Criminal Justice Information System Governing Board

Plan for the Design and Implementation of a Criminal Justice Information System

---

Gap Analysis

July 14, 2009

MTG Management Consultants, L.L.C.
1111 Third Avenue, Suite 3010
Seattle, Washington 98101-3292
206.442.5010 206.442.5011 *fax*
www.mtgmc.com
Austin **Seattle**

Document Purpose

The purpose of this document is to provide a gap analysis between the current Criminal Justice Information System (CJIS) environment and the future Connecticut Information Sharing System (CISS) environment.

Version	Date	Description/Changes
1.0	5/22/09	Discussion draft.
1.1	7/10/09	Revisions from initial review.
1.2	7/10/09	Revisions based on timing and emphasis on value.
1.3	7/14/09	Revisions to include proposed decisions for CJIS Governing Board.

TABLE OF CONTENTS

I. Executive Summary

I. Executive Summary

The Criminal Justice Information System (CJIS) Blueprint Project seeks to identify, define, and acquire an integrated justice capability for the state of Connecticut. The following two major reports have been delivered:

- *As-Is Business/Logical Model* – An assessment of the current data-sharing and integration capabilities of the Connecticut justice partners.
- *To-Be Business/Logical Model* – A description of a concept of operation for the future Connecticut Information Sharing System (CISS)[1] environment.

The comparison of the As-Is Business/Logical Model and the To-Be Business/Logical Model revealed moderate to significant gaps in several areas. In addition, MTG Management Consultants, LLC, identified several strategic issues that require decisions from the CJIS Governing Board. The gaps and the issues are highlighted below and discussed in detail in the remainder of this report. While the challenges may constrain some aspects of the program, all are manageable.

A. Gaps

The gap analysis considers five distinct factors that are critical to the success of the CISS program. The overall gaps examined were classified as minor (green), moderate (yellow), and significant (red). Specific details are found in the Sections III, IV, and V of this report. The gaps factors and the significant elements in each area are:

- *Agency Business Gaps* – These describe the variance between current agency business processes and those required in the CISS environment. The agency business gap factor was rated red. The significant gaps were:
  - » Staffing.
  - » Complete agency solutions.
  - » Data-sharing policies.

- *CISS Business Gaps* – These include the variance between the business practices in the current CJIS environment and those required to support the CISS environment. The CISS business gap factor was rated yellow. The significant gaps were:
  - » Enterprise processes.
  - » CISS staffing.

---

[1] Throughout the report, CISS is used to refer to the future information-sharing environment.

- Enterprise data-sharing policies.
- System standards.

- *Functional Gaps* – These encompass the variance between current CJIS functionality and the functionality required in the CISS environment. The functional gap factor was rated red. The significant gaps were:
  - Integration.
  - Local law enforcement (LAW) involvement.
  - Timeliness.
  - Electronic exchanges.
  - Complexity level.
  - Real-time data capture.
  - Data-mining capability.
  - Global searches.
  - Subscription/notification.
  - Dynamic configuration of data exchanges.

- *Application Gaps* – These describe the variance between the capabilities of current applications and the application requirements of the CISS environment. The CISS business gap factor was rated yellow. There were no significant gaps, although there were moderate gaps in:
  - Application standards.
  - Data quality and currency.
  - End-user interface and presentation.

- *Technology Gaps* – These include the variance between the capabilities of current CJIS technology and the technology required to support the CISS environment. The CISS business gap factor was rated yellow. The significant gaps were:
  - Platforms and hosting.
  - Support.

Together, a high-level view of the variance between the current CJIS environment and the future CISS environment emerges.

B. Strategic Issues and Recommendations

The goal of the CISS program is to deliver the optimal solution for the state. This is a complex mix of building and enhancing CJIS community services, such as CISS, as well as ensuring agency applications are improved and modernized. It is important to remember this mixture of improvements, as CISS must be prioritized so it is started and solidly under way before agency applications are replaced. This is essential to prevent revisions and increased costs throughout the life of the CISS program and for agency application replacement efforts.

The CISS program should:

- Have a focused core CISS team.
- Budget for work efforts to complete tasks for the agency interface.
- Be the priority for agencies and coordinated with CISS.
- Have 6-month milestones.
- Be a budget priority.
- Be constrained by economical limits based on total cost of ownership (TCO) and return on investment (ROI).

The strategic issues outlined later in this document expand on the key choices above and represent the central challenges to the CISS program. The resolution of strategic issues will be necessary if the CISS program is to be successful.

C. Conclusion

The CISS program budgeting, prioritization, and implementation will be a complicated endeavor. The gap analysis demonstrates that there is a wide variance between the CJIS environment and the anticipated CISS environment. The following key activities must be completed by the CJIS Governing Board:

- Review and accept the Gap Analysis report.
- Accept recommendations from the Gap Analysis report.
- Review MTG's recommendations for the scope of the CISS project.[2]
- Confirm commitment to CISS as the community's priority project.
- Begin implementing the CISS program.

---

[2] Scope recommendations have been reviewed by the cochairs and will be presented at the July 23, 2009, CJIS Governing Board meeting.

Coupled with the strategic issues that create funding and political challenges for the state, the issues and decisions that the justice partners face are significant. Several keys to success frame the decisions, the most critical of which is adequate funding with focused program and project management.

CISS is an investment that is essential to prevent tragic events and the atrophy of capabilities that continues to occur as is apparent by the gaps detailed through this report. The gap analysis can serve as a road map as the next stage of the project is initiated. Requirements will be developed that will allow the state to close the gaps and move toward the CISS and realize the effort and monetary investments made through the state's criminal justice system. The remainder of this report discusses the gaps and issues in detail.

II. Introduction

II. Introduction

The CJIS Blueprint Project is an initiative to improve information sharing between justice system partners in Connecticut by assessing their business and technological capabilities and developing a plan for improvement. The primary objectives of CJIS Blueprint Project are to:

- Review the Department of Information Technology's (DOIT's) current business and technology environment.
- Review the current business and technology environment of the justice agencies.
- Identify functional and technology gaps between the current environment and preferred future environment.
- Document requirements for the CISS.
- Develop the CISS design and implementation Request for Proposals (RFP).

This report is the third major deliverable in the project. It provides a gap analysis, describing the variance between the as-is business/logical model and the to-be business/logical model.

A. Document Scope

This document presents the results of the gap analysis conducted by MTG. The purpose of the analysis is to define the functional, business, and technical gaps between the present environment and the proposed CISS environment. The scope of the report includes:

- An analysis of the business gaps.
- An analysis of the functional gaps.
- An analysis of the technology gaps.
- A description of strategic issues and recommendations.

Together, the analyses will provide a detailed picture of the effort and resources that will be required to realize the CISS vision. The analyses will also provide a framework for identifying, prioritizing, and resolving strategic issues. The analyses presented here were developed using the assessment approach described below.

B. Assessment Approach

The gap analysis is the result of a comparison between the current CJIS context and a concept of operation for CISS. The CISS concept of operation included the application of the Justice Reference Architecture (JRA), resulting in industry best practices as a basis for comparison between the current context and the concept of operation. MTG's assessment

approach also included interviews, as-is and to-be information exchange modeling workshops, on-site observations, and a review of documentation. The results of the assessments combine to provide the gap analysis presented in the report.

C. Document Organization

The remainder of the document is organized in the following sections and appendices:

- Section III – Business Gaps
- Section IV – Functional Gaps
- Section V – Application Gaps
- Section VI – Technology Gaps
- Section VII – Strategic Issues and Recommendations
- APPENDIX A – Glossary of Terms
- APPENDIX B – Glossary of Acronyms

These sections and appendices provide the relevant information for the Gap Analysis report.

III. Business Gaps

III. Business Gaps

The business gaps described in this section represent the differences between the current CJIS environment and the business practices that will be required to support the CISS environment. Justice agencies are separate organizations, and individual agency business practices should support the CISS enterprise. The CISS enterprise represents the agencies joining together to create an information-sharing environment. The business practices of the enterprise represent separate, yet interrelated, practices.

MTG assessed the gaps and classified them into three levels of significance, which were further subdivided into five smaller boxes representing the degree of the gap. Color coding for significant, moderate, and minor gaps is explained in the next subsection for easy reference. The following table depicts the gaps in agency business functions and CISS business functions:

Agency Business Functions	Gaps														
	Significant					Moderate					Minor				
Agency Processes															
Agency Information Needs															
Agency Participation															
Agency Staffing															
Complete Agency Solutions															
Agency Data-Sharing Policies															
Complete, Accurate, and Timely Information															
CISS Business Functions	**Gaps**														
	Significant					**Moderate**					**Minor**				
Governance															
Enterprise Processes															
CISS Staffing															
Enterprise Data-Sharing Policies															
System Boundaries															
Justice Information Exchange Model (JIEM) Maintenance															
System Standards															
Justice Partner Coordination															

Most of the business gaps identified are either moderate or significant. The next subsection analyzes agency business functions.

A. Agency Business Functions

At the agency level, new practices will be required to support the enterprise. Those practices include a focus on internal systems, business processes, data quality, and data security. All of the factors will impact the quality and value of agency participation in the integration environment. When considering the gaps between current business capabilities and future requirements,[3] the following categories are used as descriptors:

- *Function* – The agency business practice.
- *Current* – The current status of the business practice.
- *Target* – The business practice state required to support CISS.
- *Gap Description* – A comparison of current business practices to required business practices.

A visual approximation of the gap between the current and future states is depicted by a color code for each listed function. the overall gaps examined were classified as minor (green), moderate (yellow), and significant (red). the colors represent the following gap statuses:

	Minor Gap	A minor gap exists between current practices and future requirements.
	Moderate Gap	Some required business practices are in place.
	Significant Gap	Few or no required business practices are in place.

The most significant business gaps are in the areas of staffing, complete agency information solutions, and data-sharing policies. Moderate gaps exist in justice agency business processes and agency participation in the CISS initiative. As a result, justice agency needs for accurate, timely, and complete information are not being met. The following table describes the justice agency business gaps:

[3] It is recognized that there is significant variability between individual agency business practices; this seeks to provide a cumulative overview.

	Function	Current / Target	Gap Description
	Agency Processes	Limited analysis of internal business processes. Thorough documentation of business processes.	The Department of Correction (DOC), Department of Motor Vehicles (DMV), and Division of Criminal Justice (DCJ) have undertaken detailed business process analyses. It is necessary that the remainder of the justice agencies conduct business process analyses to support CISS.
	Agency Information Needs	Agency information needs are not being met. Agencies will be able to seamlessly acquire any needed information.	There is a substantial amount of justice system information that is not readily available to the respective justice agencies. The CISS environment will make that information available.
	Agency Participation	Passive agency participa-tion. Active agency participation.	All justice agencies participate in the CISS program through periodic meetings. Agency participation must become more active in the development of CISS with regard to enterprise business development and CISS implementation.
	Agency Staffing	Agencies do not have sufficient available staff time to support the CISS program. Sufficient staff to support agency project manage-ment and technical and business implementation tasks.	Agency staff required to manage and support the CISS program have not been allocated. Existing staff will not be sufficient to provide a substantial time commitment due to other job responsibili-ties.
	Complete Agency Solutions	Agency solutions not in place. All justice agencies acquire records management solutions compatible with CISS.	Three agencies do not have records management solutions. Other agencies have applications that would be difficult to support in the CISS environment.
	Agency Data-Sharing Policies	Limited policies in place. All justice agencies have an information-sharing policy.	All agencies must define and promulgate information-sharing policies to support CISS.

	Function	Current / Target	Gap Description
	Complete, Accurate, and Timely Information	Varied policies and practices in place.	Current agency standards for maintaining accurate and timely information vary. The integrated justice solution will provide an environment that improves the accuracy and completeness of information and enables the timely availability of that information to the system users. To do so, individual agency data must be accurate.
		Uniform policies and practices regarding data standards.	

In order to support the CISS environment and subsequently address the information needs of the justice agencies, the gaps in justice agency business functions must be reduced.

B. CISS Business Functions

CISS business functions represent the oversight, coordination, and governance to be provided to the overall CISS program. Some of the specific components of the CISS business model are already in place; however, the implementation of CISS will require an expansion of business and support functions. Significant gaps exist in the areas of enterprise business processes, CISS staffing, system standards, and enterprise data-sharing policies. There are moderate gaps in other CISS business functions that need to be addressed. There is a minimal gap with respect to CISS governance, as the governance structure is already in place. The following table describes the gaps between the current CJIS environment and the requirements of the CISS environment:

	Function	Baseline / Target	Gap Description
	Governance	Structure in place.	An adequate governance model is in place. More activity on the part of the existing committees will be necessary to address policy, budget, and CISS implementation issues.
		Higher activity level.	
	Enterprise Processes	Limited processes in place.	Limited business processes for the administration of Offender-Based Tracking System (OBTS) are in place, but they will not support the CISS environment.
		Processes needed to support CISS.	
	CISS Staffing	The CISS program has no support staff.	Staff for the CISS program have not been designated. The To-Be Busi-

	Function	Baseline / Target	Gap Description
		Sufficient staff to support applications, infrastructure, and project management.	ness/Logical Model report defines staffing needs.
	Enterprise Data-Sharing Policies	No enterprise policy in place. / Comprehensive enterprise information-sharing policy.	Information-sharing policies are now communicated through OBTS training. The CJIS Governing Board Administrative Committee should develop enterprise-wide policies.
	System Boundaries	System boundaries are not well defined. / Detailed policy on CISS boundaries.	System participation by agency is well defined. Further definition regarding peripheral applications such as AFIS is required.
	JIEM Maintenance	No process in place. / Detailed processes required.	Limited data exchange reviews are conducted at this time. The CJIS Implementation Committee is tasked with a yearly update. A detailed process will be required.
	System Standards	Limited standards in place. / Detailed CISS system standards.	CJIS system standards are limited. The Technology Committee should establish and maintain CISS system standards.
	Justice Partner Coordination	Limited coordination through governing board. / Policy defining specific agency roles and responsibilities.	Agency coordination is now managed through a loosely structured meeting process. Defining agency roles, responsibilities, and tasks will be necessary.

The gaps in CISS business functions are predictable, as CISS implementation has not begun. A solid governance function has been put in place as a predecessor to CISS implementation, and it will support the development and maintenance of the CISS program. The next section of the report describes the functional gaps between the current and anticipated future integration environment.

IV. Functional Gaps

IV. Functional Gaps

This section describes the functional gaps between the current CJIS environment and the future CISS environment. The desired functionality of CISS was arrived at by comparing the current CJIS environment with the integration goals and objectives of the justice partners. The following table summarizes the results of the functional gap analysis:

Functional Needs	Gaps														
	Significant					Moderate					Minor				
Data-Sharing Capability															
Integration															
LAW Data Availability															
Data Accuracy															
Timeliness															
Availability															
Paper Exchanges															
Reduced Complexity															
Real-Time Data Capture															
Access to All Systems															
Data-Mining Capability															
Global Searches															
Subscription and Notification															
Dynamic Configuration of Data Exchanges															

Most of the functional gaps depicted in the table are significant. Given that the CJIS Governing Board had already identified a need to improve information sharing among the justice partners, this assessment is not unexpected. The integration environment described in the To-Be Business/Logical Model will directly address and reduce the gaps.

Eleven significant functional gaps have been identified. Each gap component is related to the lack of the current integration capabilities, the volume of paper data exchanges, and electronic data resources that are not available. Each component has already been identified as a critical capability in the new CISS environment. The following table describes each functional need in detail:

	Component	Current / Target	Gap Description
	Data-Sharing Capability	Current: Data-sharing capability through OBTS and manual exchange of forms. Target: All pertinent justice data available electronically.	OBTS is a query-only solution that contains a subset of justice system data, over 80% of which comes from the Connecticut Judicial Branch (JUD). Most justice data is exchanged using paper-based processes. The target solution will enable comprehensive data sharing between justice agencies.
	Integration	Current: No data integration. Target: The availability of full data integration within justice agency applications.	The ability to populate agency applications with data from other agency systems does not exist. The target solution will allow for the integration of data among justice agencies.
	LAW Data Availability	Current: Limited data available electronically. Target: Full access to LAW data through CISS.	Most LAW data is currently provided to justice agencies through paper transactions. The target solution leverages extensive LAW data by providing it to other justice agencies electronically.
	Data Accuracy	Current: Compromised accuracy. Target: High percentage of accurate data.	Most data inaccuracies are the result of the rekeying of information and different business rules in the various justice agencies. The target solution will reduce the rekeying of information. New business rules will reduce the data inaccuracy though the consistent entry of information by the justice agencies.
	Timeliness	Current: Paper-based exchanges slow information exchanges. Target: Justice information available in real time and on demand.	The volume of paper-based transactions slows justice system processes. The target solution will create the instant availability of justice system data.
	Availability	Current: Most data is only available through paper exchanges or OBTS. Target: All justice data available through the CISS portal or integration with agency applications.	OBTS contains a limited subset of justice system data, and information contained in paper forms is not readily available. The target solution will make all justice system information available to the justice agencies.
	Paper Exchanges	Current: Most data exchanges are paper-based. Target: Substantial reduction in paper exchanges.	Most justice agency data exchanges are paper-based. The target solution will substantially reduce the number of paper-based exchanges.

	Component	Current / Target	Gap Description
	Reduced Complexity	Exchange processes are complex. / Transparent electronic data exchanges.	Paper-based data exchanges are complex in that they rely heavily on personal relationships and processes that evolved over time rather than being designed systematically. The target solution will provide systematic and transparent access to justice agency data.
	Real-Time Data Capture	No electronic data is captured at point of the justice system event. / Justice system data electronically captured at the initiation of a justice system event.	Justice system events are primarily captured on paper upon initiation. Justice system events are generally initiated by LAW. The target solution would capture data at the time of event initiation and make the data available to other justice agencies for integration and data exchange.
	Access to All Systems	No global access to justice agency systems. / Transparent access to all justice agency systems.	There is no direct application-to-application or application-to-data repository access for justice system users. The target solution would provide access to all justice system data through the respective agency applications.
	Data-Mining Capability	No data-mining capabilities. / Ability to mine data in data repository.	There is no ability to mine data in the data repository at this time. The target solution would enable that ability, as well as facilitate limited data mining of other agency databases.
	Global Searches	No global search capability. / Ability to conduct a global search of all justice systems from one application.	There is no capability to conduct global searches at this time. The target solution would enable global searches of a data repository and agency applications.
	Subscription and Notification	No subscription and notification. / Ability to subscribe and be notified of justice system events across the enterprise.	There are no subscription and notification capabilities at this time. The target solution would allow justice system users to subscribe to receive notifications of specific justice system events.
	Dynamic Configuration of Data Exchanges	No dynamic configuration of data exchanges. / Ability to dynamically configure electronic data exchanges.	Most data exchanges are now paper-based, and the processes that support them are sometimes not documented. The target solution would allow rapid configuration of data exchanges based on need and within system policies.

These functional capabilities are critical to the justice agencies, and the ability of their applications to support the new functional capabilities is crucial. Those applications are discussed in the next section of this report.

V. Application Gaps

V. Application Gaps

The application gaps described in this section represent the differences between the current CJIS environment and the future standards, quality, presentation, and performance requirements of the CISS environment. This section describes the following areas of gaps in the CISS application environment:

- *Application Standards* – Gaps in standards compliance by the applications that will comprise the CISS.
- *Data Quality and Currency* – Gaps in data quality and currency for the primary application databases of the future CISS environment.
- *End-User Interfaces and Presentation* – Gaps in the current interfaces and future information-access methodologies for the end-users in the future CISS environment.
- *Application Performance Metrics* – Gaps in current and future application performance and metrics for the future CISS environment.

The table below provides an overview of the gap assessments conducted for applications. Each application is discussed in more detail later in this section.

Application Standards	Gaps														
	Significant					Moderate					Minor				
OBTS															
Connecticut Impaired Driving Records Information System (CIDRIS)															
Criminal Motor Vehicle System (CRMVS), Paperless Re-Arrest Warrant Network (PRAWN), Protective Order Registry (POR), and Case Management Information System (CMIS)															
AFIS															
Remaining In-House Applications															
Remaining Vendor Applications															
Data Quality and Currency	**Gaps**														
	Significant					**Moderate**					**Minor**				
OBTS															
Master Name Index (MNI)/Computerized Criminal History (CCH) and Sex Offender Registry (SOR)															
Remaining In-House Applications															
Remaining Vendor Applications															

End-User Interfaces and Presentation	Gaps														
	Significant					Moderate					Minor				
OBTS, Connecticut On-Line Law Enforcement Communications Teleproc-essing (COLLECT), PRAWN, POR, and CRMVS															
Remaining In-House Applications															
Remaining Vendor Applications															

Application Performance Metrics	Gaps														
	Significant					Moderate					Minor				
In-House-Supported Applications															
Vendor-Supported Applications															

Each specific criterion contained in the category of application standards is discussed in the next section.

A. Application Standards

Significant and moderate gaps exist in current application standards, all of which are related to the ability to make existing applications National Information Exchange Model (NIEM) -compliant. The following table describes gaps in standards compliance in the operational applications that will comprise the CISS:

	Application	Current / Target	Gap Description
	OBTS	Global Justice XML Data Model (GJXDM) 3.0. Conformance with NIEM.	Moderate application modifications will need to be made to either bring entire application into compliance or develop NIEM-compliant exchanges with the CISS broker/environment.
	CIDRIS	NIEM 2.0. JRA (Web services). Global Federated Identity and Privilege Management (GFIPM) (interfaces). Conformance with NIEM.	Application currently being developed in compliance with NIEM 2.0.

	Application	Current / Target	Gap Description
	CRMVS, PRAWN, POR, CMIS	GJXDM. / Conformance with NIEM.	Moderate modifications to these applications will need to be made to either bring the entire application into compliance or develop NIEM-compliant exchanges with the CISS broker/ environment.
	AFIS	EFTS – vendor-supported. / Conformance with NIEM.	Moderate modifications to this application will need to be made by the AFIS vendor to either bring the entire application into compliance with NIEM or develop NIEM-compliant exchanges with the CISS broker/environment.
	Remaining In-House Applications[4]	In-house-supported – no or unknown current standard inherent to the application. / Conformance with NIEM.	Significant modifications to these applications/files will need to be made using in-house DOIT staff to either bring the entire application into compliance, or develop NIEM-compliant exchanges with the CISS broker/environment. It can be anticipated that the costs of these modifications will be high in terms of staff.
	Remaining Vendor Applications[5]	Vendor-supported – no or unknown current standard inherent to application. / Conformance with NIEM. / Conformance with NIEM.	Significant modifications to these applications will need to be made through requests or change orders with the supplying vendor to either bring the entire application into compliance or develop NIEM-compliant exchanges with the CISS broker/environment. It is anticipated that the costs of these modifications will be high both in terms of cost for changes, as well as scheduling and completion.

The key gaps described in this subsection will be with the process, resources, and costs involved in bringing both the in-house-supported and the vendor-supported applications in compliance with NIEM in order to facilitate the efficient exchange of data.

---

[4] They are: COLLECT, MNI/CCH, Offender-Based Information System (OBIS), Parole Case Notes, License and Operator Control, Registration and Title, Motorboats, Handicap Stickers, Internet Renewal, CRMVS, PRAWN, POR, CIB, Statute File, CMIS, and Violation of Probation (VOP).

[5] They are: Weapons, SOR, Live-Scan Interface, Enhanced 911 (E-911), Public Safety Data Services Network (PSDSN), NexGen, RMS, and Regional E-911.

B. Data Quality and Currency

This subsection examines three applications that have reported or potential data issues due largely to their reliance on interfaces from other applications to push and update information available to the end-users and stakeholders. The following table describes the gaps in data quality and currency for the future CISS environment:

	Application	Current Target	Gap Description
	OBTS	Over 80% of OBTS records are from JUD. Sizeable portion of statewide records sent or updated in timely fashion. Complete, accurate, and timely exchange of all relative CISS data elements to completely populate the OBTS database.	Though the track record in recent years/months has improved, it is generally accepted that not all pertinent criminal justice records are sent to OBTS in a timely fashion. There is also a great concern that updates to resident records are not sent or received from the source agencies. Robust exchanges need to be developed that address populating OBTS from the source systems and ensuring updates to these records are received in a timely way.
	MNI/CCH and SOR	Data from AFIS is not immediately and directly exchanged with the database for these applications. Complete, accurate, and timely exchange of all relative arrest, charge, and demographic data elements with both applications.	No audits have recently been conducted on either application database; however, there is concern that data from AFIS is not directly exchanged with these applications in a timely way. Robust exchanges need to be developed that address populating these from the AFIS directly to ensure complete, accurate, and timely information for initial decision makers.
	Remaining In-House Applications[6]	The quality and currency of data for each of these applications appear appropriate within the specific database. Complete, accurate, and timely exchange of all relative CISS data elements to completely populate the database of each of these in-house-supported applications.	No audits have been recently conducted on the database for each of these applications to test quality and timeliness. Robust exchanges need to be developed between these applications or with the CISS broker/environment to ensure the availability of complete, accurate, and timely information for decision makers.

[6] They are: COLLECT, OBIS, Parole Case Notes, License and Operator Control, Registration and Title, Motorboats, Handicap Stickers, Internet Renewal, CRMVS, PRAWN, POR, CIB, Statute File, CMIS, and VOP.

	Application	Current / Target	Gap Description
	Remaining Vendor Applications[7]	The quality and currency of data for each of these applications appear appropriate within the specific database.	No audits have been recently conducted on the database for each of these applications to test quality and timeliness. Robust exchanges need to be developed between these applications or with the CISS broker/environment to ensure the availability of complete, accurate, and timely information for decision makers.
		Complete, accurate, and timely exchange of all relative CISS data elements to completely populate the database for each of these vendor-supported applications.	

The key gaps in this area identify the need to develop robust exchanges between the partner applications in order to maintain complete, accurate, and timely information for decision makers across the CISS enterprise.

C. End-User Interfaces and Presentation

The table below outlines considerations of potential gaps in end-user interfaces and presentation for the future CISS environment. This subsection includes the five primary applications that have end-user interfaces which support access to multiple applications from a single presentation, with the remaining applications categorized as either in-house-supported or vendor-supported.

	Application	Current / Target	Gap Description
	OBTS, COLLECT, CRMVS, PRAWN, and POR	User interface that provides access to multiple applications, in addition to the primary application.	These current applications support multifunctional inquiries to other applications/data files from the primary application, as well as transparent queries spawned to other applications/systems as the result of a primary application inquiry. Adopt a universal user presentation (based on user authorizations) with access to all applicable and related applications, and/or support transparent data access and exchanges from the user presentation with all available application data.
		A robust universal user presentation that provides user access to all related applications, or supports transparent data queries or import of related data.	

[7] They are: CIDRIS, AFIS, Weapons, Live-Scan Interface, E-911, PSDSN, NexGen, RMS, and Regional E-911.

	Application	Current / Target	Gap Description
	Remaining In-House Applications[8]	Application user interface provides access to only the primary application.	These in-house-supported applications provide access only to the primary application. Adopt a universal user presentation (based on user authorizations) with access to all applicable and related applications, and/or support transparent data access and exchanges from the user presentation with all available application data.
		A robust universal user presentation that provides user access to all related applications, or supports transparent data queries or import of related data.	
	Remaining Vendor Applications[9]	Application user interface provides access to only the primary application.	These vendor-supported applications provide access only to the primary application. Adopt a universal user presentation (based on user authorizations) with access to all applicable and related applications, and/or support transparent data access and exchanges from the user presentation with all available application data.
		A robust universal user presentation that provides user access to all related applications, or supports transparent data queries or import of related data.	

The key gaps in this area highlight the need to identify the core mechanisms for providing access to CISS data – a universal presentation or transparent data queries/exchanges.

D. Application Performance Metrics

There is very little baseline data with regard to system performance metrics. The table below describes considerations of potential gaps in application performance and metrics for the future CISS environment. This subsection includes all applications categorized as either in-house-supported or vendor-supported.

	Application	Current / Target	Gap Description
	In-House Applications[10]	Current in-house-supported applications operate in the DOIT data center which is responsible for maintaining acceptable and necessary service performance levels.	Comprehensive service level agreements (SLAs) with DOIT (and its vendors) are required in order to maintain and support the CISS operating environment.

[8] They are: MNI/CCH, OBIS, Parole Case Notes, License and Operator Control, Registration and Title, Motorboats, Handicap Stickers, Internet Renewal, CIB, Statute File, CMIS, and VOP.

[9] They are: CIDRIS, AFIS, Weapons, SOR, Live-Scan Interface, E-911, PSDSN, NexGen, RMS, and Regional E-911.

	Application	Current / Target	Gap Description
		In-house support of an application and system environment which ensures mission-critical and continuous operations that support timely application and data exchange performance.	
	Vendor-Supported Applications[11]	Current vendor-supported applications operate under typical service agreements that specify acceptable and necessary service performance levels.	Comprehensive SLAs with each of the applicable vendors are required in order to maintain and support the CISS operating environment.
		Vendor support of an application and system environment which ensures mission-critical and continuous operations that support timely application and data exchange performance.	

Application performance metrics will be necessary in the CISS environment to provide quality control and optimum performance of all justice agency systems.

Existing and new applications will be supported in the DOIT and/or CISS technology environment. A comparison of the current and future technologies is presented in the next section of this report.

[10] They are: COLLECT, MNI/CCH, OBIS, Parole Case Notes, License and Operator Control, Registration and Title, Motorboats, Handicap Stickers, Internet Renewal, CRMVS, PRAWN, POR, CIB, Statute File, CMIS, and VOP.

[11] They are: OBTS, CIDRIS, AFIS, Weapons, SOR, Live-Scan Interface, E-911, PSDSN, NexGen, RMS, and Regional E-911.

VI. Technology Gaps

VI. Technology Gaps

The technology gaps described in this section represent the differences between the current CJIS technology environment and the architectures, standards, systems, and technical processes that will be required to support the CISS environment. This section describes the following areas of gaps in the CISS technology environment:

- *Architecture and Standards* – Gaps in the development of an enterprise architecture and standards for the CISS.
- *Integration and Publication* – Gaps in the design, implementation, and maintenance of CISS integration and publication components, such as messaging, routing and transformation services, and content management. This area includes justice integration technologies such as a master index and identification services.
- *Network and Security* – Gaps in the design, implementation, and maintenance of CISS network and security components including local area networks (LANs) and wide area networks (WANs) and physical and network security.
- *Platforms and Hosting* – Gaps in the design, implementation, and maintenance of CISS hardware and operating system platforms and data centers.
- *Support* – Gaps in staffing and support for CISS applications and infrastructure.

The table below provides an overview of the gap assessments conducted for technology. Each technology criterion is discussed in greater detail later in this section.

Architecture and Standards	Gaps		
	Significant	Moderate	Minor
Business Architecture			
Services Architecture			
Application Architecture			
Data Architecture			
Infrastructure Architecture			
System Development Methodologies			
Integration and Publication	**Gaps**		
	Significant	**Moderate**	**Minor**
Content Management			
Messaging, Routing, and Transformation Services			

Integration and Publication	Gaps		
	Significant	Moderate	Minor
Work Flow/Business Process Management (BPM) Services			
Portal			
Master Index			
Identification Services			
Data Repositories			
Network and Security	**Gaps**		
	Significant	**Moderate**	**Minor**
LAN			
WAN			
Data Center Security			
Network Security			
Application Security			
Platforms and Hosting	**Gaps**		
	Significant	**Moderate**	**Minor**
Server Platforms			
Web Servers			
Application Servers			
Primary Data Center			
Secondary Data Center			
Support	**Gaps**		
	Significant	**Moderate**	**Minor**
Infrastructure Support			
Application Support			

There are moderate to significant gaps in most technology criteria. A detailed description of those criteria is provided in the next subsections of this report.

A. Architecture and Standards

Moderate to significant gaps were identified in all but one area related to architecture and standards. The key gaps in the area of architecture and standards are the development of business and services architectures for all CISS lines of business (LOBs) and systems. A minimal gap was identified for infrastructure architecture, as Connecticut's enterprise-wide

technical architecture (EWTA) provides a sufficient basis for the CISS infrastructure architecture.

The following table describes gaps in the development of enterprise architecture and standards for the CISS:

	Component	Current / Target	Gap Description
	Business Architecture	Current: Limited analysis of CJIS use cases and functional requirements. Target: Comprehensive use cases and functional requirements for all CISS LOBs.	Only DOC, DMV, and DCJ have documented business processes, a prerequisite for an understanding of use cases and functional requirements. Even these agencies have limited understanding of their use cases and functional requirements.
	Services Architecture	Current: OBTS message-based integration through IBM WebSphere MQ. Target: Common architecture for interoperability and reusability of services between CISS service providers and consumers compatible with the JRA.	Web services and portal standards have been developed but are not widely implemented. CIDRIS will be the first CISS application of service-oriented architecture (SOA), including conformance with Web services and interface standards recommended by the JRA such as Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), and NIEM.
	Application Architecture	Current: Common OBTS and CIDRIS design to support reuse of application components. Target: Common architecture for mapping functional requirements and services onto CISS application components to promote reuse.	In the target SOA environment, applications will consist of dedicated LOB solutions and combinations of reusable automated services based on business functions that share data resources and interoperate as required.
	Data Architecture	Current: Conformance of OBTS interfaces with GJXDM 3.0. Target: CISS enterprise data model and vocabulary compatible with NIEM 2.0 by all CISS applications.	Integration standards are established, and some developed applications have minimally adopted GJXDM. In the target environment, data repositories will be less monolithic and decoupled from applications. Data sources will be shared resources for both shared services and LOB applications in an SOA. Information exchanges between new applications will conform to NIEM 2.0.

	Component	Current / Target	Gap Description
	Infrastructure Architecture	EWTA defines platform standards.	The EWTA provides a sufficient basis for the future CISS infrastructure architecture.
		Common CISS architecture for networking and security and platforms.	
	System Development Methodologies	Java, .NET/ASP, COBOL/ Customer Information Control System (CICS), Lotus Notes, Virtual Memory System (VMS).	DOIT defines a System Development Methodology (SDM) for project management of application development and testing, but specific tools used during development depend upon the application.
		Standard processes and tools for the development and testing of all CISS applications.	

These gaps will be significantly reduced through the implementation of the recommendations contained in the To-Be Business/Logical Model report.

B. Integration and Publication

Moderate to significant gaps were identified in integration and publication services. The key gaps in this area include content management for all CISS LOBs and a lack of existing work flows/BPM services The table below describes gaps in the design, implementation, and maintenance of CISS integration and publication components, such as messaging, routing and transformation services, and content management. This area includes justice integration technologies such as a master index and identification services.

The following table describes gaps in integration and publication services:

	Component	Current / Target	Gap Description
	Content Management	Filenet (Centralized Infractions Bureau [CIB]).	Enterprise Content Management (ECM) services will be a key enabler of the migration from paper to electronic records. The target CISS environment will support a comprehensive set of ECM tools, including imaging (scanning), document management services, content indexing, and storage and retrieval services for other types of electronic content, such as XML-based information.
		At a minimum, all CISS LOBs will have content management capabilities. Ideally, CISS content management services will be shared.	

	Component	Current / Target	Gap Description
	Messaging, Routing, and Transformation Services	Current: WebSphere MQ Series, XML Transformation Engine (OBTS). Target: An Enterprise Service Bus (ESB) and Web service infrastructure.	WebSphere MQ Series has become the de facto messaging and routing technology but is not strictly compliant with Web services and SOA standards. The CIDRIS Message Resource Manager Engine, currently in development, may provide a good basis for future NIEM-compliant transformations.
	Work Flow/BPM Services	Current: No current work flow or BPM tools. Target: A common set of work flow and BPM services.	Work flow and BPM services enable customization and adaptability of information systems to support changing business processes. Work flow services typically support document-centric processes while BPM supports other integrated processes. They promote business effectiveness, efficiency, and integration with technology and are supported by standards such as Business Process Modeling Notation (BPMN) and Web Services Business Process Execution Language (WSBPEL). The critical aspect of these technologies is the ability to facilitate the design and modeling of business processes by business staff and the subsequent automation of those processes as services in an SOA.
	Portal	Current: Cimbrian Dynamic Site Framework (DSF). Target: A common portal for all CISS applications.	The portal will allow query capabilities that are primarily used to search for information in the justice community. Most queries will be a search of the index, but the CISS environment will also provide two-staged queries that obtain information (as authorized) from agency solutions. The current portal may not support the range of CISS applications.
	Master Index	Current: Name3 MNI (OBTS). Target: Master indexes for person, event, identification, and property.	The master indexes will support the CISS integration and inquiry environments. The current MNI does not support indexes for event, identification, and property.

	Component	Current / Target	Gap Description
	Identification Services	Cogent AFIS.	The AFIS and Live-Scan systems meet the requirements of a statewide fingerprint-based identification system. A regional mug shot system is currently being deployed in the Hartford region, but there are no current plans for a statewide system for sharing booking photos.
		Fingerprint and photo-graphic identification systems conformant with FBI and American Association of Motor Vehicle Administrators (AAMVA) standards.	
	Data Repositories	Databases: Oracle9*i*, Oracle 11, SQL Server, DB2, Virtual Storage Access Method (VSAM), Lotus Notes/Domino, flat files, Microsoft (MS) Access. Data warehouse: OBTS; no metadata repository.	It is expected that OBTS will become the CISS data warehouse and will then transform as other capabilities in the CISS environment replace OBTS functions. The CISS metadata repository will support the organization and maintenance of the CISS environment.
		Conformance of databases with EWTA, standards for the storage of data in a common CISS warehouse, and a metadata repository.	

The reduction of integration and publication gaps is a critical goal for the future CISS environment. The integration and publication component forms the foundation of the CISS environment, and the other components are critical to the implementation of a comprehensive integration environment.

C. Network and Security

Moderate to significant gaps were identified in the network and security components. The key gap in this area is application-level security, especially federated identify management.

The following table describes gaps in the design, implementation, and maintenance of CISS network and security components, including LANs and WANs and physical and network security:

	Component	Current / Target	Gap Description
	LAN	Data center: TCP/IP, 10 Gigabit (Gb) Ethernet; DOC: 100Mb/1 Gb Ethernet; JUD: 1 Gb Ethernet.	The network is sufficiently positioned to continue to provide the capacity and throughput demands of a future, more robust data exchange environment of the planned CISS.
		1 Gb Ethernet LANs.	
	WAN	DOIT WAN: frame relay, Asynchronous Transfer Mode (ATM) OC3, T1 to FBI and Nlets – the International Justice & Public Safety Information Sharing Network. Hartford: 1 Gb Course Wavelength Division Multiplexing (CWDM), 10 Gb to armory and data center. DOC: OC3/T1, OC3 to data center. Department of Public Safety (DPS): 5 Mbps ATM.	The network, as a whole, has an existing capacity that exceeds the current demands of the agencies' system and application data exchange needs in the existing technical environment. The most constrained part of the current network topology is the T1 connections, which are reported as in the process of being upgraded to ATM OC3 connections. The Connecticut network has more than sufficient capacity and is well positioned to continue to provide the capacity and throughput demands of a future, more robust data exchange environment of any planned CJIS. This would include the use of fiber optics via the PSDSN.
		Two strands of PSDSN fiber for added/future CJIS data; two strands fiber for pictures, voice, and video; and one strand for business continuity/disaster recovery capacity.	
	Data Center Security	Compliance with FBI Criminal Justice Information Services Security Policy.	While the DOIT data center provides good reliability, it may not provide sufficient separation of CJIS systems from non-CJIS systems.
		Compliance with FBI Criminal Justice Information Services Security Policy.	
	Network Security	Internet, CJIS, and Web-hosting firewalls, multiple demilitarized zones (DMZs). Hardware network encryption, some applications using Secure Sockets Layer (SSL).	FBI CJIS security policies are updated periodically to include new and additional safeguards in response to emerging technologies. While the combination of firewalls, network encryption, and application-level encryption provides a good basis for network security, the addition of intrusion prevention systems and other controls will likely be needed to comply with current and future CJIS security policies.
		Compliance with FBI Criminal Justice Information Services Security Policy.	

	Component	Current / Target	Gap Description
	Application Security	Novell eDirectory, Active Directory.	The current directory systems and applications do not address the requirements of federated identity management. Future applications will need to migrate to a GFIPM-based security model.
		Conformance with GFIPM identity-management specifications.	

The network and security gaps will be reduced in the CISS environment. Federated identity management and compliance with FBI security policies are mandatory, as the CISS integration and data exchange goals cannot be achieved without a successful implementation of identity management and the FBI's security policy compliance.

D. Platforms and Hosting

Moderate to significant gaps were identified with regard to platforms and hosting. The key gaps in this area include compatibility of CISS Web and application servers with the EWTA and the need for a secondary data center to provide failover capabilities.

The following table describes gaps in the design, implementation, and maintenance of CISS hardware and operating system platforms and data centers:

	Component	Current / Target	Gap Description
	Server Platforms	Sun Solaris, IBM z server, Windows server, Virtual Address Extension (VAX)/Alpha.	DOIT and JUD data centers support and maintain most of the required range and age of platforms needed by the constituent applications. While several JUD applications are hosted on VAX/Alpha systems that are not consistent with the EWTA, support for these applications is currently outside the scope of CISS, and the JUD is in the process of migrating these applications to Windows server platforms.
		Conformance with EWTA Platform Domain Technical Architecture.	
	Web Servers	Apache, Internet Information Services (IIS) 6.0.	The EWTA Web E-Government Domain Technical Architecture was published in 2003 and is in need of an update. The current architecture is focused on WebSphere, Adobe, and Dreamweaver publishing systems. Apache and IIS are not identified as strategic Web servers.
		Conformance with updated EWTA Web E-Government Domain Technical Architecture.	

	Component	Current / Target	Gap Description
	Application Servers	Current: Oracle 9AS (OBTS). Target: Conformance with EWTA.	The EWTA Web E-Government Domain Technical Architecture was published in 2003 and is in need of an update. The current architecture is focused on WebSphere, Adobe, and Dreamweaver publishing systems. Oracle 9AS is not currently identified as a strategic application server.
	Primary Data Center	Current: DOIT data center. Target: A data center that will scale to meet the needs of CJIS for the next 5 to 10 years.	The DOIT data center was designed in 2001. The power and Heating, Ventilation, and Air-Conditioning (HVAC) requirements of the high-density servers (such as blade systems) in use today were not part of the original plans. It is assumed that the current technology environment will grow to fill the current 16 data center racks reserved for these agencies and applications. Additional racks are likely to be necessary, as a planned non-CJIS project that requires at least 100 new servers will fill or exceed the remaining data center capacity. DOIT has contracted for a 3- to 5-year data center plan that is expected to be completed in the next few months.
	Secondary Data Center	Current: No current hot site. Target: A redundant data center that will support failover of critical applications in the complete failure of the primary data center.	A second data center to be located more than 10 miles away is under considera-tion. The new data center will support both disaster recovery (e.g., hot site, cold site) and high-availability (e.g., failover, active load balancing) requirements. However, it will be years before the new data center is available.

The CISS environment will consist of many mission critical applications and data exchanges, requiring reliable application platforms and redundancy. The platform and hosting components gaps will be reduced in the CISS environment.

E. Support

The gaps in both infrastructure and application support capabilities are significant. The following table describes gaps in staffing and support for CISS applications and infrastruc-ture:

	Component	Current / Target	Gap Description
	Infrastructure Support	DOIT currently provides infrastructure support.	While DOIT provides infrastructure support to CJIS, the CJIS office has no staff dedicated to supporting the CJIS infrastructure. A dedicated CISS Infrastructure Support Team (IST) should be created and the knowledge necessary to support OBTS and future CISS infrastructure should be transferred to the IST.
		A support organization to support CISS hardware, operating systems, and machine-level applications.	
	Application Support	OBTS is supported by six DOIT staff members who also support other applications. All CIDRIS application support and 50% of OBTS support is provided by a contractor.	While DOIT provides some application support to OBTS, the CJIS office has no staff dedicated to supporting CJIS applications. A dedicated CISS Application Support Team (AST) should be created and the knowledge necessary to support OBTS and future CISS applications should be transferred to the AST.
		A support organization to support CISS software applications.	

Both support areas are significant gaps in the current environment and will be addressed by the creation of the IST and AST described in the CJIS To-Be Business/Logical Model.

* * * * * *

The gap between the CJIS technology environment and the proposed CISS technology environment is substantial. Effort and resources need to be applied to all technology areas; however, the gap analysis identifies which technology areas require the most critical and immediate attention.

VII. Strategic Issues and Recommendations

VII. Strategic Issues and Recommendations

The goal of the CISS program is to deliver the optimal solution for the state. This is a complex mix of building and enhancing CJIS community services, such as CISS, as well as ensuring agency applications are improved and modernized. It is important to remember this mixture of improvements, as CISS must be prioritized so it is started and solidly under way before agency applications are replaced. This is essential to prevent revisions and increased costs throughout the life of the CISS program and for agency application replacement efforts.

In addition to the core challenge discussed above, this section presents the strategic issues that are the CISS program's central challenges. The resolution of strategic issues will be necessary if the CISS program is to be successful. Through the course of the CJIS Blueprint Project, several strategic issues were identified. Most were identified as constraints in the To-Be Business/Logical Model report. The following table highlights the issues detailed in this section:

Strategic Issue	Issue Description ***Recommendation***
Program Scope	The scope of the CISS program is not defined. The scope may range from only acquiring the portal and messaging solution to providing for or replacing agency solutions.
	Evaluate scope and budget options. Specific recommendations regarding agency applications that should be in the scope are discussed later in this section.
Program Management	The CISS program has leadership but does not have dedicated program and project management.
	Identify the minimal necessary elements and implement a Program Management Office (PMO) for CISS.
Project Prioritization and Sequencing	Implementation priorities and sequencing of individual projects have not yet been considered for CISS.
	Prioritize project sequence as soon as program scope is established.
Program Funding	Funding for CISS is unclear, and funding requirements are tied to the project scope.
	Develop scope recommendations with approximate order-of-magnitude budget estimates and then submit the recommendations to the CJIS Governing Board.
Lack of Agency Case Management Systems	The Office of Victim Advocate (OVA), DCJ, and the Division of Public Defender Services (DPD) do not have case management solutions. In order to participate in and benefit from an information exchange environment, these agencies require a case management system.

Strategic Issue	Issue Description *Recommendation*
	Include the acquisition of OVA, DCJ, and DPD systems in the program scope and budget.
Adaptability of Agency Case Management Systems	Several applications are older solutions and may not perform adequately in an integration environment.[12]
	Include the enhancement or replacement of older[13] systems in the program scope and budget. Coordinate the implementation through the CISS PMO.
Agency Staff Time Limitations	Normal workload for agency staff will not allow time to participate in CISS implementation activities.
	Establish agency staffing needs as soon as possible and seek staffing commitments from the justice agencies. Contingency plans for implementation should include the cost for temporary staff augmentation.
LAW Agency Participation	LAW data is a resource for the justice community, and much of it is not available electronically. Disparate LAW system interfaces are difficult to integrate into CISS.
	Define a common LAW information exchange and include the acquisition of the interface supporting the exchange in the CISS budget.
Application and Infrastructure Support	The CJIS program does not have application or infrastructure support resources. Although DOIT can provide the staff, specific business knowledge will be required to support CISS.
	Implement the AST and IST outlined in the To-Be Business/Logical Model.

While the challenges represented by these issues may constrain some aspects of the program, all are manageable. All of the recommendations are related to specific actions discussed in more detail below. The strategic issues and MTG's recommended resolution strategies are described below.

A. Scope and Funding Issues

Scope and funding are parallel concerns. The scope of the project must be determined before funding needs can be identified. The potential scope of the CISS program consists of a wide range of possibilities. Scope options are discussed below.

---

12 DMV and DOC legacy systems are being replaced with enterprise solutions. System implementation should be sequenced wherever possible with the CISS program.

13 CRMVS is a legacy system using dated database technology. A cost-benefit analysis should be conducted to determine whether the system should be maintained or replaced.

1. Program Scope

The To-Be Business/Logical Model report describes an optimum CISS concept of operation. Within the recommendations of the report are a number of agency business and functional needs that go beyond the development of a CISS portal and messaging solution. The scope of the CISS program could include the following:[14]

- *CJIS Portal and Messaging Solution* – The core of the CISS program, this initiative would create the integration environment. Selected data exchanges would be included in the project.
- *Data Repository* – This describes the integration of OBTS into the portal and messaging solution.
- *Application and Infrastructure Support* – The scope of the CISS program will be affected by decisions regarding what agency or business will provide application and infrastructure support.
- *LOB Applications* – This initiative would fund case management systems for DCJ, DPD, and OVA.
- *Justice Agency Application Upgrade/Replacement* – This initiative would provide for upgrade and/or replacement of current aging systems.
- *LAW Records Management Systems (RMSs)* – This initiative would provide a single RMS for all state LAW agencies.

The scope of the program could include a combination of projects beyond the core initiative – the portal and messaging solution.

Recommendation

Decisions regarding the scope of the program are strategic, monetary, and political. A strategic decision-making process regarding program scope should be undertaken immediately. The scope of the program must be established soon, as funding decisions are dependent upon defining the scope of the CISS program.[15] Strategic funding issues are discussed next.

---

[14] Several areas of scope have been identified as strategic issues. They are discussed in more detail later in this section.

[15] Although establishing a project budget and obtaining funding are dependent upon determining project scope, decisions regarding scope cannot be made in a vacuum without cost information. In order to make strategic decision regarding project scope, preliminary budget estimates will be necessary.

2. Program Funding

Like many states, Connecticut has significant budget constraints. Stakeholders have expressed concern that funding will not be available to move the CISS program forward. To maintain project momentum, funding is the primary strategic issue that needs to be resolved, but it cannot be until the scope issues are addressed.

Recommendation

Project scope should be determined as soon as possible, so budget estimates can be compiled and submitted to the CJIS Governing Board for approval. As individual projects within the program are sequenced, program funding can be distributed over several years. As part of the CJIS Blueprint Project, MTG will research the potential for receiving federal funds for the CISS program.

Strategic business issues have an impact on the amount of funding required to complete the CISS program. The specific business issues are discussed next.

B. Business Issues

The strategic business issues are directly related to the availability of data from justice agencies and the necessary staffing to carry out tasks related to the CISS program. It is important to note that the CISS program must be started and solidly under way before addressing the issues described below.

1. Lack of Agency Case Management Systems

In order to participate in a modern, comprehensive integration environment, each justice agency must be able to electronically manage internal processes with an enterprise application and application platform that can accommodate data exchange and integration. The OVA, DCJ, and DPD do not have case management systems in place.

Recommendation

MTG recommends that the acquisition of OVA, DCJ, and DPD applications be included in the project scope and that the agencies begin evaluating their requirements and commercial off-the-shelf (COTS) applications which will meet agency business and functional needs. Simultaneously, priorities and a projection of timeline and sequencing for anticipated projects need to be formulated so budget and development needs can be addressed. The acquisition and implementation of all agency solutions should be coordinated through a CISS PMO. The PMO is discussed later in this section.

2. Adaptability of Agency Case Management Systems

The assessment of current agency applications showed that several applications, particularly CRMVS, continued to function at reduced capability. In order to achieve true

integration, the applications must interface with the integration solution and will require application modification to create the ability to receive and integrate data from the integration environment.

Recommendation

MTG recommends that the replacement or upgrade of CRMVS be considered for inclusion in the scope of the CISS program, both from a budget and a sequencing standpoint. The acquisition and implementation of CRMVS and other agency solutions should be coordinated through a CISS PMO.

3. Agency Staff Time Limitations

Justice agency staff members are already committed full-time to their regular duties. In order to implement CISS, the individual justice agencies will need to dedicate a substantial amount of additional staff time to the project. Along with modifying existing applications and assisting in the implementation of the integration environment, those individuals serving on the various committees of the CJIS Governing Board will spend significant time on policy, funding, and data exchange issues.

Recommendation

After developing staffing need estimates for the justice agencies, the CJIS Governing Board should seek assurances from the justice agencies that they can provide the necessary staff time to support the CISS program, and, where necessary, the board should support the efforts of the justice agencies to fund additional staff.

4. LAW Agency Participation

The RMS and computer-aided dispatch (CAD) systems of LAW agencies are rich in valuable justice system information. For the most part, the information has not been leveraged in Connecticut. Law enforcement agencies are the gateway to the justice system, and conceptually, the data they gather on the street will provide information to the remainder of the justice system. The ability to integrate law enforcement data with the applications of other justice agencies has unlimited potential for process and public safety improvements.

The strategic issues regarding LAW participation are:

- Whether to include LAW data in an integration environment.
- How to include LAW from a technology perspective.
- How to fund the infrastructure and applications necessary to support LAW participation.

The challenge is created by the proliferation of RMS and CAD systems throughout the state. The as-is report identified 99 LAW agencies using 30 different systems serving 8,250 officers. The difficulty in creating an integration environment including LAW agencies is the cost and feasibility of writing interfaces to 30 different applications and providing connectivity to 99 law enforcement agencies.

Recommendation

The Connecticut Police Chiefs Association (CPCA) has proposed the statewide adoption of one RMS system to be used by all state law enforcement agencies. CPCA's expectation is that the state would fund the entire program. The CPCA recommendation is the optimum approach for the state, and the project should be included in the CISS program. The acquisition and implementation of all agency solutions of should be coordinated through a CISS PMO.

C. Application and Infrastructure Support

The CJIS program does not have application or infrastructure support resources. Although DOIT can provide the staff to complete tasks, specific business knowledge will be required to support CISS. The gap between performing technical tasks and understanding the business use and impacts of an enterprise solution like CISS is significant. MTG often observes projects such as this fail because of the lack of support resources with project and business context. This context is not required in all application efforts, but it is required in complex business support applications like CISS.

As pointed out in the To-Be Business/Logical Model report CISS requires two primary support elements: infrastructure (operational) and application support. Specific teams should exist for each area as follows:

- The IST should be a support organization with the skills and experience necessary to install, patch, diagnose, and monitor the hardware, operating systems, and machine-level software applications running CISS.
- The AST should be a support organization with the skills and experience necessary to install, develop, configure, patch, diagnose, and monitor the software applications that implement the business needs running within the CISS environment.

These two support elements provide the technical assistance necessary to ensure that the CISS meets the business needs of the justice community. In addition, both teams should have access to agency business subject matter experts (SMEs) and technical staff when necessary.

Recommendation

The AST and IST outlined in the To-Be Business/Logical Model should be implemented.

D. Implementation Issues

The CISS program is complex. A successful implementation will require a sophisticated acquisition process and dedicated project management for several projects over a long period of time. The timing and sequencing of acquisition and implementation of the various systems will be critical. The management of the CISS program is a strategic issue that is discussed next.

1. Program Management

Structured program management is necessary for the CISS program to be successful. Program management is the process of managing multiple interdependent projects that will lead to completion of the CISS program. While the total scope of the program has not been decided, it will involve multiple projects occurring simultaneously.

Recommendation

The development of the CISS program should begin prior to the acquisition process. Actions would include the designation of the following resources:

- *PMO* – Overseeing the implementation of the entire CISS program, including coordinating and sequencing CISS and agency projects.
- *CISS Project Manager* – Managing the CISS implementation.
- *Agency Project Managers* – Coordinating justice agency involvement during the CISS implementation with the CISS program manager and vendor project managers.
- *CISS Technical Support* – Supporting the technical implementation of the CISS program. Specific technical support positions are described in more detail in the next section of this report.
- *Agency Technical Support* – Coordinating justice agency technical issues during the CISS implementation with CISS project managers.
- *Independent Verification and Validation (IV&V)* – Providing external monitoring of both the PMO and the vendors' efforts. IV&V is used to ensure an unbiased opinion and can mean financial, managerial, and/or technical assessment.

Establishment of the PMO prior to the acquisition of the portal and messaging solution will allow critical personnel to actively participate.

2. Project Prioritization and Sequencing

Within the CISS program, individual projects need to prioritized and sequenced. Deciding which projects are most important to the enterprise affect both budgeting and implementation decisions. Sequencing the individual projects is intended to make sure that the

integration needs of the justice community are addressed first and that completed projects with task independencies and relationships support the overall program.

Recommendation

The development of the portal and messaging solution should come first, including the integration of the OBTS data repository. Once the scope of the project is fully established, the CJIS Governing Board Administrative Committee should be convened to begin the process of project prioritization.

The timely resolution of the strategic issues is important to the success of the project. Strategic decisions that are not made or are not timely will result in a lack of project coordination and a project that does not achieve the vision for the CISS environment. As mentioned above, the CISS program must be started and solidly under way before sequencing other steps in support of CISS and agency needs. Given these concerns, MTG recommends critical steps for beginning the CISS implementation. CISS should implement the following iterative, 6-month steps:

- *The CISS Portal* – The first step of the CISS program is create a enterprise portal that will give access to all CISS resources and information, as well as any agency application that can be delivered via a Web-based portal.
- *CISS Middleware* – Adding a middleware solution to the CISS environment allows information exchanges (several hundred of which have been documented) to be implemented over time in the CISS solution with agency system connections. The middleware provides a central business rule engine to support all of the cross-agency information movement.
- *Enterprise-Wide Security and a Connection to an Agency System* – A key steps is to add enterprise-wide security support so that the CJIS community can move to a single sign-on (SSO) environment. In addition, a new connection to an agency system must be completed to begin to implement a small group of information exchanges.
- *Connections to Two Additional Agency Systems* – By adding two new system connections, CISS will be able to implement another set of information exchanges. Further, the CISS team will be prepared to begin to support agency system improvements when this step is completed. This also marks the transition for CISS from an initial implementation to what should be a fully operational solution delivering significant value to CJIS community.

These steps establish the foundation for continued CISS improvements while agencies begin to connect or replace and connect their systems both to CISS and through CISS to other agency systems. It also allows CISS to support implementation of small incremental groups of information exchanges until all information exchanges are completed.

E. Summary

The strategic issues and recommended actions above are all important; however, four critical areas should be rapidly addressed:

- Development and support.
  - » What will the CISS program include?
  - » Who will support CISS?

    Recommendation: Combination – CISS staff backed up by DOIT.
  - » Will development be contracted or in-house?

    Recommendation: Initially, both.
  - » How much new development should be planned?

    Recommendation: Initially, 2 full-time equivalent (FTE) level.
- Scope.
  - » How much will the CJIS program include?
  - » Will CJIS efforts and costs include connections at the agency?

    Recommendation: Yes.
  - » Will CJIS efforts and costs include agency business changes?

    Recommendation: No, this should be an agency responsibility.
  - » Will CJIS efforts and costs include agency system changes?

    Recommendation: No, this should be an agency responsibility.
- Pace.
  - » What is the pace that will be set to meet the CJIS needs?
  - » Upon what criteria is the pace set?

    Recommendation: Focus on realization of benefits constrained by agency efforts and costs.
  - » What pace should be set?

    Recommendation: Moderate, looking at 6-month milestones.
- Budget.
  - » How much emphasis will be placed on the most economical solution?
  - » Will CISS be the funding priority?

    Recommendation: Yes.
  - » To what extent will CISS design and implementation choices focus on cost?

    Recommendation: Most beneficial then most economical based on total cost and ROI.

In short, all of the actions and decisions are focused on the following elements:

- Have a focused core CISS team.
- Budget for work efforts to complete tasks for the agency interface.
- Be the priority for agencies and coordinated with CISS.
- Have 6-month milestones.
- Be a budget priority.
- Be constrained by economical limits based on TCO and ROI.

Success depends on these elements.

* * * * * *

The gap between the current CJIS environment and proposed CISS environment is considerable. The variance was not unexpected, as Connecticut officials understood the need for improvement when commissioning the CJIS Blueprint Project. The CISS program is an investment in the entire CJIS community. CISS will allow improvements in agency systems and business process, will deliver better functionality than is used today with OBTS, and will expand the visibility of criminal justice information within the state. The investment is essential to prevent tragic events and the atrophy of capabilities that continues to occur as is apparent by the gaps detailed through this report. The gap analysis can serve as a road map as the next stage of the project is initiated. Requirements will be developed that will allow the state to close the gaps and move toward the CISS and realize the effort and monetary investments made through the state's criminal justice system.

Appendix A
Glossary of Terms

Appendix A – Glossary of Terms

The terms below will be used in all CJIS Blueprint Project deliverables. They are described in the context of the existing and future environments.

A. Existing Environment

- *Criminal Justice Community* – Agencies conducting or supporting activities in the criminal justice process and other interested parties. This term will be used in the current and future environment discussions.
- *Current Technology Environment* – The technologies that support the criminal justice community. This term will only be used in the current environment discussion.
- *CJIS* – The business program for integrated justice in the state of Connecticut. This will be used in the current and future environment discussions.

B. Future Environment

- *CISS* – The umbrella term for the new system. It includes the following components:
  - *Integration Environment* – The integration tools that will support both the JIEM exchanges and business process/work flow automation.
  - *CJIS Solution* – All of the technologies that support Connecticut CJIS and the integration environment.
  - *CJIS Environment* – The complete technology environment that supports both the CJIS solution and the criminal justice community. This term will replace the CJIS technology environment.

Appendix B
Glossary of Acronyms

Appendix B – Glossary of Acronyms

Acronym	Definition
AAA	American Automobile Association
AAMVA	American Association of Motor Vehicle Administrators
AES	Advanced Encryption Standard
AFIS	Automated Fingerprint Identification System
AMBER	America's Missing: Broadcast Emergency Response
ANSI	American National Standards Institute
ASP	Application Service Provider
AST	Application Support Team
ATM	Asynchronous Transfer Mode
BICE	Bureau of Immigration and Customs Enforcement
BOPP	Board of Pardons and Paroles
BPM	Business Process Management
BPMN	Business Process Modeling Notation
CAD	Computer-Aided Dispatch
CAPTAIN	Capital Region Total Access Information Network
CCH	Computerized Criminal History
CIB	Centralized Infractions Bureau
CICS	Customer Information Control System
CIDRIS	Connecticut Impaired Driving Records Information System
CIO	Chief Information Officer
CISS	Connecticut Information Sharing System
CIVLS	Connecticut Integrated Vehicle and Licensing System
CJIS	Criminal Justice Information System
CJPPD	Criminal Justice Policy Development and Planning Division
CMIS	Case Management Information System
COBOL	Common Business Oriented Language
COLLECT	Connecticut On-Line Law Enforcement Communications Teleprocessing
COMPSTAT	Computer Statistics
COTS	Commercial Off-the-Shelf
CPCA	Connecticut Police Chiefs Association

Acronym	Definition
CRMVS	Criminal Motor Vehicle System
CSSD	Court Support Services Division
CWDM	Course Wavelength Division Multiplexing
DCJ	Division of Criminal Justice
DEC	Digital Equipment Corporation
DEMHS	Department of Emergency Management and Homeland Security
DMV	Department of Motor Vehicles
DMZ	Demilitarized Zone
DOC	Department of Correction
DOIT	Department of Information Technology
DPD	Division of Public Defender Services
DPS	Department of Public Safety
DSF	Dynamic Site Framework
E-911	Enhanced 911
EBTS	Electronic Biometric Transmission Specification
ECM	Enterprise Content Management
EMAP	Emergency Management Accreditation Program
EOC	Emergency Operations Center
ESB	Enterprise Service Bus
EWTA	Enterprise-Wide Technical Architecture
FBI	Federal Bureau of Investigation
FTE	Full-Time Equivalent
FY	Fiscal Year
Gb	Gigabit
GFIPM	Global Federated Identity and Privilege Management
GIS	Geographic Information System
GJXDM	Global Justice XML Data Model
HVAC	Heating, Ventilation, and Air-Conditioning
IAR	Intake, Assessment, and Referral
III	Interstate Identification Index
IIS	Internet Information Services
IST	Infrastructure Support Team

Acronym	Definition
IT	Information Technology
ITIL	Information Technology Infrastructure Library
IV&V	Independent Verification and Validation
JIEM	Justice Information Exchange Model
JMS	Jail Management System
JRA	Justice Reference Architecture
JUD	Judicial Branch
LAN	Local Area Network
LAW	Local Law Enforcement
LEOKA	Law Enforcement Officers Killed or Assaulted
LOB	Line of Business
MA-JEB	Municipal Access Judicial Electronic Bridge
MBM	Meets Business Needs
MDC	Mobile Data Computer
MNI	Master Name Index
MS	Microsoft
NCIC	National Crime Information Center
NHTSA	National Highway Traffic Safety Administration
NIBRS	National Incident-Based Reporting System
NIC	Network Interface Card
NIEM	National Information Exchange Model
NIMS	National Incident Management System
NIST	National Institute of Standards and Technology
Nlets	International Justice & Public Safety Information Sharing Network
OASIS	Organization for the Advancement of Structured Information Standards
OBIS	Offender-Based Information System
OBTS	Offender-Based Tracking System
OCR	Optical Character Recognition
OPM	Office of Policy and Management
OSET	Office of Statewide Emergency Telecommunications
OUI	Operating Under the Influence
OVA	Office of Victim Advocate

Acronym	Definition
OVS	Office of Victim Services
PD	Police Department
PERU	Passenger Endorsement Review Unit
PMO	Program Management Office
POR	Protective Order Registry
PRAWN	Paperless Re-Arrest Warrant Network
PSAP	Public Safety Answering Point
PSDSN	Public Safety Data Services Network
PSRB	Psychiatric Security Review Board
R-911	Regional 911
RFP	Request for Proposals
RMS	Records Management System
ROBIR	Regional Offender Biography and Image Repository
ROI	Return on Investment
SAVIN	Statewide Automated Victim Information and Notification
SDM	System Development Methodology
SEARCH	The National Consortium for Justice Information and Statistics
SLA	Service Level Agreement
SME	Subject Matter Expert
SOA	Service-Oriented Architecture
SOAP	Simple Object Access Protocol
SOR	Sex Offender Registry
SSA	Serial Storage Architecture
SSL	Secure Sockets Layer
TCO	Total Cost of Ownership
TE	Transformation Engine
UAR	Uniform Arrest Report
UCR	Uniform Crime Report
UPS	Uninterruptible Power Supply
VAX	Virtual Address Extension
VIN	Vehicle Identification Number
VMS	Virtual Memory System

Acronym	Definition
VOP	Violation of Probation
VSAM	Virtual Storage Access Method
WAN	Wide Area Network
WSBPEL	Web Services Business Process Execution Language
WSDL	Web Services Description Language
XSD	XML Schema Definition