

5. CRITICAL DECISIONS

In this chapter, we identify some of the decisions that are critical to successful implementation of CVISN Level 1 credentials administration functions. The chapter is intended to serve as a checklist to remind states about some of the major planning and design issues they should settle as early in the process as possible. Other decisions may be just as critical for a given state; this list reflects the critical credentials administration-related decisions commonly faced by states implementing CVISN Level 1.

5.1 Design Decisions

The decisions listed below are categorized as “design” because they have a significant impact on the design approach. They all impact planning as well.

For which credentials will the state implement electronic credentialing?

IRP and IFTA credentialing are part of CVISN Level 1. Many states also choose to implement intrastate vehicle registration, single state registration system (SSRS), titling or other credentialing functions as well.

Are there some parts of a credentials process where automation is impractical or the benefit of automation isn't worth the cost?

For example, it may be impractical to automate every single aspect of the IRP registration process in your state. You may have some legal requirements to have a signature on file or other supplemental paperwork. This transaction may only occur once when a carrier first starts its operation. Automating this may be more trouble than it is worth. So you may want to consider continuing to have initial transactions being manual, while subsequent ones are all automated. You might provide a Web site to give out information on how to go through the first manual step, to make this process easier on carriers. Even if you decide to automate everything completely, you may want to defer automation of some parts of the process until later phases of your CVISN program. Recall that the Level 1 requirements include end-to-end electronic processing for IRP and IFTA, and connection to both the IRP and IFTA Clearinghouses.

Will the state implement a person-to-computer or a computer-to-computer interface for electronic credentialing? Will the state elect to implement both?

The CVISN architecture initially required that an EDI interface be provided so that carriers could submit credentials applications using open standards. That solution suits carriers with sufficient software and hardware capability. Some carriers, however, do not have ready access to credentialing software, and prefer to enter applications through a Web site. Designing a solution that is effective for both the carriers and the state makes sense. Many CVISN Model Deployment Initiative states implemented an X12 EDI interface, using the CAT and CI model, for carrier-state transactions. Some states have deployed credentialing Web sites. Some states have determined that both interface methods are necessary to meet their customers' varying needs, and so are implementing both a Web site and some type of computer-to-computer interface. FMCSA recommends that states survey their stakeholders to determine whether both interfaces would be

appropriate. An example survey, based on the questionnaires used by FMCSA in the recent CVISN Electronic Credentialing Preferences Survey, that a state could use to develop a profile of its carrier and service bureau customers, will be promulgated soon.

If the state elects to implement a computer-to-computer interface for carrier-to-state transactions, what interface method will be used (X12 EDI, XML, or other)?

FMCSA recommends that, in the near term (over the next ~2 years), carriers and states use X12 EDI for computer-to-computer interfaces, unless the state has evidence that customers support another approach. X12 EDI is a standard for data exchange based on a 20-year history of consensus on data semantics, and is in use by many large carriers in their customer and supplier interfaces. However, FMCSA also encourages the exploration of XML as an alternative to EDI. XML is the hot new technology, which may prove to be cheaper to implement than X12 EDI, for those who are not already using EDI for e-commerce. However, industry-specific standards have not yet been developed.

For each credential, will the state modify the legacy system (LM) to handle the electronic data interchange (EDI) open standards, or translate the incoming transactions in some legacy system interface (LSI) and pass the credential application data to the legacy system in the native form?

Many CVISN Model Deployment Initiative states chose a mixed approach, modifying some legacy systems to handle EDI, and building LSIs for others. A deciding factor is often whether the legacy system is state-owned or whether service is provided by a vendor's product. If a vendor's product provides services, the states have most often elected to have the vendor's product modified to handle EDI. This makes it easier for the state to use different vendors, since the interfaces are defined using open standards.

How will requirements be specified?

Arriving at a specific process and format for requirements definition can be a challenge, especially in the credentials administration area. There are three types of requirements:

- requirements for the whole end-to-end process
- requirements for each product
- requirements for the interfaces between products

As a lesson learned from the prototype states, it is difficult to do a comprehensive, detailed end-to-end requirements specification up front prior to picking software vendors. It takes too long, is difficult to maintain, and the vendors will still need to do their own requirements analysis when they begin to work. A recommended alternative is to do a high level requirements end-to-end specification up front with several key sample scenarios. Then, for each phase, complete the process by defining more detailed requirements for the capabilities to be implemented in that phase. Please see the section on Requirements Specification in Chapter 7 of this guide for further discussion.

How will snapshots be updated to reflect credentials actions?

Many CVISN Model Deployment Initiative states have elected to build a state Commercial Vehicle Information Exchange Window (CVIEW) by starting with the generic CVIEW product developed under FMCSA funding. That generic CVIEW supports EDI interfaces for snapshot segment updates. The generic CVIEW will continue to be made available to any requesting state through the CVISN prototype period, i.e. through 2000. There has also been discussion among some states regarding working together to develop one or more "regional CVIEWs".

If a state uses EDI to send snapshot segment updates to CVIEW, the decision about which state product(s) will send those updates is tightly coupled to the LSI/LM decisions. If the legacy product is being modified to handle EDI, then it makes sense for the legacy product to send the snapshot segment update to CVIEW. If an LSI is being created to avoid modifying the legacy product to handle EDI, then often the state chooses to have the Credentialing Interface (CI) provide the snapshot segment update. In some states, the state chooses to have the CI provide the snapshot segment update in lieu of requiring that the vendor's product make the update. That approach keeps the snapshot update completely under the state's control. The state can also choose to tailor the generic CVIEW to accept non-EDI inputs.

Where and how will snapshots be used in the credentialing processes?

Snapshots were devised to support roadside operations, but work equally well in credentialing processes. States participating in the Performance and Registration Information Systems Management (PRISM) program intend to use snapshots to check the carrier's safety status before renewing vehicle registration. Other uses of snapshots are being considered by CVISN states.

Where will error checks be performed?

Many errors in incoming applications can be detected by software. The earlier the checks are performed, the faster the corrections can be obtained from the submitter. The decision about what error checks to perform and which product should perform each one (CI, LSI, legacy system) is a factor that affects the complexity of each product's development or modification.

How can the state leverage the automation to help with paper forms processing?

Not all carriers will immediately start using electronic credentialing. In Maryland, they are enhancing the impact of the automation by installing CAT-like software in the state credentialing offices so that the state personnel can enter the information from paper forms supplied by the applicants. The CAT-like software performs error checking, and submits the application to the CI, where it is processed like any electronic application.

5.2 Planning Decisions

The decisions listed in this category usually do not impact design as much as they impact the preparation of task lists, assignments, schedules, and budget considerations.

Build vs. Buy?

One of the most important decisions the project team must make is the "build-vs.-buy" decision. What should you buy and what should you get off the shelf? This question needs to be addressed for each subsystem, e.g., the CAT, CI, IRP system, etc. As the decisions are made, keep in mind license considerations for commercial-off-the-shelf (COTS) products.

Will the state update current legacy systems or re-compete/re-develop?

Sometimes a major project like implementing CVISN is the catalyst to re-evaluate existing systems and address lingering problems. As the design options are considered, the legacy systems in place today and other possible substitutes should be examined. The decision to build a new product (or modify an existing one) using in-state resources, or to contract for the development of a new product (or modification to an existing product) with an outside vendor should take into account the risks associated with each option, the available resources, existing contractual arrangements, and the state's experiences with the current products.

Will the state sponsor the development and deployment of a CAT? Who will provide CATs to early-adopter carriers?

The generic CVISN state design includes a carrier-based credentialing product called a CAT. Many of the CVISN Model Deployment states chose to sponsor the development of a CAT to support their business rules, and then provided that CAT to the carriers participating in the early CVISN deployment. One of the key goals of CVISN is to allow motor carriers to select their own fleet management software that includes some type of "CAT module". However, in the early stages of deployment, it is recommended that states pay for a "model CAT" for their states and provide this to at least a few selected carriers. The state may wish to also use this CAT in branch offices to handle walk-up traffic. This gives the state control of the end-to-end process initially. As this process stabilizes, carriers can begin to use packages of their own choosing as the front end.

When will the state join each clearinghouse?

Some initial and recurring costs, as well as training, should be expected as the state joins the IRP and IFTA Clearinghouses.

Will the state participate in PRISM?

Some PRISM funding may be available. Please see Reference 15 for contact information. In addition, the PRISM processes should be considered as the top-level CVISN design for the state is established.

What are the priorities and sequence for implementing capabilities?

For every state, some priorities and sequences for implementation make more sense than others. Both design and cost factors should be considered when establishing the baseline schedules. The relationship of CVISN activities to other state activities must also be considered. For example, many states were forced to divert CVISN personnel resources to address the Y2K problem. The process of incremental deliveries and testing may be new to some stakeholders. Defining the priorities and development sequence helps everyone understand when each capability will be ready, and what kinds of tests must be executed to verify the delivered components.

Who is the system integrator?

A decision closely related to the build-vs.-buy decision is who will provide the system integration function. System integration refers to the process of integrating each subsystem into the whole, testing the interfaces, testing the functionality, testing the overall flow, and testing for interoperability, performance and reliability. Some alternatives are:

- state builds everything in-house and does the system integration with in-house staff
- state buys some products, builds some in-house, and integrates them with in-house staff
- state hires a system integrator to integrate all the purchased and in-house systems in the credentials area
- state contracts with a system integrator to serve as prime contractor and deliver a complete working system

Should the state have an independent verification and validation (V&V) agent?

Some states have policies that encourage them to hire an independent verification and validation agent to provide an independent technical assessment and guidance as the project proceeds. If the agent has experience from other similar projects, they can be very helpful. They may serve as an acceptance test conductor or witness to ensure independence in the test process.

Sole Source or Competitive Contracting?

Sole source contracting is sometimes selected if the state believes that a particular vendor is uniquely qualified. In some cases, sole source contracts can be put in place more quickly than contracts established through a competitive bidding cycle. Sole source contracting may not be an option since most states require competition whenever possible.

Has the state planned to involve its carriers at each step in the planning process?

Carrier involvement is crucial to project success. Knowing what improvements the carriers in the state are capable of and interested in making helps drive the state's decisions. It is worthwhile for both sides to set realistic expectations about the improvements that carriers and the state can make.

Could other state or local agencies use the CVO data?

Much of the data that is collected under CVISN deployment may be useful to other State and local transportation entities (e.g., traffic management center) outside the CVO community. The state may wish to evaluate the data that is being collected for CVISN initiatives to determine whether sharing the data with other agencies would be beneficial.

5.3 Funding and Contracting Phase Key Decisions

These are issues that must be faced during the funding and contracting phase of the project. They are not unique to credentials administration.

- How much funding is required to complete the project?
- Where will the funding be obtained?
- What type of procurement should be used for each product or service?
- What can be done to expedite procurements?
- What type of incentives and remedial mechanisms should be included in the contracts?
- What software rights should be included in the contracts?
- How can the RFPs be written to assure architectural conformance and interoperability?

5.4 Development Phase Key Decisions

These are issues that must be faced during the development phase of the project. They are not unique to credentials administration.

- How should the initial design be modified based on the experience gained in each phase?
- How should the initial phase plan be modified based on progress actually made in each phase?