



Kansas Bureau of Investigation

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Before the Joint Committee on Kansas Security
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Chairman Smith and Members of the Committee:

Thank you for the opportunity to discuss the Kansas Criminal Justice Information System (KCJIS) in the context of law enforcement communication in the state of Kansas, and particularly as it relates to the responsibilities of the Kansas Bureau of Investigation (KBI). I hope to provide the Committee with an overview of KCJIS involving several key areas:

- Areas of Responsibility;
- Significant Stakeholders;
- The role of the KBI in KCJIS;
- Current status of KCJIS, including core systems and usage;
- Current challenges;
- KBI strategic plan as it relates to KCJIS; and
- Recognized needs for KCJIS going forward.

I have provided the Committee with a white paper detailing each of these items. I will touch on each of them briefly, following that document. After that brief review, I would be happy to stand for questions.

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Kansas Criminal Justice Information System

General Description

The Kansas Criminal Justice Information System (KCJIS) is arguably the most important (and most utilized) public safety collaboration in our state. It provides for the secure, efficient, and timely sharing of critical/sensitive law enforcement data with local, state and national public safety agencies. The purpose of this system is to provide local, state, and federal law enforcement, prosecution, court, corrections, and other partners access to information vital to the performance of public safety duties across the state and at all levels of government.

This system provides the mechanism by which requests for information are securely forwarded to those agencies or organizations who hold the information, and by which responses to those requests are securely returned. For example, each time an officer or deputy conducts a traffic stop and runs an inquiry on a license plate or driver's license, the KCJIS network is the system through which information about the vehicle or the driver is delivered, returning vital information to keep the officer safe and the public protected. This is one of many ways in which KCJIS is utilized by the public safety community.

Areas of Responsibility

Kansas Bureau of Investigation IT Staff

KCJIS infrastructure and technology is supported by Kansas Bureau of Investigation (KBI) Information Technology (IT) staff. The KBI provides all technical systems, services, and infrastructure used by the customers and stakeholders of KCJIS. The KBI provides training for systems unrelated to the National Crime Information Center (NCIC). The KBI provides development and support for a broad variety of applications which provide direct value to KCJIS stakeholders.

Kansas Highway Patrol CJIS Unit

The Criminal Justice Information System (CJIS) Unit at the Kansas Highway Patrol provides training and independent auditing services to local agencies relating to the National Crime Information Center (NCIC). The KHP acts as the designated CJIS Systems Agency (CSA), which is tasked with NCIC Policy Compliance.

KCJIS Committee

The KCJIS Committee includes representation from a broad range of stakeholders involved in the production, sharing, governance, and consumption of information relevant to the criminal justice community. The Committee provides oversight for KCJIS standards, and is the mechanism through which the KCJIS circuits are mandated to exist within each county. An important role of the Committee is that of network orchestration and organizational communication between the multiple represented stakeholders.

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Office of Information Technology Services

The Office of Information Technology Services (OITS) administers routers and circuits over which KCJIS communicates. In this way, OITS operates much as a secure internet provider for agencies belonging to KCJIS. The KBI pays a fee to OITS for the provisioning of its services.

Significant Stakeholders

Local Agencies

Local agencies are the primary data providers and consumers of KCJIS. Local law enforcement, jails, prosecutors, and courts rely on the information available via KCJIS, and also provide most of the information available in those systems that KCJIS makes available. The ability of all local agencies to submit statutorily required data to state repositories managed by different state agencies, but to then access all of that information via a single system is extremely powerful and efficient, and it provides for a rich information sharing environment.

State Agencies

State agencies are heavy users of the system, and use it as a means of sharing information with local, interstate, and national partners. Some state agencies both provide large amounts of information to KCJIS, and consume the information as well. These include the Kansas Bureau of Investigation (KBI), Kansas Highway Patrol (KHP), Kansas Department of Corrections (KDOC), and the Office of Judicial Administration (OJA). Many state agencies are primarily data providers, with some small amount of data consumption. Some examples include the Kansas Department of Revenue (KDOR) and the Kansas Department of Transportation (KDOT). Many state agencies primarily are consumers of the information that passes through KCJIS. These agencies include the Department of Health and Environment (KDHE), Department of Education (KDOE), the Department of Aging and Disability Services (KDADS), among many others.

Interstate Partners

KCJIS is connected to a secure interstate information sharing system which allows approved agencies in other states access to some of the information accessible via KCJIS. Most other states have some agency or organization that plays a role similar to that of the KBI in managing and maintaining an equivalent system within their own state. These systems are all connected in order to allow, for example, an officer in Kansas to run the driver's license or license plate of a citizen or vehicle of another state while they are travelling through Kansas.

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Federal and National Partners

KCJIS is also connected to several national systems, some of which include the Federal Bureau of Investigation's National Crime Information Center (NCIC), the National Instant Criminal Background Check System (NICS), the National Drug Pointer Index (NDPIX), the Department of Homeland Security Law Enforcement Information Sharing Service (LEISS), the International Fuel Tax Association database (IFTA), Immigration and Customs Enforcement's Law Enforcement Support Center (LESC), the Canadian Police Information Centre (CPIC), and the International Criminal Police Organization (Interpol). Each of these connected systems has their own governance structure and requirements which must be managed and maintained in a strict and careful manner, and users are given access based on those structures and requirements.

Role of the KBI

The role of the Kansas Bureau of Investigation (KBI) within KCJIS is as the **primary service provisioning agency**. The KBI maintains the core communication and security infrastructure of KCJIS, as well as the majority of the delivery applications and services which provide access to the data owned by a host of partner agencies.

The KBI is also a **core data provider** to KCJIS. Many other state agencies also provide access to data which flows through KCJIS, such as the Department of Revenue Division of Motor Vehicles, Department of Transportation Traffic Safety, and Department of Corrections. The KBI has statutory responsibility for maintaining the computerized criminal history repository, the automated fingerprint identification system (AFIS), the Kansas Incident Based Reporting System (KIBRS), the Kansas Offender Registration Tool (KsORT), and other data systems considered central to the missions of KCJIS users.

While the Kansas Highway Patrol (KHP) provides governance and oversight for data classified as criminal justice information, there are a variety of other data sources and repositories for which the KBI provides **oversight and governance**, and which can be accessed via the KCJIS infrastructure. Some of these are extensions of inter-agency agreements, such as with the Kansas Department of Revenue for access to driver and vehicle information. Some are federal regulations, such as those which govern criminal intelligence information. Additionally, enforcement of state statutes and regulations for dissemination of information such as criminal history information is managed by the KBI.

The KBI is also a **data consumer** of much of the information available via KCJIS. Our agents and other employees who provide for the public safety mission of the KBI often make use of this information in the same way that officers, deputies or other law enforcement agency employees do.

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Current Status

Core Systems

KCJIS is comprised of several core infrastructure systems, designed to deliver secure, fast, and reliable service to the customers utilizing it. The components listed below serve one of two main functions; they either provide for the quick retrieval and delivery of requested information, or they provide for the security of that information from the point of ownership to the point of delivery. Each of these parts adds up to an entire system that is referred to as "KCJIS."

Authentication and Authorization - Identity and Access Management for KCJIS includes multi-factor authentication and a robust authorization system. These systems control who can log in to KCJIS, what services they can see or access, and what data they can view, edit, or add to. Additionally, a complex dissemination system is in place for relevant data sources (such as the computerized criminal history system), which controls who can access/see data at a very granular level.

KCJIS Circuits - A minimum of one circuit is statutorily required to be provisioned in each county in the state. These circuits are paid for by the state through the KCJIS Circuit Fund (revenue is generated from a small percentage of traffic ticket fees). The KBI pays OITS to provide the circuits, which reside on KanWin, a private state network.

Core Firewalls - redundant core firewalls protect KCJIS resources, and all KCJIS traffic to and from KCJIS resources pass through these robust, high availability security appliances. They are on a regular hardware replacement cycle, and software is updated continually.

VPNs - all sensitive traffic on KCJIS is protected by Internet Protocol Security (IPSec) Virtual Private Networks (VPN). This is an end-to-end security measure which protects all traffic on a computer (IP) network. Where allowable by governance and reason, some traffic is protected by transport layer security (TLS) or application layer security (SSH) instead, which are secured at a somewhat lesser degree than an IPSec VPN.

Central Message Switch (CMS) - this core system acts as a message broker for real-time queries coming into and flowing out of KCJIS. Downstream servers and client systems connect to the CMS, which in turn connects to various data sources via interfaces. These include state, interstate, federal, national, and international systems.

Enterprise Service Bus (ESB) - the ESB is a service and message broker similar to the CMS, but which acts instead as a service-oriented architecture point of integration for interfaces delivering data to and from the KCJIS infrastructure outside of just those agencies making specific queries against specific data sources. System-to-system interfaces traverse the ESB, which provides a method of avoiding "service sprawl," and allows a much more efficient method of interagency integration, information sharing, and standardization.

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KCJIS Portal - this is a secure web site utilized by KCJIS customers, and includes several tools normally used by personnel who are not normally as bound by constraints of time as is the case in a car stop (investigators, post release supervision, etc.) The Portal also includes communication, outreach, documentation, and collaboration tools for the KCJIS community.

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Usage

Since 2010, KCJIS has seen a consistent increase in utilization and demand from its customers. While the overall number of agencies and users has remained relatively constant, additional services and data sources connected to KCJIS has increased the usage of and dependence on the system. The number of terminals increased significantly between 2010 and 2011, representing a large growth in maintenance and overhead.

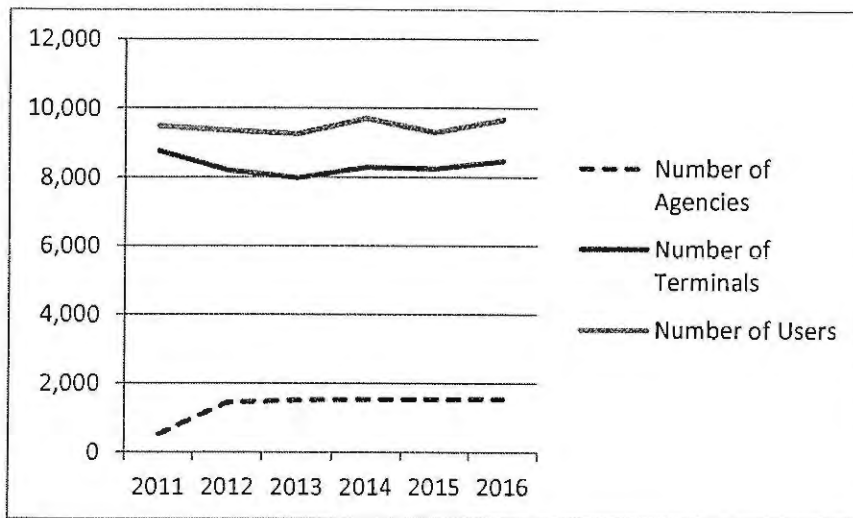


Figure 1 - KCJIS Participants (Note that in 2011 a cleanup of inactive agencies was initiated, followed by a slight correction through 2012)

As one of the core applications of KCJIS, the Central Message Switch (CMS) routes more than 40 million public safety queries per year (more than 1 per second, around the clock). Utilization increased over 34% between 2011 and 2016.

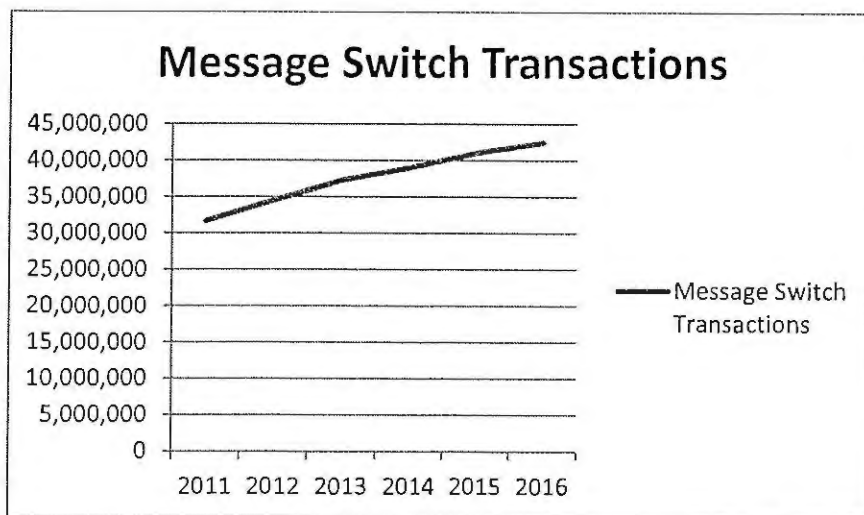


Figure 2 - Message Switch Transaction Growth

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The KCJIS Portal is a web-based application housing a large amount of technical, procedural, and policy information relevant to agencies who are KCJIS customers. The KCJIS Portal also includes several powerful search capabilities, allowing KCJIS users to search a broad range of data sources in the normal course of criminal justice procedure. The use of the KCJIS Portal has risen dramatically since 2011, mirroring a move in the general public safety work population toward mobile and web-based services. Between 2011 and 2016, the number of searches alone on the KCJIS Portal increased by nearly 90%.

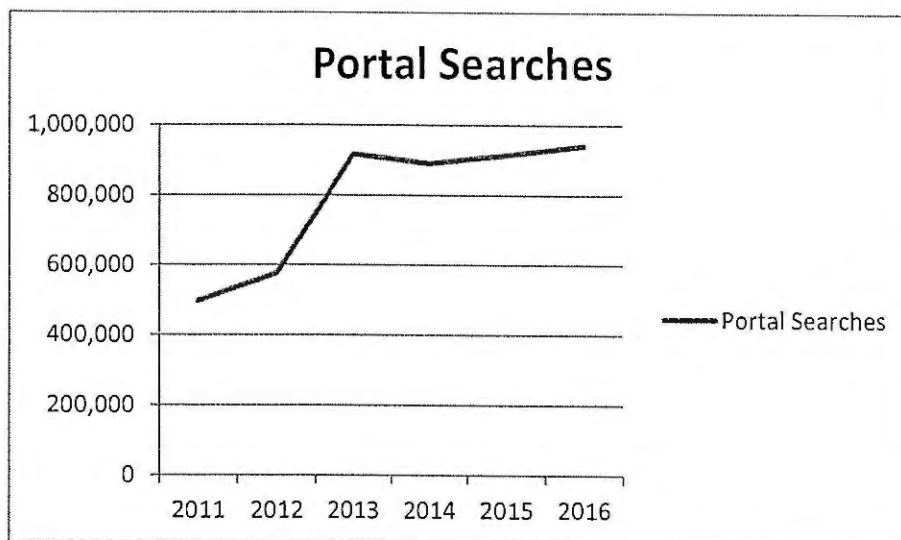


Figure 3 - Rapid Increase in Portal Use

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Current Challenges

Staffing

It is always challenging to attract I.T. staff to work at the state. This has become even more difficult recently. The stringent background checks and requirements that are necessary for staff working on the sensitive systems related to KCJIS and the KBI increase this difficulty and limit staff augmentation opportunities. Retention becomes increasingly important.

Funding (State and Local Agencies)

As the need for access to information available via KCJIS grows, the demands on KBI resources increase. The absolute need to maintain and modernize security systems protecting this information also requires constant investment. This also increases cost to partner agencies that must adapt to these changes, and effectively becomes an unfunded mandate.

Increased Need for Information Sharing

The scope of information, and the partners with whom the information is shared, is growing. Trends on the national level forecast the need for more and more communities of interest to engage each other in effective information sharing. The challenges with doing this effectively and securely are significant, and will involve a broad effort across policy and practitioner groups. At the state level, this has already become apparent with an increased need for information sharing between the criminal justice community and health and human services agencies.

External Threats

As the landscape of our increasingly online world continues to change, so too does the nature and volume of threats to our secure assets and systems. It is critical that we continue to adapt our defenses to meet these new challenges as they arise to protect the information that we have been entrusted with.

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Internal Vulnerability

It must be noted that at this time our number one vulnerability continues to be the users within the system itself; a single incident from a malicious phishing attack, for example, has the potential to compromise an entire agency. Security systems must be resistant to this type of threat; distributed and compartmentalized. One important aspect of defense is comprehensive and effective training. KCJIS is a distributed system, and security training is a prerequisite to access. Improvements are a constant necessity and challenge, and while governance and policy are centralized, distribution of training and the associated costs are distributed between state and local agencies.

Standards Adoption

KBI has moved to an architecture based on national standards of information sharing and data governance. There are several national groups involved in the development and promulgation of these standards which the KBI is actively engaged with. This is necessary to more efficiently share data; to create an environment of "common terms" for information sharing and safeguarding. It is also difficult to align partners in adoption of these standards, particularly local agency partners, who may not have the resources to convert systems to these standards.

New Technologies

As new technologies become available, they must be examined carefully, not just in terms of a traditional return on investment calculation, but also in terms of risk assessment for the purpose of security, and in terms of valuation for information sharing. The broad array of stakeholders, data sources, and governance structures in place within KCJIS must be considered before the adoption of any significant new technology, and all within the requirement of maintaining a secure and effective system.

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Strategic Plan

The KBI has developed a strategic plan for Information Technology which supports and incorporates KCJIS. This plan is reviewed on a yearly basis. The goals listed below are in support of our mission within KBI Information Technology, to provide "secure, reliable, flexible, high-quality technology solutions in alignment with the KBI Mission, while being a leader in customer service." The plan also includes KCJIS-related projects of significance.

KBI IT Goals

1. Improve and maintain IT resources and capabilities in order to deliver quality solutions in a timely fashion
2. Improve customer service and outreach
3. Maintain and improve IT security
4. Improve system availability and capacity planning
5. Improve project outcomes and capacity
6. Increase integration flexibility in KCJIS systems
7. Develop collaboration systems to create efficiencies for stakeholders

KCJIS Projects as related to KBI Responsibilities

- Security Architecture Modernization
 - Phase 1 – Reverse Proxy (complete)
 - Phase 2 – Identity and Access Management (FY16-FY17) - funded
 - Phase 3 – Federation (FY17-FY18) – partly funded
 - Phase 4 – Authentication (FY18-19) - unfunded
 - Phase 5 – Cleanup (FY19) - unfunded
 - Phase 6 – Secure Collaboration platforms (FY19-20) - unfunded
- Central Message Switch Migration (FY17) - funded
- Value Chain Analysis (FY17) - funded
- KDOC Interface Rebuild (FY17) - funded
- KDOR-DMV Driver Interface (Dependent on KDOR Project) – unfunded/partly complete
- Geographic Information Systems (GIS) Data Integration (FY17-19) - unfunded
- Central Message Switch RFP/Replacement (FY18-20) - unfunded
- Core Firewall Replacement (FY19) - funded

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Recognized Needs

The following list of needs is strategic in nature and broad in scope. Each of them will require specific efforts to be defined and scoped, and will require a commitment of resources as well as potentially requiring legislative or regulatory action.

Support for Local Agency Security Training Programs

Any support that the state can provide to local agencies to develop and maintain strong security training programs can only strengthen the state as a whole. Reinforcing the consistent and constant message our partner agencies receive related to KCJIS would go far to hardening the most vulnerable point in the system – the end user. This would also create the added advantage of strengthening the same vulnerable point for all state-connected end points in local agencies.

Support for Local Agencies to Develop and Work with Standards-based Systems

Direct support to local agencies to assist them in adopting national standards for information sharing and safeguarding would increase the adoption of these standards. This, in turn, would increase the ability of the state to receive and share information with its stakeholders more easily and in a more secure manner. Additionally, any support or requirement to adopt systems supporting basic security standards as a prerequisite for such support would encourage local agencies to strengthen their own information security.

Data-driven Decision Making

It is important that broad system-wide change is made using good information supported by data. KCJIS is driven by information sharing; that is the core purpose of the system. Determining the most important data sources to share and what communities of interest should be vested in how that is accomplished should be done based on good information. Historically (and unfortunately), it is often some tragic event which drives increased information sharing with the criminal justice community. It is a recognized need that we get ahead of these events, and determine where we need to be sharing information effectively to help to avoid as many of these tragic events as we can before they occur.

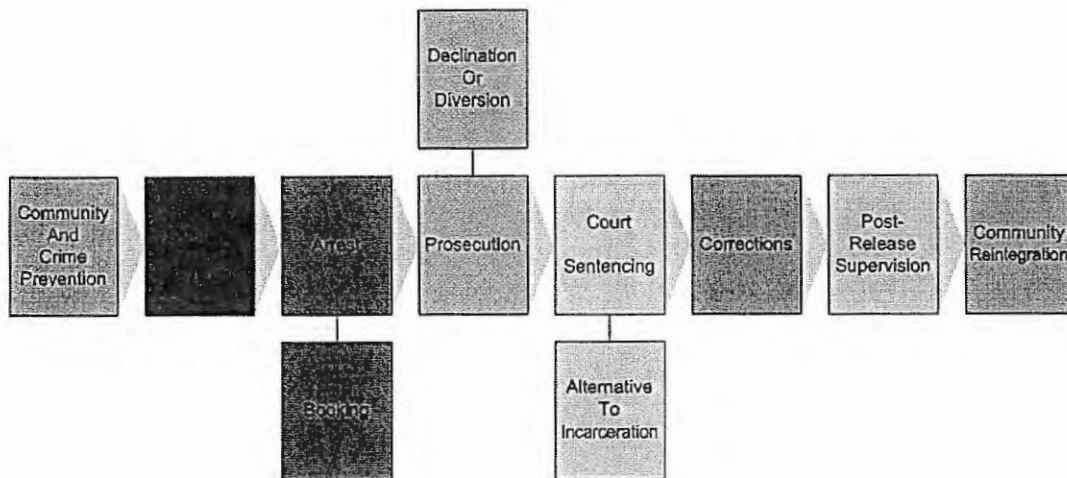
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Development of a Strategic Information Sharing Plan

Driven by information inclusive of a broad array of communities of interest, KCJIS has need of a strategic information sharing plan. This plan should be based on national standards and include at its core the concept of information security; much work in this area has been accomplished nationally, and would certainly need to be refined to be applied to Kansas.

Integration of Criminal Justice Business Processes

The criminal justice process involves many steps and a large number of agencies and stakeholders, just a few of which are illustrated here in this basic and incomplete diagram.



Each of these steps involves information about crime in Kansas, and the efforts of the many partners shown (and inferred) to prevent and solve the problem of crime in our State. Much of the information in each of these steps is kept in separate systems and is not linked together for any given cycle or incident of a criminal act. In many cases the information is kept on paper forms, and reported to state agencies (as is statutorily required) in that format. This makes it even more difficult to get a comprehensive picture of crime in the state. A long-term need is to link all of this information (where possible) for all cycles or incidents of criminal activity, which would provide a much clearer view of crime in the state of Kansas from prevention through reintegration. It is a fundamental function of KCJIS to ease the integration of the various data sources involved, and to help provide this view. This is an extremely significant and long-term effort, already partly complete but requiring a sustained commitment by the state.