Evaluability Assessment of Driver's License Image Sharing

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NIJ Guidance

The National Institute of Justice (NIJ) recommends an evaluation of Driver's License Image Sharing technology in the site assessed below or other appropriate settings where this technology is being implemented. NIJ is particularly interested in proposals for projects that include evaluation of implementation, outcomes, and return on investment. Applicants who propose to evaluate this technology are encouraged to consider outcome variables such as identification of wanted individuals and identification errors as well as challenges (including threats to validity common to pre-experimental designs) identified below. At a more basic level, NIJ will consider proposals for more modest studies primarily involving data mining of existing performance indicators that are captured in the data trail of the technology itself. Such a study might be based on number of potential applications of the technology, number of actual applications, number of successful identifications, and so on.

Applicants may depart from this guidance by providing appropriate rationale.

1. Technology Summary: When driver's license images and information are shared between police jurisdictions, law enforcement officers may have a much better chance of apprehending suspects during routine operations. Several government initiatives have focused on building the technology to share this important information.

The Tennessee Bureau of Investigation (TBI) has implemented an initiative providing for intra-state and, with some States, inter-state transmission of driver's license photographs maintained by the Tennessee Department of Public Safety. This allows over 200 law enforcement agencies/entities within Tennessee to directly request a driver's license photo in the process of identifying a person. For example, a patrol officer who has stopped a motorist can initiate a computer query (as long as the officer's agency has appropriate computer message routing capabilities – the Nashville Police Department presently does not) and receive a photo along with driver's license information and other

information in verifying the identity of the motorist. The TBI also has been sending to the State of North Carolina and is collaborating in the National Law Enforcement Telecommunication System (NLETS).

More specifically, utilizing an external vendor (SENT Software, Inc.), as well as internal and other State resources, the initiative has extended the capabilities of the Tennessee Criminal History Repository (TCHR) to interface with the Division of Motor Vehicles (DMV) for retrieving images (driver's license photographs). Information from the Tennessee Information Enforcement System (TIES) message switch are routed through the TCHR system and then to the DMV. Once the messages are sent to the DMV Service, they are parsed and the operator license number, name, sex, and race of the requested operator are obtained. This information is used to obtain the DMV photo from the DMV server (a db2 database) and to search the Sex Offender Registry (SOR) for a matching offender. If the SOR search was positive a small block of text is added to the bottom of the message stating that the driver is a possible sex offender and further queries should be run to verify. After processing is done on the message, it is returned to Switch Connect to proceed to its final destination.

The TBI and State of Tennessee have entered into a contract and partnership with the vendor, SENT Software, in which the State is the vendor's only client. The State of Tennessee retains the property rights to the process/software.

Scope of Evaluation: An evaluation of the TBI initiative is not currently underway. An evaluation is warranted. An evaluation should encompass both implementation and outcome study, particularly where the primary outcome is conceptualized as verification of identification or positive identification. A cost benefit component centering on identification efficiency could also be included.

Summary of Evaluability Assessment Activity: The assessment of the feasibility of evaluating driver's license image sharing technologies began with a literature review and a Web-based search to identify vendors of such identification technology. The researchers also contacted technology experts at the National Law Enforcement and Corrections Technology Centers (NLECTC), and held conference calls and personal interviews with NIJ Program Managers from the Office of Research and Evaluation (ORE) and the Office of Science and Technology (OST). Outreach was also made to several expert practitioners identified by OST.

The literature review, telephone interviews, and conference calls revealed that driver's license image sharing technologies are relatively new to the field of law enforcement and are used only by a handful of agencies. However, very little is known empirically about the effects of driver's license image sharing technology.

The Urban Institute's initial screening identified numerous mature applications of driver's license image sharing applications. These included jurisdictions in California, Oregon, Virginia, North Carolina and Tennessee. Scheduling a site visit to North Carolina proved not feasible and Virginia has not yet completed its technology

installation. Thus, UI and NIJ mutually decided that the Tennessee Bureau of Investigation would be the location for a further site visit screening.

2. Brief Literature Review

What do we already know about projects like these? Would this evaluation add to what we know?

Driver's license image sharing technology has evolved as a part of the Office of Justice programs Information Technology Initiative, more specifically the National Law Enforcement Telecommunications System (NLETS). This initiative is designed to utilize the Global Justice XML data model in order to develop a network of criminal justice information exchange in North America (OJP, 2007). Current driver's license image sharing applications are built upon past programs, such as the Regional Informal Sharing System (RISS), such as the Automated Regional Justice Information Sharing System (ARJIS) in San Diego (ARJIS, 2007). ARJIS is a complex information sharing network across 71 jurisdictions that includes wireless access to images, warrants and other public safety data.

Several driver's license image sharing applications have been successfully piloted. A collaboration between AAMVA and NLETS utilized common data standards to demonstrate increased efficiencies and effectiveness of law enforcement driver-related inquiries across jurisdictions (IACP, 2007) The literature review also highlighted the role of private industry working with local law enforcement agencies to share drivers license information across jurisdiction lines. For example, Digimarc Corporation recently announced a cooperative venture involving the American Association of Motor Vehicle Administrators (AAMVA) and six state motor vehicle issuers to share information in order to reduce fraud (Digimarc, 2007).

What audience would benefit from this evaluation?

An evaluation would contribute significantly to empirical knowledge concerning the technology and its use. This would benefit all those collaborating in the Global Justice XML data Model (Global JXDM) and the National Law Enforcement Telecommunication System (NLETS), especially the Driver License Exchange (CANDLE) project. An evaluation would contribute valuable information to those defining standards for exchange and all those interested in operational Web Services capabilities. Such research would benefit State and local agencies, including potential end users attempting to make positive identifications. It might also reveal strengths of the technology and issue areas to be addressed, such as liability concerns and concerns about control of the images. This would be of value to those considering the extensive arrangements and partnerships necessary for implementation of such an initiative.

3. Level of Site Cooperation

The Tennessee Bureau of Investigation has made clear its willingness to cooperate and participate in an evaluation. No formal evaluation has been conducted and no formal evaluation is currently underway or planned.

4. Background History

Implementation of the TBI initiative has been underway for approximately one year. The initiative includes (as described above) interface between the TCHR and DMV to retrieve images. The query is initiated by users in approximately 200 agencies/entities (if the agency/entity has the switching capabilities) in the State of Tennessee, and the requested operator image is provided along with additional information to assist in making a positive identification or in verifying an identification.

5. Program Design

Target Population

The target population is persons encountered by law enforcement officers in the field, or by other authorized users, who cannot be identified or who present potentially fake names or identifications.

Project Goals and Objectives

The overall aim of the use of this technology is to improve the efficiency and effectiveness of identification of persons by law enforcement officers in the field and by other authorized users in settings such as a local jail. Project objectives include 1) provision of images to end users in a timely manner, 2) development and maintenance of the capabilities for interface and provision of images to end users across a large network of potential users, and 3) collaboration across governmental agencies and levels to develop partnerships to support and provide the required access for implementation.

6. Program Logic Model

The initiative includes provision of interface and switching capabilities between the TCHR and DMV to retrieve images. A query is initiated by users from among approximately 200 terminal or non-terminal agencies/entities (if the agency/entity has the switching capabilities) in the State of Tennessee, and the requested operator image is provided along with additional information to assist in making a positive identification or in verifying an identification.

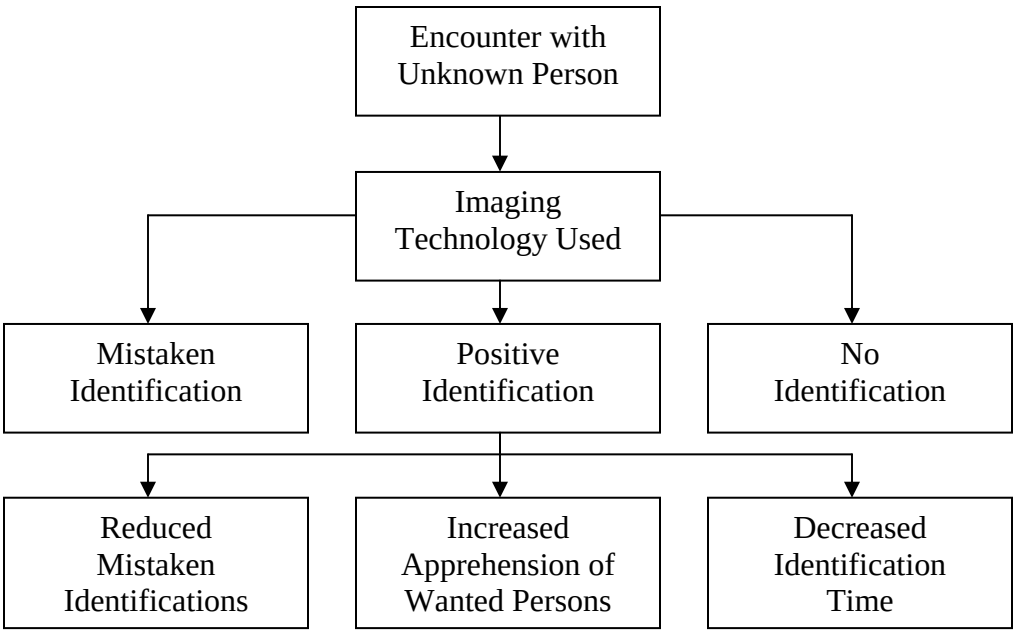
Information from the Tennessee Information Enforcement System (TIES) message switch are routed through the TCHR system and then to the DMV. Once the messages are sent to the DMV Service, they are parsed and the operator license number, name, sex, and race of the requested operator are obtained with a regular expression. This information is used to obtain the DMV photo from the DMV server (a db2 database) and to search the Sex Offender Registry (SOR) for a matching offender. The image is

converted to a base64 string and placed in an xml document along with the original message. If the SOR search was positive a small block of text is added to the bottom of the message stating that the driver is a possible sex offender and further queries should be run to verify. After processing is done on the message, it is returned to Switch Connect to proceed to its final destination, the end user.

Is the logic supportable by empirical evidence?

Empirical evidence supports the development and implementation of the technology. There is no empirical evidence documenting the application of this technology in achieving the outcome envisioned, improving identification of persons encountered by officers in the field and/or by other authorized users. The TBI has accurate electronic data documenting provision of images in response to queries. No attempt has been made yet to obtain feedback or collect data on improvement of identification as a result.

Exhibit 1 – Image Sharing Logic Model



Are there apparent contradictions or conflicts between certain activities and the outcome expected?

There are no apparent contradictions in application of the technology. Positive identification depends on decision making and judgment employed by the end users.

Decisions logically would be informed by having existing images and information. Still, definitive research on the use of such information for identification is not available.

7. Implementation Issues

Is the project being implemented as planned?

The initiative is being implemented as planned.

Describe staffing

The TBI Director of Information Systems leads the effort. As noted earlier, an external vendor, SENT Software, provides continuing maintenance and developmental capability. The Director and other members of Information Systems meet bi-weekly with SENT personnel to address strategic issues and technical questions. Obviously, implementation of the initiative across agencies requires personnel in the participating agencies/entities to be involved in implementation. Also, personnel from Information Systems are involved in training participating agency/entity personnel to certify their end users in use of the technology at their level.

Describe the stability of the project over time

Implementation of the project is stable. The technology is mature. Implementation difficulties appear to center primarily on agencies' capacity to handle message switching (the Nashville Police Department cannot be included until the Department upgrades its computer capabilities).

What aspects of the project could be evaluated for outcome?

Events prompting a query for a driver's license image for purposes of identifying a person encountered likely will not arise in a pervasive, uniform manner across the participating agencies/entities – or even within jurisdictions. Because of the need for identification and potential concern for safety, randomization in a design is probably not feasible.

It does appear possible that there may be agencies utilizing the technology and agencies (at least the Nashville Police Department) that are not utilizing the technology. This may make it possible to employ a quasi-experimental design, implementing the technology throughout an agency and utilizing a similar agency as a comparison. Depending on the state of implementation pre-post and longitudinal outcomes could be examined. As another possibility, if Nashville PD is soon to begin implementation, it could be possible to implement in a number of the Department's districts while utilizing some districts as comparisons, absent implementation. This would allow pre-post and longitudinal examination.

What would the outcome measures be?

Outcome measures could include positive identifications, identification of known sex offenders, mistaken identifications, apprehension of wanted persons, and time required to identify unknown persons.

How could an appropriate comparison group be created?

As noted above, agencies which have not yet implemented the technology could serve as comparisons for those implementing the technology, where agencies are similar. The Nashville Police Department may become a start-up agency and present the opportunity to develop internal comparison groups/districts.

Are the sample sizes statistically significant?

At the time of the site visit, data on the number of uses of the technology by jurisdiction were not available. Depending on the design employed it is reasonable to expect that sizes will sufficient enough to detect statistical significance.

Is random assignment possible?

As discussed above, random assignment may not be feasible or desirable.

Recommended Approach

It is recommended that NIJ explore the possibility of utilizing the Nashville Police Department as a comparison to a similar department implementing the TBI initiative, employing a time series longitudinal design.

Alternative Approach

As an alternative approach, if the Nashville Police Department is to implement the TBI initiative soon, NIJ should explore a pre-post comparison design using internal groups/districts. If that is not possible, NIJ should explore the possibility of comparing jurisdictions not implementing the TBI initiative with, where possible, similar jurisdictions implementing the initiative. At the time of the site visit, there was not sufficient information on the implementing jurisdictions to determine the feasibility of this approach. The least rigorous alternative would be case studies of well selected jurisdictions.

What strengths and weaknesses do the designs have?

A pre-post comparison design would be the most rigorous possible. Case studies suffer from external validity threats but can give rich detail, which may be of particular importance in an area where little scientific knowledge is now available. Clearly, there is a need for a foundation for later research and a baseline of information for others considering adoption of the technology and approach.

How long in duration would the evaluation be?

Eighteen to twenty-four months could provide sufficient information to form the basis of an evaluation. Preliminary examination of the jurisdictions/agencies under consideration and the volume of queries should be undertaken to set the time frame.

What would be the estimated cost?

Depending on the design employed costs for an evaluation may range from $175,000 to $300,000.

What aspects of the project make an evaluation more difficult?

Presently, no data is being kept on the outcomes of the initiative. Data collection on the outcomes may be particularly labor intensive, especially given that users decision making/judgment is a key element. Access and agency cooperation would be paramount issues. Finding similar comparison sites may be problematic.

8. Measurement Model

Outcome measures could include positive identifications, identification of known sex offenders, mistaken identifications, apprehension of wanted persons, and time required to identify unknown persons.

9. Data

Comment on the quality and availability of project-generated data to support these measures.

At present data on the primary outcomes is not being kept. There is accurate data on queries and responses (images provided), however, there is no feedback or direct information on results beyond the technical delivery of the images.

Can services delivered be identified?

Delivery of services is not an element of this initiative.

Can target population be tracked over time?

Use of the technology can be tracked over time. Targets could be tracked if apprehended. If released with no action, this becomes very inconvenient if not impossible.

Would an evaluation have to generate new or additional data?

An evaluation would have to generate data on outcomes, along with additional data.

10. Summary Remarks

Recommendations for evaluation

Evaluation of this initiative is recommended. An evaluation would contribute significantly to empirical knowledge concerning the technology and its use. This would benefit all those collaborating in the Global Justice XML data Model (Global JXDM) and the National Law Enforcement Telecommunication System (NLETS), especially the Driver License Exchange (CANDLE) project. An evaluation would contribute valuable information to those defining standards for exchange and all those interested in operational Web Services capabilities. An evaluation would benefit State and local agencies, including potential end users attempting to make positive identifications. An evaluation would reveal strengths of the technology and issue areas to be addressed, such as liability concerns and concerns about control of the images. This would be of value to those considering the extensive arrangements and partnerships necessary for implementation of such an initiative.

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