Research Brief

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A National Framework for Collaborative Information Exchange: What is NIEM?

I. An Overview of the Vision for NIEM

On February 28, 2005, a Memorandum of Agreement (MOA) was established between the Department of Homeland Security and the Department of Justice (DOJ).[1] This MOA essentially created the National Information Exchange Model (NIEM) project. Key to this initiative is the expansion of DOJ's Global Justice XML Data Model (GJXDM) to now include the requirements for sharing information related to homeland security. Now the vision of NIEM has expanded to include intelligence, public health, and transportation.

NASCIO had presented a strong recommendation for *cross boundary collaboration* and information sharing in its Call for Action A Blueprint for Better Government: The Information Sharing Imperative.[2] In this May 2005 report to Congress NASCIO presented the case for establishing a common vocabulary that would enable the communications at all levels of government and the recommendation to leverage the work and progress already accomplished within the justice community with DOJ's GJXDM initiative.

The National Information Exchange Model Initiative will have a tremendous impact on how government interoperates with the intention of making possible the communication among government lines of business at all levels of government. The NIEM initiative is in its beginning stages but is already anticipated to be a major breakthrough initiative.

Such an undertaking will require significant collaboration. Fortunately, there is a model that can be emulated. That is DOJ's Global Justice XML Data Model initiative that has made possible the sharing of justice information across jurisdictions nationally. The NIEM initiative is taking this foundational work and is expanding on it to include non-justice government lines of business.

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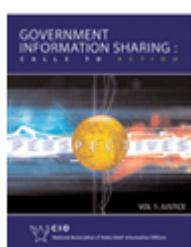
[1] Press release http://www.niem.gov/pdf/20050307_press_release_dhs_doj_global_jxdm_exec_briefing.pdf

[2] NASCIO *Call for Action, A Blueprint for Better Government: The Information Sharing Imperative* http://www.nascio.org/washwatch/NASCIOww/calls_for_action.cfm

NASCIO has made a compelling case for sharing information within government. This has been presented in *PERSPECTIVES: Government Information Sharing Calls to Action.*[3] This report included a number of Calls to

Government Information Sharing: Calls to Action
• If information is to be shared, there is the necessary establishment of standards for sharing.
• If information is to be shared, then the rules for sharing must be well understood by all involved, and those rules must be consistently and effectively applied

Action. It also highlighted the root cause for most of the barriers to *collaborative information exchange* – organizational dynamics and culture. Any properly planned approach to collaborative information exchange must include strategies for dealing with and managing this dimension of organizations. As such, planning must be a disciplined management activity. The Center for Technology in Government (CTG) has addressed the complexities of such collaborative initiatives by offering the *Capability Assessment ToolKit.*[4]

NASCIO also made the point in its video, *In Hot Pursuit: Achieving Interoperability Through XML*, that we must avoid the proliferation of XML vocabularies if we are to create an environment that facilitates information sharing in government. This issue is more pronounced than ever in today's governmental environment where information must flow easily and frequently across what were traditional jurisdictional and line of business boundaries.[5]

II. The Consensus Model from Justice

The integrated justice community, like other government lines of business, is responding to the new complexities of our world. Criminals are more sophisticated - public safety is more complicated. There is now the need for police officers on the front lines of public safety and the war on terror to have mobile computing access to more information and increasingly more knowledgebases so they can properly respond to public safety incidents, accidents, and combat crime. They require access to local records, NCIC, FBI records, university records, military police records, and even public health records. This could raise privacy issues, which must be addressed at the policy level.[6]

The capability for sharing information within the justice community exists due to a *grassroots effort* on the part of justice professionals to collaborate on a national solution. Namely, the Global Justice Information Sharing Initiative (Global) and the Global

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[3] *PERSPECTIVES: Government Information Sharing Calls to Action*
   http://www.nascio.org/publications/index.cfm#perspectives
[4] *Sharing Justice Information: Capability Assessment ToolKit*
   http://www.ctg.albany.edu/publications/guides/sharing_justice_info
[5] *In Hot Pursuit: Achieving Interoperability Through XML*
   http://www.nascio.org/publications/index.cfm#xml
[6] *Information Privacy: A Spotlight on Key Issues* available at
   https://www.amrinc.net/nascio/publications/shoppingCart/index.cfm#privacy
See Privacy principles http://www.ftc.gov/reports/privacy3/toc.htm

Training and Technical Assistance Committee (GTTAC) were critical partners from the early days of this initiative. The outcome from this effort is DOJ's Global Justice XML Data Model, or GJXDM.   This resource has been developed and matured to the point that real benefit is being gained across the justice community. The potential for this resource was portrayed in the drama presented in NASCIO's video, *In Hot Pursuit: Achieving Interoperability Through XML.*[5]

This grassroots effort initiated a significant amount of activity through organizations like SEARCH, the Global Information Sharing Initiative, the Integrated Justice Information Systems (IJIS) Institute, and others. These efforts could not have achieved such impressive success but for the collaboration and sponsorship from DOJ's Office of Justice Program's (OJP) Bureau of Justice Assistance (BJA). BJA has continually demonstrated leadership, foresight and practical help to national initiatives that impact collaborative information sharing at all levels of government.

III. The Next Step

The National Information Exchange Model (NIEM) initiative is taking the learnings from the justice community and is ratcheting them up to include all government lines of business. This is an incredible undertaking and will require the collaboration and cooperation of all of us within federal, state, tribal and local government. *But it can become a reality.*

The goal is a *common vocabulary* for those elements of information that are shared by all lines of business. Separate vocabularies will be established for bounded subject areas such as Justice, Homeland Security, Public Health, and Intelligence. These are termed *domains* within the NIEM initiative.

Universal Core is a collection of knowledge objects that are common to all such domains. **Common Core** is a collection of those knowledge objects that are shared between at least two domains. And **Domain-specific** is a collection of those knowledge objects that are unique to each subject or domain.

So what is the end game in this initiative? It would help to understand the outcomes delivered from the Global Justice XML Data Model effort. Here are a few success stories that demonstrate not only what has been achieved by justice – but a sampling of the kinds of stories that could someday be reported as coming from NIEM.
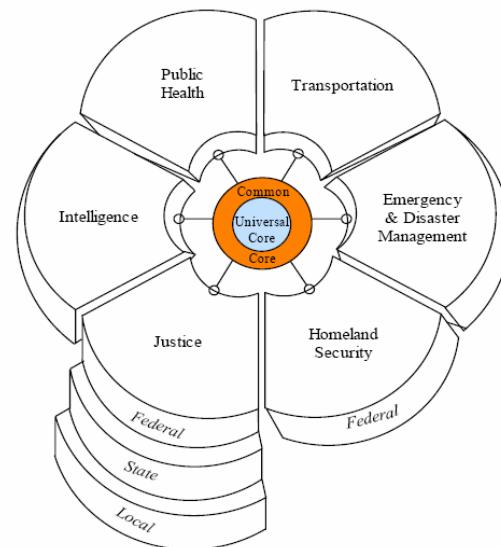
Maricopa County, Arizona

- Maricopa County CJIS has automated the arrest and booking process for the state of Arizona. The scope of this project included the city of Phoenix police department, the Maricopa county sheriff's office, and the state of Arizona department of public safety. Arrest information is captured once and is shared with any agency in the state for any purpose including the prosecutor's office, the courts, etc. This initiative fully leveraged the GJXDM.[7]

The City of San Diego, California

- San Diego has built its regional information sharing system which brings together the San Diego harbor police, the Port of San Diego, the Los Angeles port police, the Los Angeles county sheriff's office. This initiative pulls information from seven disparate information sources and makes it commonly available to each officer within these agencies and shares this information between these agencies. This is possible because it is fully compliant with GJXDM.[7]

The State of Ohio

- The Ohio Chiefs Of Police Association pooled all Home Land Security grant funds for law enforcement in order to fund a common initiative to share information from no less than 900 police departments. The scope of this effort involved information systems from 70 different vendors. Agreement on a common standard made this possible – the GJXDM. [7]

The City of Syracuse, New York

- The Syracuse police department implemented a small mobile computing system which allows 17 cities and the county sheriff's office to share incident information using the GJXDM. This allows real time access to incident information by individual users in those jurisdictions using a variety of disparate systems.[7]

The State of Pennsylvania

- The Pennsylvania Department of Transportation in cooperation with the Pennsylvania Justice Network (JNET) makes drivers' change of address information available to JNET. Development included the creation of a GJXDM compliant message. These messages are used within JNET's notifications services. This notification service increased public safety by providing more accurate and up to date addresses to the criminal justice and public safety community for tracking of outstanding warrants and absconders.[8]

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[7] Speech by Paul Wormeli, Executive Director of the IJIS Institute,
  Global Justice XML Data Model (Global JXDM) Executive Briefing on February 28, 2005.
[8] Example provided by Chad Firestone, Executive Director, Pennsylvania Justice Network. For more examples of JNET success stories using GJXDM, visit http://www.pajnet.state.pa.us/pajnet/site/default.asp

The State of Minnesota

- CIBRS (the Comprehensive Incident Based Reporting System) will collect incident data from all police departments in the state to create a statewide index to incident data. The Global Justice XML Data Model (GJXDD) provides a common vocabulary that is understandable by disparate vendors and systems; the structures within the transactions are consistent with the data model (GJXDM). The same common vocabulary will enable participating systems to request queries on the data collected and understand the content of the responses.[9]

The State of Florida

- In 2005, officials in Orange County projected savings of $5-7 million a year. Their plan was to replace redundant data entry applications with a system based on DOJ's GJXDM as part of their project for Integrated Criminal Justice Information Systems. DOJ's GJXDM enables all of their agencies to share this information without changing their systems.[10]

Initiatives such as the GJXDM and what will become NIEM can literally save government billions of dollars. Why? Because there is a common standard for interfaces. This standard helps government's industry partners as well. Interfaces from solutions providers become standard. Instead of developing expensive "one off" solutions, applications are built to share data using the GJXDM. This helps reduce the risk and cost associated with custom interfaces[11]. Many vendors are now providing GJXDM compliant capabilities with their product and requiring premiums for custom interfaces that don't use the GJXDM.

Going Forward

There is now the opportunity to be involved in the progress of this important initiative. NASCIO is leading the charge from state government in representing their interests as NIEM progresses. NASCIO has pulled together officials from state, county and local government to vet the direction and concepts of NIEM. This influence has been *actively sought* by the NIEM project team led by the Department of Justice and the Department of Homeland Security.

GJXDM Knowledge Base and Help Desk

Find Answers
We store all resolved problems in our solution database. Search by product, category, keywords, or phrases.

Ask a Question
Submit a question to our technical support staff who will reply to you by email.

My Stuff
Login to check the status of your questions, modify your answer update notifications, update your personal profile, or access restricted information and features.

Provide Feedback
Submit suggestions and other feedback about this site here.

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[9] Example provided by Dale Good, Executive Director CriMNet Program Minnesota Bureau of Criminal Apprehension, see http://www.bca.state.mn.us/cibrs/Documents/Executive%20Level%20Summary%20-%20Volume%201%20-%20Issue%203-1.pdf

[10] Example from the Bureau of Justice Assistance

[11] To learn more about GJXDM implementations and cost savings across the country, visit the database of users at www.it.ojp.gov /topic.jsp?topic_id=107.

The future effects of this very significant effort must be monitored to stay abreast of progress, potential barriers, and the impact on the states. Certainly, the risks associated with such an endeavor are formidable. First the Department of Homeland Security has already embarked on one of the most challenging initiatives in our history – that is to bring together such a large number of previously independent agencies and functions into one organization.[12] Second to achieve widespread adoption of the GJXDM – and now NIEM will require significant awareness and relationship building as well as specific attention to the potential technical challenges to adoption. The Department of Justice has already begun to address these challenges through efforts such as the establishment of an online virtual help desk.[13]

What is of interest to the states is the potential future ramifications of this effort. For example, in the FY 2006 Homeland Security Grant Program Guidance and Application Kit[14] The Department of Homeland Security Office of Grants and Training requires the following:

> • *Use NIEM 1.0 or later for information sharing in production systems. The projected released date for NIEM 1.0 (beta) is June 30, 2006 and October 1, 2006 is the projected date for full production support.*
> • *Until the release of NIEM 1.0, the latest NIEM specifications and guidance should be used only for the pilots and prototype systems.[14]*

These requirements not only impose a significant requirement on the states, but also the vendor community serving the states. Within this context it is obvious why the states are interested in the NIEM initiative, its ongoing program management, and in ensuring involvement in the associated conversations and planning activities.

NASCIO has a seat at the table. States are asked to participate through NASCIO's representation in support of this effort. The Bureau of Justice Assistance has awarded NASCIO a grant in order to enable this involvement. This is referred to as the NASCIO Information Sharing Initiative Grant and NASCIO is using those funds to reach out to state and local government to gain input into the NIEM project plan and to bring back updates on the progress of NIEM.

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[12] Department of Homeland Security, Organizational Chart,
  http://www.dhs.gov/interweb/assetlibrary/DHS_OrgChart.pdf
[13] Global Virtual Help Desk, http://www.it.ojp.gov/gjxdm/helpdesk/
[14] FY 2005 Homeland Security Grant Program Guidance and Application Kit, page 24, see
  http://www.ojp.usdoj.gov/odp/docs/fy2006hsgp.pdf

Several supportive activities on the part of the states can assist in this initiative.

- First, work with NASCIO as it begins to collect business process scenarios related to collaborative information exchanges that are most relevant to the states. NASCIO is building a catalog of these scenarios and has teamed with the National Center for State Courts in the initial design of the catalog.

- Second, become educated on the elements and progress of the NIEM initiative. *See NIEM.gov*

- Third, provide, through NASCIO, the necessary technical evaluation, and feedback response through NIEM technical reviews.

- Fourth, ensure that technical staff are familiar with the supportive tools available for implementing collaborative information exchanges using the NIEM XML data dictionary, the GJXDM Virtual Help Desk, and DOJ's Global regional training sessions.

- Fifth, ensure that vendor partners are developing solutions that fully leverage the NIEM XML data model for solutions within integrated justice, and homeland security.

This last recommendation is anticipated to move beyond the initial scope of NIEM to include other government lines of business. Therefore, the progress of this national initiative must be diligently monitored to understand the impact and scope. Expectedly, the scope will grow to encompass the other domains presented in the NIEM Concept of Operations.[15] This recommendation is made in light of the fact that NIEM has the potential for becoming a significant enabler for collaborative information exchanges across government at all levels – federal, state and local.

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[15] NIEM Concept of Operations, http://niem.gov/pdf/niem_concept_of_operations_report.pdf

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Resources:

NASCIO	*Call for Action, A Blueprint for Better Government: The Information Sharing Imperative* *http://www.nascio.org/washwatch/NASCIOww/calls_for_action.cfm* *Washington Watch* *http://www.nascio.org/washwatch/index.cfm* *PERSPECTIVES: Government Information Sharing Calls to Action* *http://www.nascio.org/publications/index.cfm#perspectives* *In Hot Pursuit: Achieving Interoperability Through XML* *http://www.nascio.org/publications/index.cfm#xml*
Center for Technology in Government (CTG)	*Sharing Justice Information: Capability Assessment ToolKit*: http://www.ctg.albany.edu/publications/guides/sharing_justice_info *Capability Assessment Toolkit Online Tool:* http://catoolkit.ojp.gov/introduction
National Information Exchange Model (NIEM)	*NIEM web site* http://niem.gov/ *DOJ's Global Justice XML Data Model (Global JXDM) Executive Briefing on February 28, 2005.* *http://niem.gov/aboutniem.php* *NIEM Concept of Operations* http://niem.gov/pdf/niem_concept_of_operations_report.pdf
Department of Justice, Office of Justice Programs	*DOJ's Global Justice Information Initiative* *GJXDM Knowledge Base and Help Desk* *http://www.it.ojp.gov/gjxdm/helpdesk/*

Resources - Continued

The IJIS Institute	*IJIS Institute Technology Assistance Program – Guidelines for Technology Assistance* *http://www.ijis.org/traction/read?proj=Public&sdate=20060214&edate=all&type=single&rec=25&side=1* *Information Exchange Package Documentation Guidelines V1.1* *http://www.ijis.org/traction/read?proj=XMLComm&sdate=20060214&edate=all&type=single&rec=130&side=1*
SEARCH	*The National Consortium for Justice Information and Statistics* *http://www.search.org/* *Justice Information Exchange Model* *http://www.jiem.search.org/security/login.asp*

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