



**United States
Department of Justice**

National Information Exchange Model (NIEM) Concept of Operations

October 2005

Foreword

Information is the lifeblood of effective justice, public safety, emergency services, disaster management, homeland security, and intelligence efforts. In emergency situations—particularly in light of the continuing threat of terrorism and response to natural disasters and public safety—national enterprisewide information sharing is critical. Officials at all levels of government must have the tools to seamlessly and instantaneously communicate and exchange data in a timely efficient manner. Today, this is not universally possible.

The National Information Exchange Model (NIEM) project vision is to develop such a national enterprisewide framework to facilitate information sharing across all levels of government in support of justice, public safety, intelligence, and homeland security—improving America’s security, while respecting the privacy rights of citizens and the autonomy of external agencies and domains.

NIEM will leverage the assets of the U.S. Department of Justice’s (DOJ) Global Justice Information Sharing Initiative (Global) Justice Extensible Markup Language (XML) Data Model (Global JXDM) as the initial stage of development and evolve incrementally, initially building on a series of pilot projects involving primarily federal agencies. The principal objective of these pilots is to develop exchange standards for information that is common among agencies and universally exchanged as part of their current or intended business practices. Building information exchange standards that are component-based and reusable and maintaining these components in repositories that enable users to quickly discover and easily reuse them will facilitate greater information exchange across agencies and domains, improve efficiency and return on investment, and improve the quality of decisions and effectiveness of operations.

This Functional Concept of Operations (ConOps) provides a high-level conceptual view of the NIEM project. Additional NIEM documentation will be incrementally developed and published to provide the organizational venue, governance structure/processes, technical architecture, development life cycle, and outreach and support mechanisms to facilitate enterprisewide information sharing across all relevant domains.

1. Introduction

Executive Summary—Introduction

- NIEM was launched in February 2005 by U.S. Department of Justice (DOJ) and U.S. Department of Homeland Security (DHS) chief information officers (CIO).
- Authority and motivation for NIEM comes from the Homeland Security Presidential Directive-5 (HSPD-5) and the Homeland Security Act of 2002.
- NIEM focuses on cross-domain exchange standards for information exchanged among agencies as part of their current or intended business practices.
- Stakeholders from relevant communities will work together to define critical exchanges, leveraging the successful work of the Global JXDM.
- Components shared among all domains are identified as the *universal core*; components used in exchanges between two or more domains are identified as *common core*.
- NIEM will standardize the content (actual data exchange standards), provide tools, and manage processes.
- This ConOps document provides a working conceptual view of NIEM.

NIEM represents a common national framework to develop standards and provide training, technical assistance, and implementation support services for enterprisewide information exchange across agencies and domains. NIEM will leverage the data exchange standards efforts successfully developed by the Global Initiative and will extend the Global JXDM to facilitate timely, secure information sharing across the whole of the justice, public safety, emergency and disaster management, intelligence, and homeland security enterprise.

There are hundreds of government initiatives at local, state, and federal levels to provide information sharing capability, most involving XML-based solutions. Global JXDM is unique within the government in its success in unifying the many disparate information sharing initiatives within *justice* domain. The criminal justice domain is expansive in its depth and breadth, comprising wide-ranging law enforcement, investigative, judicial, and correctional functions, and organizational elements at the local, state, tribal, and federal levels. Prior to the inception of the Global JXDM, there were numerous disparate initiatives within the criminal justice domain to provide information sharing capabilities, creating a “Tower of Babel” collection of criminal justice systems that could not communicate with each other. The Global JXDM has been highly successful in implementing a unifying strategy for information sharing within the justice domain, which effectively leverages these information sharing initiatives.

NIEM is designed to accomplish this same level of success in unifying information exchange standards across a broader array of domains in the justice, public safety, emergency and disaster management, intelligence, and homeland security enterprise. NIEM will begin with a series of pilot projects involving primarily federal agencies. The principal objective of these pilots is to develop exchange standards for information that is common among agencies and universally exchanged as part of their current or intended business practices.

Building information exchange standards that are component-based and reusable and maintaining these components in repositories that enable users to quickly discover and easily reuse them will facilitate greater information exchange across agencies and domains, improve efficiency and return on investment, and improve the quality of decisions and effectiveness of operations.

1.1 Background

On February 28, 2005, DOJ's CIO, Vance Hitch, and DHS's CIO, Steve Cooper, announced a new joint initiative—the National Information Exchange Model.¹ The primary goal of NIEM is to enable and facilitate information sharing among and between the diverse communities of interest that collectively represent the justice, public safety, emergency and disaster management, intelligence, and homeland security enterprise. Enabling secure information exchange across multiple agencies and domains at local, state, tribal, and federal venues will facilitate multijurisdictional information sharing.

HSPD-5 assigns the Secretary of DHS the role of principal federal official for domestic-incident management. Additionally, the Homeland Security Act of 2002 charges the Secretary with the responsibility for coordinating federal operations within the United States to prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies. Building on this is Executive Order 13356, which directs the U.S. government agencies to strengthen the sharing of terrorism information through the interchange of terrorism information between agencies and appropriate authorities of state and local governments and the protection of the ability of agencies to acquire such additional information. The NIEM initiative has the specific goal of meeting these objectives and the broad goal of advancing state-of-the-art information exchange between agencies, business domains, and communities of interest.

The DOJ, together with practitioners at all levels of government and private industry, have spent several years developing technical data exchange standards and tools to facilitate broad information sharing throughout the justice domain (i.e., law enforcement, prosecution, courts, probation and parole, and corrections). These standards, which comprise the Global JXDM, reflect actual information exchanges between justice agencies (e.g., sharing crime incident data between police, prosecutors, and courts and sentencing data between courts and correctional institutions).

The need to share information more broadly, beyond the justice enterprise, has become increasingly apparent in a variety of circumstances and emergency situations. Homeland security operations, border management, transportation safety, and disaster relief, to name a few, all require instantaneous and secure information sharing across an expansive array of agencies and domains at all levels of government. NIEM is designed to support this expansive landscape of

¹ The joint DOJ/DHS announcement was made at the executive session of the Global JXDM Developers' Workshop in Arlington, Virginia. See http://it.ojp.gov/topic.jsp?topic_id=195.

information exchange by building comprehensive standards for information exchange.

1.2 NIEM Overview

NIEM focuses on cross-domain information exchange, i.e., the ability to share information among different domains, whether that is among individual local law enforcement agencies; law enforcement and emergency service agencies and other domains; or among local, state, tribal, and federal agencies. The focus is on building the capability to effectively share information between agencies and domains, rather than building intraagency or intra-domain information sharing *per se*.

Leveraging best practices and lessons learned, NIEM will function to bring stakeholders of relevant communities together to define critical exchanges and will provide the necessary tools and support mechanisms to facilitate adoption of common standards for enterprisewide information exchange. Understanding the information exchanges that cross domains, NIEM will identify, define, and provide a repository of common discrete, reusable components and the cross-domain information exchange standards that will be constructed using them.

Components shared among all domains are identified as *universal core*, and the components used in exchanges between two or more domains are identified as *common core* as described in Section 2.

NIEM will standardize content (i.e., actual data exchange standards), create and disseminate tools to support rapid exchange package development and deployment, and provide managed processes for the creation, support, dissemination, and implementation of information exchanges in day-to-day and in-crisis operations.

1.3 NEIM Functional ConOps Overview

This Functional ConOps document provides a working conceptual view of NIEM—its functions, development approach, services, and governance structure. It is divided into the following sections corresponding to the key elements comprising the NIEM initiative:

Section 2. NIEM Technical Approach describes the strategy for the NIEM information exchange model and repository of exchange standards reflecting common vocabulary, language, and exchanges to be shared among stakeholders providing semantic cross-domain interoperability. The three parts of the strategy are 1) technical architecture, 2) the exchange development process, and 3) the planned evolution of NIEM are discussed.

Section 3. NIEM Project describes a Project Management Office that supports the exchange model and repository and provides the NIEM governance structure and processes, development tools, outreach to users

and stakeholders, training, technical assistance, standards certification, compliance, and support.

2. NIEM Technical Approach

Executive Summary—Technical Approach

- NIEM information exchange packages use fundamental building blocks called *core components* that describe common concepts used in business activities. *Common core* data components are shared across two or more domains, and *universal core* components are shared among *all* domains.
- The NIEM exchange development methodology will result in a common semantic understanding among participating agencies and data formatted in a semantically consistent manner.
- NIEM will be a central certifying authority and repository for data components developed by relevant communities of practice that meet technical standards, comply with NIEM requirements, and are reusable.
- NIEM pilot projects will play a central role in shaping the NIEM production release. Content will include high-priority components within the DHS and DOJ mission areas that are defined using scenario-based planning and information exchange/component mapping.
- Stakeholder involvement is a key strategy. Broad-based participation is critical to provide vision and effective decision making. Practitioners and developers participate in NIEM by incorporated standards and reconciling their data exchange standards to meet evolving NIEM requirements.

NIEM represents a robust and dynamic process for developing, validating, certifying, and supporting information exchange standards across relevant domains and providing effective and representative governance for the initiative. The NIEM technical approach is a strategy for:

- Dynamically developing, and employing information exchange standards to realize interoperability of information among relevant domains.
- Institutionalizing the use of consistent semantics that will enhance the process of developing information exchanges, provide ease of validation, and assure that message payloads are correctly interpreted.

To effectively exchange information across agency and domain boundaries, there must be common semantic understanding of the data among participating agencies, and the data must be formatted in a semantically consistent manner. For example, two agencies may each gather information about persons charged with committing a felony offense. If the agencies must share information regarding these persons, there must be common understanding of the terminology each agency uses (one, for example, may refer to the person as the “offender,” while another refers to them as the “defendant”), and there must also be some measure of consistency in the manner in which the information is captured, stored, and exchanged. Agencies do not necessarily need to entirely

retool their information systems or adopt standards and coding schemes that impose an artificial uniformity in data collection that fails to meet their operational business needs, but there must be common understanding and semantic consistency in the structure of the data that is to be successfully shared.

The best method to understand the semantic meaning of data is to document knowledge about data in a structured way. In order to compare one item of data against another and, hence, allow for the exchange of data, the structures of the data must be documented using common documentation standards. The process of documenting knowledge about data is traditionally known as *data standardization*. Data standardization is implemented in a variety of formats and programs, but the basic foundation is a set of data that is engineered and documented using a consistent methodology that results in a set of fundamental building blocks for the information exchange packages to be shared.

Three critical elements of the NIEM approach are 1) the technical architecture, 2) the process for developing information exchanges, and 3) the evolutionary path to NIEM success.

2.1 NIEM Technical Architecture

The NIEM Technical Architecture has three parts: a) a modular data model, derived from Global JXDM, b) an exchange package template library, and c) tools to facilitate rapid component and template discovery, extension, and reuse.

2.1.1 Modular Data Model

The NIEM modular, component-based exchange model will consist of logical entities, attributes and relationships covering the information sharing domains of NIEM participants. Initially, the model will be modularized into three layers representing higher degrees of commonality across sharing domains. Other modularity and modeling techniques may be explored in future NIEM releases. The three layers are:

- Universal core: entities and attributes common across most or all domains.
- Common core: entities and attributes common across two or more domains.
- Domain-specific: entities and attributes specific to a single domain.

As illustrated in Figure 1, these fundamental NIEM building blocks are the basic business data items that describe data concepts which are shared across multiple business domains. Data components such as “person,” “address,” “date,” and “time” are universally used in virtually every domain, and they will likely be appropriate candidates for incorporation in NIEM as universal core data components. Sentencing information must be shared between several justice

domains and, therefore, is a likely candidate for designation as a common core data component. Since it is not shared with all NIEM domains, it will not likely qualify as a universal core component.

2.1.2 Exchange Package Template Library

NIEM provides a library of reusable objects for building information exchange package templates in the form of XML schemas defining the exchange message content (i.e., content payload). The payload is enclosed in a “message,” which provides the routing information and associated security controls needed to deliver the content. Exchange packages include both document exchanges (e.g., immigration form, alert, or incident report) and database queries and responses (e.g., a vehicle license plate search run against a stolen vehicle database). NIEM reusable objects can be used for both structured and unstructured query/responses.

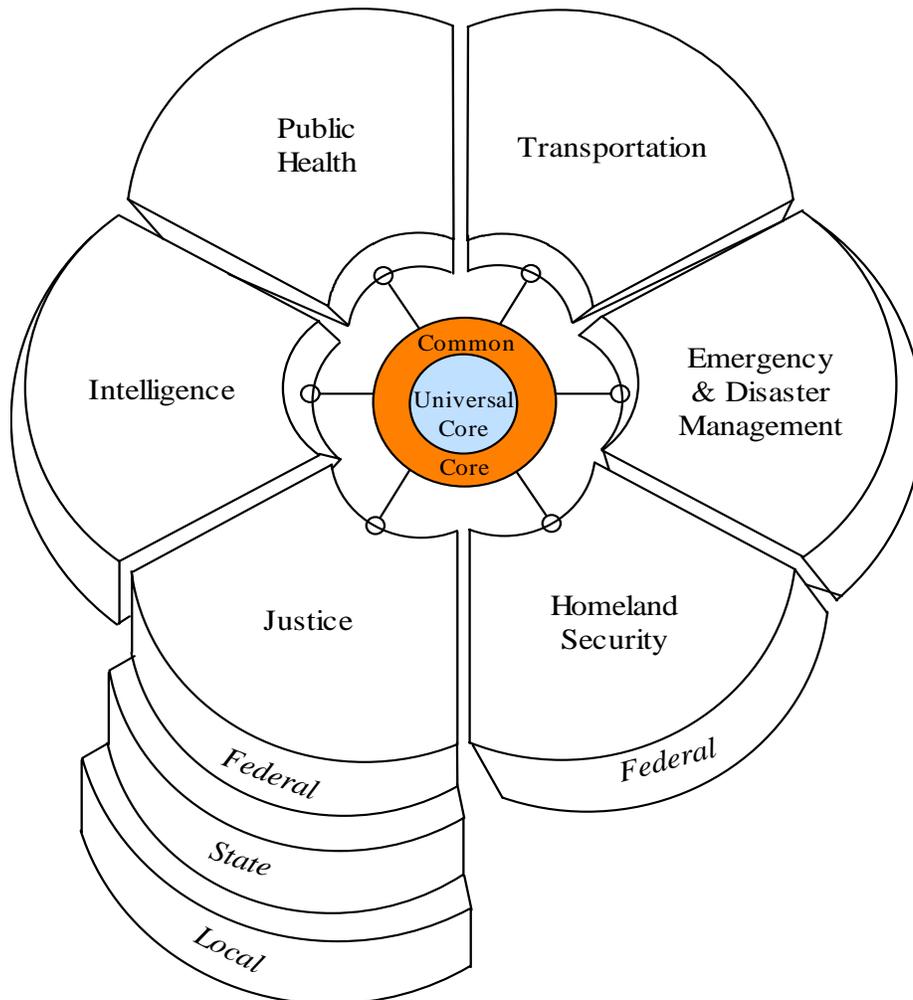


Figure 1. NIEM Interdomain Information Exchange Development

The exchange package template library will provide a set of reusable message types and a message type hierarchy. The message type hierarchy will begin with the most generic communications transactions (e.g., alert, request, response, update) and extend down to more specialized templates for specific transactions.

Figure 2 provides a simplified view of the NIEM concept and framework that illustrates the core components which are used to build information exchange package (IEP) templates in the form of XML schemas. The supporting documentation for each IEP is referred to as an IEP Description (IEPD).

2.1.3 Tools

The third part of the NIEM Technical Architecture comprises a set of tools to facilitate NIEM administration and maintenance and the rapid component and template discovery, extension, and reuse. The objective is to establish NIEM development tools to facilitate each part of the exchange development process from component selection to exchange package design (e.g., defining the business process and exchange requirements through NIEM component selection, extension, and development to exchange message design and schema development).

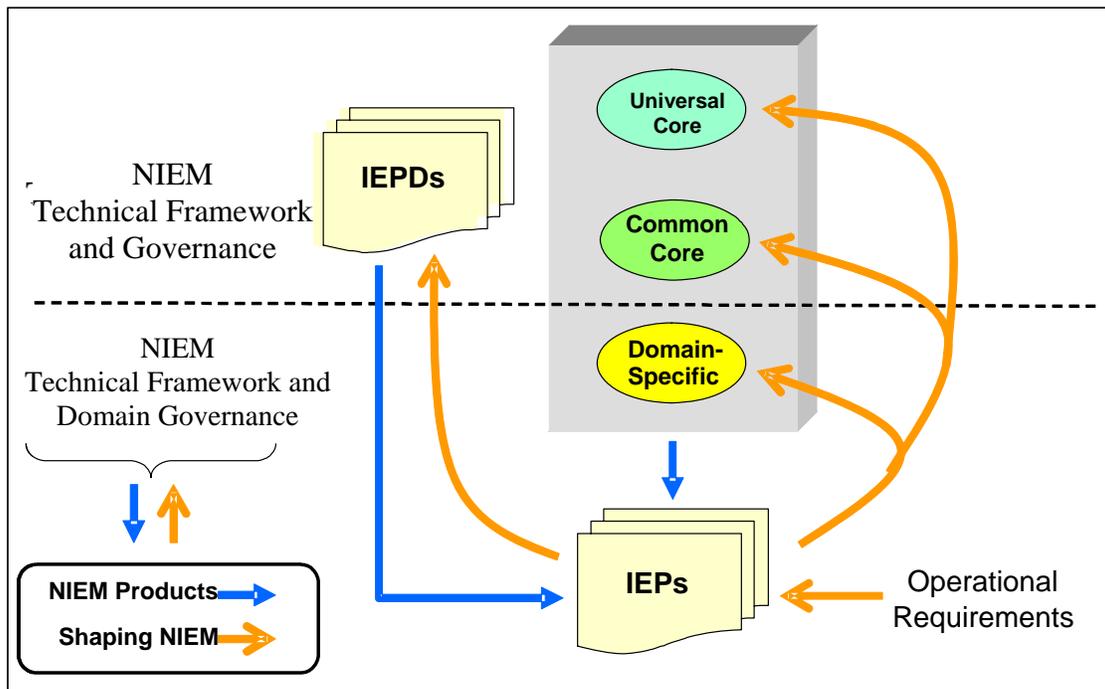


Figure 2. NIEM Concept and Framework (Simplified View)

NIEM is developing and adapting tools that will build a comprehensive NIEM Tool Suite, leveraging Global JXDM development and viewing tools that support collaborative development and deployment of data access and exchange capabilities. Selected Global JXDM tools will be adapted and extended for use with the NIEM. In addition, the NIEM open standards architecture will enable and

facilitate the use of off-the-shelf commercial and shareware tools and will encourage vendor development of new tools to support the NIEM processes.

2.2 Developing NIEM Exchanges

The NIEM development process is a structured approach to defining the protocol and methodology that domain users and stakeholders will follow to participate in NIEM, to use and access NIEM standards, to develop appropriate data components, and to submit candidate standards for certification and incorporation. It also defines mechanisms to negotiate the validation and certification of cross-domain information exchange standards. Governance structure and processes of NIEM are described in Section 3.

The exchange development process transforms business requirements into XML documents for use in data sharing architectures. Figure 3 depicts the process flow.

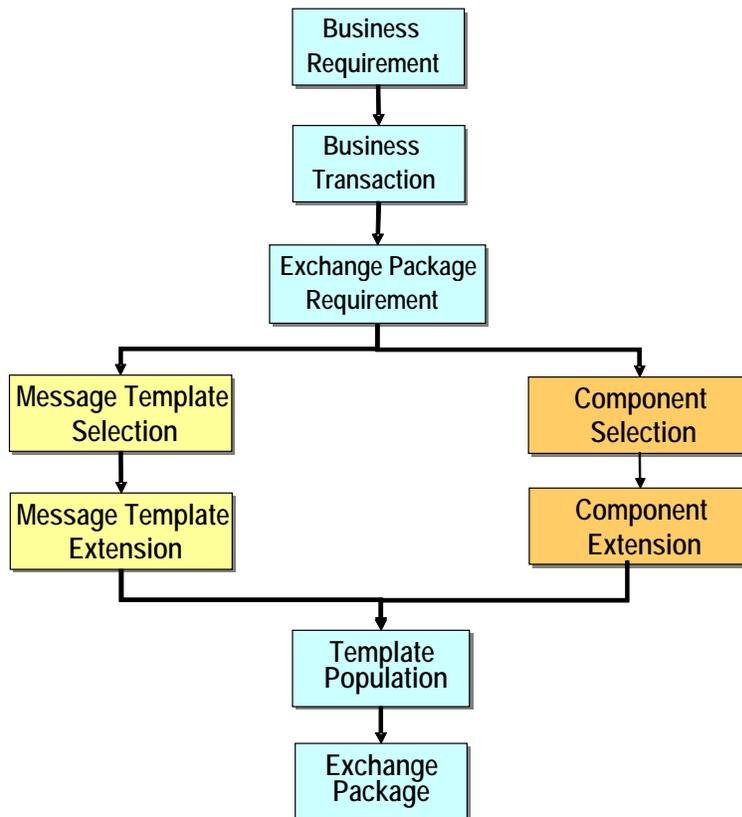


Figure 3. NIEM Exchange Development Process

Scenario-Based Planning and Information Exchange Mapping

Identifying information exchange business requirements is best accomplished through identifying current and planned information exchanges, scenario-based planning, and information exchange mapping. Not all information an agency collects needs to be shared with other agencies or domains. Identifying precisely *what* information is exchanged between agencies will be determined by modeling

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relevant business practices of the domains through *scenario-based planning* and by *information exchange mapping*.

Scenarios describe the business context of events, incidents, or circumstances in which information must be exchanged between agencies and/or domains. The scenario may be a terrorist attack on a city, for example, and careful elaboration of that scenario will identify critical operational points at which information must be shared between two or more agencies for effective prevention, response, and remediation. Scenarios may be used to depict current (i.e., “as is”) information exchange practices among involved agencies, thereby identifying gaps, impediments, and other flaws in business processes and data exchange. They may also be used to characterize potential future (i.e., “to be”) environments that envision broader and more expansive information sharing, as well as changes in business practice.

Once operational scenarios and information sharing requirements have been identified, information exchange mapping is an appropriate next step to identify the precise nature and content of the data that is to be exchanged. Tools such as the Justice Information Exchange Model (JIEM)² can greatly assist agencies and jurisdictions in identifying specific attributes of information exchange, i.e., the event triggering the exchange, the agencies involved, the conditions surrounding the exchange, and the specific information shared.

Using scenario-based planning and information exchange mapping will greatly contribute to documenting the information exchange requirements for effective justice, public safety, emergency and disaster management, intelligence, and homeland security operations. Moreover, empirical analysis of the specific information exchanges will enable NIEM to identify potential *common core* and *universal core* data components.

To facilitate information exchanges identified through these processes, appropriate message templates will be developed and users will be able to efficiently discover and reuse them from the NIEM component library/repository. The message template provides the technical *envelope* for the information exchange, i.e., it provides the necessary technical routing information and associated security controls needed to deliver the content—the actual information (or *content payload*) which is of interest. This technical *envelope* is also referred to as the *message wrapper*. The message template may need to be modified (i.e., extended) to satisfy the particular needs of the specific transaction and participating agencies.

To define the message *payload*, appropriate NIEM-defined components are selected and modified by extension to meet the needs of the specific exchange. This process results in an XML schema defining the transaction. The next step is

² JIEM was developed by SEARCH, The National Consortium for Justice Information and Statistics, with funding by the Bureau of Justice Assistance, Office of Justice Programs, DOJ. For more information on JIEM, see www.search.org/programs/info/jiem.asp.

to populate the template with the actual information to be exchanged to create a specific instance of the exchange schema together with the *message wrapper*. The result is a NIEM exchange package.

The focus of the content development for the first NIEM production release will be on high-priority information exchanges within the DHS and DOJ mission areas. This will include high-priority DHS and DOJ data exchanges with other organizations, including the intelligence community.

2.3 NIEM Evolution

The initial versions of NIEM will be substantially based on the Global JXDM products, processes, and lessons learned. As NIEM development transitions through a yet-to-be-determined number of preproduction releases (Version 0.n), NIEM pilot programs and broad-based stakeholder review and comment will set NIEM on the course toward effective cross-domain information sharing in a multidomain environment.

Two points of emphasis are key elements of this strategy:

- The importance of stakeholder inputs and organizational participation in NIEM pilot projects.
- The need to closely collaborate and synchronize across participating communities of practice.

Stakeholders include executives, practitioners, subject-matter experts, technologists, systems integrators, product developers, and private industry solution providers, each of whom bring unique perspectives and contribute important content to the NIEM development efforts. Broad-based participation is critical to provide needed vision and effective decision-making direction for the NIEM initiative. Representatives from relevant domains, spanning all levels of government, can participate in NIEM through the governance structure committees and councils, by submitting candidate data components and following the NIEM process.

Pilot programs will test the components initially selected using actual or simulated messages with NIEM information exchange packages as the payload. The pilots will play a central role in shaping the initial production release of NIEM. NIEM pilot projects include early adopters of NIEM who will implement NIEM-based data access and exchange capabilities based on the preproduction releases of NIEM. Feedback and lessons learned from the early adopter pilots will be a principal driver in evolving NIEM to new versions and addressing the information sharing requirements of this broad and expanding community.

NIEM will serve as a central certifying authority and repository for reusable data components that have been developed by relevant communities of practice. Justice, for example, will serve as one of the key communities of practice and will

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continue to feed NIEM through identification of candidate common and universal core data components in the justice domain.

Similarly, other domains, such as Emergency and Disaster Management and the intelligence community, will also continue to function and develop information exchange standards particular to their individual domains, and these standards will likely identify additional candidates for common and universal core data components for NIEM. Moreover, NIEM will strategically encourage and pursue further development of data components in other relevant communities of practice. Stakeholders will be brought together to map information exchange requirements and will be provided with the operational methods and support services for development of their domain-specific components.

NIEM will operate to ensure that the candidate components meet technical standards that are developed, comply with NIEM requirements, and are reusable. In addition, NIEM will actively assess candidate components to identify additional potential candidates for universal core data components and will further the development and augmentation of common and universal core data components through this process.

The basic steps to the first production release of NIEM are as follows.

1. Begin with Global JXDM, Version 3.0.3, as the initial basis standard for the NIEM.
2. Identify universal and common core components within the Global JXDM.
3. Add content to meet the NIEM multidomain requirements.
4. Reengineer the Global JXDM design to a modular component-based architecture that is extensible and scalable.
5. Define and develop the NIEM products, processes, tools, and support infrastructure.
6. Evolve the NIEM architecture, content, products, processes, tools, and support infrastructure through a series of preproduction releases (0.n).
7. Issue the initial production release of NIEM.

The NIEM framework and core set of standards and products are the foundation and building blocks for government-wide data access and exchange interoperability. While the initial baseline for NIEM is the Global JXDM, additional information exchange standards development efforts (such as the Disaster Management e-Gov Initiative interoperable standards process and the Intelligence Information Sharing Standards) will also be referenced in building NIEM.

Extract Content: The NIEM model will extract datatypes and data elements that represent the business concepts and business data relevant to the criminal justice domain that have universal applicability, e.g., across all NIEM domains or common applicability across at least two NIEM domains.

Add Content: There are a substantial number of business concepts and associated business data that need to be accessed and exchanged across other NIEM domains. Examples include transportation, travel, immigration, border management, and emergency/disaster management. These business concepts and associated data need to be represented by datatypes and data elements in NIEM.

Harmonize: Harmonization is the process of reconciling semantic and structural differences between nearly identical datatypes and data elements from two or more sources. As new content is being identified and evaluated, NIEM developers will be on the lookout for harmonization opportunities.

Reengineer Technical Architecture: Leveraging recent information technology advancements, the NIEM modular component-based architecture will be designed to facilitate rapid assembly of information exchanges, providing increased interoperability and reusability, rapid development and deployment, improved performance, and scalability.

Adapt Tools: A Global JXDM strong suit is the availability of development and viewing tools that support collaborative development and deployment data access and exchange capabilities. Both government-owned and commercial tools have been created and/or adapted to support Global JXDM-based development. Selected Global JXDM tools will be adapted and extended for use with the NIEM.

Governance: The NIEM project is planning for a robust and operational governance process that efficiently and effectively engages all the NIEM stakeholders. This governance process is being developed to address the challenge of cross-domain governance in a multidomain environment.

Rework Processes: As NIEM matures, the set of processes for applying, evolving, contributing to, and maintaining the NIEM must evolve.

Expand Collaboration: The success of the NIEM Project will be due in large part to strong emphasis on broad-based outreach, support, and collaboration within the broad multidomain environment. Practitioners and private industry can monitor progress of the NIEM program by regularly visiting the NIEM Web site and requesting training, technical assistance, and program materials directly from the NIEM Project Management Office (NIEM PMO). Practitioners will also be encouraged to participate in standards development working groups addressing relevant domains and can make their interests in such participation known to the NIEM PMO.

Increase User Base: Sustaining and growing the user base for NIEM is essential. Practitioners and developers (both public and private sector) can participate in NIEM by incorporating NIEM standards in their information sharing initiatives and by reconciling their data exchange standards to meet the evolving NIEM requirements. This is a highly interactive process where NIEM will monitor

operational implementation of standards to ensure effective performance, return on investment, and operational relevance.

Heed Lessons Learned: It is essential that the NIEM tap into the extensive experience base that has evolved with Global JXDM and other national programs and continue to heed lessons learned as the project evolves.

3. NIEM Project

Executive Summary—NIEM Project

- The NIEM Project will be jointly administered and staffed by DOJ and DHS.
- The NIEM PMO will provide an array of outreach services, training, technical assistance, and support to encourage and support users and developers in implementing common information exchange standards and to continue to build and expand the scope and reach of NIEM.
- NIEM will be governed by a coordination group, comprised of key players from relevant stakeholder agencies and their support teams and will include elements of existing governance bodies.
- NIEM governance will evolve over time, as the information exchange needs of relevant agencies and domains are identified and incorporated.

The NIEM PMO is jointly administered and staffed by DOJ and DHS. The NIEM PMO is currently the operational entity responsible for building and maintaining the NIEM model and for administering and supporting the NIEM process. It will function to support research in identifying *common core* and *universal core* data components and to coordinate and provide:

- Outreach to users and stakeholders.
- Technical assistance, training, standards, certification, and compliance.
- Development or procurement of tools necessary to ensure ongoing operation.

3.1 NIEM Project Success Factors

Accomplishment of each of the following essential activities is considered a critical factor in the success of the NIEM project.

3.1.1 Outreach

The NIEM PMO's marketing activities will include reaching out to communities of practice (COP) to build and enlarge the array of domains in NIEM and to address areas of strategic value to the initiative. This outreach activity will clearly define the message and value of NIEM, defining with substantial operational clarity the tangible and measurable benefits for uses and contributors.

Through carefully planned and effectively executed outreach efforts, NIEM will encourage adoption of NIEM standards by industry and relevant domains. Participating COPs will be asked to submit content to the NIEM repository.

3.1.2 Adoption, Certification, and Compliance

NIEM will provide certification processes to verify and validate that applications (whether developed by justice agencies and practitioners), DHS domains, or private industry meet NIEM information exchange standards. As part of this effort, the NIEM PMO will develop, test, and implement procedures to ensure that appropriate criteria, testing protocols, and validation procedures are in place and sufficiently robust to ensure accurate determination. The NIEM PMO will also monitor compliance to ensure the integrity of the program and the certification process.

3.1.3 Governance

The NIEM initiative requires the immediate implementation of an interim governance structure to establish and execute the initial program plan. The interim governance structure will be supported and developed by a coordination group comprised of key players from the stakeholder agencies and their support teams and will include elements of existing governance structures. NIEM governance will evolve over the life of the project, reflecting evolving needs to share information with other domains.

NIEM governance is the mechanism—the organizational venue and governance process:

- To bring the relevant parties together to identify and define those common and universal core information exchanges.
- To encourage and support development activities in relevant agencies and domains that will enable them to build standards to meet their individual needs, as well as the broader justice, public safety, emergency and disaster management, intelligence, and homeland security information exchange needs.
- To provide the necessary tools, training, technical support, and outreach activities to educate and enable domain users and stakeholders to reuse across the entire justice, public safety, emergency and disaster management, intelligence, and homeland security domains to effectively exchange information (see 3.2 NIEM Governance).

3.1.4 Support Infrastructure

For NIEM to be effective, it must include a comprehensive and multifaceted program of education, outreach, training, technical assistance, and support. Practitioners, user communities, and private industry solution providers

throughout the nation should be educated on the operational value, benefits, organizational structure, and practical operations of NIEM and its programs. Education will take a variety of forms, including general announcements, conference and workshop presentations, detailed program reports, and specific outreach to relevant communities of practice and government and industry officials.

Detailed training programs will be carefully developed and a detailed training plan for NIEM will be created specifically targeting practitioners, technologists, and private industry. The training programs will address both business and technical perspectives of information exchange standards and NIEM operations and include outcome measures and specific deliverables.

Technical assistance will be provided to practitioners, user communities, and jurisdictions throughout the nation, and a detailed technical assistance plan will be developed. Technical assistance will be provided by NIEM PMO representatives, as well as well-qualified national organizations. By carefully coordinating technical assistance activities with local, state, tribal, and federal jurisdictions, NIEM will ensure consistent messaging, effectively manage expectations, and coordinate activities to ensure effective operations and best value.

3.1.5 Maintenance

The NIEM PMO will develop protocols and mechanisms to provide ongoing support and maintenance to ensure dynamic development, robust and evolutionary operation, incorporation of new technology, and continued enhancement and evolution of the NIEM operating model.

3.2 NIEM Governance

3.2.1 Current Governance Scope

For purposes of this document, this section will provide a high-level conceptual view of the NIEM governance structure. Additional NIEM documentation will be incrementally developed and published to provide the organizational venue and governance structure/processes, outreach, and support mechanisms necessary to facilitate enterprisewide information sharing across all relevant domains. The NIEM Interim Governance Plan will address in greater detail the structure and process to be put in place as NIEM progresses to its initial production release.

3.2.2 Organization and Responsibilities

The initial governance structure is established to provide rapid ramp-up of the NIEM initiative and to incorporate as much expertise as can be coordinated. On an interim basis, the governance structure and process for NIEM will mirror best practices in private industry, academics, software engineering institutes, and other proven governance models and authorities across all levels of government.

3.2.3 NIEM Governance Structure

To be effective, the NIEM governance must actively involve broad-based government participation at the local, state, tribal, and federal levels, as well as representatives of private industry that develop and provide much of the information technology solutions used by government clients. NIEM will extend and augment the evolving governance process to reflect the expanded scope of the NIEM multidomain environment, including such partners as the intelligence community, emergency and disaster management, transportation, social services, and others, as appropriate.

3.2.4 Initial Governance

The NIEM initiative requires the immediate implementation of an interim governance structure to establish and execute the initial program plan. The *initial* governance structure is a coordination group consisting of key players from the stakeholder agencies, their support teams, and their governance structure. NIEM governance will evolve over the life of the project.

In the early stages, NIEM will leverage many of the resources and practices of current initiatives participating in the pilot project (for example, the Global Initiative, Disaster Management e-Gov Initiative interoperable standards process, and the Intelligence Information Sharing Standards). These governance structures will gradually form a common approach into program governance as membership begins to harmonize and deliver more diverse and new content from other domains (e.g., intelligence, transportation, public health).

3.2.5 NIEM Governance Structure Overview

The governance structure for NIEM, illustrated in Figure 4, will mirror in fundamental respects that of the Global Initiative and the Intelligence Information Sharing Standards governance.

A NIEM Executive Steering Committee, comprised of director-level officials representing key domains in the justice, public safety, emergency and disaster management, intelligence and homeland security domains, will provide vision and decision-making direction for the NIEM initiative. In addition to representing all of the key NIEM domains, the representatives will be drawn from local, state, tribal, and federal communities to reflect the depth and breadth of information sharing required for effective operations.

NIEM CONCEPT OF OPERATIONS (CONOPS)

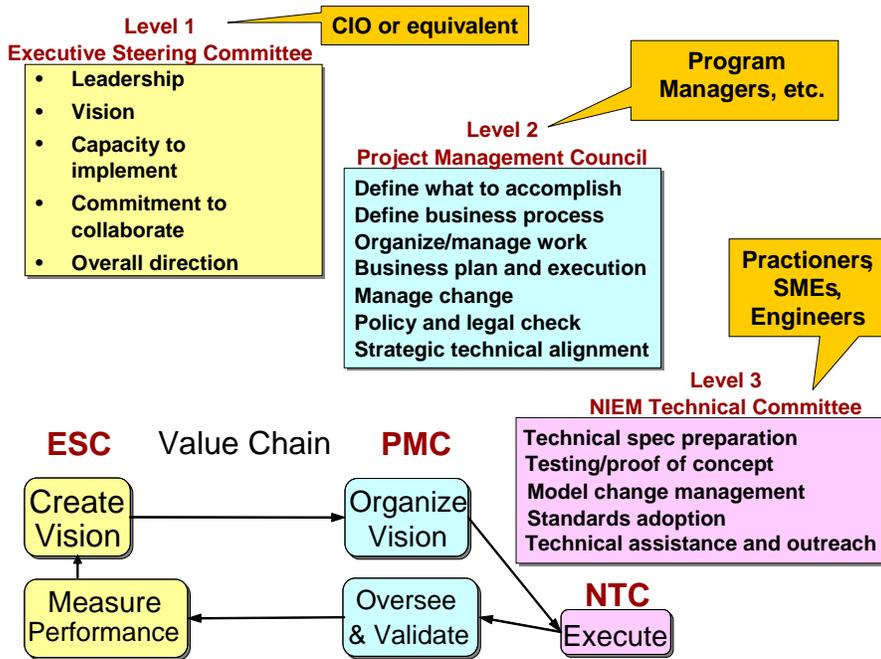


Figure 4. Proposed NIEM Interim Governance Structure

The NIEM Program Management Council (PMC) will similarly be comprised of representatives of each of the relevant domains reflecting all levels of government, but the representatives will be program managers and business domain experts who understand, at an operational level, the needs and business operations required for effective information sharing. The PMC will be charged with advising and developing the operational plans for development of the NIEM model and processes. It will create specific strategic and tactical plans for implementation, operation, and management to include the formation and oversight of the NIEM Change Control Board (CCB), as illustrated in Figure 5. Additionally, the PMC will provide guidance and direction to the NIEM Technical Committee (NTC), which has primary responsibility for development, testing, and certification of technical standards.

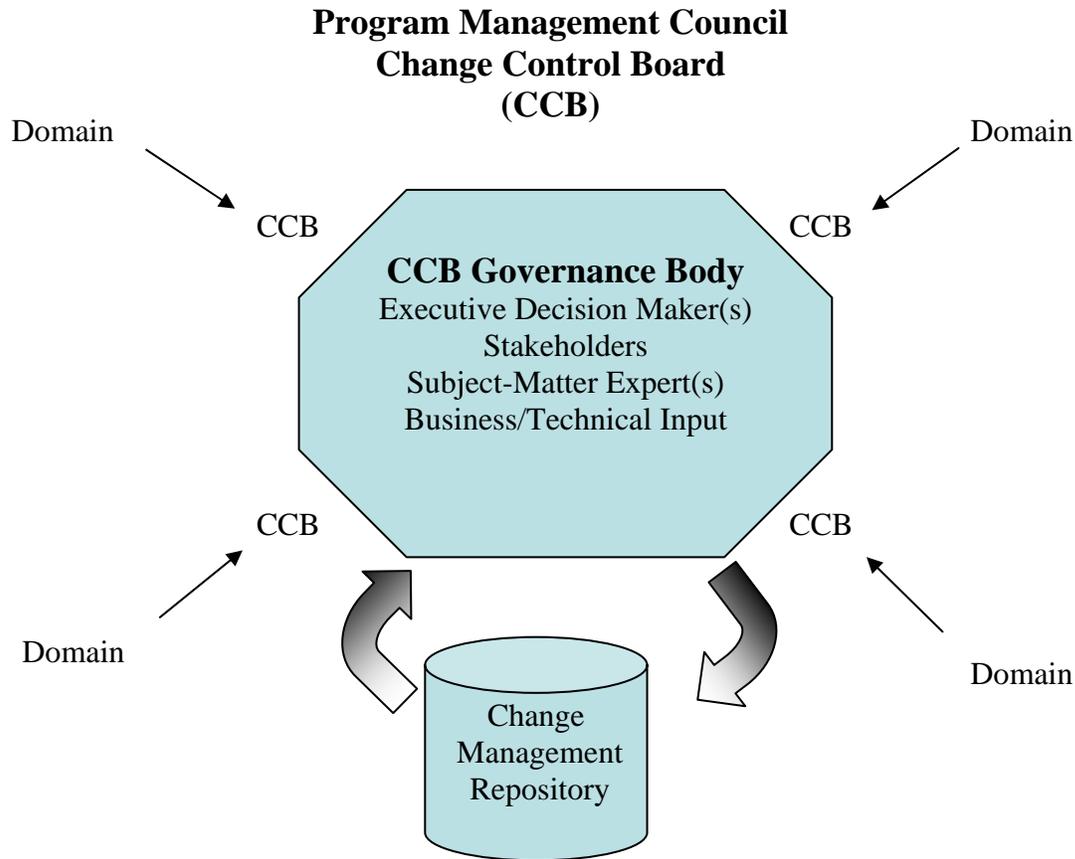


Figure 5. NIEM Change Control Board

The NTC will be comprised of technical experts and subject-matter experts, again reflecting relevant domains and all levels of government. Their primary responsibility will be technical specification development, standards adoption, testing and development of the NIEM model proof of concepts and process, model change management, and development of technical training and outreach plans and activities.

3.2.6 Ratification of the NIEM Interim Governance Structure

The central objective is the cooperative environment between initial stakeholders and the accompanying cooperation between agencies, especially in establishing equitable resource levels. The appointed leaders of the coordination group include one representative from each stakeholder agency who makes final decisions under their proper authorities. A more formal charter will be established for the future Program Governance Structure and is a primary deliverable of the initial start-up process.

3.2.7 NIEM PMO Responsibilities

The NIEM PMO will first identify and establish the partnerships necessary to effectively minimize the effects of government bureaucracy on citizens. The PMO will then coordinate with partners to establish community understanding for

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how to effectively and expeditiously develop and deploy NIEM standards and messages. The NIEM PMO will facilitate and participate (where appropriate) in weekly meetings with the partner work groups/Integrated Project Teams (IPT) to ensure cross-pollination of ideas among the teams and eliminate defensive avoidance and other barriers to innovation. Monthly meetings will be held with relevant partners and those who have invested financially in the program.

The NIEM PMO is responsible for ensuring the accuracy and adequacy of the business case and management of the project to achieve cost, schedule, and performance goals that are established. Partners will be equally responsible for identifying requirements, providing resources (where appropriate), developing program requirements, complying with architectural standards, maintaining outreach initiatives, and executing communication strategies.

3.2.8 Integrated Project Team (IPT) Responsibilities

IPT is responsible for managing the project from concept to implementation. The IPT has “cradle-to-grave” responsibility, including marshalling all skills necessary to manage, administer, and implement a project. These responsibilities include a project manager and all relevant project stakeholders. IPTs may include an Outreach Project Team, Architecture Project Team, Document Control Project Team, and a Business Process Engineering Project Team, among others.

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