



## Corrections Data Mining

*Scattered among the thousands of inmates in a State's correctional system are a few who receive monthly visits from the same woman. Shortly after she makes her visits, these inmates deposit large sums of money. Because the inmates are in different facilities, no one notices that the woman is one inmate's "aunt," another inmate's "wife," and yet another inmate's "sister." Soon, however, a National Institute of Justice (NIJ) initiative, the Corrections/Law Enforcement Intelligence Gathering and Sharing Project, will help correctional administrators identify and evaluate data analysis/data mining software to sort through massive amounts of information from different sources to find patterns and in turn share information and partner with law enforcement to stop, and even prevent, crime.*

Today's age of information technology could also be called an age of information overload. With so much information at everyone's fingertips, finding and sharing the right information has become critical. Data analysis/data mining tools make it easier to analyze the vast amounts of information contained in large databases by finding patterns and deviations much more quickly than any team of analysts. Many corrections departments want to move toward adding these tools to their intelligence operations, but they feel uncertain about which steps to take next and criteria to use. The goal of NIJ's Intelligence Gathering and Sharing Project is to make the selection and implementation process easier.

As part of that project, a team of information technology experts from NIJ's Border Research and Technology Center (BRTC), part of the National Law Enforcement and Corrections Technology Center system, and its technical partner, the Space and Naval Warfare Systems Center-San Diego (SSC-SD), go through the same data analysis/data mining tool selection process faced by corrections departments. The project will eventually not only help correctional administrators across the country select the data analysis tools that meet their needs but also improve their intelligence gathering and sharing capabilities. Once the project is completed, the team will issue a report and offer a workshop on lessons learned.

Other major players in the project are State correctional personnel from Nebraska and Iowa, who say their departments already had information sharing projects but that NIJ's involvement smoothed the process and sped up their timetables. (Both States have project advisory teams that include local units of the FBI and U.S. Immigration and Customs Enforcement, as well as local law enforcement.)

"The project helped us increase our networking efforts even before the testing began, and that's what we want to see happen," says Laura Scheffert James, Iowa's Assistant Deputy Director for Eastern Operations. "If there is information we can provide that will be of benefit

### **CORRECTIONS/LAW ENFORCEMENT INTELLIGENCE GATHERING AND SHARING PROJECT**

The selection of evaluation sites and data analysis software for the Corrections/Law Enforcement Intelligence Gathering and Sharing Project resulted from a planned step-by-step process that ultimately will be part of the end product. Project participants knew that numerous data analysis/data mining applications already existed. However, because these applications can be complex and expensive to configure, operate, and maintain, law enforcement agencies and corrections facilities need assistance when it comes to selecting the right one. Therefore, the project team planned to meet three objectives:

- Identify state-of-the-art data analysis/data mining tools to improve intelligence gathering, analysis, and sharing in correctional environments.
- Select an evaluation site and a test tool.

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to other agencies, there will also be benefits for us. We see this as a two-way information flow. This particular project applies the [analysis] tool to our database, and it will impact what information we can make available. However, the biggest benefit to us comes from the whole process of learning what our partners need—of learning what information is most pertinent to them.”

“NIJ is giving us good feedback and good ideas and keeping us focused,” says B.J. Spring, administrative assistant in the Intelligence Division at the Nebraska Department of Correctional Services. “The sharing will happen in a better fashion than if we had just muddled through it ourselves.”

BRTC’s Dr. Wadad Brooke Dubbleday says the project has shown her that much of what happens within jails and corrections facilities influences what happens on the outside. “Corrections may be able to share information with law enforcement, and it will turn out that each had a piece of the puzzle, and the picture is now complete,” she says.

The completed picture includes pieces provided by the mining and analysis software, which finds previously undiscovered relationships and patterns, enabling both corrections and law enforcement to use their resources more effectively and intelligence analysts to perform their jobs at a higher level. In Nebraska, reaching that higher level became a long-term goal several years ago when the State created Spring’s position with the specific assignment of compiling statistics potentially related to drug use and looking for patterns. Although Spring and his analysts had recorded some success, he says the NIJ project came along just when Nebraska wanted to move on. Before involvement with the NIJ project, Nebraska had compiled databases on—

- Incidents suspected of having a drug-related link.
- Exchanges of large amounts of cash.
- Suspicious phone calls (culled from reports on all phone calls by a manual review).
- Visitors to inmates who had previously been flagged as exhibiting suspicious behavior.
- Account information.
- Vital statistics such as all inmates’ height, weight, and date of birth.

When Nebraska became an evaluation site, these categories expanded and changed. The State now collects information on every visitor and every phone call, additional inmate incidents, and additional inmate identifiers such as scars, tattoos, and other marks. “With the addition of the analytical software, we hope we can take this copious amount of information, run it through the process, and have it tell us something that we didn’t

### *Enforcement Intelligence Gathering and Sharing Project (continued)*

- Prepare a publication describing the selection process and the lessons learned during the project to help others in the field make their own selections.

“We went through it pretty methodically . . . in the hopes that other departments of correction can apply this when selecting tools,” explains Dr. Wadad Dubbleday of the Border Research and Technology Center. The final report, however, will not release the names of the evaluated products, in keeping with the National Institute of Justice (NIJ) policy not to endorse a particular vendor’s technology.

The process started with a survey that was sent to every State department of corrections and a number of the Nation’s larger jails. The project team compared responses to its criteria, which included—

- Preexisting use of an automated data capture system.
- Participation in the Criminal Justice Information System Initiative sponsored by the State Governor’s office.
- Prior staff training in intelligence gathering and analysis.
- Commitment to assign intelligence and information technology staff to participate in the project.
- Agreement to create an onsite project advisory team that includes external law enforcement stakeholders.
- Willingness to train onsite staff in use of the tool and to participate in an after-action review and evaluation process.

The team narrowed the field by conducting telephone interviews and site visits before selecting Iowa and Nebraska.

The selection process for the data mining and analysis tool followed a similar pattern. Again, the team first developed selection criteria, including—

- Product features.
- Cost.
- Learning curve.
- Data requirements.
- System requirements.
- Vendor support.

Particular emphasis was placed on finding tools that included GIS (geographic information system) mapping

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already know—that it will draw some relationships we wouldn't have seen otherwise," Spring says. "Will it be something as precise as 'There will be a buy Thursday at 2?' We don't know, we are really anxious to see what it will do."

Iowa also had already collected similar information and expanded information-gathering efforts once the project began. "We saw that we have a great deal of information that can be of value to outside agencies. We view this as an opportunity to find out what information would be most useful to our outside partners and to expand those efforts," says Scheffert James.

With the thought of expanding those efforts, Iowa decided to place access to data mining and analysis on the desktop of every member of the project advisory team and all department of corrections intelligence officers. Iowa also gives access to other investigators who need to analyze data related to a specific case. In Nebraska, the chief information officer at each facility and the investigative team analysts received access. "We wanted to put the tool in the hands of the actual users, the ones who would be taking the information and conducting the investigations," Spring explains. "We wanted it at their fingertips, instead of making them rely on the central office to get information to them."

Although their approaches are similar, the Nebraska and Iowa programs currently run on separate tracks. "We were wondering if we would be able to interact, because we have common borders and are aware that activity certainly crosses State lines," Scheffert James says. She adds that Iowa asked about the possibility and was told it might be arranged in later stages of the program. "Such an interface would be an ideal situation," says Edward Lai, project technical lead from SSC-SD. "Once everything is completely set up and working the way we expect it to, if we can get both States together and get the data flowing between them, that would be an additional accomplishment over and above reaching the project objectives."

If interaction does not happen during the project itself, it will likely occur when the two departments of correction assume control of the data analysis tool. In addition, if other corrections agencies learn from the Nebraska/Iowa experience and set up their own data analysis systems, sharing may eventually take place among more than just those States.

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### ***Enforcement Intelligence Gathering and Sharing Project (continued)***

capability, the ability to search free text for keywords, and a "transparent" structure that allows users to get similar query results no matter how the databases themselves are constructed. The team started with a broad-based process, in this case answering yes/no questions by visiting vendor websites. They then narrowed the field by compiling responses in a spreadsheet and finally inviting a few vendors to make presentations.

On selection, NIJ paid for licenses for each of the two tools for a year; after that, continued maintenance is the responsibility of the Iowa and Nebraska DOCs. Each State's intelligence analysts received training and each DOC improved its infrastructure as needed. Evaluations began in late summer 2004.

The final report, to be published in 2005, will outline the selection process, explain the ease or difficulty involved in learning to use the software, and list potential savings and lessons learned. On publication, the project team plans to hold a workshop for other DOCs that are interested in purchasing data analysis tools.

***State departments of correction interested in establishing their own data analysis projects will be able to obtain the final report of the project when it becomes available. These agencies also may attend a wrap-up workshop, which will promote data sharing and encourage replication of the project. For more information on the Corrections/Law Enforcement Intelligence Gathering and Sharing Project, contact Dr. Wadad Brooke Dubbleday at the Border Research and Technology Center, 888-656-BRTC or [ubbelda@brtc.nlectc.org](mailto:ubbelda@brtc.nlectc.org).***



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