Module 7: Information Exchange Package Development (IEPD) Lifecycle

**Slide 1 – Welcome Slide**

Welcome to Module 7: Information Exchange Package Development (IEPD) Lifecycle?

**Slide 2 – Module Overview**

Module Overview

In this module we will discuss IEPD Lifecycle. The topics that we will cover are:

* What is a NIEM Exchange?
* IEPD Lifecycle Recap
* IEPD Artifacts
* IEPD Reuse and
* Additional Resources

**Slide 3 – What is a NIEM Exchange?**

What is a NIEM Exchange?

In NIEM, an information exchange is also known as an Information Exchange Package (IEP) and contains description of specific information exchanged between a sender (any organization that wants to share data) and a receiver (any organization that needs said data). The IEP is usually coupled with additional documentation, sample XML instances, business rules, and more to compose an Information Exchange Package Documentation (IEPD). An IEPD is the final product of the NIEM information exchange development process, also known as the IEPD Lifecycle.

IEPDs have three core functions. IEPDs are:

* Developed to provide the business, functional, and technical details of the information exchange through predefined artifacts.
* Created with a core set of artifacts for an established format and structure to allow for consistency.
* Designed to be shared and reused in the development of new information exchanges through the publication in IEPD repositories.

**Slide 4 – IEPD Lifecycle Recap**

IEPD Lifecycle Recap

The IEPD lifecycle consists of six phases—execution of each phase is completely dependent on the organization’s needs:

* Scenario Planning: During the Scenario Planning phase, you review background information related to your information exchange, assess resource impact, understand business context, and identify information exchange business scenarios.
* Analyze Requirements: During the Analyze Requirements phase, the selected information exchange scenario is further elaborated to understand and document the business context and data requirements.
* Map and Model: During the Map and Model phase, you create an exchange content model based on your information exchange requirements. The Exchange Content Model is then mapped to the NIEM data model.
* Build and Validate: During the Build and Validate phase, you create a set of exchange-specific, NIEM-conformant (that follows NIEM normative guidance) XML schemas that implement the exchange content model created for the exchange.
* Assemble and Document: During the Assemble and Document Phase, you prepare and package all related files for the IEPD into a single, self-contained, self-documented, portable archive file.
* Publish and Implement: During the last phase, the Publish and Implement phase, you implement the IEPD into production and publish the IEPD for search, discovery, and reuse.

IEPD LIfecycle. There are 6 phases. Scenario Planning, Analyze Requirements, Map and Model, Build and Validate, Assemble and Doucment, Publish and Implement

**Slide 5 – Required IEPD Artifacts**

Required IEPD Artifacts

The required IEPD artifacts associated with each phase of the IEPD lifecycle are highlighted here. Artifacts can be considered the deliverables in the IEPD development process. It is important to note that while there are some artifacts that are optional, the ones in the *Build and Validate* and *Assemble and Document* stages are required.

Within the *Build and Validate* phase, we have:

* Subset Schemas
  + A subset schema is a subset of the NIEM schemas, whose components are taken entirely from the parent reference schema while excluding those components that are unnecessary for a given exchange.
* Extension Schemas
  + An extension schema is a NIEM-conformant schema that describes the data to be exchanged. XML style sheets show how the data in the XML message can be formatted to be presentable.
* Want Lists
  + A Want List is tool specific construct used in the Subset Schema Generation Tool (SSGT) to save and reuse schema subsets of the overall NIEM data model. Simply, it is those items that you want from NIEM.
* Constraint Schemas
  + A constraint schema restricts or constrains content that appears in instances of the subset schema.
* Exchange Schemas
  + An Exchange schema is a NIEM-conformant schema that defines data elements that are to be used in an exchange but do not exist in the NIEM data model, which therefore must be added to the schema. The exchange schema is a required artifact for this phase.
* Please note that a NIEM-conformant IEPD is required to contain at least one schema that is either a NIEM Reference Schema or a Subset Schema

Within the *Assemble and Document* phase, we have:

* Master Documents
  + The Master Document is used to organize the required documentation and provide business and functional context of the information exchange.
* Catalogs
  + A catalog is a file that details the structure of the IEPD and links to each of the artifacts within the IEPD.
* Change Logs
  + The change log is a file representing all of the changes made to the schema files of a domain update.
* Sample XML Instances
  + Sample XML instances include sample XML data that can be used to test the XML schemas.
* The master document, catalog, change log, and sample XML instances are all required artifacts.

**Slide 6 – IEPD Reuse**

IEPD Reuse

After publication, existing IEPDs can be reused partially or fully which can lead to:

* A decrease IEPD development time
* A reduction in development cost
* An increase Return on Investment (ROI) and
* An increase consistency of data definitions

You can leverage IEPD repositories, such as the IEPD Clearinghouse, to search and reuse existing IEPDs. You can also use artifacts and elements within IEPDs to facilitate development and ease the burden on resources.

**Slide 7 – Additional Resources**

For an overview of additional NIEM resources related to this module, please visit the following links:

* INSERT <https://www.niem.gov/techhub/iepd-resources> LINK
* INSERT <https://niem.github.io/iepd-starter-kit/> LINK