



NIEMOPEN

An OASIS Open Project

21 May 2024

Ms. Katherine Escobar
NIEMOpen Project Governing Board Chair

AGENDA

- Why NIEMOpen
- What Is NIEMOpen
- NIEMOpen Project
- Questions



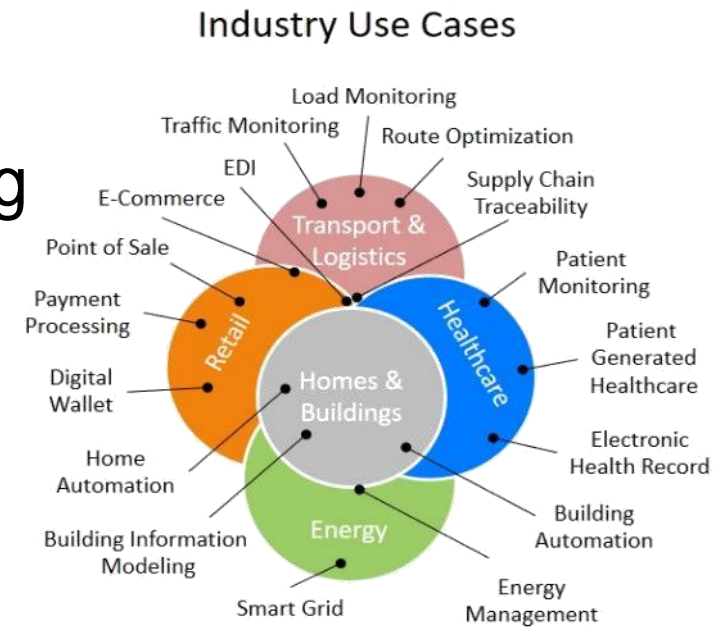
WHY NIEMOPEN?

- Our mission is furthered by the sharing of data:
 - With Federal, State, Local, Tribal, Territorial, International partners (ex: DHS, FBI, etc.)
 - With industry and vendor partners
 - With compliance drivers (ex: HL7, LOINC, SNOMED for medical, ASC X12, etc.)
- For Interagency, this includes:
 - Multiple, complex data sharing permutations via forms, digital, emails, phone calls, Slack, and other mechanisms
 - Data must be shared across multiple networks, multiple security boundaries, multiple IT capabilities, and in multiple ways, but still be understandable
 - Component programs are not equipped to handle all domains in this Enterprise-level data sharing challenge

DATA INTEROPERABILITY

Across all levels of government, industries, and technical solution providers, **interoperability** is an essential tool for:

- Better decision making
- Reduction of manual processing
- Increased productivity
- Reduction of errors
- Management of costs



Everyone agrees it takes interoperability of systems to achieve these benefits.

COMMON INTEROPERABILITY CHALLENGES

If everyone agrees, why is there a lack of interoperability problem?

- Lack of unified agreement on standards selection and implementation
- Siloed (domain-specific) development efforts driven by need, isolated by incompatibility
- Proprietary and vendor-driven solutions vs. Interoperable driven solutions
- Information Blocking - business, technical, and organizational practices that prevent or materially discourage access, exchange or use

INTEROPERABILITY SOLUTION

The key factor to achieve interoperability is **data**

- Information exchange is critical to ensuring timely information is available when and where it is needed
- To exchange data, systems must have agreement on:
 - **Syntactic:** Data encodings and representation
 - **Semantic:** Consistent terminology and meanings

**NIEMOpen Solves the Interoperability Challenge
at the Data Level**

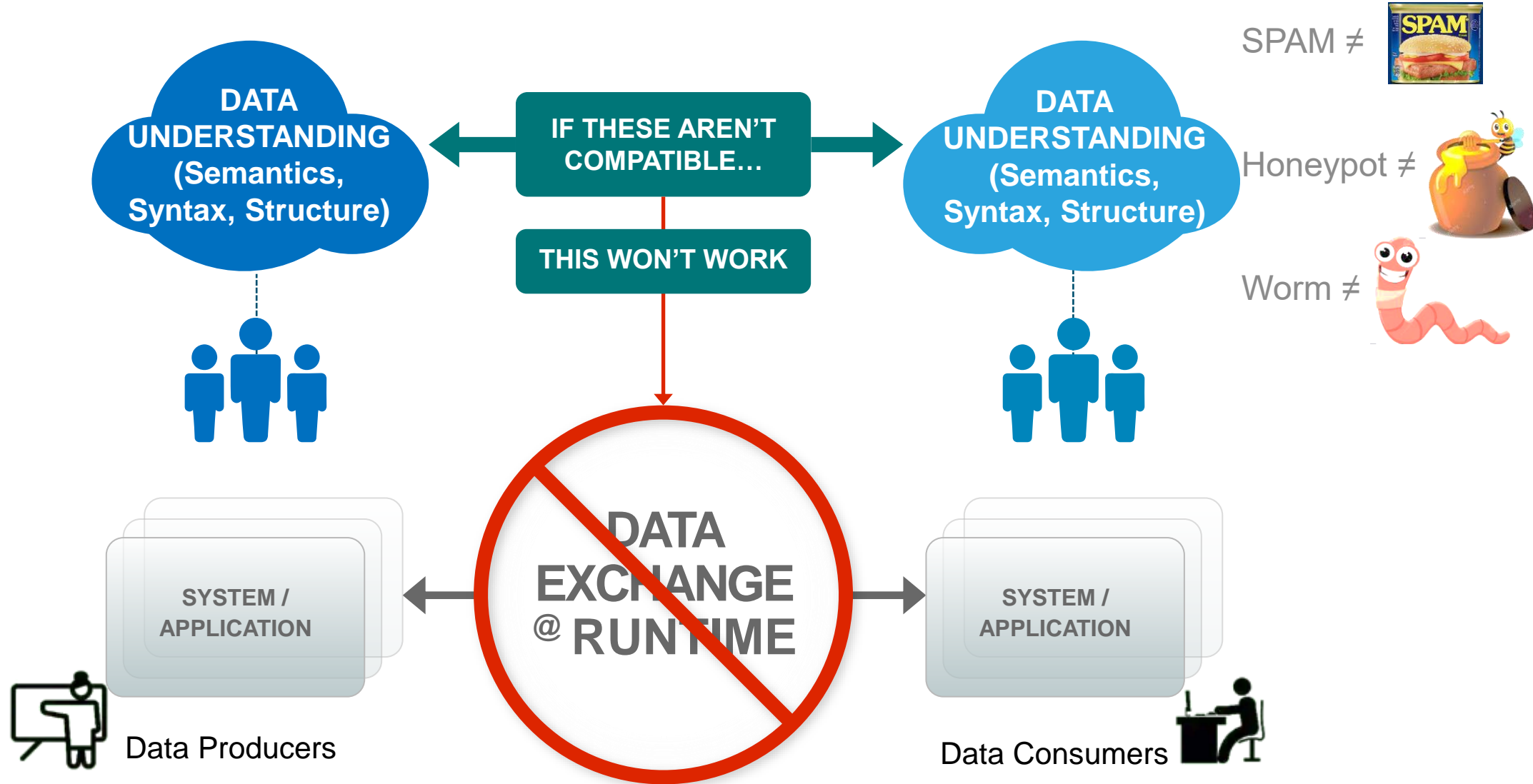
DATA INTEROPERABILITY PROBLEM

Cyber Terms

SPAM

Honeypot

Worm



SPAM ≠



Honeypot ≠



Worm ≠





NIEMOPEN

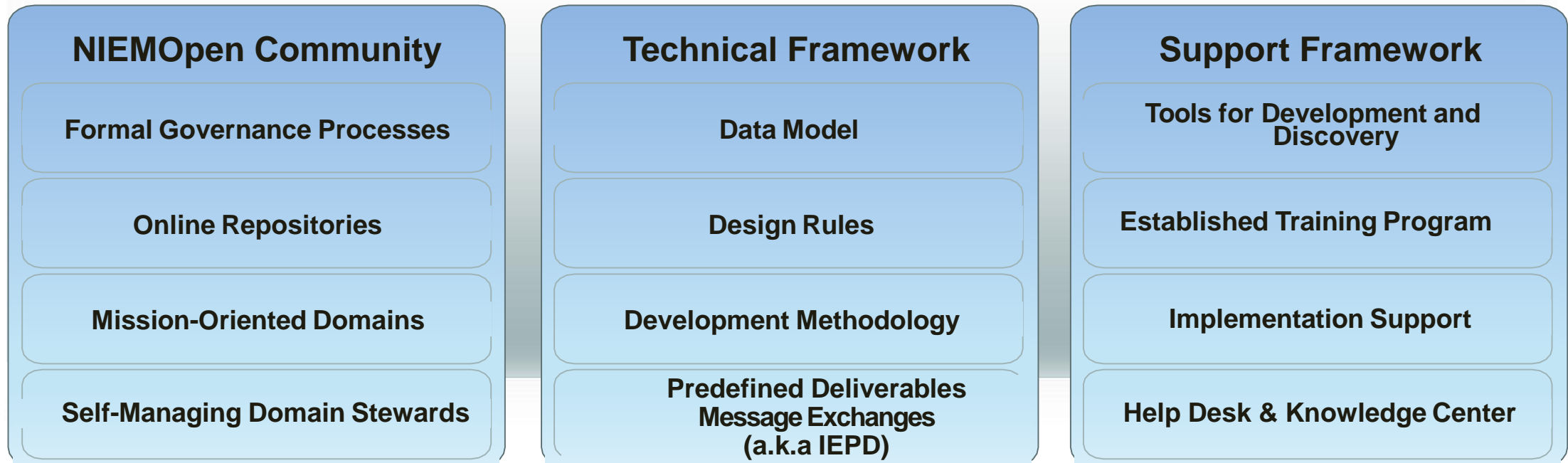
What is NIEMOPEN

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NIEMOPEN FRAMEWORK

- NIEMOpen is a community-driven, open source, standards-based approach to exchanging information
- Diverse communities can collectively leverage NIEMOpen to increase efficiencies and improve decision-making
- NIEMOpen is available to everyone, including public and private organizations
- NIEMOpen 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 – THE BIG PICTURE

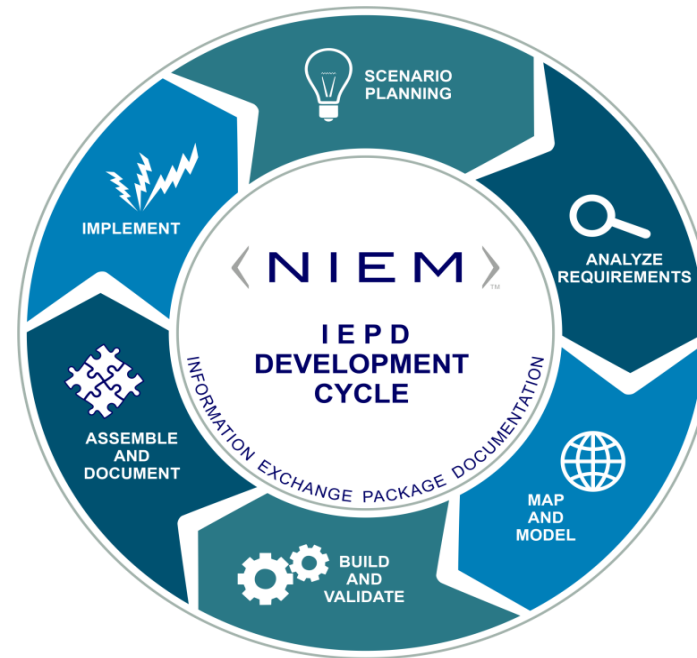
NIEM enables organizations to move information across organizational boundaries to interoperate – and act as one – while each maintains authority for their own existing systems

Common Language (Data Model Lifecycle)



Built and governed by users within the Federal,
State, Local, Tribal, and Private Sectors

Repeatable, Reusable Process (Exchange Specification Lifecycle)

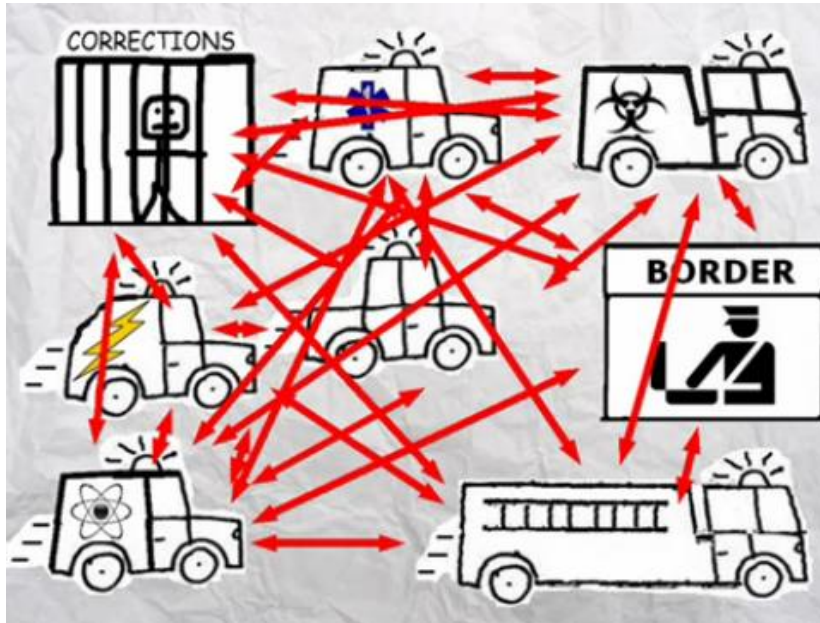


NIEMOPEN ADVANTAGE

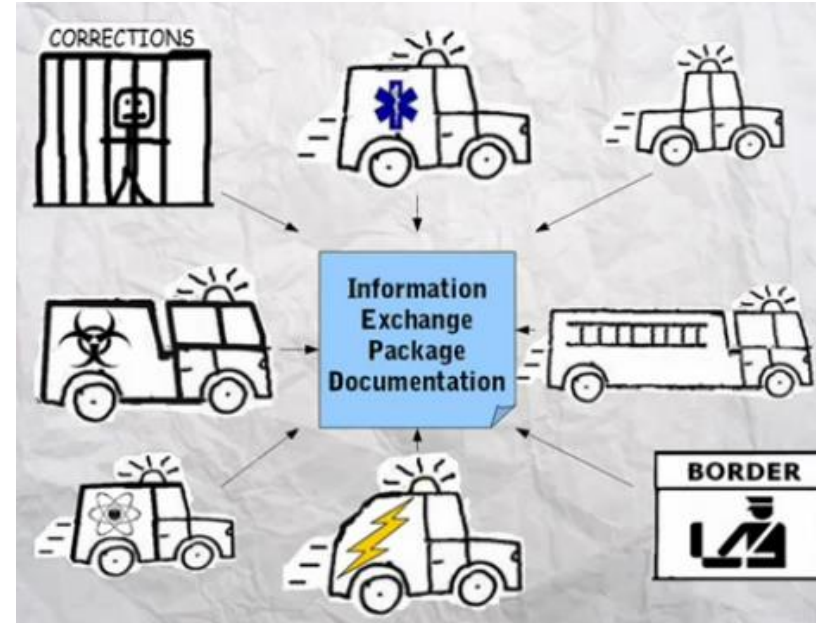
When using NIEM, you only need to “speak” two languages — your own and NIEM

EXAMPLE Communicating With 15 Different Systems N⁽²⁾ Problem

WITHOUT NIEM



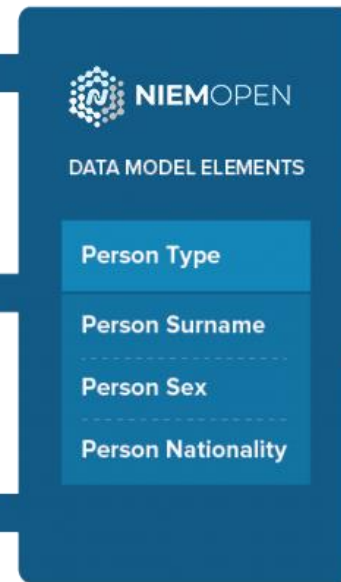
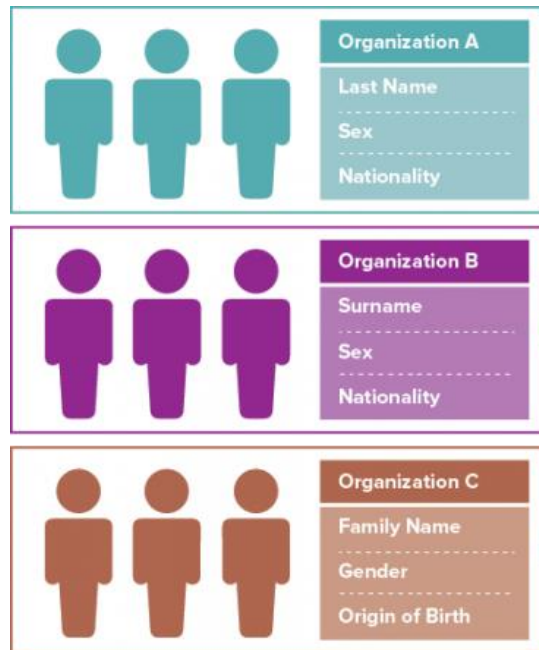
USING NIEM



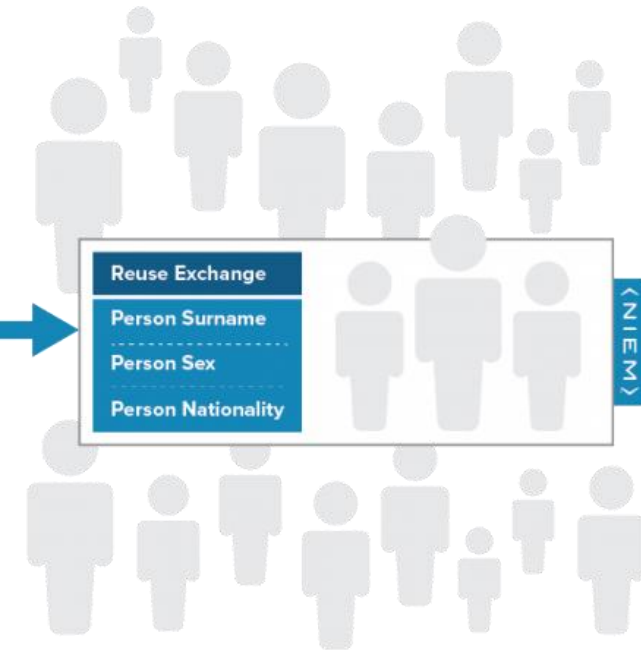
NIEMOPEN IN ACTION:

How NIEMOpen Exchanges Data Components and Data Elements

NIEMOpen is
a common vocabulary –
enabling efficient information exchange across
diverse public and private organizations



NIEMOpen is not
a system or database –
NIEMOpen does not specify how to
transmit or store data



Using NIEM, organizations come together to agree on a common vocabulary
When additional organizations are added to the information exchange,
the initial NIEMOpen exchange can be reused, saving time and money

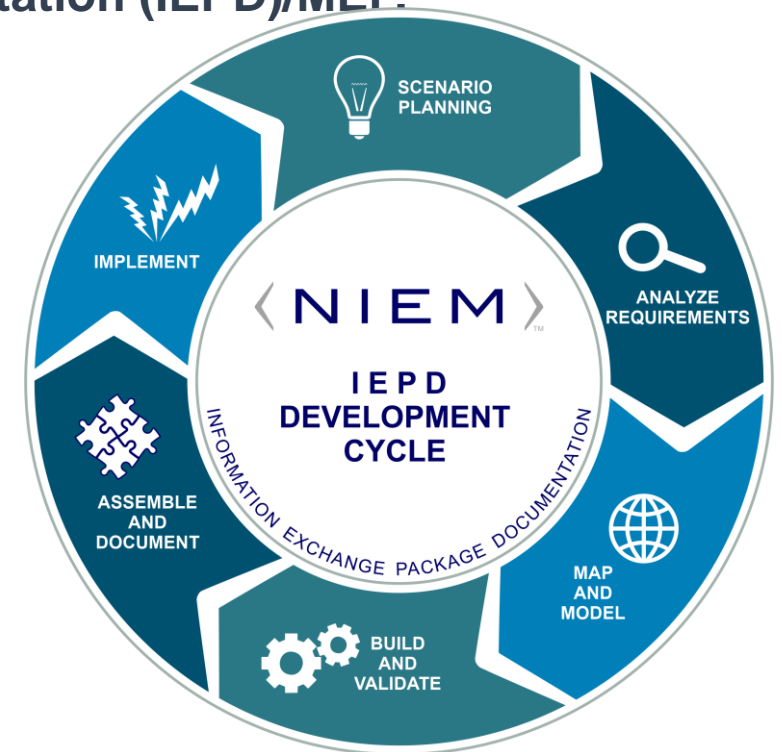
WHAT IS A NIEM INFORMATION EXCHANGE?

In NIEM, an information exchange is also known as an **Information Exchange Package (IEP)/Message Exchange Package (MEP)**, a description of specific information exchanged between a sender and a receiver.

The IEP/MEP is usually coupled with additional documentation, sample message instances, business rules, and more to compose an **Information Exchange Package Documentation (IEPD)/MEP**.

Core Functions of an IEPD/MEP

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



NIEMOPEN MODEL CONTENT

Think of the NIEMOpen data model as a mature and stable data dictionary of agreed-upon terms, definitions, and formats independent of how information is stored inside individual IT systems.

NIEMOpen 17 Domains

- Agriculture
- Biometrics
- Chemical, Biological, Radiological, & Nuclear
- Cyber
- Emergency Management
- Human Services
- Immigration
- Infrastructure Protection
- Intelligence
- International Trade
- International Human Services
- Learning & Development
- Justice
- Maritime
- Military Operations
- Screening
- Surface Transportation

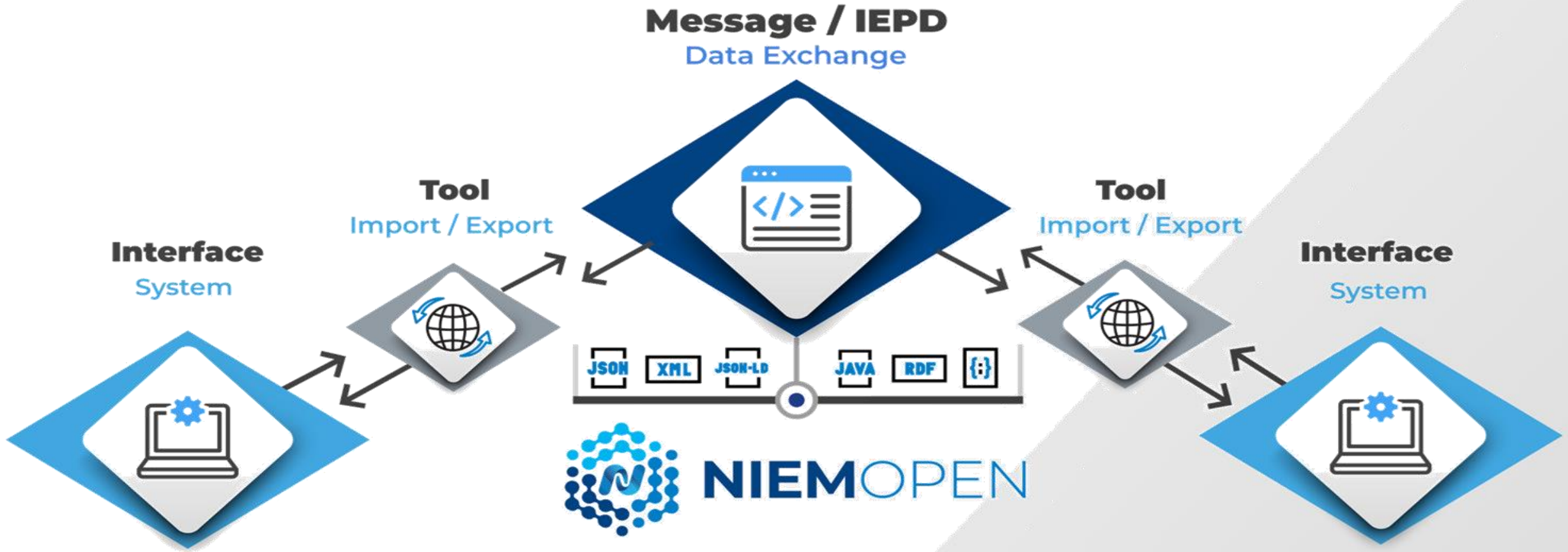
Emerging Domains

- Acquisition – DoD A & S
- Identity Credentials – DHS
- Physical Security - DMDC



NIEMOPEN

Scope of NIEM



NIEM is a data layer standard and intentionally does not address all the necessary technologies needed for information sharing.

Exchange partners decide how to store and process the NIEM-conformant data being exchanged.



NIEMOPEN

NIEMOPEN Project

21 May 2024

Ms. Katherine Escobar
NIEMOpen Project Governing Board Chair

NIEMOpen Current SPONSORS “No Change”

9 Sponsors, 3 Premier

- Sponsors

- JS J6
- DHS S&T
- CJIS (FBI)
- GTRI
- NAJIS
- IJIS
- DOT
- **ODGA (Virginia)**
- Equivant



Premier



Premier



Premier



equivant



- In Discussions

- Microsoft
- DHS OBIM
- DND, Canada
- DOJ



Department of National Defense



- Expressed Interest

- MITRE
- Veterans Administration
- Tyler technologies
- Ernst & Young
- NIST
- DISA
- NOAA
- Pinary



Ms. Carol Geyer
– OASIS Open Chief Development Officer



VIRGINIA ADOPTION OF NIEM

Version 1.5
July 19, 2013

COMMONWEALTH OF VIRGINIA



Information Technology Resource Management (ITRM)

ENTERPRISE ARCHITECTURE

NATIONAL INFORMATION EXCHANGE MODEL (NIEM)
CORE PERSON DATA EXCHANGE STANDARD

Commonwealth of Virginia's EIA Strategy and NIEM Integration Plan:

Commonwealth of Virginia has completed an eight-month strategic planning process to develop an Enterprise Information Architecture (EIA) strategy. A central element of the EIA strategy involves building exchanges for "citizen-centric" data that conform with the National Information Exchange Model (NIEM).

The following section references the statutory authority granted by the *Code of Virginia* to the Secretary of Technology to establish the NIEM Core Person Data Exchange Standard. The section also cites provisions in the *Code of Virginia* relating to the role of the Chief Information Officer (CIO) of the Commonwealth, the Information Technology Advisory Council (ITAC) and HITSAC in the development, review and adoption of Commonwealth ITRM Standards.

The Secretary of Technology

§ 2.2-225. Position established; agencies for which responsible; additional powers
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+2.2-225>

The Chief Information Officer (CIO) of the Commonwealth

§ 2.2-2007. Powers of the CIO
<http://lis.virginia.gov/cgi-bin/legp604.exe?000+cod+2.2-2007>

The Virginia Information Technologies Agency

§ 2.2-2010. Additional powers of VITA
<http://lis.virginia.gov/cgi-bin/legp604.exe?000+cod+2.2-2010>

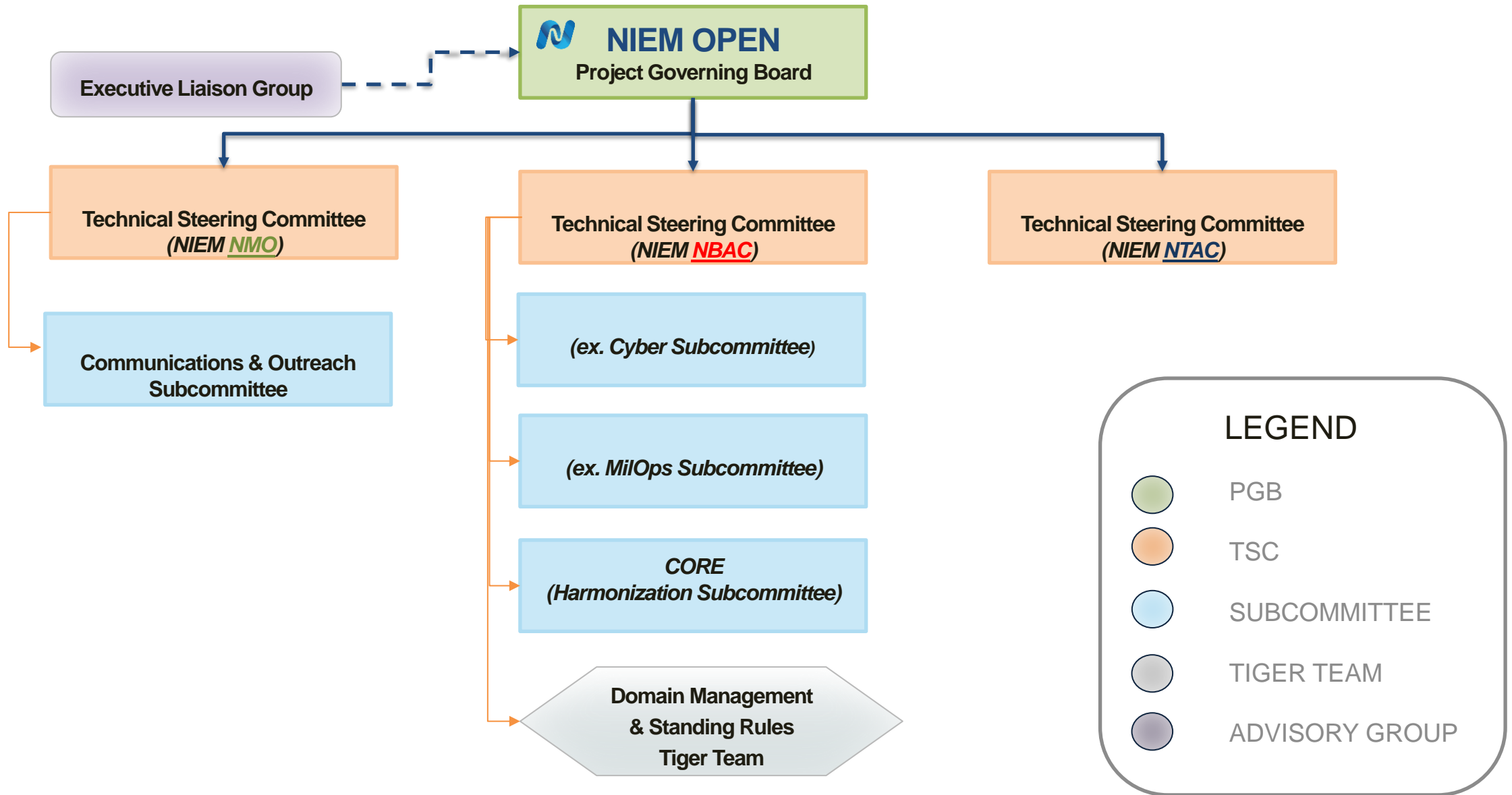
The Information Technology Advisory Council (ITAC)

§ 2.2-2699.6. Powers and duties of the ITAC
<http://lis.virginia.gov/cgi-bin/legp604.exe?000+cod+2.2-2699.6>

The Health Information Technology Standards Advisory Committee (HITSAC)

§ 2.2-2699.7. Health Information Technology Standards Advisory Committee
<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+2.2-2699.7>

NIEM OPEN PROJECT GOVERNANCE



PGB APPOINTED VOTING MEMBERS



Ms. Katherine Escobar
PGB Chair
Deputy Division Chief, Data and Standards Division at Joint Staff J6 and NIEM Managing Director



Ms. Christina Bapst-Stump
Science and Technology Directorate, US Department of Homeland Security



Mr. Gary Egner
Director Business Development, Equivant



Mr. John Wandelt
Principal Research Scientist, Georgia Tech Research Institute



Ms. Maria Cardillos
Executive Director Integrated Justice Information Systems Institute



Mr. Payton Lamb
Data Engineer Commonwealth of Virginia
Office of the secretary of Administration
Office of Data Governance and Analytics



Ms. April Mitchell
FBI It Specialist and Technical Lead of Data Standards in the Criminal Justice Information Services (CJIS) Division

PGB EXPERT VOTING MEMBERS

Technical Steering Committees



Kamran Atri
Co-Chair
NIEM Business Architecture Committee (NBAC)
Technical Steering Committee (TSC)



Jim Cabral
Vice President, Court Relations, InfoTrack



Beth Smalley
Co-Chair
NIEM Management Office (NMO)
Technical Steering Committee (TSC)



Thomas Krul
Co-Chair
NIEM Business Architecture Committee (NBAC) Technical Steering Committee (TSC)



Dr. Scott Renner
Co-Chair
NIEM Technical Architecture Committee (NTAC) Technical Steering Committee (TSC)

PGB NON-VOTING MEMBERS

Technical Steering Committees

OUTREACH/TRAINING

- Marketed / Booked Training Classes (500+ attendees)

Total Tickets	Category																			Grand Total
YR-QTR	Academia	Canada	City/State /Local	DHS	DoD	DoJ	EIA	NET	RE	Oth er	DOC	NASA	DOE	DOT	USDA	Finland	IRS	India	ODNI	Grand Total
2023-Q4	1	1	1	1	1					1				5						10
2023-Q3			2	1	4					9	1									17
2023-Q2	1		2	1	18	1				14										37
2023-Q1	1	5	7	4						1	27	4	1	2						52
2022-Q4	2		10	5	3					1	34	1								67
2022-Q3	2		10	4	2	1				42	7			1	9	1				72
2022-Q2	1	2	32	7	26	4				1	61	3			1			1	1	141
2022-Q1	2	17	11	2	16	8	1	1	9	45	3	2								117
2021-Q4		22	1	1	3					3	2									32
2021-Q3		8			17	1				3	3	2								34
Grand Total	10	55	76	25	90	15	1	1	15	239	23	3	2	1	18	1	1	1	1	579

- NIEMOpen.org Content Updates
- MEP Builder AWS Hosting Deployment
- EIN Presswire Publication Release
- NIEMOpen.org Analytics integration

Upcoming:

- Marketing of NIEM MEP Builder v3.2.0
- Migrating content from NIEM.gov → NIEMOpen.org; slim down NIEM.gov to focus on gov stakeholders
- Training for NIEM 6.0 release
- NIEM Summit 2025 logistics
- New Sub-committee page layouts; collaboration features
- LearnPress LMS roll out

NIEMOpen Resource Statistics (CY23)



37,794
impressions



417
MEP Builder downloads



NIEMOPEN

<https://niemopen.org/>

19,294
views

RESOURCES

Katherine Escobar, katherine.b.escobar.civ@mail.mil, 757-203-8631

- **Git Repos**

- NIEMOpen: <https://github.com/niemopen/>
- NTAC TSC
 - <https://github.com/niemopen/ntac-admin>
- NBAC TSC
 - <https://github.com/niemopen/nbac-admin>
- NMO TSC
 - <https://github.com/niemopen/nmo-admin>
 -
- NIEMOpen Slack Channel: <https://niemopen.slack.com/>

- **Mailing Lists**

- NIEMOpen: <https://lists.oasis-open-projects.org/g/niemopen>
- PGB: <https://lists.oasis-open-projects.org/g/niemopen-pgb>
- NTAC TSC: <https://lists.oasis-open-projects.org/g/niemopen-ntactsc>
- NBAC TSC: <https://lists.oasis-open-projects.org/g/niemopen-nbactsc>
- NMO TSC: <https://lists.oasis-open-projects.org/g/niemopen-nmotsc>



<https://www.niem.gov/>

<https://niemopen.org/>



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https://twitter.com/NIEMconnects?ref_src=twsrc%5Etfw



<https://www.linkedin.com/groups/1903175/profile>



<https://www.youtube.com/channel/UCg9qV22PXLBJG41hc-EwVrQ>

Message Exchange
Package (MEP Registry &
Repository)

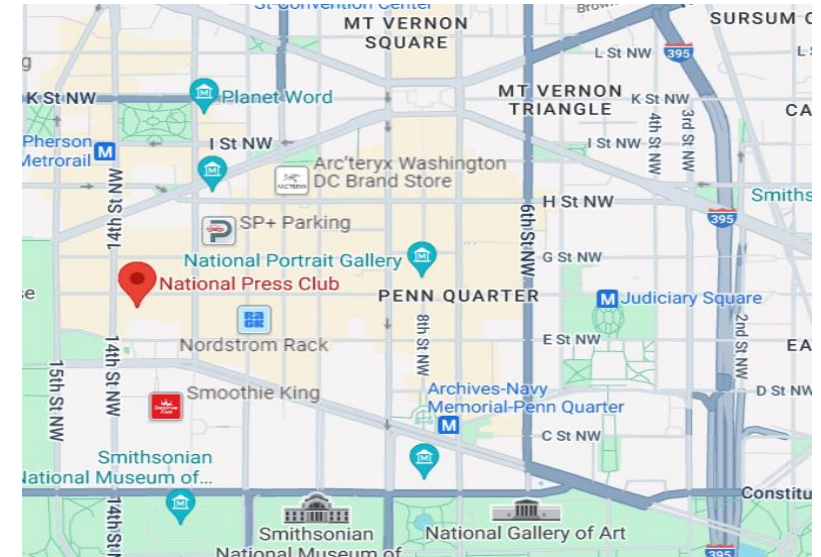
NIEM Message Exchange
Package Builder



NIEMOPEN REVEAL SUMMIT : 18-20 FEB 2025

Event Website: <https://niemopen.org/reveal>

Direct Registration Link: <https://www.eventbrite.com/e/niemopen-reveal-training-summit-2025-tickets-890279729637>



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NIEMOPEN

???? Questions ????

21 May 2024

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NIEMOpen Project Governing Board Chair

TRANSFER OF GOVERNANCE



- 20 October 2022 NIEM ESC is Sunset and NIEM Governance Transitions to the NIEM OPEN Project Governing Board (PGB) under the Auspices of OASIS OPEN Project
- ESC Principals remain in an Advisory Role
- Dr. Cully Transition Memo



CHIEF DIGITAL AND ARTIFICIAL INTELLIGENCE OFFICER
9010 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-9010

October 20, 2022

MEMORANDUM FOR NATIONAL INFORMATION EXCHANGE MODEL EXECUTIVE STEERING COUNCIL

SUBJECT: Transition of the National Information Exchange Model to the Organization for the Advancement of Structured Information Standards Open Project Program

On September 21, 2021, the National Information Exchange Model (NIEM) Executive Steering Council (ESC) approved the transition of NIEM to the Organization for the Advancement of Structured Information Standards (OASIS) Open Project Program. On October 20, 2022, NIEM governance shifts to the new NIEM Open, Project Governing Board (PGB). The PGB exercises leadership, provides guidance, establishes policy, and approves model releases and content under the auspices of the OASIS Open Project Program. The PGB is supported by two Technical Steering Committees: NIEM Business Architecture Committee (NBAC) and NIEM Technical Architecture Committee (NTAC). The NBAC and NTAC provide day-to-day operational oversight.

The NIEM ESC is hereby sunset effective October 20, 2022, with the instantiation of the NIEM OPEN PGB. I encourage ESC members to continue to participate in an advisory capacity to the NIEM Open, PGB. Details of Open Project Sponsorship can be found online at "<https://www.oasis-open.org/join-2/>" and by contacting Dee Schur, the OASIS Open Source and Standards Advocate at dee.schur@oasis-open.org.

J. Clark Cully, Ph.D.
Deputy Chief Data Officer
Department of Defense

STANDARDS THAT INCLUDE NIEM

- ANSI APCO Alarm Monitoring Company to Public Safety Answering Point (PSAP)
- OASIS LegalXML Electronic Court Filing Technical Committee
- OASIS EXDL, Emergency Data Exchange Language FEMA (Emergency Management Domain)
- Nation Fire Protection NFPA 950 calls for compliance with NIEM. Emergency Incident Data Document (EIDD) – NISTIR 8255
- Model Minimum Uniform Crash Criteria Guideline (MMUCC) – Department of Transportation
- ANSI 42.42 Radiological Nuclear detectors – CBRN Domain
- NIST Big Data Framework Vol 7
- Biometrics ANSI/NIST ITL Standard – Biometrics Domain
- Biometric Conformance Test Software (BioCTS)
- BioCTS for AN-ITL v2 is a desktop application which tests electronic biometric data files, known as transactions, for conformance to NIST Special Publication (SP) 500-290
- Conformance Test Architecture (CTA) and Test Suite (CTS) called "BioCTS for AN-2011 NIEM XML" designed to test implementations of AN-2011 NIEM XML encoded transactions.
- NIEM cited in patent – Integrated Environment for Developing Information Exchanges patent No: US 8,769,480 B1 Dated July 1, 2014

DATA MANAGEMENT BOOK OF KNOWLEDGE (DMBOK)

1.3.8 Data Exchange Standards

Data Exchange Standards are formal rules for the structure of data elements. ISO (International Standards Organization) has developed data exchange standards, as have many industries. A data exchange specification is a common model used by an organization or data exchange group that standardizes the format in which data will be shared. An exchange pattern defines a structure for data transformations needed by any system or organization exchanging data. Data needs to be mapped to the exchange specification.

Although developing and agreeing on a shared message format is a major undertaking, having an agreed upon exchange format or data layout between systems can significantly simplify data interoperability in an enterprise, lowering the cost of support and enabling better understanding of the data.

The National Information Exchange Model (NIEM) was developed to exchange documents and transactions across government organizations in the United States. The intention is that the sender and receiver of information share a common, unambiguous understanding of the meaning of that information. Conformance to NIEM ensures that a basic set of information is well understood and carries the same consistent meaning across various communities, thus allowing interoperability.

NIEM uses Extensible Markup Language (XML) for schema definitions and element representation, which allows the structure and meaning of data to be defined through simple, but carefully defined XML syntax rules.

INTERNATIONAL USERS

Region	Countries
Asia	Japan
AUSTRALIA	Australia Defence Force
	New Zealand
EUROPE	European Commission's Interoperability Solutions for European Public Administrations (ISA) Programme ; Europol; Eurojust + 10 members; Belgium, Sweden
NORTH AMERICA	Canada (Employment and Social Development Canada (ESDC); Canada Border Services Agency; Public Safety Canada (PS); Citizenship and Immigration Canada (CIC), in cooperation with the Royal Canadian Mounted Police (RCMP) and Canada Border Services Agency (CBSA)); US/CANADA/MEXICO (CIOs of Canada, Mexico, and the United States)
SOUTH AMERICA	Columbia
MULTI - NATIONAL	United Nations (UNCEFACT), EU (JOINUP Project)

INTERAGENCY EXCHANGES BUILT ON NIEM

- **Interstate Justice and Public Safety Network (NLETS)** - exchange mission-critical law enforcement information.
- **Amber Alert** - child abduction emergency alert.
- **Prescription Drug Monitoring Exchange (PMIX)** - Mitigate pharmaceutical drug abuse across state lines.
- **FBI Incident Reporting National Data Exchange System (N-Dex)** standardized and secure criminal justice information sharing to relevant criminal justice agencies.
- **FBI National Crime Information Center (NCIC)** - United States' central database for tracking crime-related information.
- **Centers for Disease Control and Prevention (CDC) Emergency Preparedness and Response Exchange Requirements** - exchange and sharing of critical emergency management (EM) data.
- **National Electronic Interstate Compact Enterprise (NEICE)** - placement of children in foster care across state lines.
- **Indian Child Welfare Act (ICWA) e-Notice.**
- **LegalXML Electronic Court Filing** - [XML](#)-based standards support the implementation of electronic court filing

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Asia	Japan
AUSTRALIA	Australia Defence Force
	New Zealand
EUROPE	European Commission's Interoperability Solutions for European Public Administrations (ISA) Programme ; Europol; Eurojust + 10 members; Belgium, Sweden
NORTH AMERICA	Canada (Employment and Social Development Canada (ESDC); Canada Border Services Agency; Public Safety Canada (PS); Citizenship and Immigration Canada (CIC), in cooperation with the Royal Canadian Mounted Police (RCMP) and Canada Border Services Agency (CBSA)); US/CANADA/MEXICO (CIOs of Canada, Mexico, and the United States)
SOUTH AMERICA	Columbia
MULTI - NATIONAL	United Nations (UNCEFACT), EU (JOINUP Project)

TOOLS

- **CMF:** The NIEMOpen **Common Model Format** is a technology neutral data modeling specification being developed by the NTAC. It is currently supported by the CMF Tool, which is a command-line tool for the development of NIEM-conforming data exchange specifications using the NIEM Common Model Format (CMF).

- **Benefits**

- Supported by free and open-source tools which convert CMF data models into technology-specific developer artifacts: XML Schema documents, JSON Schema documents, etc.
- Technology agnostic

- **Status:** In progress- to be released with version 6.0 tools. Functionality being tested by developers and reporting feedback at NTAC meetings. CMF will be incorporated into NIEM API 2.0.

- **MEP:** The NIEMOpen Message Exchange Package (MEP) Builder is an open-source tool under development to guide users through the stages of the lifecycle and provide the necessary artifacts to develop a message exchange specification or IEPD.

- **Benefits**

- Simplifies the creation of message exchange packages
- Intuitive UI/UX wizard guides the user step by step
 - Allows users to publish, browse, and modify IEPD's/MEP's
 - Open-source development allows for NIEM community to enhance/expand functionality.

TOOLS (CONT.)

- **API 2.0:** Application Programming Interface is in progress and will be used for:
 - Search and Discovery
 - Working on NIEM models
 - Transforming Models (CMF dependency)
 - Validation
 - Providing schema to external tool such as MEP.
- **Status:** In progress and to be completed as part of the NIEMOpen v6.0 toolset
- **Repos:** The transition of repositories from the [NIEM GitHub](#) account to the new [NIEMOpenGitHub](#) account is in progress