

IEPD Concepts

Modules Roadmap: You Are Here

NIEM Overview



IEPD Concepts

How NIEM uses XML (pt. 1)

How NIEM uses XML (pt. 2)

Business Skills

Exchange Content Modeling

Mapping

Subsets

Extension and Exchange
Schemas

Packaging and Distribution

Implementation
Considerations

Objectives Roadmap

This module supports the following course objectives:



Describe what NIEM is.



Describe what an IEPD is.



Comprehend artifacts included in an IEPD.



Develop artifacts included in an IEPD.



Package an IEPD.



Understand advanced XML concepts, as required by NIEM.



Recognize business skills required to successfully participate in an IEPD development project.

Module Objectives

- After completing this module, you should be able to:
 - ◆ Identify and define IEPD artifacts.
 - ◆ Recognize the purpose of an IEPD.
 - ◆ Recognize the overall scope and function of an IEPD.

IEP Defined (1 of 2)

- An Information Exchange Package (IEP) is a set of data that is transmitted for a specific business purpose.
 - ◆ In this case it is a NIEM-conformant XML document instance sent from one computer to another.
- May be from one agency to other agencies, between systems within an agency, between a user client and a server.

IEPD Defined (2 of 2)

- Information Exchange Package Documentation (IEPD) is a set of artifacts that define the content and structure of a IEP.
- The IEPD does NOT specify:
 - ◆ How the IEP gets from one organization to another.
 - ◆ How the sending system generates the IEP or under what circumstances.
 - ◆ How the receiving system processes the IEP.

How NIEM Supports IEPDs

- XML defines a machine readable format for exchanging information – it is the grammar/syntax.
- NIEM is the source of most of the components used in the information exchange – a vocabulary with some structure.
- Extensions to NIEM make up the rest of the components used in the information exchange.
- An IEPD pulls together NIEM components and extension components.

Discussion Point

- How do you see yourself involved in IEPD development?

Ways You Might Be Involved With an IEPD

- Develop an IEPD:
 - ◆ Define business or technical policy.
 - ◆ Gather the business data needs.
 - ◆ Develop the artifacts.
 - ◆ Review and approve the IEPD.
- Implement a system that generates and sends a given IEPD.
- Implement a system that receives and processes a particular IEPD.
- Manage someone who does the above.

Defining Artifacts vs. Developing Artifacts

- The types of IEPD artifacts and their content is defined by the NIEM PMO
- The process for developing those artifacts is up to you (or your organization's policy)
 - ◆ This course provides guidance and proven techniques for IEPD development
 - ◆ There is room for improvement
 - ◆ New ideas and methods are welcome

Major IEPD Artifacts

- Background and Development
 - ◆ Business requirements
 - ◆ Methodology used to build IEPD
 - ◆ Tool sets used to build IEPDs
 - ◆ Testing and conformance
 - ◆ Exchange content model
 - ◆ Mapping of business data requirements to NIEM components and extension components
 - ◆ Wantlist
 - ◆ Extended components
 - ◆ Change log
- Normative Artifacts
 - ◆ Subset XML schema
 - ◆ Constraint XML schema
 - ◆ Extension XML schema
 - ◆ Exchange XML schema
 - ◆ Business rules
- Samples
 - ◆ Sample XML instance(s)
 - ◆ Sample XSLT style sheet(s)
- Metadata

IEPD Artifacts – Exchange Files

(1 of 3)

- Wantlist
 - ◆ An XML document that specifies what components you want from the NIEM data model.
 - ◆ Can be consumed by and produced by the SSGT or other means.
- Subset Schema
 - ◆ A set of XML Schemas that defines the NIEM components used in your IEPD.
 - ◆ A subset of the entire NIEM data model.
 - ◆ Can be produced using the SSGT or other means.
 - ◆ Can add constraints to the Subset Schema for a separate constraint validation path.

IEPD Artifacts – Exchange Files

(2 of 3)

- Extension Schema
 - ◆ A set of XML Schemas that define extended components.
 - ◆ A separate local namespace of components not contained in NIEM.
- Exchange Schema
 - ◆ The base document XML Schema that defines the XML root element and is generally named after the IEPD itself.

IEPD Artifacts – Exchange Files

(3 of 3)

- Sample XML Instances
 - ◆ One or more sample IEPs that conform to the IEPD.
 - ◆ Can be used for additional understanding and testing.
- Sample Stylesheets
 - ◆ One or more sample XSLT stylesheets to show how an IEP might be transformed for display or other uses.
 - ◆ Can include sample output based on a Sample XML Instance.

IEPD Artifacts – Documentation

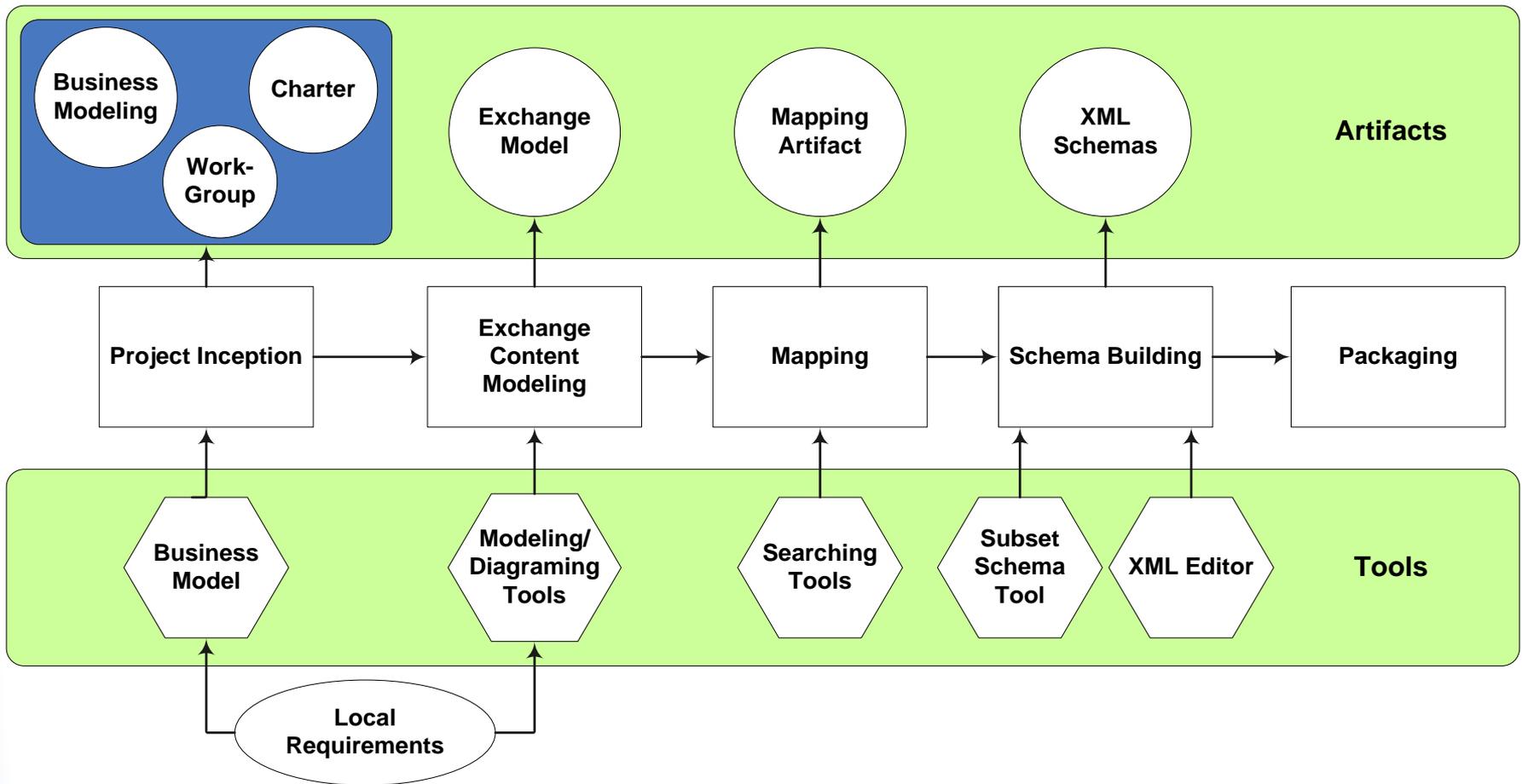
- Business requirements
- Memoranda of Understanding
- Endorsement letters
- Methodology and tools
- Testing and conformance
- Exchange content model
- Use case model
- Business rules

Artifact Specifications

- Go to <http://www.niem.gov>
- Select “tools” from the top menu
- Select “documentation” from the top menu



Sample IEPD Development Overview



Sample IEPD Development Steps

(1 of 4)

- Project Inception
 - ◆ Gather information on the business context and usage of the exchange.
 - ◆ Gather existing documentation such as forms, data models, and interface specifications.
- Exchange Content Modeling
 - ◆ Develop an exchange content model diagram, depicting data element hierarchies and relationships.

Sample IEPD Development Steps

(2 of 4)

- Mapping
 - ◆ Map the business data to NIEM components.
 - ◆ Identify and define extension components.
 - ◆ Map the remaining business data to extension components.

Sample IEPD Development Steps

(3 of 4)

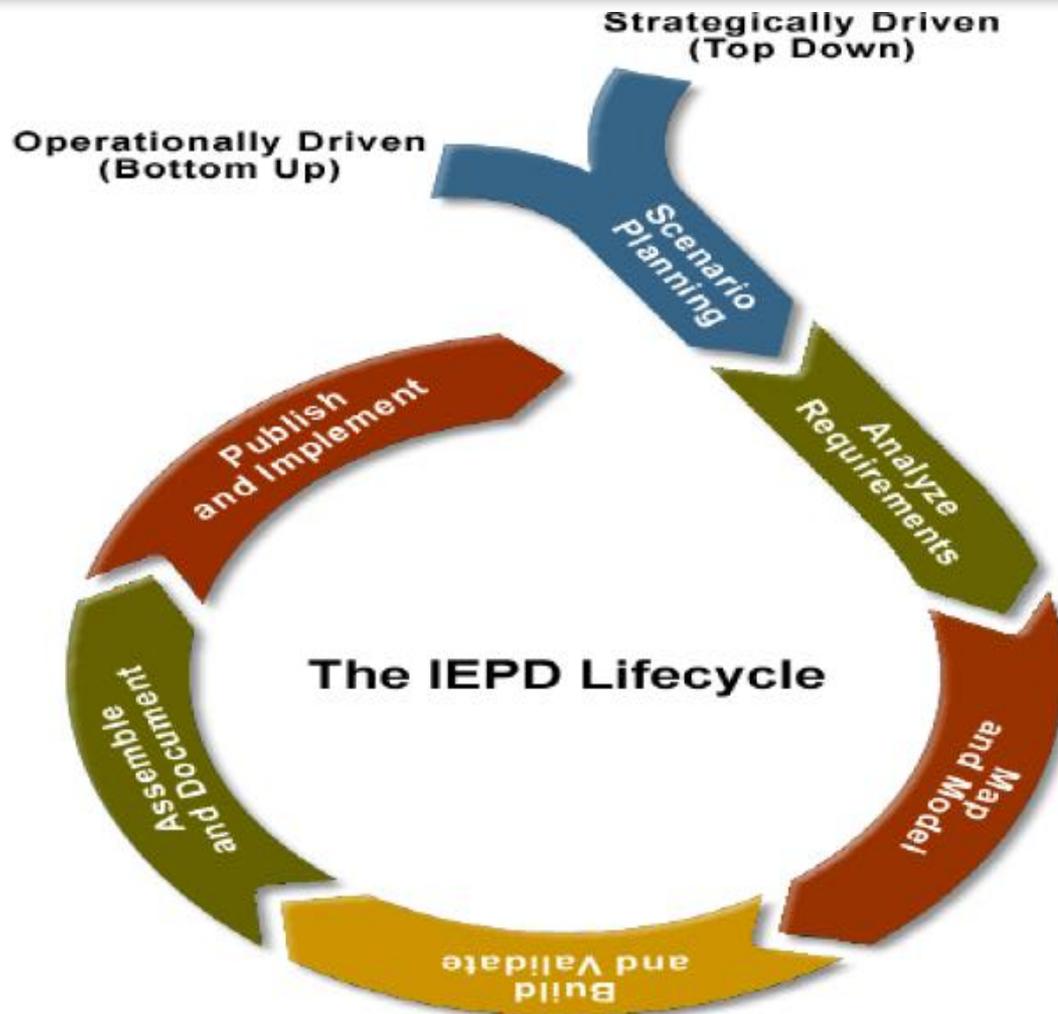
- Schema Building
 - ◆ Develop the NIEM Subset XML Schema file.
 - ◆ Develop the Extension XML Schema file.
 - ◆ Develop the Exchange XML Schema file.
 - ◆ Develop a sample XML instance (IEP) file.
 - ◆ Develop a sample Style Sheet file.
 - ◆ Verify all developed XML instance and XML Schema files are well-formed.
 - ◆ Perform XML validation of the XML instance.

Sample IEPD Development Steps

(4 of 4)

- Packaging
 - ◆ Analyze and/or review the artifacts to verify that the developed XML instance and XML Schema files are NIEM-conformant.
 - ◆ Assemble the artifacts into an IEPD.

IEPD Lifecycle



NIEM IEPD Reuse

- Reusable business components can be developed for use across a number of IEPDs.
- An IEPD itself can also be reused in whole or in part to speed development and lower the cost of sharing information.
- New NIEM content can be identified for inclusion in future NIEM releases.

IEPD Development Considerations

- Scope of IEPD development.
- Conventions (e.g., namespace and file naming, versioning).
- Development tools.
- Reusable business components.
- Tradeoff between reuse, detail, etc. vs. cost.

Some IEPD Development Cases

- Reference IEPDs
 - ◆ Disposition information, over inclusive, that could be reused wherever disposition information is exchanged.
- Small, single IEPD for a specific purpose
 - ◆ Disposition information from a state-wide courts system to a criminal case history (CCH) in a particular state.
- Set of IEPDs for service interaction with a particular application
 - ◆ All information exchanges with a CCH.
- Enterprise-wide set of IEPDs
 - ◆ All information exchanges with a county, or a set of local-to-state.

IEPD Conclusions

- The process for developing IEPDs, the resulting IEPD artifacts, and the implementation of IEPDs are separate issues.
- There are many ways to develop an IEPD.
- There are many ways to implement an IEPD in a system.
- An enterprise organization may prescribe development and implementation methods.
- An IEPD (the artifacts) should follow the IEPD guidelines.
- Ultimately, an IEPD must support the implementation of NIEM-conformant IEPs.

Module Summary

- After completing this module, you should be able to:
 - ◆ Identify and define IEPD artifacts.
 - ◆ Recognize the purpose of an IEPD.
 - ◆ Recognize the overall scope and function of an IEPD.

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