it is the utilities, such as electric or telephone service, who are often the first to determine an effective change in address.

Another example that exhibits the value of location is in the area of accident reporting and analysis. Structural remedies to repeat accident sites can only be analyzed if the location of a crash is properly recorded and maintained – seemingly simple, but difficult to execute universally.¹⁰

A side effect of multi-media attention span and continuous partial attention are accidents cause by distracted driving. As noted in an open letter to Congressmen Oberstar and Mica (both on the U.S. House Transportation and Infrastructure Committee) in 2009,¹¹ *“The policy parameters of the distracted driving issue cannot be fully shaped in the absence of quality, reliable data. We need to do a much better job of collecting and utilizing information to help us address this emerging safety issue. One of the challenges we face is inadequate data on serious injury crashes including those in which distraction is a contributing factor.”*

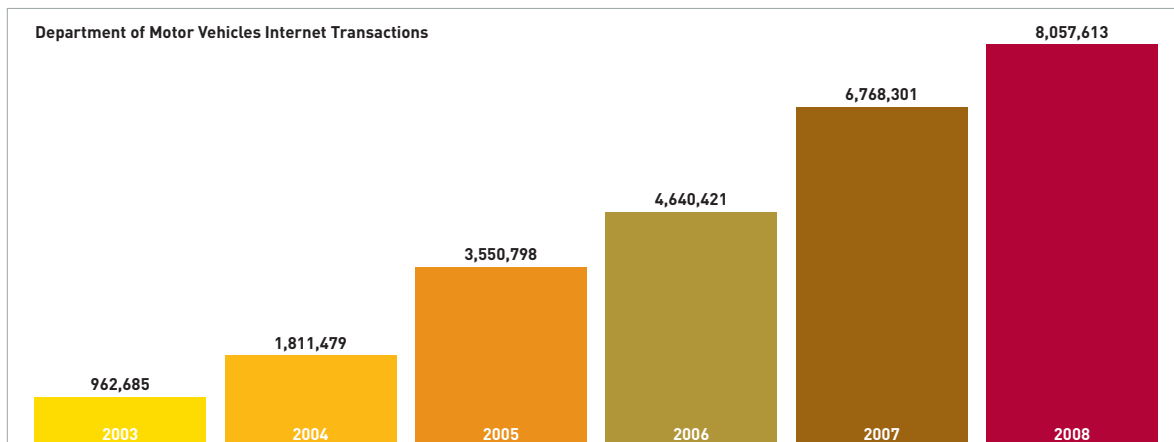
Citizen Expectations in Modern Communications

Nobody wants to stand in long lines at the DMV. This explains the attractiveness of the Web, where citizens expect to interact with their DMV office simply and quickly.

Some states use a wide variety of media to communicate with their constituents. California uses RSS and Twitter to broadcast relevant information about press releases, office closures, new laws, vehicle license fee (VLF) increases, and other notable communications.

Beyond licenses and titles, DMVs can be asked to produce a wide variety of other documents: revenue and audits, internal reports, motor carriers, insurance, training, etc. These reports must be able to be produced electronically for review on the Web, as well as in paper, from existing document production systems. They may have some variable content, where users must type in specific context information.

DMV Data Administrators must be able to adapt the document production subsystems to rapidly expanding communication methods.



Summary

The mission of state DMVs include some of the largest citizen databases. This information is relevant to many constituent government functions. However, the systems that manage these databases are often very old, and budget constraints inhibit their modernization. Citizens expect that DMVs use modern, multi-media communication methods to interact with them.

Endnotes

- 1 *Digital States at Risk! Modernizing Legacy Systems*, NASCIO 2008 Survey of the States, <http://www.nascio.org/publications/surveys.cfm>
- 2 *Traffic Safety Performance Measures for States and Federal Agencies*, US DOT and NHTSA, DOT HS 811 025, August 2008, <http://www.statehighwaysafety.com/html/publications/directions/2009/winter/1-perfMeas.html>
- 3 *Data Gaps Could Hinder a Nationwide Traffic Information System*, GAO Study Finds, Public CIO, Dec 2009, <http://www.govtech.com/pcio/articles/734406>
- 4 April 2010 PBBI Survey of INPUT State RFP database and tracking efforts.
- 5 *Improving State Voter Registration Databases*, CSTB/National Research Council of the National Academy of Sciences, 2010, http://www.nap.edu/catalog.php?record_id=12788#orgs
- 6 Governors Highway Safety Administration (GHSA) Survey of the States: Motorcycle Safety, 2007, *"Data collection and compatibility of data at the state and federal level continue to be an issue. Several states noted significant differences in the numbers of registered vehicles they reported versus the number of registered vehicles the federal government reported. Similar data issues existed between the number of fatalities reported by state and federal agencies"*
- 7 Governors Highway Safety Administration (GHSA) Survey of the States: Speeding, 2005, *"Geographic and demographic data isolated to speeding (crashes or citations) is not readily available in a statewide database format..."*
- 8 CDLIS Release 4.1.0 briefing, November 8 2007, Leif Henecke, AAMVA Deputy CIO
- 9 Reviewing the Issue of the Suspended and Revoked (S/R) Driver, AAMVA Working Group Discussion, February 2005
- 10 Governors Highway Safety Administration (GHSA) Survey of the States: Speeding, 2005, *"Geographic and demographic data isolated to speeding (crashes or citations) is not readily available in a statewide database format."*
- 11 Open Letter from the GHSA, AASHTO, AAMVA, and AAA to Representative Oberstar and Representative Mica, October 9, 2009



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