

2019

Business Case:

Motor Carrier Services Information Technology System

Prepared for the Nebraska Department of Motor Vehicles

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ABOUT THE AUTHOR

Nancy Shank, PhD, MBA, has been with the Center since its founding in 1998 and has, in addition to her administrative role, maintained an active research agenda and publishing history. Dr. Shank brings experience in consulting with state agencies and state and local organizations to improve policy, primarily in the areas of organizational design, information technology, health and human services delivery systems, community and economic development, and natural resources. She has served as principal investigator on federal grants from U.S. Departments of Commerce and Health and Human Services. Her scholarly articles have been published in *American Journal of Preventive Medicine*, *Climate Change*, *Community Mental Health Journal*, *Health Expectations*, *Information & Referral*, *International Journal of Healthcare Information Systems and Informatics*, *Journal of Community Practice*, *Journal of Psychology and Theology*, *Journal of Technology in Human Services*, *Journal of the American Medical Informatics Association*, *New Technology in the Human Services*, and *Sustainability*. Dr. Shank previously worked with Nebraska Department of Motor Vehicles to develop a driver license vendor request for proposals (2017/8), analyze driver licensing services delivery (2015), and develop a business case for vehicle titling and registration (2013).



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Executive Summary

Nebraska Department of Motor Vehicles (DMV) has regulatory and revenues collection responsibilities for apportioned motor carriers domiciled in Nebraska. Financial receipts collected by DMV average between \$80 million to \$100 million annually. The revenues that remain in Nebraska primarily fund: highway, bridge, and street maintenance; and county/municipal budgets. The information technology system used by DMV has been operating for decades and is supported by a single information technology professional who has supported it since its inception and is a contractor. The age of and limitations inherent in the system and the long-term availability of the information technology professional have prompted DMV to assess the future of the current system. As part of the assessment, DMV has contracted with the University of Nebraska Public Policy Center to conduct a business case review.

The Public Policy Center examined state and national data and reports, consulted rules and regulations, reviewed industry and association data and reports, interviewed DMV staff and selected stakeholders, and conducted a survey of states to develop this document.

Stakeholders appreciate the expanding ability to conduct business online, believe DMV staff are customer service oriented, and want to see even greater online capabilities. The current system, no longer used by any other state, is customized to Nebraska's processes but has limitations in expanding online capabilities and information sharing with other systems, which would introduce time efficiencies for customers and DMV staff. From a DMV business operations standpoint, automated data exchange with a number of state systems would streamline a variety of processes that currently rely on manual intervention and paper-based record keeping.

Four alternatives for future options for the information technology system were identified:

- Continue with the current system
- Substantially invest in upgrading and supporting the current system
- Build a new customized system
- Purchase a commercial off-the-shelf product from a vendor

Five recommendations are offered to DMV for future action:

1. DMV should implement a commercial off-the-shelf system, provided by an experienced vendor delivering the product to other states, or substantially invest in upgrading and supporting its current system.
2. DMV should identify feature, functions, and processes that a new or upgraded MCSITS should support.
3. DMV should continue its focus on customers.
4. DMV should plan for shifts in staff responsibilities in the selection and implementation of a new or upgraded MCSITS.
5. DMV should make a major financial investment in a new MCSITS, or upgrade and support its current system.

1. Introduction

Nebraska Department of Motor Vehicles (DMV) engaged the University of Nebraska Public Policy Center (Center) to develop a business case review of its information technology system for motor carrier services (MCSITS). The scope of the project is:

- Documentation of the features, functionality, and information flows in the current DMV MCSITS;
- Summary of revenues and their uses;
- Compilation of information about current and future information sharing needs;
- Assessment of the possible alternatives; and,
- Recommendations of practical next steps.

The Center obtained information and data for the business case through interviews and documentary review, including:

- Gathering information and statistics from DMV about the MCSITS and its current operations and maintenance;
- Reviewing state and national reports about motor carrier services information technologies;
- Interviewing external stakeholders about their information sharing met and unmet needs; and,
- Surveying other states about their recent experiences/opportunities in implementing new MCSITS systems.

This report focuses on *apportioned motor carrier services*.

Apportioned motor carriers are **commercial motor vehicles** engaged in **interstate commerce** (i.e., operating in more than one state or province¹) with **power units** that meet one of the following criteria:

- a) Have a gross vehicle weight over 26,000 pounds;
- b) Have three or more axles, regardless of weight; or
- c) Are used in combination with a trailer for a combined gross vehicle weight that is over 26,000 pounds.

Apportioned motor carriers must comply with federal regulations to ensure that states through which vehicles travel receive *apportioned* financial compensation.

¹ The United States and Canada cooperate on motor carrier regulation and apportionment. For simplicity, the report mostly refers to *states*, and only occasionally use the term *jurisdictions* to refer to U.S. states and Canadian provinces.

2. Motor Carrier Background: United States and Nebraska

Key Findings:

1. Federal regulations mandate state participation in motor carrier data gathering and verification and payment collection.
2. Motor carriers move the majority of weight of freight across the United States.
3. Approximately 25,000 Nebraskans work as truckers; most are self-employed.
4. The five largest motor carriers in Nebraska operate 48% of apportioned trucks in the state.
5. The motor carrier sector is undergoing technological change.
6. Four vendors dominate state IFTA and IRP information technology systems landscape.

Governmental Regulation

The federal government plays a foundational role in regulating apportioned motor carriers (referred to as *motor carriers* for the remainder of this report). Two of the primary U.S. federal agencies involved in regulation and taxing of motor carriers are the Department of Transportation's Federal Motor Carrier Safety Administration and the Internal Revenue Service. Federal agencies rely on states for significant data gathering and verification and payment collection. At a minimum, motor carriers rely on their domicile states to:

- Obtain a title for every unit operated and pay applicable sales taxes and fees (including the Federal Heavy Use Tax) for that purchase
- Maintain valid vehicle registration and pay applicable registration and renewal fees

Motor carriers must also comply with three important programs, authorized by Congress, in which states have significant responsibilities: **International Fuel Tax Agreement**, **International Registration Plan**, and **Unified Carrier Registration**. For each of these programs, states are responsible for collecting, verifying, calculating charges, and apportioning funds due other states based on federal requirements and the fee schedules developed by each state; every state sets its own fees and taxes. Cooperative clearinghouses disseminate fee and tax schedule updates to all participating states. Each of the three federal programs operate for a different purpose and have different clearinghouses:

1. **International Fuel Tax Agreement (IFTA)** program is a motor fuel tax reporting program that distributes fuel tax consumed by motor carriers to participating states. Motor carriers obtain the fuel tax license from their domicile state to which they file quarterly fuel tax reports on distance traveled and fuel purchased in all states. The domicile state receives tax payments from the motor carrier and distributes apportioned payment to states through which the carrier traveled. Motor carriers not registered in IFTA may still travel outside the domicile state, but operators must purchase temporary permits covering their passage through other states. **IFTA, Inc.** manages a reciprocal data and payment clearinghouse among its member 48 contiguous U.S. states and 10 Canadian provinces. In 2018 in Nebraska, 4,410 motor carriers participated in IFTA.

2. **International Registration Plan (IRP)** is a federal requirement for apportionment of the annual registration fees motor carriers must pay. The motor carrier's domicile state serves as the singular collection and reporting site for annual renewal and registration fees. The domicile state distributes the fee collected on behalf of the other jurisdictions, based on each state's fee schedule and the proportion of miles traveled in that state. Similar to IFTA, motor carriers not registered in IRP may still travel outside the domicile state, but the operator must register and pay for a temporary permit covering the unit's time in other states. **IRP, Inc.** manages a reciprocal data and payment clearinghouse among the member 48 contiguous U.S. states, the District of Columbia, and 10 Canadian provinces.² As of March 2019, 4,029 Nebraska motor carriers participated in IRP.

3. The **Unified Carrier Registration (UCR)** program requires motor carriers to register their businesses and pay an annual fee based on the size and type of vehicles. Most Nebraska motor carriers (estimated to be 90%) pay their UCR fees directly to **UCR, Inc.** through an online portal. The remaining 10% who choose not to use the federal portal must visit the main Nebraska DMV office in Lincoln to make their payment.

Trucking Sector Profile: National and Nebraska

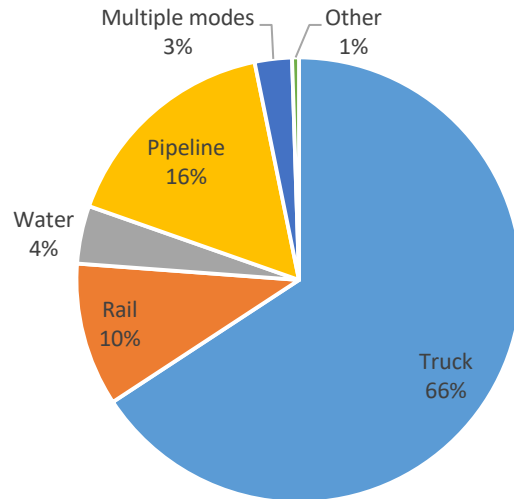
Trucking Sector

In the United States, trucks (including motor carriers) account for approximately 66% of total weight of freight moved (Figure 1)³.

² The District of Columbia participates in IRP, Inc. but does not participate in IFTA, Inc.

³ U.S. Department of Transportation. (2018). Federal Motor Carrier Safety Administration Pocket Guide to Large Truck and Bus Statistics. Retrieved from <https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/safety/data-and-statistics/413361/fmcsa-pocket-guide-2018-final-508-compliant-1.pdf>

Figure 1. Percent of total weight of freight moved by mode, 2016

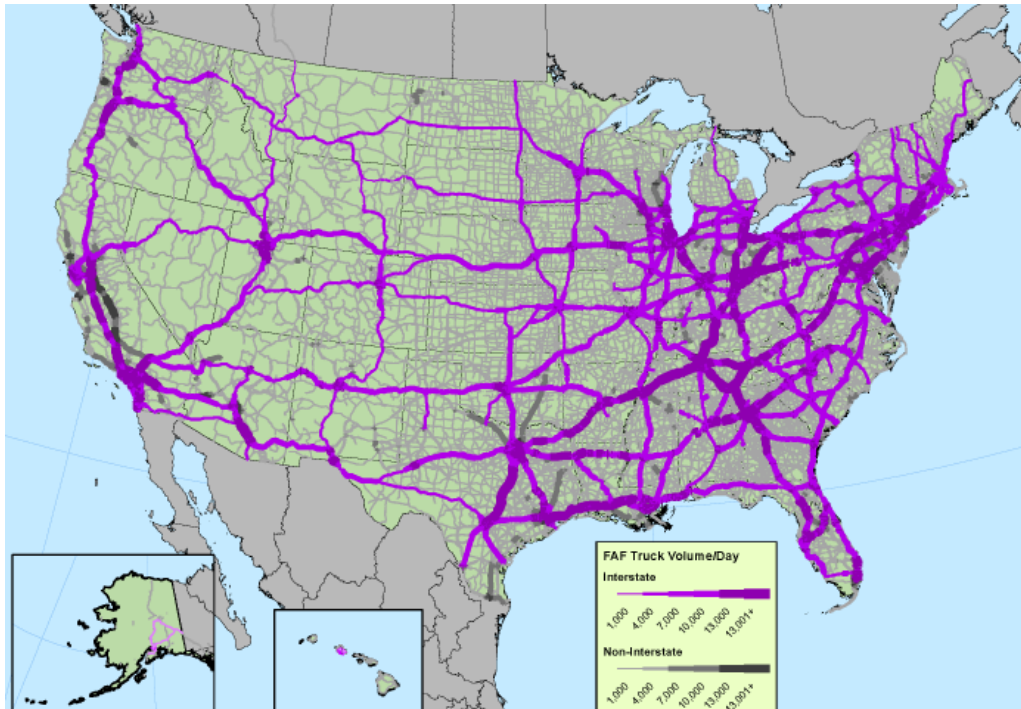


Source: U.S. Department of Transportation. Federal Motor Carrier Safety Administration Pocket Guide to Large Truck and Bus Statistics.
Notes: Includes domestic trade and the domestic portion of imports and exports. Air accounts for 0.03 percent of total domestic freight and is excluded from this chart. Percentages do not sum to 100 percent due to rounding.

Nebraska’s leg of Interstate 80 comprises an artery to the interconnected network of motor carrier transportation across the United States (Figure 2)⁴. Nebraska’s highways are maintained for and used by motor carriers across North America and beyond.

⁴ U.S. Department of Transportation. (2018). Federal Motor Carrier Safety Administration Pocket Guide to Large Truck and Bus Statistics. Retrieved from <https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/safety/data-and-statistics/413361/fmcsa-pocket-guide-2018-final-508-compliant-1.pdf>

Figure 2. Average daily truck traffic on the national highway system, 2012.



Source: Reproduced from U.S. Department of Transportation. Federal Motor Carrier Safety Administration Pocket Guide to Large Truck and Bus Statistics.

Notes: In this map, both private and for-hire trucks are included. Trucks that are used in movements for multiple modes and mail, or that move in conjunction with domestic air cargo, are excluded.

Operators and Motor Carriers

In Nebraska, most motor carrier operators (truckers) are self-employed (Figure 3). When compared to the U.S. workforce, operators tend to be older, have lower educational attainment, live in rural communities, and be male.⁵ However, younger operators (less than 35 years of age) diverge from the overall trucking population with more that have higher educational attainment, live in urban communities, and are more likely to be women and Hispanic/Latinx.⁶

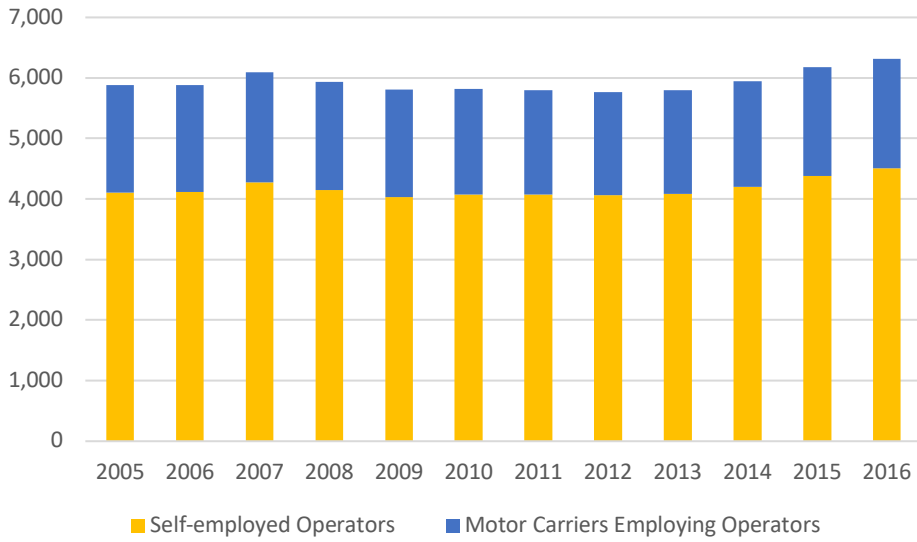
The motor carrier industry has recovered from the so-called Great Recession (December 2007 to June 2009) with the number of trucking firms at an all-time high in the United States.⁷ In Nebraska, the number of motor carriers that employ operators and the number of self-employed operators both experienced a decline during the recession, but both have experienced a recovery (Figure 3), along with rebounding annual receipts (Figure 4), and number of persons employed as operators (Figure 5).

⁵ Day, J.C. & Hait, A.W. (2019, June 6). America keeps on truckin'. *America Counts: Stories Behind the Numbers*. Retrieved from <https://www.census.gov/library/stories/2019/06/america-keeps-on-trucking.html>

⁶ Day, J.C. & Hait, A.W. (2019, June 6). America keeps on truckin'. *America Counts: Stories Behind the Numbers*. Retrieved from <https://www.census.gov/library/stories/2019/06/america-keeps-on-trucking.html>

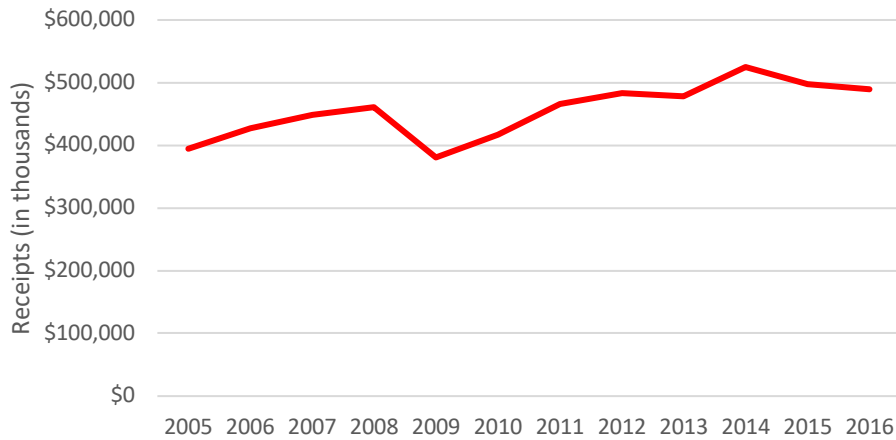
⁷ Day, J.C. & Hait, A.W. (2019, June 6). America keeps on truckin'. *America Counts: Stories Behind the Numbers*. Retrieved from <https://www.census.gov/library/stories/2019/06/america-keeps-on-trucking.html>

Figure 3. Nebraska motor carriers



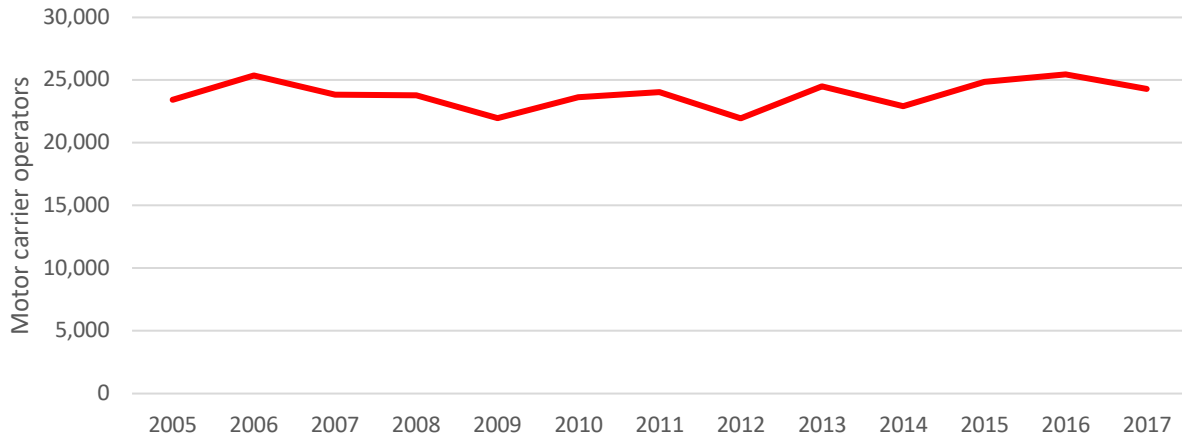
Source: U.S. Census Bureau. Table CB1600A11. County Business Patterns.

Figure 4. Annual receipts (in thousands), Nebraska motor carriers



Source: U.S. Census Bureau. Table CB1600A11. County Business Patterns.

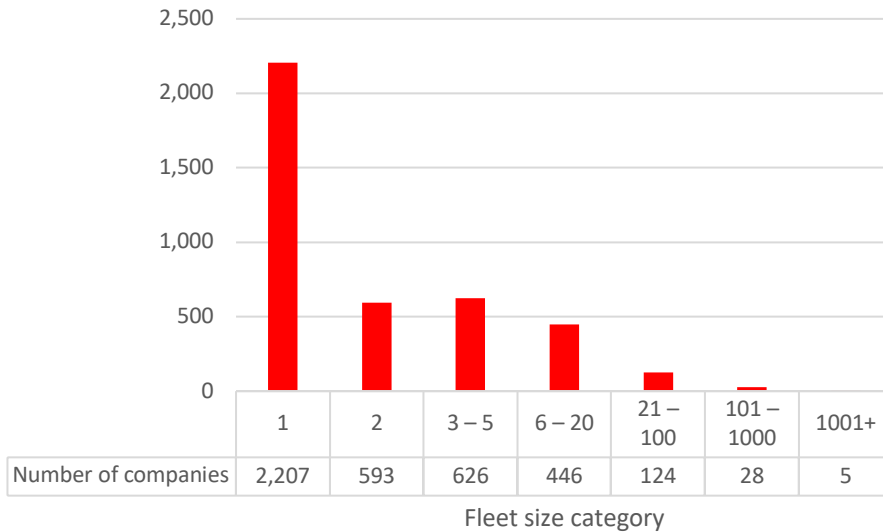
Figure 5. Motor carrier operators in Nebraska



Source: U.S. Census Bureau. Table B24010. American Community Survey 1-Year Estimates.

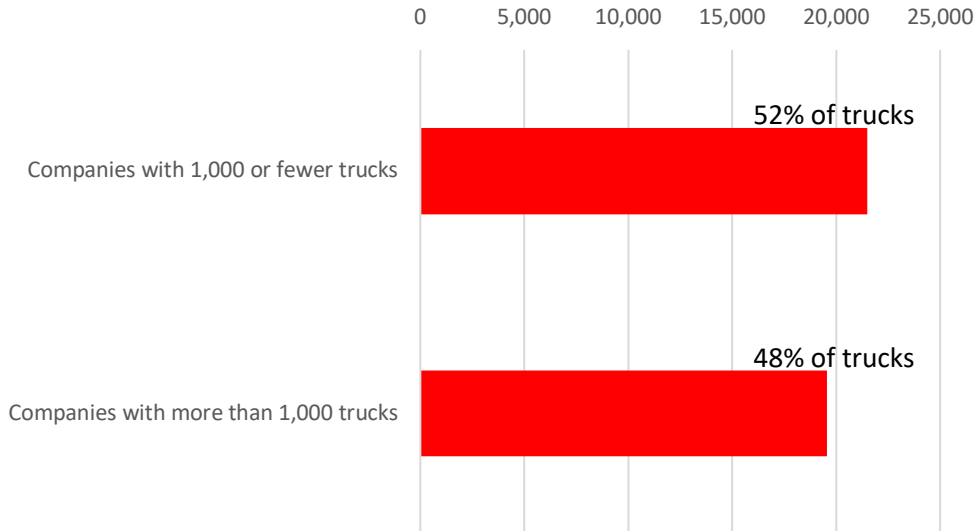
The fleet size of motor carriers in Nebraska ranges widely (Figure 6). For example, over half of motor carriers participating in IRP have only one truck (sometimes referred to as a *power unit*, to differentiate the truck from the trailer it pulls). Only .1% ($n=5$) of Nebraska’s motor carriers have 1,001 or more trucks. Those five companies, however, registered 48% of the apportioned trucks in Nebraska (Figure 7).

Figure 6. Number of IRP-registered trucks in Nebraska motor carrier fleets



Source: Nebraska Department of Motor Vehicles.

Figure 7. Number of apportioned trucks by size of motor carrier company



Source: Nebraska Department of Motor Vehicles.

Technological Changes in the Industry

The motor carrier sector continues to evolve in its use of technological innovation. Innovation will only continue to increase, and likely accelerate. As with technological change in every sector, successful systems must be flexible and adaptable. Innovations and technology adoption will likely require states to be prepared to do business in new ways to fulfill their monitoring and payment collection responsibilities. Some innovations will be demanded by motor carriers; others required by new federal mandates; still others may be dictated through state legislation. Examples of innovations that will require adaptation of state information technology systems are described in this section.

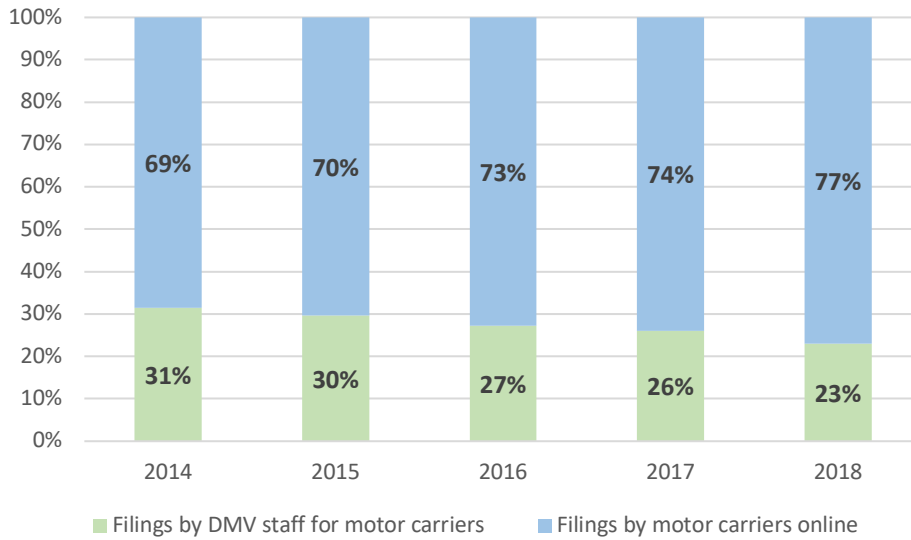
Growth of Online Services

One of the most significant changes in management of MCS during the past decade has been the adoption of online services by motor carriers. Many services provided by DMV MCS may be conducted in person, through the mail, or online. Increasingly, motor carriers are choosing online.

IFTA Online

Motor carriers are increasingly shifting away from providing IFTA information to DMV staff to input into the MCSITS. Rather, motor carriers are using the DMV online site to file reports themselves. IFTA reports filed online now comprise over three-quarters of returns, up from 69% in 2014 (Figure 8). The trend of increased adoption of online services is expected to continue.

Figure 8. IFTA report filing



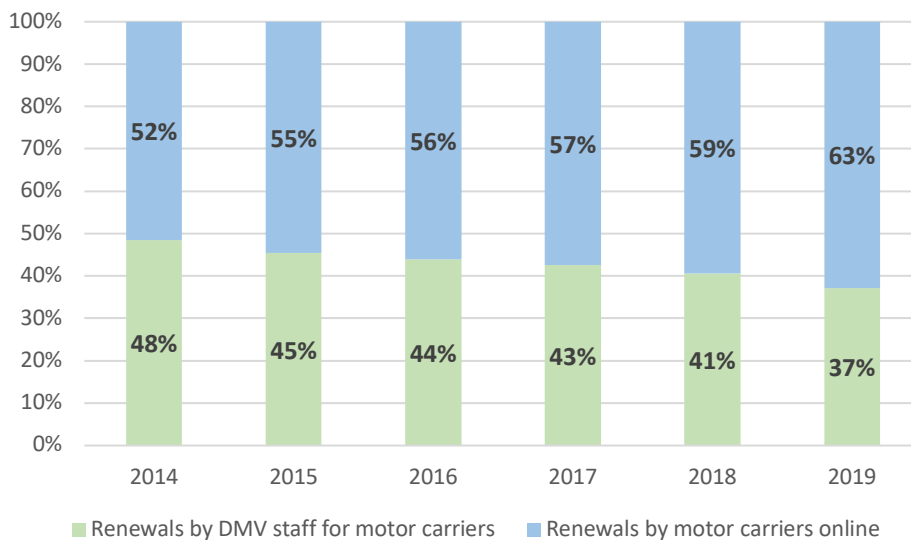
Source: Nebraska Department of Motor Vehicles.

Note: IFTA reports are filed throughout the year; therefore, 2018 is the latest year with complete data.

IRP Online

Since 2014, an increasing proportion of motor carriers in IRP have used online services for renewals, rather than providing information to DMV staff for inputting data. Motor carrier online renewals now comprise almost two-thirds of IRP renewals in 2019 (Figure 9). The trend of increased adoption of online services is expected to continue.

Figure 9. IRP renewals



Source: Nebraska Department of Motor Vehicles.

Note: DMV has an annual renewal window for each year. In 2019, that renewal window extended from October 15, 2018 to February 1, 2019. Therefore, the 2019 online renewal data is complete; though a small number of late renewals may ultimately change the proportions by year-end.

UCR Online

DMV staff estimate most motor carriers (approximately 90%), now use the national online site⁸ to pay their annual UCR fees. Only 10% choose to visit the main Nebraska DMV office in Lincoln to make payment.

Electronic Logging Devices

By December 2017, the U.S. Department of Transportation mandated the use of Electronic Logging Devices (ELDs) to replace other paper-based mileage recordkeeping for most motor carriers.⁹ ELDs automatically record data such as driver duty status and miles traveled to improve the accuracy of carrier reporting for IFTA, IRP, and UCR. ELD logs are used by DMV when auditing carriers. In the future, states may be expected to import electronic records from carriers as the means for carrier reporting.

eCredentials

As of January 1, 2016, all state enforcement personnel are required to accept electronic images of IFTA licenses and IRP cab cards as valid credentials (previously only paper documents were accepted). At this time, eCredentials are simply PDF or other images of issued documents, requiring no additional processes by states.

Virtual Weigh-in-Motion Stations

The Technology Implementation Group of the American Association of State Highway and Transportation Officials has selected virtual weigh-in-motion stations as a future focus technology.¹⁰ Virtual stations electronically capture measurements, verifications, and certifications as motor carriers pass collection points, replacing current stations that require operators to pull into fixed locations to provide information to law enforcement personnel. Implementation of virtual stations would change the way MCS supplies information about vehicles and companies to law enforcement, currently through the CVIEW program.

Instant Audits

Audits are a means of ensuring motor carriers are correctly tracking and calculating fees and taxes due. Currently, audits may occur a year or more after an incorrect filing and may represent systematic errors in a company's calculations or processes. Systematic errors represent a financial risk to companies, particularly large companies. In the future, states may be able to employ features in their systems that alert carriers and DMV staff to possible inconsistencies, and may even conduct instantaneous, automated audits of all motor carriers.

Electronic Motor Carriers

The vast majority of states base IFTA fees on the sale and consumption of traditional oil and diesel-based fuels (e.g., gasoline, diesel, biofuels, propane). Electronic and other non-fuel based vehicles (e.g., hydrogen) are growing in popularity. States and federal agencies are exploring how to replace lost fuel revenues with new fee structures based on road use, weight, or mileage.

⁸ This is a federal site found at: <https://www.ucr.gov/>

⁹ Federal Motor Carrier Safety Administration. Electronic Logging Devices and Hours of Service Supporting Documents Final Rule, 80 Fed. Reg. 78292 (December 16, 2015) (to be codified at 49 CFR pts 385, 386, 390, & 395).

¹⁰ Federal Highway Administration. 3.0 Motivation for virtual weigh stations. Retrieved from <https://ops.fhwa.dot.gov/publications/fhwahop09051/sec03.htm>

Autonomous Motor Carriers

State motor carrier information systems will need to accommodate autonomous motor carriers that may not have operators. States will be faced with questions such as: How will driverless vehicles be tagged in systems in which there is no driver? How will credentials be presented at weigh stations and during other roadside stops? The U.S. Department of Transportation Federal Motor Carrier Safety Administration (FMCSA) has issued an advance notice of proposed rulemaking related identifying regulations that are needed to account for motor carrier autonomous driving systems.¹¹

Information Technology Vendors

Commercial off-the-shelf information technology products offered by four vendors¹² dominate the IFTA and IRP landscape. The vendors are:

1. Celtic Systems (www.celtic.bz)
2. Explore Information Services, LLC (www.exploredata.com)
3. FAST Enterprises, LLC (FastEnterprises.com)¹³
4. Legatus Solutions (www.legatus.solutions)

DMV obtained information about the technology vendors used by other states (Table 1). These data indicate:

- Most states (63%; 37 of 59) use a commercial off-the-shelf vendor product for IRP and 62% (36 of 58) use a commercial off-the-shelf product for IFTA. A minority of IFTA and IRP administrators (37%; 40 of 117) have implemented customized/in-house solutions for IFTA and IRP rather than using a vendor.
- Celtic leads as the IRP vendor (16 implementations) while FAST leads as IFTA vendor (15 implementations).
- Of all states, 22 use the same vendor solution for both their IRP and IFTA and 13 use customized/in-house solutions for both.
- Celtic and FAST lead as vendors supporting both IRP and IFTA implementations (6 implementations each).

¹¹ Federal Motor Carrier Safety Administration. Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles Advance Notice of Proposed Rulemaking, 84 Fed. Reg. 24449 (May 28, 2019).

¹² A former large vendor in the space, Conduent, has announced it is phasing out of the motor carrier technology market.

¹³ FAST is the vendor for DMV's new vehicle title and registration information system and is an example that vendors may offer a variety of products, such as government motor vehicle solutions beyond just those for IRP and IFTA.

Table 1. Jurisdiction information technology systems

Vendor	IRP	IFTA	Totals	Same IFTA and IRP vendor
Celtic	16	6	22	6
Conduent	3	3	6	2
Explore	8	11	19	5
FAST	7	15	22	6
Legatus	5	3	8	3
Vendor Total	39	38	77	22
Customized/In-house	20	20	40	13
Vendor and Customized/In-house Total	59	58	117	35

Source: Nebraska Department of Motor Vehicles (June 26, 2019).

3. Nebraska Motor Carrier Fees and Taxes

Key Findings

1. DMV's MCSITS verifies and collects payments of between \$80 million to nearly \$100 million dollars every year.
2. DMV MCS revenues that remain in Nebraska primarily fund: highway, bridge, and street maintenance; and county/municipal budgets.

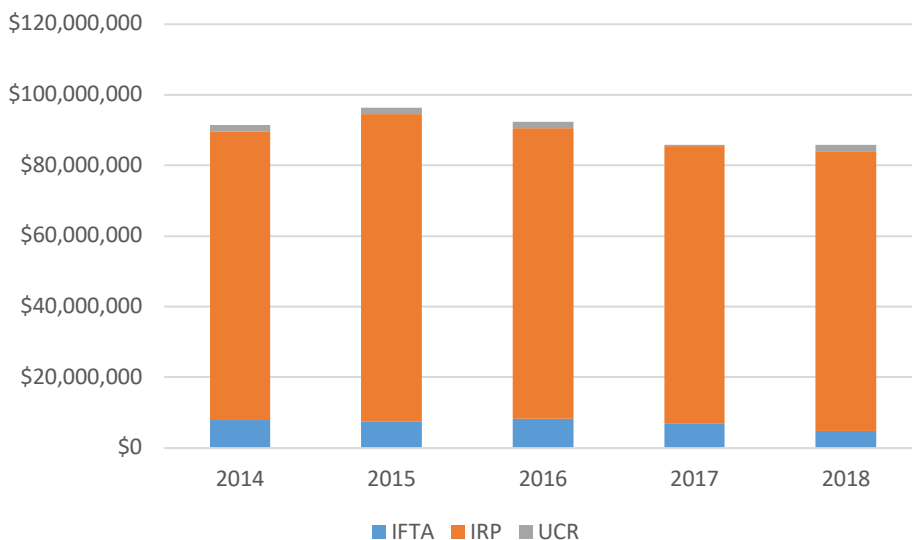
Fees and Taxes Charged

DMV's MCSITS verifies and collects payments of between \$80 million to nearly \$100 million dollars in fees every year from IFTA, IRP, and UCR (Figure 10). IRP collects the largest dollars, by far, when compared to those collected through IFTA and UCR. IRP comprises the largest proportion of revenues; in 2018, IRP revenues comprised 92% of combined IRP, IFTA, and UCR revenues.

Revenues over the last five years have ranged:

- IFTA: almost \$5 million to over \$8 million
- IRP: \$78 million to \$87 million
- UCR: \$1 million to \$2 million

Figure 10. IFTA, IRP, and UCR revenues collected by Nebraska DMV



Source: Nebraska Department of Motor Vehicles.

IFTA Fuel Tax Rates

Motor carriers must annually obtain annual license permits (and decals) and quarterly report fuel taxes paid and miles traveled in each state. The motor carrier's domicile state issues the annual license and,

on a quarterly basis, reviews the carrier's tax return, processes the payment, and distributes the amount due to each state.¹⁴ Each state receives its proportional share of fuel taxes for each vehicle that traveled in its boundaries. A motor carrier domiciled in Nebraska will receive its license in Nebraska and will report to Nebraska, on a quarterly basis, the miles traveled in every state, the fuel purchased in every state, and the fuel tax paid in every state. In the following example, a Nebraska-domiciled carrier traveled 75% of its miles in Nebraska and 25% in Kansas, but purchased all its fuel (and taxes on that fuel) only in Kansas. In this example, Nebraska would collect \$390 from Kansas (through the IFTA, Inc. clearinghouse) and charge the motor carrier \$54 through the quarterly filing return.

Table 2. Example of IFTA apportionment calculation

Jurisdiction	Miles Traveled	Fuel Purchased (gallons)	Fuel Used in State	Tax Rate for State	Tax Received by State	Gross Tax Due State	Net Tax Due State from Carrier	Tax Due State Through Clearinghouse
Nebraska	7,500	0	1,500	\$0.296	\$0	\$444	\$54	\$390
Kansas	2,500	2,000	500	\$0.260	\$520	\$130	0	0
Total	10,000	2,000	2,000		\$520	\$574	\$54	\$390

States maintain different tax rates¹⁵ for different types of fuel, with diesel continuing as the most common fuel tax (Table 3). States determine the calculation of state motor fuel taxes and the number of times a year its motor fuel tax rates change. Not surprisingly, there is variance in rates and frequency of changes among states. In Nebraska, the motor vehicle fuel tax changes twice a year (January 1 and July 1).¹⁶ Many states, including Nebraska exempt certain sales of fuel from state motor fuel tax. IFTA, Inc. supplies its member up-to-date information about all states' fuel tax rates to ensure correct rates are being used in apportionment calculations. State are responsible, however, for correctly calculating other states' rates. This means states must have information technology systems that may quickly reflect tax rate changes and types.

Table 3. State fuel taxes

Fuel Tax	States with Tax (n = 58)	Nebraska Tax
Special Diesel	57	✓
Biodiesel	51	✓
Gasoline	49	✓
Gasohol	47	✓

¹⁴ Most states use the clearinghouses for payment distribution.

¹⁵ Motor fuel tax rates, for the purposes of this discussion, also include surcharges.

¹⁶ Motor fuels are taxed at both the state and federal levels. The federal government imposes a fuel tax and a Leaking Underground Storage Tank fee. The State of Nebraska imposes a fuel tax and the Petroleum Release Remedial Action Fee. The Nebraska motor fuels tax is comprised of three components: 1) a wholesale tax calculated at 5% of the average wholesale cost of fuel in the previous six-month period; 2) a variable tax adjusted to comply with Unicameral appropriations for the Nebraska Department of Transportation; and 3) a fixed tax of 16.3 cents per gallon.

Propane	47	✓
Ethanol	44	✓
E-85	43	✓
LNG	42	✓
CNG	42	✓
Methanol	42	✓
M-85	42	✓
A55	42	✓
Hydrogen	6	
Electricity	1	

Nebraska's current fuel tax rate for diesel fuel is among the highest among contiguous states:

Table 4. Diesel fuel tax rates, per gallon (1st quarter 2019)

State	Tax rate, per gallon
Missouri	\$ 0.170
Colorado	\$ 0.205
Wyoming	\$ 0.240
Kansas	\$ 0.260
South Dakota	\$ 0.280
Nebraska	\$ 0.296
Iowa	\$ 0.325

Source: Nebraska Department of Motor Vehicles.

IRP Registration Fees

Motor carriers, like all motor vehicles, must register to legally operate. Motor carriers pay annual registration fees based on fees set by the states in which they plan to operate, the number of vehicles in their fleet, each vehicle's gross weight, the number of miles traveled in each jurisdiction, and a variety of other factors that each state establishes (e.g., year and make of vehicles, type of operation). The motor carrier's domicile state calculates the registration fee based on information provided by the carrier and distributes the amount due to each state. Each state receives its proportional share of its annual registration fees for vehicles that operated within its boundaries. For example, if a carrier domiciled in Nebraska travels 75% of its miles in Nebraska and 25% in Kansas, Nebraska DMV will charge the carrier the sum of 75% of the annual Nebraska registration fee and 25% of the Kansas annual registration fee and will send Kansas the amount collected on its behalf.

In addition to annual registration fees, domicile states may charge additional fees for plates, cab cards/electronic images, and other administrative services. The typical fee for an 80,000 pound vehicle operating in the contiguous United States is \$1,500 - \$2,000.

Nebraska receives email notices from the IRP, Inc. to maintain current information on other states' registration fees throughout the year (typically doing so 10 to 12 times a year). Nebraska has charged the same rate since 1976.

Nebraska's annual registration fee, at the time of the writing of this report, is the lowest among contiguous states (Table 5).

Table 5. Annual registration fee for an 80,000 pound motor carrier vehicle

State	Annual fee
Nebraska	\$1,280
South Dakota	\$1,457
Wyoming	\$1,540
Iowa	\$1,695
Missouri	\$1,719
Colorado*	\$2,433
Kansas	\$2,470

*Colorado also charges tax

Source: Nebraska Department of Motor Vehicles.

UCR Fees

The federal government sets UCR fees on an annual basis that motor carriers may either pay directly to the national website, or at their domicile state. Fees are based upon the category of vehicle. In 2005, the federal government established the amount of UCR fees that are allocated back to each state.¹⁷

Nebraska's annual allocation is \$741,974. In Nebraska, the UCR fee revenue allocation is deposited in the state's General Fund.

Other Revenue Sources

Motor carriers may also pay for temporary permits and sales tax:

Temporary Permits

Motor carriers who primarily operate within a state may opt out of the IFTA and IRP programs. If they cross into another state, they are required to purchase time-limited fuel and trip permits (72-hour) to operate in non-domicile states. Nebraska DMV maintains a website for motor carriers to obtain permits online.

Sales Tax

Many purchases in Nebraska carry sales tax. In Nebraska, motor carriers that transport others' freight are sales tax-exempt (they are sometimes referred to as *for hire* carriers). Motor carriers used only to

¹⁷ Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), 1 U.S.C. §§ 1101–11167 (2005).

transport goods for their own business are not sales tax-exempt (they are sometimes referred to as *private carriers*). *For hire carriers* provide DMV a tax-exempt number at the time of a vehicle purchase.

Miscellaneous Fees

Nebraska statute establishes fees for several other services to motor vehicle carriers (Table 6).

Table 6. Miscellaneous fees (Nebraska)

Service	Fee
Title Issuance	\$10.00
Duplicate Title Issuance	\$14.00
Lien	\$7.00
Registration (cab card)	\$1.00
License Plates	
Initial Issuance	\$3.30
Annual Fee for New Permanent Plate	\$3.00 for truck; \$6.00 for trailer
Annual Fee for Renewal of Permanent Plate	\$2.00

Use of Motor Carrier Fees and Taxes: 2018 Snapshot

The revenues DMV collects flow to State of Nebraska funds and to other states due apportionments. Looking at the flows of funds in a single year, 2018, offers a helpful illustration of revenues and uses (Figure 11). In 2018, revenue recipients, in order of size of receipt, were to: 1) other states, 2) Nebraska Highway Trust Fund, 3) Motor Vehicle Tax Fund, 4) General Fund, and 5) Property Assessment Division Cash Fund. In 2018:

IFTA

- The majority of funds (91%) collected through IFTA are apportioned to other states.
- IFTA revenues that stay in Nebraska are deposited in the Nebraska Highway Trust Fund.

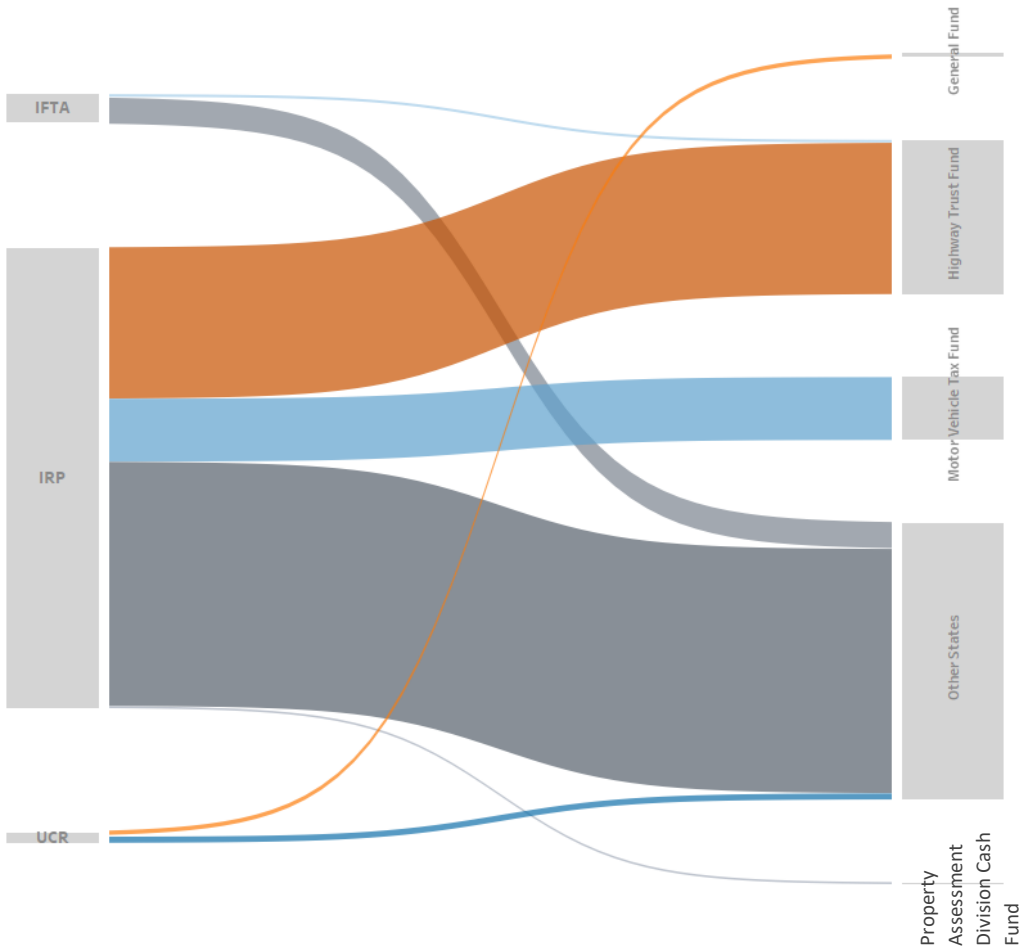
IRP

- Just over half (53%) of IRP revenues were apportioned to other states.
- Of IRP revenues that remained in Nebraska, 70% were deposited in the Nebraska Highway Trust Fund, 29.1% in the Motor Vehicle Tax Fund, and .9% in the Department of Revenue Property Assessment Division Cash Fund.

UCR

- The federal government has established Nebraska's UCR allocation, which remains steady at \$741,974. Those funds are deposited in the state General Fund.

Figure 11. Flow of revenues collected by DMV (2018)



Revenue Source	Revenue Recipient	Amount
IFTA	Nebraska Highway Trust Fund	\$444,313
	Other States	\$4,478,387
IRP	Nebraska Highway Trust Fund	\$26,025,515
	Motor Vehicle Tax Fund	\$10,819,178
	Other States	\$41,997,784
	Property Assessment Division Cash Fund	\$334,614
UCR	Nebraska General Fund	\$741,974
	Other States	\$1,052,081

Source: Nebraska Department of Motor Vehicles.

The **Nebraska Highway Trust Fund** is administered by the Nebraska State Treasurer. In fiscal year 2017-18, total receipts for the Nebraska Highway Trust Fund were approximately \$712,912,000.¹⁸ By state statute (Nebraska Revised Statutes 39-2215), a small portion of funds are first allocated back to users as motor fuel tax refunds, followed by annual allocations determined by the Legislature for motor fuel tax enforcement and bond purchases. A small portion (\$30,000) is transferred monthly to the state's Grade Crossing Protection Fund for maintenance and improvements of railroad grade safety separation facilities such as crossing arms. As dictated by the state statute, the remaining balance of the Nebraska Highway Trust Fund is then distributed primarily to the Nebraska Department of Transportation for routine maintenance of state highways, bridges, and infrastructure (\$425,571,000 in fiscal year 2017-18), and then to the counties (\$140,219,000) and municipalities (\$140,603,000) for county road and municipal street improvements, respectively. This allocation formula is dictated by state statute, mandating roughly 53% distribution of the balance to the Nebraska Department of Transportation and 23% each to the counties and municipalities.

The **Motor Vehicle Tax Fund** is administered by the Nebraska State Treasurer. By statute (Nebraska Revised Statutes 60-3,202), the state treasurer distributes all funds in the Motor Vehicle Tax Fund to the county treasurer of each Nebraska county on a quarterly basis. The fund is distributed in proportion to the number of motor vehicle registrations in each county from the preceding year. County treasurers then distribute the received funds to taxing agencies in the county, principally to county and municipal governments, in proportion to the total levy of each taxing agency in the county. County taxing agencies then have discretion to use the funds as they determine. In fiscal year 2017-18, total funds distributed were \$23,490,000.¹⁹

The **Nebraska General Fund** is the single main revenue account for the state and accounts for all funds not marked for specific state operating funds. The fund is administered by the Nebraska State Treasurer, but is allocated by the Legislature through the appropriations process. In fiscal year 2017-18, the General Fund was approximately \$4.5 billion. It is mainly composed of revenue from individual income taxes, state sales tax, and corporate income tax. Tobacco and alcohol taxes and other miscellaneous sources compose the remainder of the General Fund's revenue sources. Although the appropriations process varies, major recipients of the General Fund typically include Health and Human Services, including required matches to Medicaid and the Children's Health Insurance Program. State aid to K-12 public schools and higher education also receive large portions of the General Fund assistance. Other significant allocations from the General Fund are for public safety uses (Department of Corrections, State Patrol, State Supreme Court) and aid to local government entities.

The Nebraska Department of Revenue **Property Assessment Division Cash Fund** is administered by the Department of Revenue. The fund is used to support the responsibilities of the Property Assessment Division (Nebraska Revised Statutes 77-1342). This includes supporting salaries and benefits, and funding department operations such as valuation of state assessed properties, certification of school

¹⁸ J. Busing, Nebraska Department of Transportation (personal E-mail communication with Abdel-Monem, T., July 31, 2019).

¹⁹ J. Busing, Nebraska Department of Transportation (personal E-mail communication with Abdel-Monem, T., July 31, 2019).

valuation for state aid calculations, and administrative duties for various tax credit programs. The cash balance of the fund varies, but was over \$670,000 as of July 2019.²⁰

²⁰ E. Thompson, Nebraska Department of Revenue (personal E-mail communication with Abdel-Monem, T., July 23, 2019).

4. Motor Carrier Services Information Technology System

Key Findings:

1. MCSITS is an aging system, customized by Nebraska.
2. One information technology consultant supports MCSITS.
3. External motor carriers who use online services log in directly to the MCSITS server and only use Nebraska.gov for payment.
4. MCSITS lacks automated data exchange with a number of state systems, limiting staff ability to efficiently serve and monitor customers.

MCSITS Existing System

Infrastructure

Software

The current MCSITS was custom built in the 1990s by the University of South Dakota for the State of South Dakota. Nebraska purchased the product in the 1990s and has since implemented a wide variety of changes and additions to the program making it nearly unrecognizable from the original program. The State of South Dakota abandoned the system many years ago, leaving Nebraska as the only known jurisdiction that continues to use the product.

MCSITS was written in IBM's proprietary programming language, RPG, using the well-known Synon application development tool, since rebranded CA2E owned by CA Software. The MCSITS uses a relational database structure with approximately 143 database files in use.

MCSITS includes integration of several third party solutions, including:

1. *KeyesFax* – directs print commands to source designated by motor carrier (e.g., fax, printer)
2. *PKZIP* – file compression software for the server environment
3. *Optio/Byteware* – overlay and merging solution to create forms for query results
4. *Standguard* – enables carriers to upload pdfs and scans pdfs for viruses

Server

MCSITS operates on an IBM iSeries server running operating system version 7.3 (sometimes referred to as the AS/400), a midrange computer system, subsequently replaced by the IBM Power Systems in 2018. According to a recent survey conducted by *Helpsystems* (a private consulting firm),²¹ the plurality of iSeries users run the 7.3 operating system. AS/400 is a widely used platform, but concerns are rising that the workforce experienced in managing them is retiring: A recent industry survey found that 49% of respondents are concerned about their ability to replace staff who run their IBM iSeries servers.²²

²¹ Helpsystems. (2019). What to Do When Your AS/400 Talent Retires: Software and Strategies to Future-proof Your System of Record. www.helpsystems.com

²² Helpsystems. (2019). What to Do When Your AS/400 Talent Retires: Software and Strategies to Future-proof Your System of Record. www.helpsystems.com

Maintenance and Development

For almost three decades, the same IT professional²³ has been the primary software developer, maintaining, troubleshooting, and adding features to MCSITS.²⁴ This means one individual is responsible for all aspects of the software's operation: understanding its structure and operations, troubleshooting problems, and creating new features and functionalities. This reliance on a single contracted employee has been noted as a deficiency in DMV's most recent and previous Comprehensive Annual Financial Report (CAFR) audits, specifically noting: *When only one person is trained to support an application, there is an increased risk services supported by the application may be disrupted for a prolonged period.*²⁵

Clients and DMV users would like improvements, but with only one IT professional, time limits their accomplishment. A recent running list has 66 items, some of which have been on the list for years. DMV has occasionally contracted with consultants to create new features or functionality.

MCSITS requires minimal routine maintenance: The MCSITS is stable and rarely experiences unscheduled outages. Scheduled backups take the system off-line every month for several hours. The two monthly batch jobs for IFTA halt web services for users who may be on the system for approximately 5 to 10 minutes. DMV staff *green screen* users must have 5250 emulation software installed on the computers. Time needed for the installation and maintenance of this emulation software is minimal.

MCSITS Users

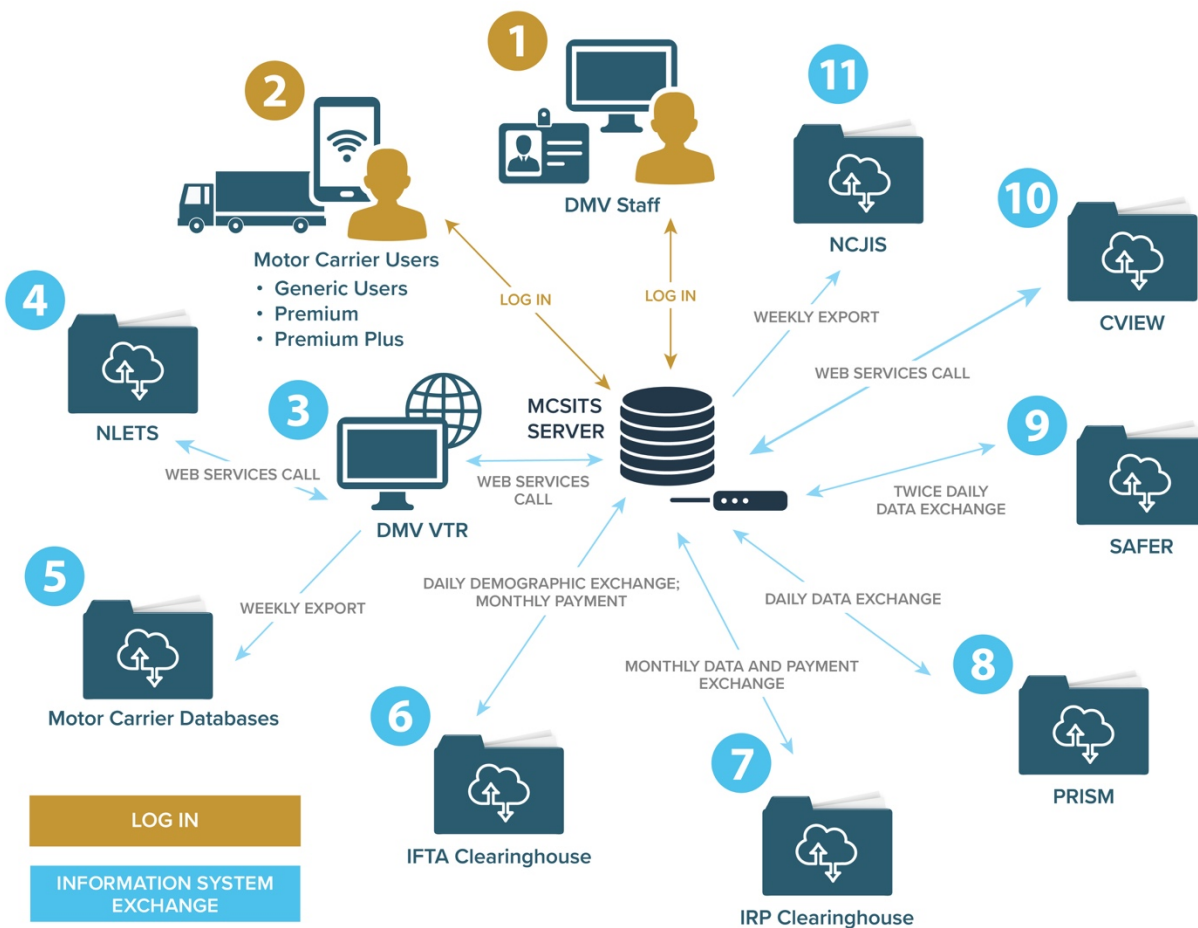
MCSITS is directly accessed by users and it also ingests, extracts, and shares data with other systems: those internal to DMV, those within state government, and those external to government (Figure 12).

²³ The individual's position had been originally as an employee, then as an individual consulting contract, and now as a services contract through the information technology vendor used by the State of Nebraska (Convendis).

²⁴ The Nebraska Office of the Chief Information Officer maintains the AS/400 server off-site from the DMV offices.

²⁵ Office of the State Auditor. (2018). Exit Conference Agenda, Comprehensive Annual Financial Report. State of Nebraska: Lincoln, NE.

Figure 12. MCSITS interfaces and data exchange



NOTE: The numbered circles in the graphic above correspond to descriptions of each information flow in the following pages.

Individual Logins

Two types of users log directly into the MCSITS system to obtain information and transact business: **DMV staff** who log in using the green screen and **motor carriers** who enter through a web portal that mimics Nebraska.gov²⁶.

- 1. DMV staff (green screen²⁷) Users [1]**. DMV staff log into MCSITS using 5250 emulation software installed on the computers. Their logins are protected by user names and passwords and operate from MS-DOS type system. The background is black and many of the characters are colored green (thus, the name). In the early days of computers, green screens were the widely used interface for computer terminal users. MCS staff use the MCSITS to support IFTA, IRP, UCR,

²⁶ Nebraska.gov is the official website for the State of Nebraska and it has secure online payment services.

²⁷ A national vendor survey found that the exclusive access of green screens to IBM iSeries has remained steady over the past several years at 35%; however, this percentage is expected to decline as systems move to web-based interfaces.

and other workflows²⁸ See *Appendix A: MCS Staff Workflows Supported by MCSITS* for detailed information about the workflows.

2. **Motor Carrier Users [2].** Motor carriers enter the MCSITS system through a web-based GUI interface that mimics Nebraska.gov. Users may have access to different capabilities, dependent largely on the company size (Table 7).
 - a. **Generic Users.** Generic motor carrier users are small- to medium-sized motor carriers. They log into MCSITS by providing a combination of information only known to the carrier. Users navigate to separate IRP and IFTA screens.
 - b. **Premium Users.** Premium motor carriers are large motor carriers (or third party agents that provide services to multiple motor carriers) that may perform IRP and IFTA tasks from a single menu. Users are able to log into MCSITS with user names and passwords.
 - c. **Premium Plus Users.** Premium Plus carriers are generally the large motor carriers. They log into MCSITS with user names and passwords and are able to perform IRP and IFTA tasks from a single menu.

Table 7. Motor carrier services via MCSITS login

	USER TYPE		
	Generic	Premium	Premium Plus
LOGIN SERVICES			
IFTA SERVICES			
Submit return	✓	✓	✓
Print completed return	✓	✓	✓
Pay IFTA balance	✓	✓	✓
Print payment voucher	✓	✓	✓
Request a refund	✓	✓	✓
Print blank return	✓	✓	✓
Submit IFTA renewal	✓	✓	✓
Purchase temporary trip permits	✓	✓	✓
Request additional decals	✓	✓	✓
IRP SERVICES			
Submit IRP renewal	✓	✓	✓
Upload IRS-receipted Federal Heavy Vehicle Use Tax Form 2290 for new purchases	✓	✓	✓

²⁸ Other state agencies are responsible for other aspects of motor carrier responsibilities. For example, the Department of Transportation is responsible for issuing temporary permits for oversize/overweight motor carriers traveling Nebraska's roads.

LOGIN SERVICES	USER TYPE		
	Generic	Premium	Premium Plus
Print IRP renewal bill	✓	✓	✓
Pay IRP bill	✓	✓	✓
Purchase temporary trip permits	✓	✓	✓
Compile and group temporary registrations by specified time period for adding new temporary registrations for new and lost credentials, extending temporary expirations, and temporarily increasing weight to a unit.		✓	✓
Compile and create an image file of IRP data for all units			✓
Print IRP cab cards ²⁹			✓
LICENSE PLATES			
Assign plates (inventory supplied by DMV)			✓

Information System Exchange

The MCSITS routinely exchanges information with other information systems through web calls and batch processes:

3. **DMV Vehicle Titling and Registration (VTR) System [3].**³⁰ The VTR software is used to title all vehicles, including motor carrier vehicles, and to register all vehicles, except motor carriers. Motor carriers must possess a title when registering a vehicle for IRP (but not IFTA). DMV staff verify titles through web services calls between MCSITS and the VTR system. DMV MCS (or county) staff input the Vehicle Identification Number into MCSITS which triggers a web call to the VTR. If the number is located, the ownership information is available to automatically fill out certain fields of the form; if not located DMV MCS (or county) staff must manually input the information. The VTR serves as the authoritative source for all vehicle registrations.
4. **National Law Enforcement Telecommunication System (NLETS) [4].** NLETS is a vast, computer-based message switching system that processes 1.6 billion transactions each year. It was created to connect all 50 states, the District of Columbia, Puerto Rico, Virgin Islands, Guam, and Canada, along with 28 federal agencies and various associate members for the secure exchange of criminal justice data. When a law enforcement officer queries information about a Nebraska-plated vehicle, NLETS issues a web services call for information that is mediated by DMV's VTR. VTR data is able to satisfy some search requests and return the information back to NLETS (e.g., Vehicle Identification Number searches). Searches for information about apportioned vehicles

²⁹ Premium Plus motor carriers' printers are networked on the state's AS400 meaning that only DMV personnel may restart the printing if there is a printing problem such as the printer running out of paper.

³⁰ At the time of the writing of this report, DMV is migrating from its mainframe system to a vendor-provided software as services system called *VicTorY*.

are often passed on to MCSITS and data supplied and routed back through VTR to NLETS. Requests from NLETS to VTR to MCSITS, back to VTR, and back to NLETS are essentially instantaneous automated responses to queries from NLETS. For example, MCSITS would receive a call through VTR from NLETS, after NLETS validation, from a Pennsylvania state trooper who has pulled over a Nebraska-plated carrier and has inputted the license plate to check the status.

5. **Motor carrier databases [5].** DMV provides data to several for-profit national vehicle databases that maintain information for private and public organizations. MCSITS has a weekly batch job that extracts the information and electronically sends it to these databases through VTR.
6. **IFTA Clearinghouse [6].** The IFTA Clearinghouse is a multi-governmental collaborative system, agreed upon by its member jurisdictions, that processes state-to-state apportionments of commercial motor carrier fuel taxes and keeps updated information about each jurisdiction's tax schedule. MCSITS exchanges demographic data, including license status, on a daily basis and tax payment data on a monthly basis.
7. **IRP Clearinghouse [7].** The IRP Clearinghouse is a multi-government collaborative system, agreed upon by its member jurisdictions, that processes state-to-state apportionments of commercial motor carrier registration fees and keeps updated information about each jurisdiction's fee schedule. MCSITS exchanges information on a monthly basis and includes demographic data (e.g., name, address), along with payment and vehicle data.
8. **Performance Registration Information Systems and Management (PRISM) [8].** PRISM is a federal/state system that links FMCSA motor carrier safety information with states' motor vehicle registrations. States report registration information and law enforcement actions to PRISM. PRISM is then used by states as the comprehensive source to review a motor carrier's safety status. Carrier status may be used to determine fitness prior to issuing a registration plate and, where necessary, apply improvement plans and/or sanctions, including putting vehicles in out-of-service status and revoking license plates. MCSITS exchanges data daily with PRISM. PRISM data is extracted from SAFER (see #9). MCSITS automatically sends an email to MCS staff when new Nebraska carriers are added to the system. States must observe the standards set for PRISM information exchange to receive certain types of federal funding.
9. **Safety and Fitness Electronic Records web services system (SAFER) [9].** SAFER is the primary data sharing link between states and FMCSA. States report data about motor carriers and enforcement activities to SAFER and then download comprehensive nationwide information from SAFER. It is through this system that law enforcement in Nebraska, as well as other states, are able to access information about motor carriers domiciled in any state. This information includes vehicle registration, owner/lessee status, IFTA reporting, and safety record/status. Nebraska DMV provides this information to the Nebraska State Patrol through its CVIEW program (see #10. CVIEW). MCSITS has a batch job that automatically obtains SAFER data twice daily and loads these data into Nebraska's CVIEW.

10. **CVIEW [10].** CVIEW is an electronic program operated by DMV that provides information to the Nebraska State Patrol about motor carrier drivers and vehicles. Officers use it at weigh stations and roadside to validate credentials that are presented. MCSITS has a batch job that automatically obtains SAFER data from other states twice daily and loads these data into Nebraska's CVIEW. Searches about Nebraska carriers are supplied directly from MCSITS for live access to data. According to the Nebraska State Patrol, it is the best conduit for obtaining a vast amount of information about motor carriers.
11. **Nebraska Criminal Justice Information System (NCJIS) [11].** Initiated by a weekly batch job, MCSITS sends an extract of motor carrier data to this cooperative system used by state and local criminal justice agencies within the state of Nebraska and sponsored by the Nebraska Crime Commission. At this time, it is the understanding of DMV MCS personnel that these data are not currently being used.

Manual or Missing Interfaces to Other Systems

MCSITS does not interface with several important State of Nebraska information technology products, systems, and processes. Interfaces to these connections would likely result in streamlined business processes, meaning: faster service to customers, less duplicative information gathering, fewer errors, improved monitoring, increased revenue, and greater information technology system security.

1. **DMV Driver License system.** DMV does not have a unified system for driver licensing, vehicle titling and registration, and motor carrier services. Because MCSITS does not interface with DMV's driver license system, staff cannot link vehicle ownership with persons who register and drive vehicles.³¹ This prevents DMV from achieving a vision of a single point of contact for DMV customers because DMV has no way to link ownership and registration records with those operating vehicles. DMV would also benefit from the ability to associate drivers with vehicles for collection and enforcement.
2. **DMV Auditing/Collections.** DMV auditors rely on MCSITS data to: a) identify carriers that have not paid their fees or taxes and, b) identify carriers who will be subjected to routine audits:
 - a. MCSITS is used to identify carriers that have not filed and/or paid their quarterly fuel taxes. DMV estimates that, on a quarterly basis, approximately 10% of motor carriers are flagged for non-payment.³² The MCSITS IT professional runs a report to identify motor carriers who have not filed and/or not paid their quarterly taxes and to print notification letters with personalized information. Staff then manually input carrier information into the separate software, DB Software, to estimate the taxes due. DMV has one staff member responsible for collections. DMV does not currently use any other

³¹ Implementation of an ownership/registration/driver matching system is complicated since large motor carriers with thousands of trucks may have drivers throughout the country who are not Nebraska license holders who may also be assigned to any number of vehicles.

³² Although DMV has not conducted a study of the reasons for non-filing and/or non-payment, there is anecdotal evidence that motor carriers may find the online filing confusing and may struggle identifying the payment amount due the state.

collections systems or collections services to recover outstanding payments. All collections activities are manual processes, such as maintaining a file of outstanding cases, compiling data about the volume and types of collections due and receipted, tracking which carrier companies have been contacted with what information at points in the collection process, and eventual disposition.³³ Payment corrections are inputted into the system by staff but cannot be reported on.

- b. IFTA and IRP regulations mandate states conduct annual audits of 3% of its carriers. In Nebraska, that translates to approximately 150 motor carriers every year. The information technology professional supporting MCSITS works with the DMV auditors to identify audit candidates. There is currently no capability for auditing staff to select candidates without support from the consultant. In other words, MCSITS does not have tools that auditing staff may use to conduct queries of the database using typical search criteria. Once companies are identified, MCSITS creates exports of data about those companies that is consumed by another software product, DB Software, used to conduct the audit. Motor carriers may present audit information in person, mail, or through secured email. There is currently no capability for motor carriers to submit audit information online.³⁴ Motor carriers also cannot submit corrected payments online and instead must send a check or present it in person. Once completed, staff must manually key in audit data into MCSITS because it does not have an import feature.
3. **Nebraska.gov system.** MCSITS serves as the source motor carriers use to conduct online business with DMV, except for payment, which is linked to Nebraska.gov.
4. **Nebraska Department of Transportation (NDOT).** NDOT issues permits for oversize/overweight motor vehicles operating over Nebraska's roads, whether they are domiciled in Nebraska or another jurisdiction. Before issuing a permit, NDOT must show proof of registration. Currently, there is no electronic connection to verify up-to-date registration and driving status.
5. **Department of Revenue.** DMV does not have automated systems in place for reporting information on a regular basis to the Nebraska Department of Revenue:
 - a. Sales tax receipts collected from motor carriers (monthly). Currently, these data are compiled by running a report on a monthly basis from MCSITS and written on a form that is walked to the Department of Revenue along with accounting paperwork.
 - b. IFTA fuel consumption (quarterly). Currently these data are compiled by running a report on a quarterly basis from MCSITS, formatted into a PDF, and emailed to the Department of Revenue. Revenue uses the data to complete portions of the federal motor fuel consumption form that they then send to the Nebraska Department of Transportation for inputting into a federal website.

³³ DMV has had preliminary discussions with the Nebraska Department of Revenue about adding payment options for its collection processes, such as, for example, setting up electronic funds transfer payment plans, garnishing state tax refunds, and using automated or subcontracted collections systems.

³⁴ Other states have this capability.

6. **UCR.** Currently DMV MCSITS does not ingest information from the federal UCR database for tracking Nebraska motor carriers. UCR does offer a file states may import of their carriers' pay status and amounts.

5. Stakeholder Feedback

Key Findings:

1. Customers highly value DMV's online services, and want to do even more online and have greater capabilities in electronic information exchange.
2. Customers highly value DMV staff.
3. Most state officials report having information technology systems that are newer than 2009.
4. Many state officials report their systems have improved their ability to provide online services and improve efficiencies in their business operations.
5. Many state officials report that improvement to online services and integration/integration exchange with other systems are top priorities for future improvements to their systems.

Purpose

An important source of information for understanding the current status of any system is the experience of stakeholders. For the purposes of this report, the term *stakeholders* is used to refer to: 1) MCS customers: individuals and organizations who interact with DMV MCS and MCSITS, and 2) peer states with experience operating information technology systems.

MCS Customers

DMV staff provided contact information for 19 organizations (including State of Nebraska departments or divisions), representing a wide variety of user types that regularly supply or require information from MCS. The purpose of the interviews was to understand what works well in the current process and what improvements they might suggest. The interviews were quasi-structured with the interviewer using prompt questions (*Appendix B: Interview Questions*).

Public Policy Center research staff contacted all organizations suggested by DMV. Of those contacted, 18 people representing 13 organizations agreed to be interviewed. In some cases, the original contact suggested others who should be interviewed instead of, or in addition to, themselves. See *Appendix C: Interviewees* for a listing of those who agreed to be identified. Interviews were conducted May through July 2019, some in person and others over the phone. Most interviews were between 15 to 30 minutes in length. The interviewees represented eight motor carriers or third party contractors that process information for multiple motor carriers, three State of Nebraska departments, two collaborative clearinghouses, and one federal agency.

Peer States

DMV staff provided contact information for all states (and Canadian provinces) that participate in IFTA or IRP Clearinghouses, totaling 94 persons (numerous states have different contact persons for IFTA and IRP). The purpose of the survey was to assess features and functionalities that were valued and develop a cost range for more recent implementations. See *Appendix D: Survey of States* for survey questions.

In mid-July through the beginning of August 2019, contacts were invited, via email, to participate in the online survey, with several reminders sent to individuals who had not completed the survey:

- Initial invitation (July 23): 94 contacts

- Reminder email (July 31): 67 contacts
- Final email (August 2): 56 contacts

Of those contacted, 51 completed the survey.³⁵ The survey was open from mid-July to mid-August. Participants represented 31 states, 4 Canadian provinces, with 12 respondents choosing not to identify their jurisdiction.

Results

The results of the MCS customer interviews are presented first, followed by the state online survey results.

MCS Customers

The results of the interviews are categorized as aspects of the current system that work well and that do not work well. Results were categorized by the author of this report and are generally presented in order of the most frequently mentioned topics to the least frequently mentioned.

What Works Well

Online Services

Many motor carrier respondents were extremely positive about the features and functions of the online platform. In general, they were pleased to be able to conduct business online and felt the interface was *easy to work with*. One user observed that Nebraska's online interface is easier to use than other states'. One user reported that she never needs to come into the main office anymore to conduct business.

Among the most features and functions that were specifically mentioned were:

- Temporary registrations and extensions. A number of users mentioned that they use this feature frequently.
- Status of units. Users mentioned the usability of online services to check the status of units before performing other activities such as ordering or transferring license plates, requesting extensions, making payments, and so on.
- Application for renewals. One user described this as *fantastic* and *much easier* than it was prior to being available online. Users commented that DMV quickly mails the follow-up materials, such as cab cards, license plates, stickers, and invoices (when not paying online).
- IFTA reporting. One user described the ability to file IFTA reports online as *the best thing*.
- Titles, registration, and licenses. Several users reported frequently using online services for registration and licenses. Users commented that they received the follow-up materials (e.g., actual license plates) through the mail in a timely manner. One user also mentioned liking having the ability to print the registration as an image.

DMV MCS Staff

Customers hold DMV MCS staff in high regard. Some of the words used to describe staff were *great, easy to work with and helpful, conscientious, very knowledgeable, willing to go the extra mile, proactive,*

³⁵ One individual requested a paper copy. Another called and conveyed the information over the phone.

easier to work with than those in other states, very customer service oriented, and as being held with a lot of respect nationally.

Information Sharing/Communication

Motor carriers appreciate the information sharing/communication with DMV MCS staff, specifically mentioning:

- Renewals. Renewals are emailed through file transfer. DMV downloads on set day and the company is able to mark what they want to renew or not and email back to DMV.
- Supplements. One customer appreciates the mailed notifications of the supplements that are expiring.
- Invoices. A customer appreciates emails from DMV MCS when there are billings online that may be paid.
- Corrections and questions. One customer observed that MCS staff contact them if their submitted paperwork is missing something. A customer appreciates the staff's timeliness in answering questions via email.
- Notifying users of changes. One customer likes that MCS will notify users of upcoming changes and host training sessions to walk users through the changes.

Renewal Timing

Most motor carriers did not comment on the annual renewal timing that is the same for all carriers and takes place at the end of the calendar year. Two motor carriers like having renewals at one time period in the year. One likes end of calendar year and the other did not. A third carrier expressed a neutral opinion on the end-of-year renewals.

Premium Plus Services

Large motor carriers value services including pre-shipped custom plates and onsite printers.

CVIEW

A user commented that the data flow that supports CVIEW is exemplary, always scoring among the top in the nation and that DMV MCS staff work to improve CVIEW based on the needs of users.

What Could Be Improved

Additional Online Features/Functions

Users like the online services but would like to be able to do even more online, including:

- Enhanced features and processing for new units outside the annual renewal period. Many motor carriers add one or more vehicles outside the annual renewal period. To do so, the vehicle must be titled, registered for IFTA and/or IRP (as appropriate), and often require temporary credentials to immediately operate legally. Motor carriers report that doing so requires a lot of paperwork that is time-consuming, requires cutting paper checks, and may require an in-person visit to DMV or less timely reliance on mail, and requires a long (seven day) turnaround for DMV processing. Motor carriers that work with owner operators report this is

particularly burdensome. Motor carriers would like the ability to do more of this online with less time lag. Carriers would like to be able to **submit paperwork for new units online**, though they recognize there may be some regulatory barriers to the documentation required by DMV (e.g., presentation of title). Carriers would like to **pay online** and do so immediately, but instead must wait for a bill from DMV and then send the payment. Carriers would like to be able to **request temporary IFTA permits online**. Currently, companies must call DMV to request an IFTA temporary credential which is then faxed. Carriers would like to be able to more efficiently transfer plates and other credentials when they contract with owner operators. Carriers would like to have “hunter permits” online to reduce problems with issuing and retrieving their license plates. Currently, motor carriers must do this in person. One interviewee noted that Nebraska DMV MCS will not accept a Federal Heavy Vehicle Use Tax IRS form (Form 2290) as proof of payment for a unit if the registrant does not match the listed owner’s name, but that other states are not as stringent. The individual suggested that Nebraska **accept Form 2290s when the registrant is different than the owner**.

- Online display and search. Motor carriers report extensively using the online information about their units. They would like the information to be made available in several additional ways. Motor carriers would like to be able to retrieve **comprehensive information about a unit on a single view**. Currently, they report that they must navigate to several windows in order to see information about a unit. Some motor carriers would particularly value the ability to see license plate number included with other information. Some motor carriers dislike the limited information available to them after units have been approved for renewal. Currently, there is limited information about renewals available after submission and approval. Motor carriers would like to be able to **search for a unit by license plate number** to confirm what unit a license plate is authorized to. Motor carriers would like to **filter or sort the search results**. Currently a search of units owned by a company returns all units, regardless of their status (e.g., active, inactive, temporary). Companies would like to be able to filter their searches or sort results by status. Motor carriers would also like to be able to **create reports of their searches**. For example, a company may want to search for all temporary units and include their license plates, or get a total number of certain types of units.
- Paying and printing billings. Motor carriers value the ability to pay for transactions online, with specific examples following. Motor carriers report that they would like to **pay for their renewals online** but are unable to do so because they always have open supplements. Currently, DMV does not allow motor carriers to pay for renewals when they have open supplements. This particularly impacts larger motor carrier companies who may continually have open paperwork. Motor carriers would like to the ability to **print supplemental billings**. Currently, only renewal billings may be printed (through January 30 of a given year) leaving companies to wait for a mailed invoice or pick it up in person. Motor carriers report that DMV’s policy requires several staff to review a billing, but companies are unable to discern whether the billing has completed the necessary review process. Motor carriers suggest increasing the **number of supplements that may be grouped into a single payment**. Currently, motor carriers may only group five supplements at a time and this is insufficient. The website should allow all outstanding supplements to be paid in a single payment. A final recommendation for billing is for DMV to

enable motor carriers to view lost plate payments. It is the understanding of motor carriers that lost plate payments are not available online.

- Credentials: Corrections and replacements. Motor carriers would like to be able to use the online site to **correct cab cards and apply for lost cab cards and plates**. Currently, motor carriers must complete a paper form to make these requests. Motor carriers would like to be able to **reprint cab cards** for specific units. Currently, companies are unable to reprint cab cards for tractors or trailers. Carriers would like to be able to view, print, and email the reprints to drivers.
- IFTA reporting. Motor carriers report they are unable to **make corrections to IFTA reporting errors** after they have navigated from the screen. Currently, companies cannot “back out” of a report to make a correction. Once an incorrect value is entered, companies must file a paper copy to amend the report. Motor carriers believe that the addition of **built-in form intelligence** would catch errors. For example, a warning screen prompt for missing information (e.g., “Are you sure there is no fuel...”). Finally, motor carriers would like to **select all the states they operate in at once**. Currently, the site allows companies to only select four states at a time. They suggest the site may ask filers for the number of states and then display that number.
- Oversize/overweight permits. Motor carriers would like to **request multiple oversize/overweight permits** as a group. Currently, the site only allows companies to request one at a time – the filer must completely finish one and then start an entirely new one. NOTE: DMV is not responsible for permitting oversize/overweight vehicles; rather, that is the responsibility of the Nebraska Department of Transportation. Further, MCSITS is not used in this permitting process. DMV does provide a link to the Nebraska Department of Transportation’s permitting site from their motor carrier services portal which may be the basis of confusion among stakeholders regarding the state agency with this authority.

Information Exchange

Motor carriers would like to have greater capabilities in electronically sharing data with DMV. For example, they would like to be able to **electronically upload information** about their units (e.g., unit number, VIN, weights) from their systems to DMV rather than having to manually enter the information. Some interviewed wondered whether this could be accomplished through some sort of information dump. Currently, some information is exchanged through email, but it was suggested that FTP exchange would be more secure. Another interviewee would like DMV to reduce paperwork requirements, estimating that renewals require hundreds of pieces of paper be mailed back and forth.

Other

There were several suggestions that were mentioned by only one interviewee:

- One interviewee suggested that some states are moving to many companies being able to self-issue license plates. This option is currently only available to Nebraska’s largest motor carriers.

- One interviewee suggested they could benefit from having more insight into DMV MCS trends to aid their budgetary forecasting and analysis.
- One interviewee believes that Nebraska does not currently have statutory authority to issue electronic credentials instead of paper credentials and that this is something Nebraska should be prepared to transition to.
- One interviewee suggested that although regularly scheduled information is needed from DMV MCS, staff wait for the actual request to provide the information. It would be preferable for MCS staff to provide the information without having to be prompted.
- One interviewee suggested that many states are moving to automated IRP renewals and that Nebraska should consider this option.
- One interviewee noted that many jurisdictions no longer allow walk-in IRP renewals and instead require renewals to be made online.

Other States

The online survey of other states provides information about age, features, and costs of the IFTA and IRP systems used by other states.³⁶

IFTA and IRP Responsibilities and Information Technology System

Nebraska's DMV MCS is responsible for administering IFTA and IRP, which places with the slight plurality (42%) of states that responded to the survey (Table 8).

Table 8. IFTA and IRP Responsibilities

	Frequency	Percent
IFTA, but not IRP	9	19%
IRP, but not IFTA	19	40%
IFTA and IRP	20	42%
Total	48	100%

NOTE: Percentages do not total 100% due to rounding

Implementation Year

The survey asked respondents the year their current system was implemented. One-third were implemented in 2009 or prior (including Nebraska), one-third from 2010 through 2016, and one-third 2017 to present (Table 9). Respondents who indicated their systems were older than 2009 were not asked to complete any of the remaining questions.

Table 9. Implementation year of current system

Implementation Year	Frequency (n = 45)	%
Prior to 2009	11	24%
2009	4	9%
2010	1	2%
2011	0	0%

³⁶ This includes Canadian provinces.

Implementation Year	Frequency (n = 45)	%
2012	1	2%
2013	4	9%
2014	6	13%
2015	1	2%
2016	2	4%
2017	3	7%
2018	6	13%
2019 or currently	6	13%

Functionalities

IFTA, IRP, and Integrated information systems vary in the functionalities they offer (Table 10). Of the functionalities asked about, IRP and integrated systems appear to be more comprehensive.

Table 10. System functionalities

	IFTA (n = 8)	IRP (n = 16)	INTEGRATED (n = 12)	TOTAL
Processes and posts payments	78%	88%	92%	86%
Interfaces with online system for customers to access information and conduct business	78%	81%	83%	81%
Interfaces with IFTA/IRP Clearinghouse	11%	88%	83%	68%
Interfaces with SAFER	22%	75%	75%	62%
Interfaces with PRISM	11%	75%	75%	59%
Interfaces with Commercial Vehicle Information Exchange Interface (CVIEW)	11%	75%	75%	59%
Inventories license plates and stickers	11%	88%	50%	57%
Serves as motor vehicle title and registration system	0%	31%	8%	16%
Permits overweight/oversize motor vehicles	0%	25%	8%	14%
Processes UCR fees	0%	6%	17%	8%
Serves as the driver's license system	0%	13%	0%	5%
Processes dealer permits	0%	6%	0%	3%

Customer Service Improvements

Respondents were invited to answer the following prompt:

When compared to your previous IRP or IFTA information system functionalities, describe what new functionalities have resulted in the most significant customer service improvements.

Of respondents, 20 provided their thoughts. Many respondents identified **online services** as an improvement, specifically:

- speed of online transactions
- process new account

- upload document
- order IFTA decals
- submit IRP registrations
- print temporaries upon payment of a supplement
- renew their registrations
- file IFTA, IRP, UCR, and Intrastate
- reprint IRP cab card
- reprint IFTA license
- overall ease of use
- warning that the increase in online processing has led to problems with customers failing to submit supporting documents.

Other improvements mentioned included:

- a system of email reminders to motor carriers covering the range from payments made to notifications of non-filing or payment
- look up options
- system reliability
- improvements to title and registration system
- live updates to in-house system
- faster apportioned renewal process with optional invoice versions that break down jurisdictional fees per vehicle

Business Process Improvements

Respondents were invited to answer the following prompt:

When compared to your previous IRP or IFTA information system functionalities, describe what new functionalities have resulted in the most significant business process efficiencies for your organization.

Of respondents, 21 provided their thoughts (though one indicated that proprietary interests prevented a response). As with customer service improvements, **online capabilities** were also mentioned frequently as business process improvements, specifically including:

- process duplicate requests
- process weight increases
- process renewals
- submit applications
- make payments
- verification
- reporting
- customer uploads resulting in a more time-efficient and paperless process
- IFTA customers filing returns reducing keying in data
- mobile ready IRP system

Other improvements mentioned were some general statements (e.g., cost savings, time savings, ease of access, ease of maintenance), and some specific examples:

- *Everything is in one system, in the past we had to go through 5-6 different programs to complete one customer's need. Now that it is a one stop shop it's fantastic.*
- *Our new system has resulted in huge efficiencies for us. We used to get credentials mailed out to customers a little too close to their temporary registration expiration date. Now we're actually mailing them out the same day they process online, unless we're waiting for them to submit documents.*
- *[Vendor] is always available to make any changes we need that we request, whether it is for legislative reasons or business practices changing.*
- *[We have] print on demand for our decals that have been a huge help to us.*
- *[We] connect with FMCSA and other agencies for real-time information.*
- *Clearinghouse settlement.*
- *Automated functionality for suspensions; letters; PRISM functionality; CVIEW compliance.*
- *Allows the supervisor to efficiently distribute the work to staff, reassign it when necessary, and clearly see how much is still pending in each work queue.*
- *Our interface to the state's title and registration system has improved; we are mailing less paper renewals and sending more by email.*
- *Ease of use, trainability for new IFTA clerks.*
- *Interface allows for auto population when adding vehicles to the IRP System.*
- *Better tracking history.*
- *The renewal process is a lot faster. Vehicle information is pulled from the department's motor vehicle database to the apportioned system by tag, title number or VIN. The data is populated in the apportioned system, which saves time for the service representative to data enter all the vehicle specs into the apportioned system.*
- *Everything about the new system is more functional than our previous IFTA system. We had an old Legacy system...that had not been modified in [many] years.*

Future Functionalities

Respondents were invited to answer the following prompt:

What IRP or IFTA information system functionalities are you planning or would you like to implement in the future?

Of respondents, 18 provided their thoughts (though one indicated that proprietary interests prevented a response). Once again, **online services** received a number of mentions:

- *Mobile ready applications*
- *Relaunch external site*
- *100% online services and payments*
- *Working to move all functionality online for 24/7 access by customers*
- *Eventual implementations of online registration renewal and mobile ready app*
- *Online training tool*

- *Payment card processes and online functionality for motor carriers*

Integration/information exchange with other systems was also mentioned:

- *We are trying to integrate with the new title and registration system.*
- *We would like to add the document management piece.*
- *New scanning system*
- *System integration/interface IRP/PRISM with IFTA*

Other desired improvements mentioned were:

- *A self-plating system with larger and trusted carriers*
- *Monthly financial reconciliation automated processing*
- *A permitting system*
- *Do away with paper applications*
- *E-filing*
- *Issue electronic cab cards*
- *Accept credit card payments*

Other

Respondents were invited to answer the following prompt:

Is there anything else you would like to tell us about your information system or about this survey?

Of respondents, 10 provided their thoughts on operations/implementation and vendors/costs:

Operations/Implementation

- *We [attempt] to be the best at what we do...For this reason, our system was developed and is maintained and enhanced in house. Our IT staff is onsite, substantial in size, and they only work for us.*
- *While we have good ideas, our best innovations come from our customers. ...And remember that the system is only as good as the people you have with the right attitudes who are thoroughly trained to use the system. People means your staff, service providers, and your customers. Systems are great but people are better.*
- *I hold the Nebraska staff in high regard. The best of luck to you. And thank you for reminding me that there are jurisdictions getting better at what they do!*
- *Vendors may pressure you to accept minimal variations from their primary system. Push them on this or you may become the equivalent of their other customers. The systems will work but they will not be dynamic.*

System Costs

Jurisdictions were asked to estimate their start-up and annual costs for the current system (if it had been implemented during the last decade). Very few respondents gave cost information. Some reasons

given for not sharing cost information were that the implementation was part of a larger project making cost divisions impossible, staff not having access to cost figures, and that systems had been developed in-house making cost estimates difficult. Due to the very small number of responses and to the wide variation of estimates, these ranges should not be considered likely costs for either the type of system or type of cost. They are presented here for illustrative, not predictive, purposes. Figures are rounded.

Table 11. System costs

	IFTA (n = 3)	IRP (n = 6)	INTEGRATED (n = 2)
Start-up/One-time costs	\$100,000 - \$16,000,000 (Mean = \$5,600,000)	\$500,000 - \$5,000,000 (Mean = \$2,200,000)	\$1,000,000 - \$1,500,000 (Mean = \$1,200,000)
Annual costs	\$0 - \$900,000 (Mean = \$400,000)	\$0 - \$500,000 (Mean = \$400,000)	\$90,000 - \$200,000 (Mean = \$100,000)

6. MCSITS: Future Options

Key Findings:

1. Important criteria to measure future options for MCSITS are: customer focused; efficiency in business operations; cost-effectiveness; and reliability, flexibility, adaptability, and extensible.
2. The most efficient long-term option is likely purchase of a commercial off-the-shelf system.

Options

There are several possible options in determining how to move forward with MSCITS:

1. **Maintain the current system.** This option would maintain the current MSCITS and assume that it would remain largely the same with occasional improvements as allowed by the single IT professional supporting it.
2. Substantially invest in **upgrading and supporting its current system.**
3. Deploy a new system. A new system may be deployed with the two options being:
 - a. **New “customized” system.** In this option, a new system either is built for Nebraska “in-house” (by state employees) or is contracted work completed by a vendor.
 - b. **Commercial off-the-shelf system.** This option anticipates using and adapting a currently-built system for use in Nebraska, through a software as service, state hosting, or some other contractual arrangement.

Criteria

Several criteria are applied to the three (bolded) options above:

1. **MCSITS should be customer-focused.** Motor carriers and other consumers rely on information in the MCSITS. MCSITS should enable customers to:
 - a. Maximize online processes with a modernized and fully functional web portal that is mobile-friendly
 - b. Maximize system integrations, interfaces, and/or information exchanges
 - c. Streamline processes, paperwork, and payment practices
 - d. Rely on intelligent systems to detect errors
2. **MSCITS should create time and resource efficiencies in business operations.** DMV MCS staff should be enabled to be as efficient as possible in:
 - a. Reduce manual processes that are often duplicative
 - b. Track deadlines
 - c. Reconcile data currently in various separate databases
 - d. Generate routine correspondence and communications
 - e. Easily create automated and customized reports
 - f. Conduct audits and pursuing non-payers/non-filers

- g. Develop core skills in staff
 - h. Manage workloads
3. **MCSITS should be cost-effective.** MCSITS should be cost-effective, including a structure for reasonable and predictable costs. Vendors use a variety of costing models for software implementation and support. The use of staff time, while not an additional outlay of financial resources, should also be considered as a cost. Some vendors use enterprise licenses with few functional restrictions; other vendors may calculate costs based on the features used or by delineating limits to the number of users. Implementation of new systems often requires a combination of one-time (start-up) costs, followed by on-going annual costs.
- a. One-time/Start-up
 - i. System implementation and development: costs incurred to build a new product or adapt an existing product, so that it performs in the desired way within the context.
 - ii. Data conversion: costs incurred to move data from a legacy system to a new system.
 - iii. Initial software licensing: an initial charge vendors charge for access to their product.
 - iv. Hardware and peripherals: cost of computers and peripherals needed to operate and/or interact with the product.
 - b. Annual
 - i. Hosting and maintaining the system: cost of hosting the system and its data, maintaining and modifying to ensure functionality, and address bugs.
 - ii. Software license: vendors often charge an annual cost for licensing their system; support is often included in this cost, too. Access to upgrades and improvements may, or may not, be included in the license.
4. **MCSITS should be reliable, flexible, adaptable, and extensible.** There are rapid changes in the trucking sector and information technologies. The solution should be able to adapt to these changes.
- a. Minimize risk factors such as downtime, security, and lost or inaccessible data.
 - b. Deployment and maintenance time: lead time for development, testing, and deployment.
 - c. Flexible: Enable changes to be easily made to reflect many changes in trucking and regulatory environment, including continuous changes in fee schedules and less frequent changes in types of fees and industry innovations such as virtual weigh-in stations.
 - d. Adaptable: As improvements are identified, the system should be able to be customized to meet the needs of customers and staff.
 - e. Extensible: Ensure that the system is expandable to meet the needs to the maximum extent possible, including information exchange, interfaces, and integration with other systems.
 - f. Change Control: degree of control over the system, including requests for system maintenance, modifications, and enhancements.

Comparison of Approaches

A relative comparison of the four approaches against the four criteria is shown in Table 12. Supporting narrative will first review each option and then make comparisons between options based on criteria.

Table 12. Comparison of options

	Customer focused	Efficiency in business operations	Cost-effectiveness	Reliability, flexibility, adaptability, and extensible
Maintain current system	-	-	+	-
Substantially upgrade current system	+	+	-	-
Customized system	+	+	-	-
Commercial off-the-shelf system	+	-	+	+

Option Review

Maintain current system

PROS: The current system used only by Nebraska is customized for Nebraska and has been a stable system for decades, operating at a low cost. The same information technology professional, who knows it well, has maintained the system.

CONS: The system setup means that some improvements are not possible. For example, rather than providing online services using Nebraska.gov, DMV's current infrastructure instead provides online services by allowing customers to log directly into a state computer. The online system is also not mobile ready. Because only one IT professional is responsible for the system, there are continuity risks during planned and unplanned absences and when that individual is no longer responsible for the system. Having a single IT professional also means that many desired improvements simply cannot be made due to time constraints. These include online features and functions, business operations improvements, and electronic information sharing with others. These features could save motor carriers and DMV staff time, streamline processes, and increase collection of state revenues.

Substantially upgrade current system

PROS: The current system could be substantially upgraded and supported with more information technology staff who could implement improved systems and provide intellectual redundancies and backup. The current system is customized with many of the features and workflows desired by Nebraska stakeholders and DMV.

CONS: Standalone systems are often expensive to develop and difficult to maintain when changes are needed and the original developers may be unavailable or unable to stay current on enhancements.

Customized system

PROS: A new customized system could be built using newer technologies that would enable easier information sharing with other systems. A custom system could have precisely the features and workflows desired by Nebraska stakeholders and DMV.

CONS: Custom systems are often expensive to develop and difficult to maintain when changes are needed and the original developers may be unavailable or unable to stay current on enhancements.

Commercial off-the-shelf system

PROS: Successful vendors have a business incentive to offer the types of features that clients value and to ensure their products are able to accommodate innovations in the sector. Costs may vary dramatically, but some products may be cost-efficient since development and maintenance costs are also “shared” by the vendor’s other clients.

CONS: Some vendors may be unable to adapt their product to the specific business processes desired by Nebraska.

Criteria Review

Customer focus: #1 = Upgrade to the current system and custom build in short-term; #1 = Commercial off-the-shelf system in long-term

In the short-term, an upgrade to the current system or a customized solution may provide immediate response to customer needs. However, a customized solution may not age well. In the long-term, successful vendors who operate in the MCS landscape will likely be able to provide desired features and functionalities. However, depending on the vendor’s ability to adapt its product, there may be some features in the current system that may not be replicable in a vendor-supplied system.

Efficient business operations: #1 = Upgrade to the current system and custom build; #1 = Commercial off-the-shelf system in long-term

Very similar to *customer focus* (above), a customized solution provides a short-term solution; however, vendor products are more likely to provide long-term solutions but may be less adaptable.

Cost-effective: #1 = Current system

The current system represents least one time and annual cost to the state. Since it is the system in operation, there are no start-up costs. Annual costs are limited to the consulting contract with the IT professional and State of Nebraska Chief Information Officer costs. However, it should be noted that unimplemented features and functions, along with missing information exchanges, result in inefficiencies for customers and staff that have real costs. Depending on the vendor and pricing model, a commercial product may provide a cost-effective solution because the cost of development, maintenance, and improvements are shared by other states. However, staff time will be necessary for selection and implementation of a product. Development of a homegrown solution will likely be the

most expensive option because the full cost must be borne by a single implementation. This would be true whether the development is done in-house or through a vendor contract.

Reliable, flexible, adaptable, and extensible: #1 = Commercial off-the-shelf system

Depending on the vendor system and the parameters of the contract with DMV, it is likely that a commercial product will provide the most reliable, flexible, adaptable, and extensible system since there will be a team of programmers working for the vendor to meet their clients' needs. However, some improvements may carry additional costs to DMV. The current system and a homegrown system are less reliable, flexible, adaptable, and extensible when supported by a single IT professional or completed as a one-off product because of limited time, expertise, or incentive to make improvements.

7. Recommendations

DMV's MCSITS system plays a central role in annually managing \$80 million - \$100 million in revenues. In Nebraska, funds primarily support highway, bridge, street maintenance, and county/municipal budgets. The system is aging and has been supported by the same IT professional for decades. The system has been cost effective, but it lacks important online functions and features, opportunities for information exchange, and operations efficiencies that would benefit MCS stakeholders and staff. Based on the information compiled, documents reviewed, and feedback collected, the following are recommendations for DMV to consider:

- 1. DMV should implement a commercial off-the-shelf system, provided by an experienced vendor delivering the product to other states, or substantially invest in upgrading and supporting its current system.**

Approximately two-thirds of IFTA and IRP administrators report using a vendor supplied off-the-shelf system to meet their needs. There are four active vendors in the IFTA and IRP community. Commercial off-the-shelf compared more favorably against the criteria when compared to retaining the existing system or custom building a system for Nebraska. The benefits of a commercial off-the-shelf system (assuming a qualified, experienced vendor is selected and the contract is negotiated to ensure favorable treatment for Nebraska as a client) are the benefits of:

- using a proven system whose owner has a business reason to continually improve it and respond to industry changes
- sharing system development costs with other states

The drawback of using a commercial off-the-shelf system is that it may not be adaptable to idiosyncratic features or functions that Nebraska wants. As one large state reported, *we aim to be the best at what we do...or this reason, our system was developed and is maintained and enhanced in house*. However, that respondent noted that the IT staff to support it is *substantial in size, and they only work for us*. If the idiosyncrasies of Nebraska's system are highly valued, Nebraska should substantially invest in upgrading and supporting its current system.

- 2. DMV should identify feature, functions, and processes that the new or upgraded MCSITS should support.**

DMV staff should determine what features and functions are necessary, as compared to those that are desired. This is a worthwhile process regardless of the option DMV chooses to move forward. This **report includes feedback** from stakeholders that will be valuable. For example, stakeholders strongly indicated that online features and functions are highly valued and should be expanded. DMV MCS staff should **visit other states** that are known to value customer service and have a good reputation to learn about their systems. DMV may also want to engage in an **internal process review** to identify work or information flows that may be streamlined. For example, electronic information exchanges could eliminate time-consuming and error-prone

processes that require re-keying information into systems or require electronic information to be reduced to paper forms. Some states stagger renewals throughout the year to smooth workflows, rather than scheduling all renewals at a specific time of year, as Nebraska does. Stakeholders were mixed in their opinions about this, but it could be explored in greater depth. Another valuable step may be to ask vendors to respond to a **Request for Information** (RFI). RFIs are good mechanisms to learn what features and functions are available prior to issuing a Request for Proposal.

3. DMV should continue its focus on customers.

Nebraska DMV MCS staff are well-regarded by customers and other stakeholders. Customers value staff communication with them regarding day-to-day activities, as well as the communications and training they provide when systems are changing. Part of customer service is a staff that is well-trained and knowledgeable. Staff training in customer service and in the technical details of MCS should continue to be a priority.

4. DMV should plan for shifts in staff responsibilities in the selection and implementation of a new or substantially upgraded MCSITS.

New information technology systems will require staff time in the selection and implementation. Following implementation, new technology features may relieve staff of tasks and allow their time to be invested elsewhere. For example, additional online services may allow staff more time to assist customers experiencing technology or language barriers.

5. DMV should make a major financial investment in a new MCSITS, or upgrade and support its current system.

The MCSITS manages significant state revenues. Funding should be identified to support a new system. Possible alternatives, related directly to MCS operations, include:

- a. **Redirect current revenues.** MCSITS collects between \$80 million - \$100 million annually. Currently, none of those funds remain in MCS or even in DMV. A logical source of funding for MCSITS would be a redirection of some of the funds for this purpose.
- b. **Increase MCS fees.** Funding to support MCSITS could come from additional dollars collected from customers from existing fees and taxes. Some options may be:
 - i. **License plate renewal fee.** Nebraska charges \$2.00 for renewal of license plate. This fee has not changed since its establishment in 1996.
 - ii. **IRP registration fee.** Nebraska has one of the lowest annual IRP registration fees when compared to contiguous states: Nebraska charges \$1,280 while the average among contiguous states, including Nebraska, is \$1,799.
 - iii. **Oversize and overweight permit fees.** Nebraska may consider increasing these fees for oversize and overweight motor carriers.
 - iv. **Diesel fuel rate.** This option is not as appealing given that Nebraska already has one of highest diesel fuel rates in contiguous states at \$.296 per gallon (average \$.251).

- c. **Charge new fees.** Funding to support MCSITS may come from new fees not previously charged. For example, Pennsylvania now has an IFTA rate for electric motor carriers and six states have charges for hydrogen motor carriers.

Appendices

Appendix A: MCS Staff Workflows Supported by MCSITS

Work Task	MCSITS Support
IFTA	
Process renewals and new applications, including billing, receiving payment, and issuing renewals and decals	The system stores information about renewals and new applications.
Annually notify motor carriers of renewal period	IT professional runs a program that prints renewal notification letters for motor carriers. ³⁷
Keep current with other states' fee changes	DMV MCS staff update simple changes in tax rates. The IT professional is needed occasionally to implement fees that require new categories or calculations.
Notify licensees when it is time to file quarterly tax returns and provide tax rates	DMV MCS staff run a program that reminds carriers to file quarterly tax returns. If the carrier does not use online services, a letter is generated. If the carrier uses online services, an email is generated.
Calculate payment due	The system's internal programming calculates the payment due from carriers.
Process returns received	DMV MCS staff key in payment information when carriers do not use online services. The information is automatically registered in the system when motor carriers use online services.
Send daily demographic files and monthly payment files to the IFTA Clearinghouse	A batch queue compiles and sends the daily demographic files to the IFTA Clearinghouse. DMV MCS staff initiate a program to run the monthly payment report as part of the nightly queue. Running this report suspends access to online services during its compilation. Staff review results and electronically transmit the approved report.
Send IFTA statuses to SAFER	Every night, a batch process program identifies differences in carrier statuses and electronically sends to SAFER.
Email receipts to Nebraska Department of Transportation and Department of Revenue	DMV MCS staff run a report of receipts and email it to Transportation and Revenue staff.
Identify non-filers and balance due licensees	MCSITS has a report DMV MCS staff run to identify these motor carriers and automated generation of notification letters for carriers with information about the payment due that is customized to them.
IRP	
Process renewals and new applications, including: billing, receiving payments and registrations, and assigning license plates	The system stores information about renewals and new applications.

³⁷ All references to carriers also include reporting services that motor carriers may use to manage their fee payments.

Work Task	MCSITS Support
Annually notify motor carriers of renewal period ³⁸	IT professional runs a program that prints renewal notification letters for motor carriers. ³⁹ Each letter has a unique renewal identification number if they choose to use online services. For carriers who use online services, an electronic notification message appears when they log into the online system. The IT professional creates an extract file for Nebraska's large motor carriers of all their units. These companies mark the file and return to the professional who runs a program to ingest the results and generate a bill.
Keep current with other states' fee changes	DMV MCS staff update simple changes in fees. The IT professional is often needed to implement fees that require new categories or calculations.
Calculate payment due	The system's internal programming calculates the payment due from carriers.
Send data and payments to IRP Clearinghouse	A DMV MCS staff initiate a program to run the monthly payment report as part of the nightly queue. Staff review results and electronically transmit the approved report.
Send vehicle information and status to SAFER	Every night, a batch process program identifies differences in carrier statuses and electronically sends to SAFER.
Email receipts notifications to Nebraska Department of Transportation	DMV MCS staff run a report of receipts and email to Transportation staff.
UCR	
Keep current with fee changes	DMV MCS staff update simple changes in fees.
Calculate payment due	The system's internal programming calculates the payment due from carriers.
Process and validate tax payments paid by motor carriers and reconcile payment to UCR	Maintains information for carriers who pay through DMV. A monthly report is run to compare records to the invoice received from UCR.
OTHER	
Calculate and receipt sales tax of units purchased by private carriers	MCSITS is used to calculate taxes due (each Nebraska's hundreds of municipalities establish their own tax rate within limits set by the state unicameral) and note payment of taxes filed by private carriers who choose to pay at the DMV central office in Lincoln MCSITS. ⁴⁰
Notification of new carriers identified in PRISM (see #6 below)	MCSITS automatically sends an email to MCS staff when new Nebraska carriers are added in PRISM.

³⁸ Nebraska's legislature has established an annual renewal time period concurrent with the end of the calendar year. Other states have staggered renewal periods. For example, Florida uses a 10-month staggered renewal system, in which each motor carrier is assigned a renewal month that ranges from January through October. States may use a staggered renewal period to spread out renewal activity throughout the year.

³⁹ All references to carriers also include reporting services that motor carriers may use to manage their fee payments.

⁴⁰ Most private carriers pay their sales tax in their home county.

Appendix B: Interview Questions

- a) Please describe to me how your organization shares and obtains information from DMV Motor Carriers.
- b) What works well in the current process?
- c) What does not work in the current process?
- d) What do you wish you could change about the current process?
- e) Is there anything else you would like to mention?
- f) May I list you as an interviewee?

Appendix C: Interviewees That Agreed to be Listed

Tim Adams

IRP, Inc.

Kevin Bain

Road Runner Temperatures Controlled, LLC

Katie Beiriger

Motor Fuels Division, Nebraska Department of Revenue

Jenessa Boynton

Nebraska Department of Transportation

Tina Brouwers

Prorate 48

James Busing

Nebraska Department of Transportation

Becky Fleming

Nebraska Department of Transportation

Monica Halstead

IFTA, Inc.

Lyn Heaton

Nebraska Department of Transportation

Donna Janssen

Janssen's Over the Road

Sgt. Mike Maytum

Carrier Enforcement, Nebraska State Patrol

Ann Nitzel

Nebraska Department of Transportation

Diane Podany

FMCSA – Nebraska Division, U.S. Department of Transportation

Steve Tisinger

Werner Enterprises, Inc.

Gail Vinson

Transwood, Inc./Transwood Logistics, Inc.

Cindy Wagner

Traffic Consultants

Robi Wilson

K & B Transportation

Jon Ziegler

Crete Carrier Corporation

Appendix D: Survey of States

NOTE: For simplification of presentation, survey logic is not indicated.

The Nebraska Department of Motor Vehicles is working with the University of Nebraska Public Policy Center to assess the state's IFTA and IRP information technology system. As part of that process, we would like to learn more about other jurisdictions' approaches. Survey results will only be available to researchers at the Public Policy Center and they will not share the specific details from any specific state, but will aggregate responses in their findings to the Nebraska Department of Motor Vehicles. We appreciate your help. The survey should only take about 10-15 minutes to complete. So that we can include your feedback, please complete the survey by August 2, 2019. If you have any questions or comments about this survey, please contact Dr. Nancy Shank (nshank@nebraska.edu).

Q1. Jurisdiction (state/province) name:

Q2. Contact information for person who could answer any questions we might have about responses to the survey:

- Name
- Title
- Agency
- Email
- Phone

Q3. What best describes your organization's responsibilities related to IRP and IFTA:

- My organization is responsible for IRP, but NOT IFTA.
- My organization is responsible for IFTA, but NOT IRP.
- My organization is responsible for IFTA and IRP.

Q4. Are your IRP and IFTA systems integrated as a single solution?

- Yes
- No

Q5. When was your current information technology system implemented?

- 2019 (or currently implementing)
- 2018
- 2017
- 2016
- 2015
- 2014
- 2013
- 2012
- 2011

- 2010
- 2009
- Prior to 2009

Q6. Does your IFTA/IRP system have the following functionalities (check all that apply):

- Serves as motor vehicle title and registration system
- Serves as the driver's license system
- Processes dealer permits
- Permits overweight/oversize motor vehicles
- Processes UCR fees
- Inventories license plates and stickers
- Interfaces with IRP Clearinghouse
- Interfaces with PRISM
- Interfaces with SAFER
- Interfaces with Commercial Vehicle Information Exchange Interface (CVIEW)
- Processes and posts payments
- Interfaces with online system for customers to access information and conduct business

Q7. What was the approximate costs of the following components for your current IFTA/IRP system? (Input dollar estimate for each relevant category. Please exclude commas or periods.)

- One-time/start-up cost paid to vendor for system implementation and development:
- One-time/start-up cost paid to vendor for data conversion:
- One-time/start-up cost paid to vendor for initial software licensing:
- One-time/start-up cost for hardware and peripherals:
- Annual on-going cost paid to vendor for hosting and maintaining the system:
- Annual on-going cost paid to vendor for software maintenance:
- Other (please specify):

Q8. When compared to your previous IRP or IFTA information system functionalities, describe what new functionalities have resulted in the most significant customer service improvements.

Q9. When compared to your previous IRP or IFTA information system functionalities, describe what new functionalities have resulted in the most significant business process efficiencies for your organization.

Q10. What IRP or IFTA information system functionalities are you planning or would you like to implement in the future?

Q11. Is there anything else you would like to tell us about your information system or about this survey?