NIEM Concept of Operations

Version 3.0

June 28, 2013

Contents

1. Introduction and Overview

1.1. Document Purpose

The NIEM Concept of Operations (ConOps) is a comprehensive document that details and describes NIEM operations. The purpose of this document is to enable readers to understand the processes, resources and structures that support NIEM.

NIEM users looking for a step-by-step guide for NIEM adoption should refer to the *NIEM User Guide*.

1.2. Document Scope

This document describes elements of the **architecture**, **governance**, and **processes** of NIEM. These three pillars represent the primary components of NIEM value: the model, the community, and the structured approach.

Architecture refers to the set of rules governing the arrangement, interaction, and interdependence of the elements comprising NIEM. **Governance** refers to the decision-making structure and authority to support initial development, continuing operation, and future evolution of NIEM. **Processes** describes the technical and operational procedures and methodologies for building and interacting with NIEM, and for discovering, developing, and reusing NIEM exchanges.

1.3. Document References

References to other NIEM-related documents and terms appear throughout this Concept of Operations. For more details, please refer to the Appendix for a Reading Roadmap. Most documents are also available on NIEM.gov. Below is a list of relevant documents and their owners:

Document References	
Document	**NIEM Ownership**
Domain Maturity Model Dashboard	NBAC
Model Package Development (MPD) Specification	NTAC
NIEM Committee charters	NBAC, NTAC
NIEM Conformance	NTAC
NIEM High-Level Tool Architecture (HLTA)	NTAC
NIEM High-Level Version Architecture (HLVA)	NTAC
NIEM Naming and Design Rules	NTAC
NIEM Tools Strategy	NTAC
NIEM User Guide	NIEM PMO
Quality Assurance Strategy and Plan	NTAC

1.4. NIEM Overview

The National Information Exchange Model (NIEM) is a community-driven, government-wide, standards-based approach to exchanging information. Diverse communities can collectively leverage NIEM to increase efficiencies and improve decision-making. Used in all 50 states and internationally, NIEM is available to everyone. It includes a data model, governance, training, tools, technical support services, and an active community to assist users in adopting a standards-based approach to exchanging data. NIEM is a working and collaborative partnership between organizations at all levels of government, operational practitioners, standards bodies, private industry and other stakeholders.

NIEM is a common vocabulary and a technology-agnostic framework which provides the following:

- A high-level tool architecture
- A standard, reusable governance model
- Tool and training support
- Discovery, dissemination, and reuse of standard information exchanges

The NIEM framework facilitates the creation of automated enterprise-wide information exchanges which can be uniformly developed, centrally maintained, quickly identified and discovered, and effectively and efficiently reused. The result is more semantic interoperability which leads to more efficient and expansive information sharing between agencies and authorities; more cost-effective development and deployment of information systems; greater efficiency, effectiveness, and return on investment (ROI) in operations; greater reuse of existing information exchanges when creating new information exchanges; and overall more timely, accurate, and complete information.

The reusable components that NIEM provides are collaboratively managed under a governance process which allows the individual domains to manage their own content and leverage existing standards while ensuring cross-domain interoperability. Each domain defines the reusable components within the domain, and harmonizes them with the NIEM Core. Domains have the freedom to refresh their content independently and reuse existing NIEM components when possible while still meeting the requirement of NIEM conformance.

1.5. Background

The U.S. Department of Justice (DoJ) and the U.S. Department of Homeland Security (DHS) launched the NIEM Initiative on February 28, 2005. NIEM, as a stakeholder-driven framework, brings together stakeholders from a variety of mission areas, or “domains,” to identify common business requirements or data elements that fulfill information sharing goals. NIEM uses these requirements to develop a common vocabulary for both inter- and intra-domain information exchanges. NIEM initially incorporated the data exchange standards successfully implemented by DoJ’s Global Justice Information Sharing Initiative (Global) and extended the Global Justice XML Data Model (GJXDM).

2. NIEM Architecture

2.1. Aligning NIEM to an Enterprise Architecture

Enterprise Architecture (EA) refers to an approach by which business processes, technology, data, services, and performance are pieced together within an organization. This is done to show the impact that one has on the other, as well as to serves justification for business and IT alignment and spend. EA provides a common approach for the integration of different aspects of an organization to help eliminate redundancies across their systems.

Aspects of NIEM fit into all parts of the EA model, and do not require a new design of the EA:

- **Business:** NIEM exchanges are tied to specific processes and are governed by a Community of Interest (COI)
- **Data**: NIEM provides a common vocabulary for describing data and design rules for structuring NIEM-conformant schemas
- **Service**: NIEM is used to standardize and structure messages across applications and services
- **Technology**: NIEM enables interoperability between disparate systems and minimizes point-to-point exchanges, and when implemented, is tied to an organization's technical infrastructure
- **Performance**: NIEM provides added value to an organization via an information sharing framework to help support mission critical information exchanges

NIEM does not inhibit an agency that is external to a NIEM-managed domain from exchanging information with an agency aligned to a NIEM-managed domain. Taxonomies that correlate information exchanges to business functions and processes help facilitate the search and discovery of data components.

NIEM is flexible and aligns well to existing organizational EA processes - The governance and framework model defined by NIEM allows it to work well with these existing processes where different aspects of the NIEM process, and the outputs achieved, can be coupled with EA artifacts. This alignment allows NIEM to not be a separate entity or governing body within an organization, but instead can embed itself into existing business operations.

Additional information regarding the EA processes and integration can be found in the XXXX.

2.2. The NIEM Model

The NIEM model provides a common vocabulary for consistent and reusable inter- and intra-domain information exchanges. The structure and meaning of NIEM data elements are defined by a series of rules and a data dictionary represented as XML Schema Definition (XSD). Users can view the current production release and archived releases of the NIEM data model on the NIEM.gov. Since NIEM remains technology agnostic, NIEM does not place any restrictions on

how it is implemented; thus allowing organizations to implement NIEM into their existing technical infrastructure.

The fundamental building block of NIEM is the data element, which describes common concepts used in general business activities. These shared concepts are part of the NIEM Core (center of the circle in Figure 1). The NIEM Core includes concepts that are commonly understood across domains, such as organizations, dates, locations, and activities. Individual domains build off those generic, core concepts and apply it to their respective mission spaces, also called NIEM domains. Figure 1 illustrates NIEM core and domains. As the requirements of the NIEM community develop and mature, additional domains will be added. Section XXX describes the process by which additional domains and representative COIs can be added to NIEM. The new data elements are added to the model after being vetted through a governance process called *harmonization*. As NIEM-based information exchanges proliferate, COIs are encouraged to make the NIEM-based exchanges available to others by publishing them on accessible repositories (if applicable). See Section XXX for further details.

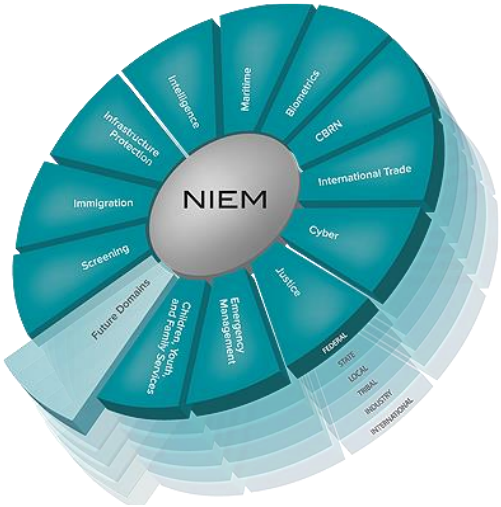


Figure 1: NIEM Core and Domains

The NIEM architecture is designed to meet the requirements of cross-domain information exchange. The IEPD development lifecycle and the NIEM maturity model serve as the processes to accomplish this level of information exchange. They also help determine how a new data element is identified so that it can be evaluated for conformance based on the rules defined in the *NIEM Naming and Design Rules.*

For more information and to access the current release of the NIEM model, visit https://www.niem.gov/technical/Pages/current-release.aspx.

2.3. Current State of Model

The state of the model is continuously evolving, as major and minor releases occur and new content is added to the model. The NIEM PMO plans to release version 3.0 in September 2013. The NIEM 3.0 release brings the total number of domains to 14, documented in Table 2 along with the executive steward for each. Additional information about Domain Stewardship can be found in Section 4.4. The last major release was NIEM 2.1 in September 2009.

Domain	Executive Steward
Biometrics	DHS/NPPD, DOJ/FBI, DOD, NIST
Chemical, Biological, Radiological, Nuclear	DHS/DNDO
Child, Youth, and Family Services	HHS & DOJ

Cyber	DHS/NPPD/CS&C
Emergency Management	DHS/FEMA, DHS/S&T (state & local)
Health	HHS/ONC & HHS/OCIO
Human Services	HHS/ACFS & HHS/ONC
Immigration	DHS/ICE & USCIS
Infrastructure Protection	DHS/NPPD
Intelligence	Criminal Intelligence Coordinating Council/Global Advisory Council, DNI
International Trade	DHS/CBP
Justice	Global Justice (State & Local)
Maritime	DOD/DON/MDA
Screening	DHS Screening Coordination Office

Table 1: NIEM Domains

For more information on the NIEM model and the model release cycle, see Model Releases or visit NIEM.gov.

2.4. Domains and Namespaces

The NIEM model consists of a NIEM Core and individual domains, which contain domain-specific data elements. NIEM domains are created by stakeholders to identify common business requirements and data elements relevant to the applicable mission space. NIEM domains fully conform to the *NIEM Naming and Design Rules* and are managed by authorized representatives called domain stewards, as shown in Section 3.3.

NIEM domains uniquely identify a collection of elements by associating them with a specific mission space. All elements in a given domain must be uniquely named. NIEM model consists of three layers: NIEM core, NIEM domains and NIEM-conformant code lists. NIEM core contains data elements that are under NIEM configuration control; whereas, domains are controlled by representatives participating in the domain. Please refer to the High-Level Version Architecture (HLVA) for additional details.

2.5. Information Exchange Package (Architecture)

An Information Exchange Package (IEP) is the technical representation of an information exchange in the form of Extensible Markup Language (XML). This XML is defined by underlying data and business rules, structure and format which is documented in the XML Schema

Definition (XSD). When IEPs also include additional function and business documentation, it is then referred to as an Information Exchange Package Document (IEPD).

As described in the Model Package Description (MPD) specification, the required artifacts of an IEPD include the following:

- Subset Schema and Wantlist: The subset of the larger NIEM model that is relevant for your particular information exchange
- Exchange Schema: The document (or root) schema for the information exchange
- Extension Schema: A schema comprising of the set of elements that are not in NIEM
- XML Instance: An XML representation of the information exchange (also called the IEP)
- Component Mapping Template: A spreadsheet that maps source data elements to NIEM
- Main Document: The business justification and rationale for the information exchange
- Catalog: Information exchange, and IEPD, metadata for consistent IEPD characterization

Additional information can be found in the *NIEM Naming and Design Rules.*

2.6. NIEM Conformance

NIEM conformance is defined as the alignment and adherence of schemas, XML, and IEPDs to a defined set of rules, specifications, and guidelines. Internal names for data within a given system, tool, or database have no impact on the determination of NIEM conformance. Conformance is only about the format of payload data encapsulated in XML instances that validate XML schemas, which adhere to the *NIEM NDR* and support IEPDs.

NIEM prescribes three levels of conformance:

1. NIEM XML schemas conforming to the *NIEM NDR* (The NIEM NDR is a document that lays out rules for what constitutes NIEM schema conformance. It overlays aspects of the W3C XML specification with those aspects relevant and applicable to NIEM. It also provides justification as to why design conformance decisions were made)

2. NIEM XML instance documents conform by correctly validating to NIEM-conforming XML schemas (An XML instance validating against NIEM conformant schemas make the XML instance NIEM conformant as well)

3. NIEM IEPDs conforming to the *Model Package Description (MPD) Specification* (The MPD Specification is a set of guidelines for IEPDs, along with other NIEM artifacts, what they contain and the structure in which they should be contained within)

2.7. Support Tools

NIEM provides a reference tool set that is adapted for each NIEM release. The tools focus on different aspects of the NIEM processes, but together implement all of the structural and content features of the release, including the *NIEM NDR*. NIEM's well-defined interfaces and output products also support the development of independent third-party tools. In addition, NIEM provides training materials, such as briefings, process-related documentation, formal

training sessions, and support in the form of the National Information Sharing Standards (NISS) Help Desk and Knowledge Base. Training provides the knowledge that stakeholders need to adequately use the NIEM tools and other support capabilities.

NIEM.gov released a NIEM Tools Catalog, which serves as a clearinghouse for both internal and external NIEM tools. Tool vendors will be required to submit their tool for evaluation and approval before it is made available on the Tools Catalog. The Tools Catalog site includes the associated processes and tool evaluation criteria for tool vendors to assess their tools against, as this is the same criteria that the tool evaluation committee will be using.

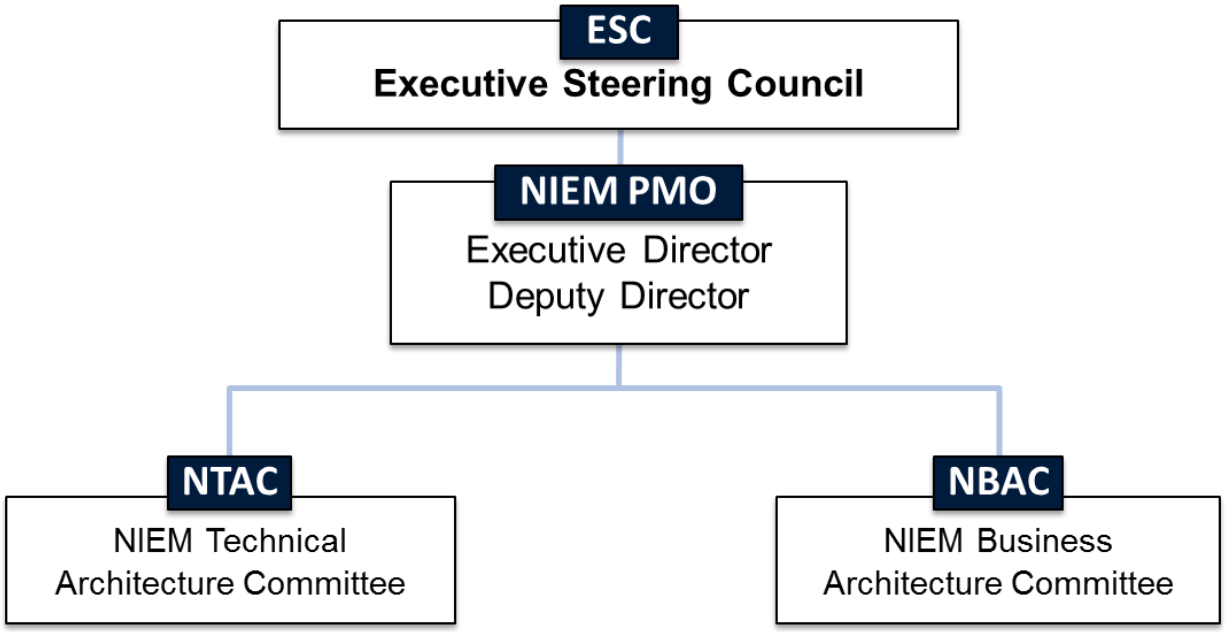
More information on NIEM tools can be found in the *NIEM Tools Strategy.* The NIEM Tools Catalog can be found here https://www.niem.gov/tools-catalog/Pages/tools.aspx.

3. NIEM Governance

3.1. NIEM Governance Structure

NIEM represents a working and collaborative partnership directed by key government agencies and supported by business and data owners, technologists, private sector solution providers, and stakeholders in Federal, State, Local, and Tribal governments. NIEM governance is intended to be flexible and to afford all types of stakeholders a voice in decision-making.

The NIEM program is governed by an Executive Steering Council (ESC), which appoints the leadership of a Program Management Office (PMO) and the co-chairs of two community-driven committees, the NIEM Business Architecture Committee (NBAC) and the NIEM Technical Architecture Committee (NTAC). This structure is depicted in the diagram below.



3.2. Executive Steering Council (ESC)

The Executive Steering Council (ESC) is a governing body that provides executive leadership, vision, direction, and funding support for NIEM, and also advocates for NIEM at senior levels of government and among key constituencies.

The ESC is chaired by NIEM's primary sponsors, who are the Chief Information Officers of their respective departments (the Department of Homeland Security, the Department of Justice, and the Department of Health and Human Services, as of June 2013). Representatives of other entities also provide guidance to the ESC, including Global Justice Information Sharing Initiative, the National Association of State Chief Information Officers (NASCIO), the Executive Office of the President Office of Management and Budget (OMB) Federal Enterprise Architecture (FEA) through the Chief Architect, and the Office of the Director of National Intelligence (ODNI) through the Program Manager of the Information Sharing Environment (PM-ISE). The ESC meets throughout the year to consider major initiatives, discuss the direction of NIEM, review key documents, and to approve the admission of new domains.

For more information on the ESC, visit NIEM.gov.

3.3. NIEM Program Management Office (PMO)

The NIEM Program Management Office (PMO) functions as the operational arm of NIEM. It executes on the vision of NIEM as defined by the Executive Steering Council (ESC), develops

strategic planning to support the program, and performs day-to-day management and operations.

The NIEM PMO is led by the Executive Director and the Deputy Executive Director, who are appointed by and report to the ESC. The PMO's regular operations and outreach efforts are coordinated by the Managing Director. The PMO is considered to include these three positions, as well as the committee co-chairs, liaisons to the NIEM committees (the NBAC and NTAC), and any other staff and program support. The PMO is responsible for NIEM communications, strategy, budgeting, partnerships, training, support, performance management, stakeholder engagement, and other programmatic and administrative functions. For many of these tasks, the PMO collaborates with one of both of the committees and other members of the NIEM community.

For more information on the PMO, visit NIEM.gov.

3.4. NIEM Committees

The NIEM program relies heavily on two committees: the NIEM Business Architecture Committee (NBAC) and the NIEM Technical Architecture Committee (NTAC). These committees are comprised of stakeholders from the NIEM community, and they make recommendations for and maintain custody of key components of the model. Each committee is led by two co-chairs, and collaborates with a liaison from the NIEM PMO.

The committees meet regularly, and frequently liaise with each other and with the NIEM PMO to share recommendations and updates. They occasionally hold joint in-person meetings. The co-chairs of each committee are invited to attend the meetings of the other and to share goals and activities.

3.4.1 NIEM Business Architecture Committee

The NIEM Business Architecture Committee (NBAC) is one of the two NIEM committees, along with the NIEM Technical Architecture Committee (NTAC). The NBAC sets the business architecture—the structures and processes connecting the business objectives and the functionality of the program—and the business requirements for NIEM. The committee also regulates and maintains NIEM Core, and facilitates interactions between NIEM domains.

The NBAC is comprised of members of the NIEM community representing diverse mission areas, agencies, and levels of government. Each established domain has representation on the committee. Two NBAC members serve as co-chairs and work with the NIEM PMO to set the agenda and priorities of the committee. The primary responsibilities of the committee are to evaluate the need for new domains and submit a recommendation to the ESC; to maintain the integrity of NIEM Core through harmonization, quality assurance, and other issue resolution

activities; and to formulate business requirements for model release cycles. The NBAC works with the NTAC and the NIEM PMO to promote the usability and accuracy of the model.

For more information on the NBAC, see the *NBAC Charter* or visit NIEM.gov. See also Domains.

3.4.2 NIEM Technical Architecture Committee

The NIEM Technical Architecture Committee (NTAC) is one of the two NIEM committees, along with the NIEM Business Architecture Committee (NBAC). The NTAC defines, documents, implements, and maintains the technical specifications for the NIEM program, based on the business requirements defined by the NBAC.

The NTAC is comprised of subject matter experts, systems developers, and other key stakeholders across levels of government, along with some industry experts. Two NTAC members serve as co-chairs and facilitate the meetings and operations of the committee. The primary mission of the NTAC is to define the technical and structural architecture of NIEM from the perspective of IEPD development and implementation. The NTAC defines the *Naming and Design Rules* (*NDR*) for NIEM elements, and directs the program's technical strategy.

For more information on the NTAC, see the NTAC charter or visit NIEM.gov.

3.5. Domains

NIEM domains represent communities of interest (COIs), which are made up of users working in common mission areas such as justice, international trade, and human services. These domains operate independently, and have control of their own content in the NIEM model.

A domain is established by a Domain Stewardship Agreements (DSA): a memorandum of agreement signed by a representative of the domain (a Domain Steward) and a representative of the NIEM PMO outlining the responsibilities of the domain to the NIEM program, and vice versa. This document represents a binding commitment on behalf of both parties. Domains participate in NIEM governance through the NBAC, and maintain their own independent governance structures for their own communities of users.

For more information on domains, see The NIEM Model, Domains and Namespaces, or visit NIEM.gov.

3.6. Other Stakeholders

In addition to the primary NIEM governance structure and the domains, NIEM has other important stakeholders from a variety of entities including standards bodies, information sharing groups, data architects, and government executives. As of June 2013, these include the

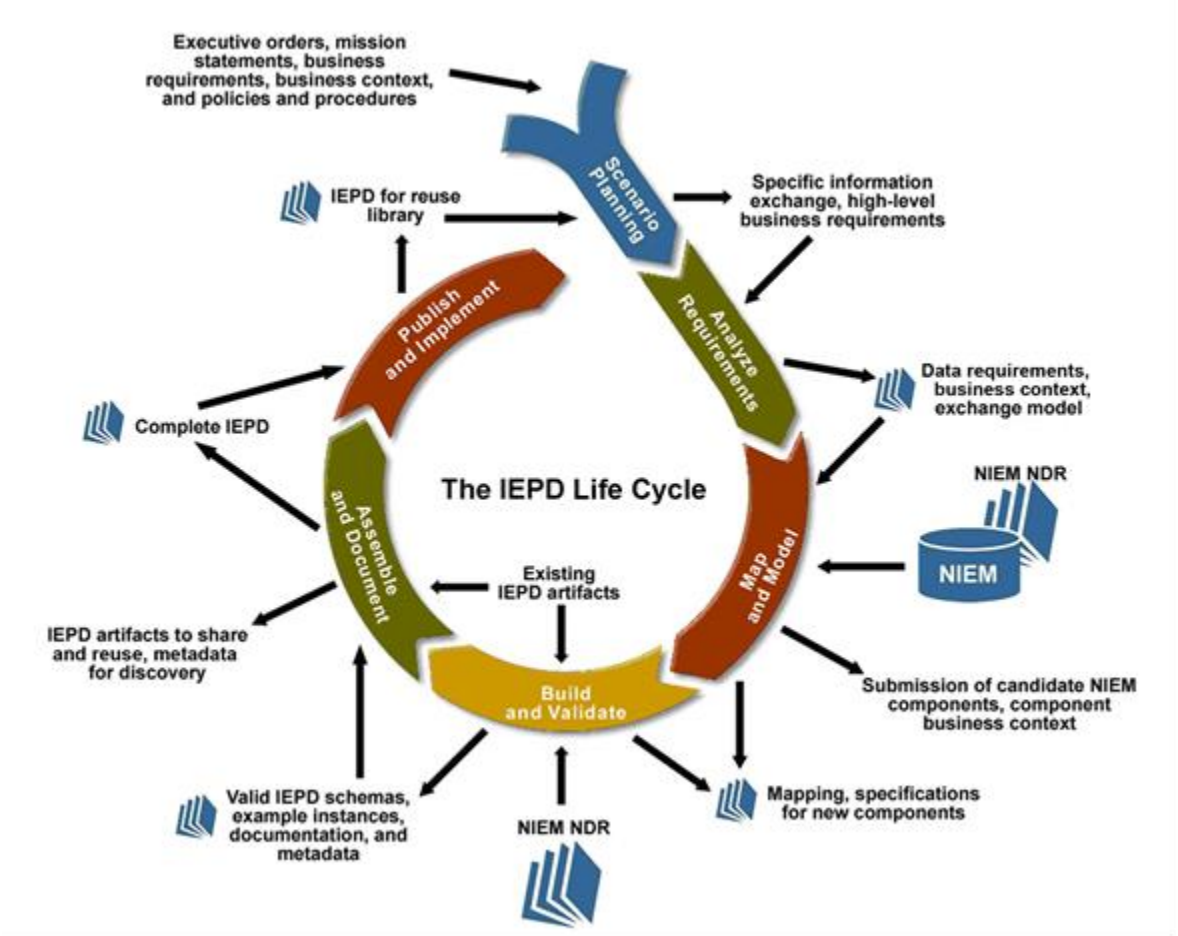
Object Management Group (OMG), the Integrated Justice Information Systems (IJIS) Institute, the Program Manager for the Information Sharing Environment (PM-ISE), and others.

4. NIEM Processes

4.1. Introduction

4.2. IEPD Lifecycle

The Information Exchange Package Documentation (IEPD) Lifecycle (Figure XX) is a methodology that guides the development of an IEPD. This methodology evolved through grassroots efforts by the NIEM practitioners and closely mirrors that of a standard Systems Development Life Cycle (SDLC).



The IEPD Lifecycle is a recommended approach for NIEM adoption, which defines the steps and artifacts required to identify and document information sharing use cases and requirements,

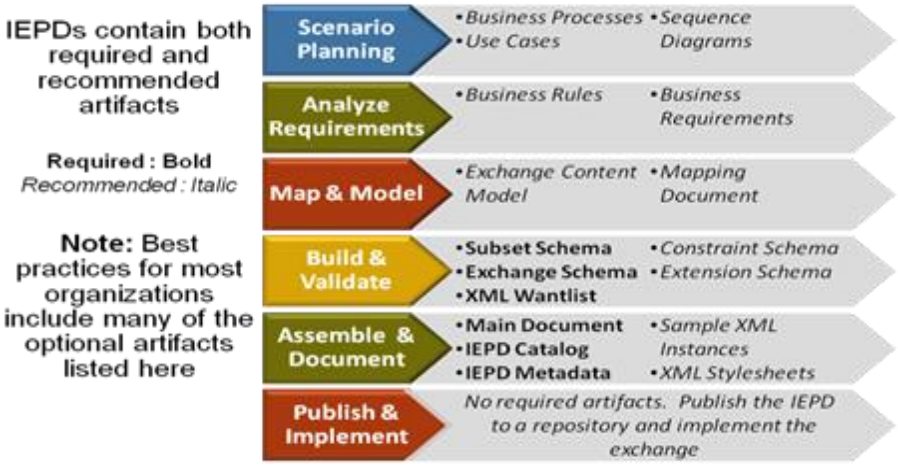
develop an IEPD, and make it available for search and discovery. The six phases that comprise the IEPD Lifecycle include:

1. Scenario Planning
2. Analyze Requirements
3. Map & Model
4. Build & Validate
5. Assemble & Document
6. Publish & Implement

The initial trigger for developing an IEPD may be operationally (bottom-up) or strategically (top-down) driven. An example of an operationally driven approach is field practitioners building an IEPD to meet specific business requirements, such as the exchange of an incident report or arrest report. Strategically driven examples include initiatives driven by legislation, administrative requirements, or strategic priorities identified by the ESC or the NIEM PMO in order to support priority and targeted national information exchange standards (i.e. people screening, cargo screening, or suspicious activity reporting). The strategically driven approach allows for reference IEPDs.

NIEM recognizes the inherent value of building information exchanges to address the operational requirements among agencies nationwide, whether they are identified through a top-down or bottom-up approach. With either approach, specific information exchanges are part of an operational scenario that clearly defines the operational context and real business value associated with the exchange. Moreover, it is recognized that most scenarios incorporate multiple discrete information exchanges, each of which can be built by following the process described below.

Each of these phases has multiple artifacts or deliverables associated with it. Many of these deliverables are optional but are considered best practices based on NIEM PMO standards. See Figure XX: IEPD Deliverables for a list of deliverables associated with each life cycle phase.



Although only six out of seventeen deliverables are required, they are all recommended to:

- Ensure consistency across IEPD
- Capture business context that facilitates discovery of NIEM data components and IEPDs
- Provide machine-readable versions to automate support for the IEPD Lifecycle
- Encourage and facilitate commercial tool development and value-added capabilities

For more information on the IEPD Lifecycle, take the NIEM 200 training course or visit NIEM.gov. See also IEPDs (Architecture).

4.3. High-Level Version Architecture (HLVA)

NIEM's High-Level Version Architecture (HLVA) provides a framework for changes to be made, in a systematic way, to a set of artifacts. These activities are undertaken to enhance the accuracy and usability of the model. Improvements include correcting errors, meeting previously unforeseen requirements, and adapting to new needs and new uses of the model.

A NIEM release has the following properties:

- The release is coherent. That is, it contains only a single version of each domain namespace.
- The release integrates the latest input from the domains, with accommodations made by the NBAC to make them work together.
- The release contains new versions of only those namespaces that require update. Schemas that require no update will be part of the release without modification.
- If required, a namespace will be updated to accommodate changes in other namespaces. This is determined by the NBAC during the reconciliation process.

There are two types of harmonization/reconciliation: (1) between the domains (domain reconciliation); and (2) with NIEM Core and the domains (Core synchronization). This gives the

opportunity to distinguish between the subsequent releases. Reconciliation of domains results in a minor release, while reconciliation of NIEM Core results in a major release.

Domain-synchronized NIEM releases are given minor release version numbers. NIEM Core-synchronized NIEM releases are given major release version numbers. Direct releases due to domain updates are given micro release numbers. When Core synchronization occurs, the results are published as a NIEM major release. These releases will be given IDs such as 2.0, 3.0, and 4.0. These releases will yield a NIEM Core namespace that has the same version ID as the NIEM release. When domain reconciliation occurs, without update of the NIEM Core namespace, the results are published as a NIEM minor release. These releases have IDs such as 2.1, 2.2, 2.3, 3.1, 3.2, and 3.3.

When a domain has created its updated content, it may determine that the content should be released as a coherent NIEM release. This will be verified by tools that check conformance and coherence of the resulting schema set. Once these checks are complete, a domain may elect to publish its update directly as a NIEM micro release in the release area, rather than as a published update in the publication area. Schemas published in this manner may be more durable than schemas published to the publication area. That is, schemas so published may work better with more versions of NIEM.

For more information on NIEM versioning, please see the *High-Level Version Architecture*. See also Current State of the Model and Model Releases.

4.4. Model Releases

NIEM has a standard model release lifecycle which facilitates the quality assurance process and relies on both the NTAC and the NBAC.

Determining a NIEM release is the responsibility of the NBAC and the NTAC, and ultimately the decision of the ESC. The release cycle begins with a trigger, which begins all activities contained within the lifecycle process. The trigger is a set of guidelines, and in most cases, not a specific event. The NIEM program follows a hybrid release model, driven by both business requirements and a pre-determined timeline. NIEM aims for a Major Release every two to three years; however, business needs may expedite or defer such guidance. Such business needs include:

- Budget: Financial implications may force a release to be delayed or canceled
- Critical Business Requirement: Exchange developers may lack the necessary data components in NIEM to create such exchanges
- New Domains: The addition of new domains, and their harmonization with Core and other domains, may trigger a Major Release

The NIEM Release Lifecycle is a standard, approximately 12-13 month process for all Major Releases. The process for a Minor Release varies slightly, as phases are shortened and may be removed. The Standard NIEM Release Lifecycle is found in Figure xx below.

Figure xx: Standard NIEM Release Lifecycle

Each phase has a set of activities and outcomes, which are addressed below.

- Pre-Alpha: Requirements gathering phase, where all significant content changes are identified; Domains prepare change requests for new and changed content; Domains indicate domain updates to be integrated
- Alpha 1: NBAC and NTAC members conduct model review if NIEM Core; Domains will conduct review of their individual content
- Alpha 2: NBAC and NTAC members conduct model review if NIEM Core; Domains will conduct review of their individual content; Public will be allowed to review the model and provide comments via NIEM.gov
- Beta: NBAC and NTAC members conduct model review of NIEM Core; Domains will conduct review of their individual content; the public will be allowed to review the model and provide comments via NIEM.gov
- Release Candidate (RC): Action for comments on portions of products that previously passed review without revision will be discretionary; tools are tested and fixes for bugs applied
- Go-Live: Governance bodies approve, and the model is finalized and published

For more information on Model Releases, please see the HLVA. See also *Current state of model.*

4.5. Harmonization

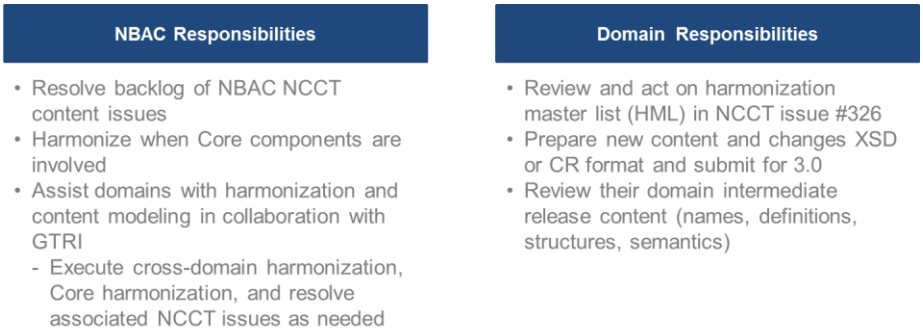
Harmonization is the process of examining the model to ensure that a given data element exists only once. Additionally, harmonization ensures that data elements are defined precisely and unambiguously, so that they are reusable across domains and the NIEM community.

Harmonization describes the process of arriving at commonly agreed-upon data component definitions across multiple domain governance groups. Harmonization may be driven by the needs documented within a single schema or conducted across multiple schemas of a schema set. As addressed in the NBAC Charter, Harmonization serves as one of the primary functions of NBAC.

The harmonization process (Figure xx) describes the steps necessary to arrive at agreed-upon data definitions.

1. Issue identified and entered into the online NCCT tool
    - Lead Developer conducts initial assessment on new issues and prepares and distributes harmonization meeting agenda containing issue and brief description
2. Issue triaged and "assigned" to applicable participants
    - During the harmonization call, the issue is reviewed by all participants and assigned to a tiger team consisting of NBAC member(s) with knowledge, expertise, or vested interest in the issue resolution
3. Issue resolution worked by tiger team
    - The tiger team works offline to resolve the issue and posts the recommended resolution in NCCT
4. Proposed resolution is evaluated
    - The recommended resolution is reviewed by the NBAC and or accepted, rejected, or deferred for more information during the harmonization call

Harmonization responsibility may fall to either individual Domains or the greater NBAC as addressed below:



For more information on harmonization, please see the *NBAC Charter*. See also NIEM Data Model.

4.6. Quality Assurance (QA) Process

Quality assurance (QA) addresses the vision, structure, and process within the NIEM community that assures NIEM product quality. Quality is largely determined by the value of the process used to develop and maintain NIEM products.

As new or modified issues, documents, data components, or IEPDs are initiated, they go through the IEPD Life Cycle and data model maturity processes as described in this document. These processes, as well as the development of NIEM documents (e.g., *IEM Specification, NIEM User Guide*, etc.), generally include requirement definition, development, and release for operational use and are entered into libraries, registries, and repositories to facilitate reuse. The NIEM User Guide details the specific steps for each of the NIEM processes and includes appropriate quality checklists built into the procedures.

For more information on QA, please read the *NIEM User Guide*. See also IEPD Lifecycle.

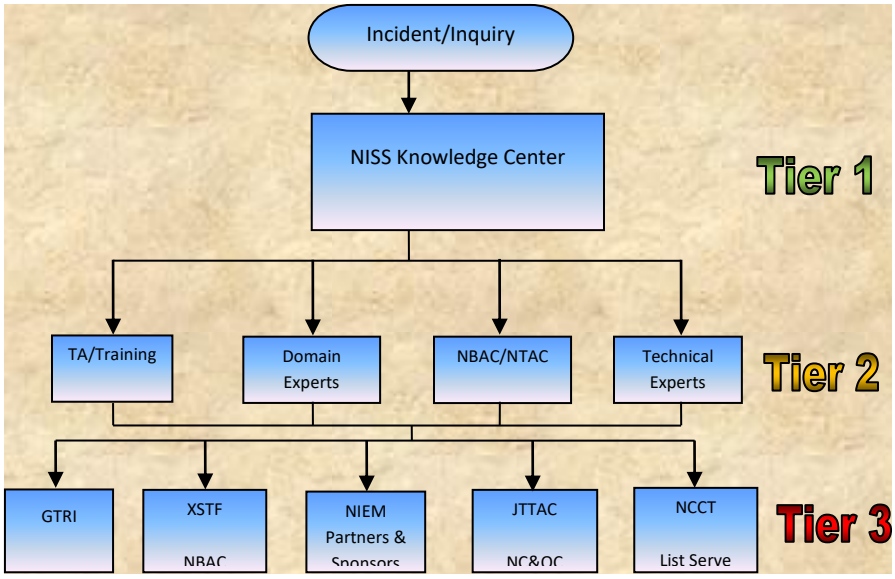
4.7. Knowledge Center Support/Help Desk

The National Information Sharing Standards (NISS) Knowledge Base is an online, searchable database that enables users to find information regarding information sharing standards, such as NIEM and others utilizing NIEM, by searching on the topic of interest.

The NISS Knowledge Center supports the following three functions (see Figure xx: NISS Knowledge Center):

- NISS Helpdesk Support
- NIEM Knowledge Base Support
- IEPD Clearinghouse Support

The NISS Knowledge Center team's primary responsibility is to provide first line support for all GJXDM/NIEM related incidents/inquiries within agreed Service Level Agreements (SLAs). The second line support is supplied by domain experts (i.e. National Center for State Courts (NCSC), SEARCH, NIEM operational organizations, etc.). If the submitted inquiry/incident falls outside the scope of first and second-level support then it will be referred to external subject matter experts as appropriate. Once the organization has confirmed that they will take ownership of the referral, the requestor will be provided an escalated status indicating a referral to the responsible organization and the NISS Knowledge Center team follows up with the responsible organization for the status updates to send back to the user until the user gets a satisfactory resolution and the incident is closed.



Each submission receives a notification (via telephone, email or Web) whenever there is a status update until the incident is closed satisfactorily.

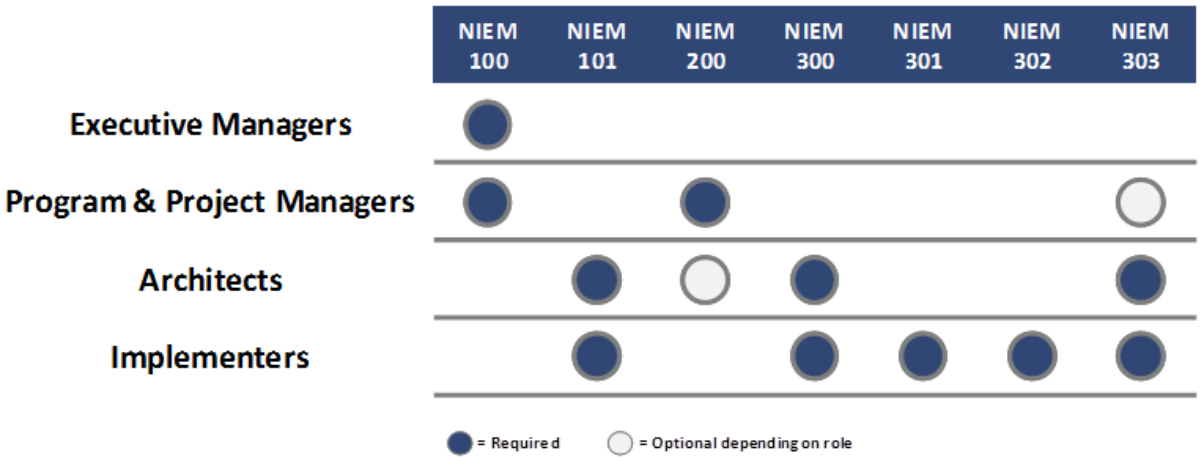
For more information on Knowledge Center Support, please visit the NISS Help Desk.

4.8. NIEM Training

NIEM training is a resource designed to address both technical and non-technical audiences. The comprehensive curriculum spans from the basics of NIEM to advanced technical implementation.

The NIEM PMO, in collaboration with the Integrated Justice Information Systems (IJIS) Institute (funded through the Bureau of Justice Assistance) and other stakeholders, offers substantial training opportunities for executives, program and project managers, technical architects, and implementers. The NIEM training curriculum consists of seven courses across four distinct audience tracks/levels: Executive Manager, Project Manager, Architect, and Implementer. Table xx: NIEM Training Audience outlines the four distinct audience tracks/levels.

Table xx: NIEM Training Audience



The refresh of NIEM training runs parallel to the deployment of Major Release to capture structural changes to the model. Training is overseen by the Change Control Board (CCB), which is composed of NIEM Committee Co-Chairs, Committee Members, and PMO Representatives, and managed by course content managers and subject matter experts. The NIEM Training Configuration Plan details the process of implementing content changes within the course curriculum.

For more information on Training or to access the online courses, please visit NIEM.gov. For details on the training refresh, please see the *Training Configuration Plan*.

4.9. Communications

The NIEM PMO uses communication as a tool to not only inform and educate, but to help drive the future program vision.

Consistent communication and targeted messaging are essential to informing stakeholders of NIEM news, updates, guidance, and other useful information that drives and encourages NIEM adoption. The PMO, with support from the NIEM Committees, has developed a series of communication tools and enablers to provide robust and targeted messaging.

The NIEM PMO has developed the following communication strategies and vehicles for community engagement:

- NIEM Website: Primary vehicle for communications and outreach efforts
- NIEM Digital Strategy: Leveraging online tools and platforms to drive adoption and capitalize on crowdsourcing
- NIEM Town Hall: Addressing the public on timely NIEM topics and providing a forum to share best practices

- Communications Digital Dashboard: Identifying key performance metrics and specifying action plans to increase community involvement
- Case Studies and Impact Stories: Using a business focus rather than a technical lens, to highlight how NIEM has been used to solve critical issues
- Webinars / Videos: Educating the community on artifacts, processes, or general NIEM topics

For more information on Communications, please see the NIEM Digital Strategy. See also *NIEM.gov*.