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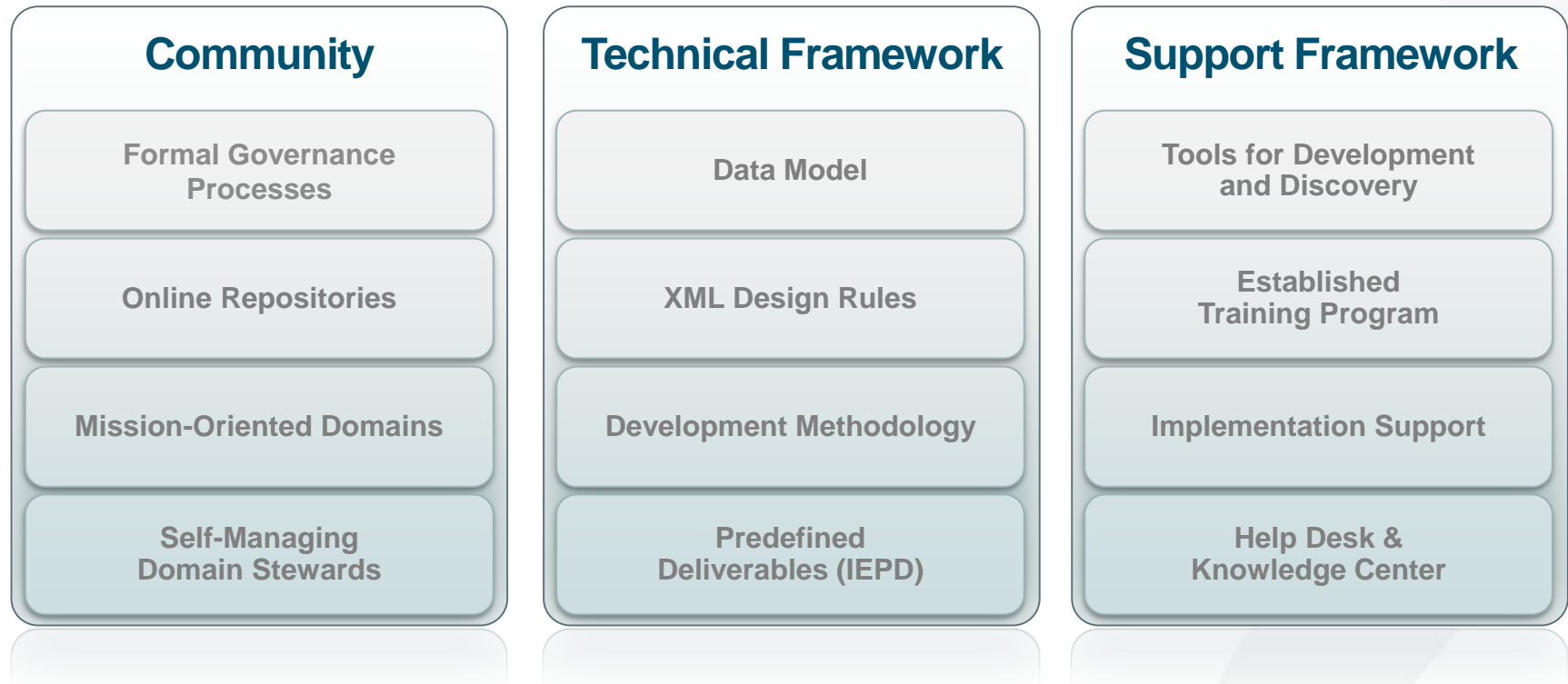
How to Get Started

WHAT IS NIEM?

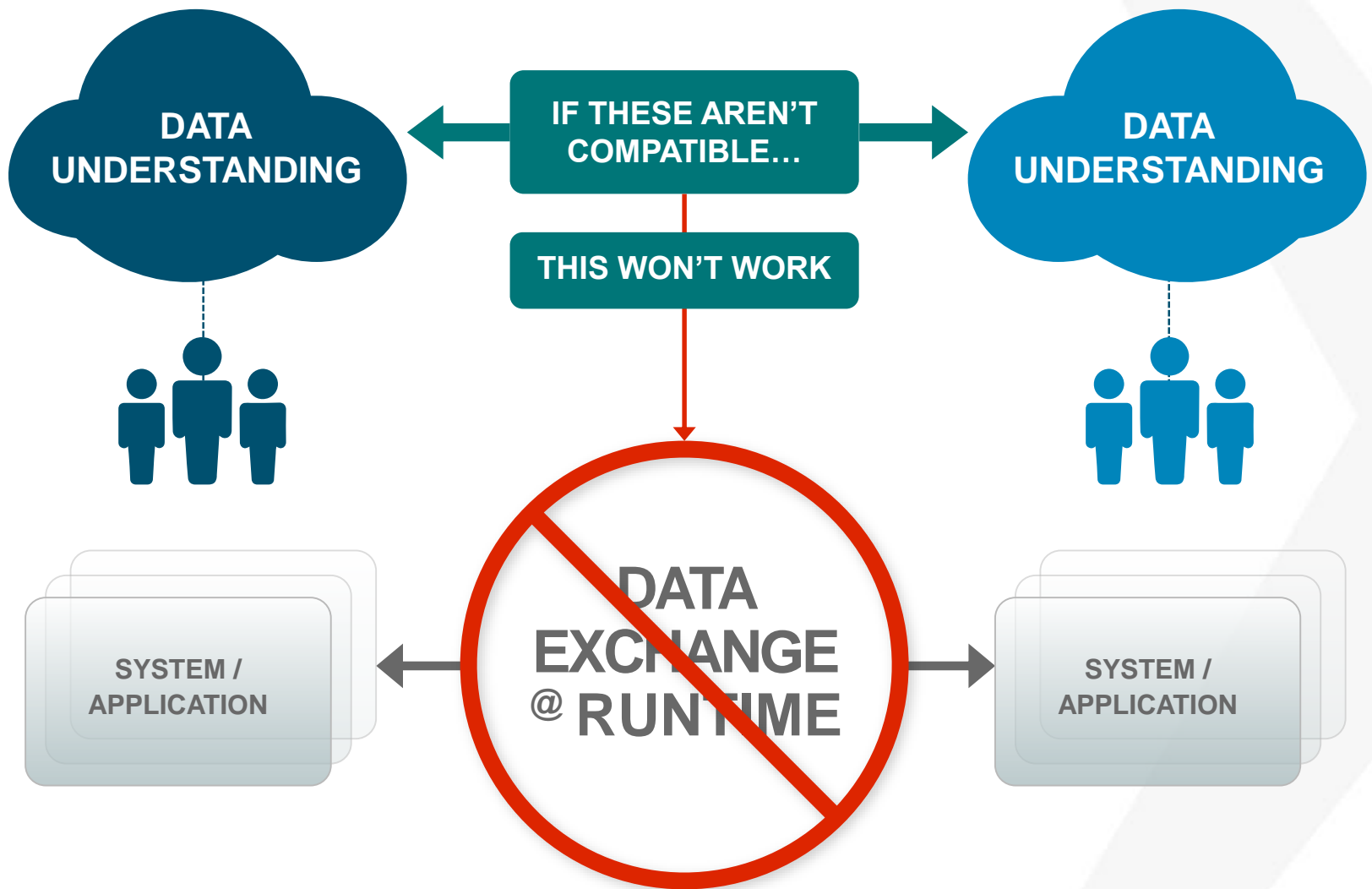
NIEM IS...

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.

It is available to everyone, including both public and private organizations. NIEM 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.

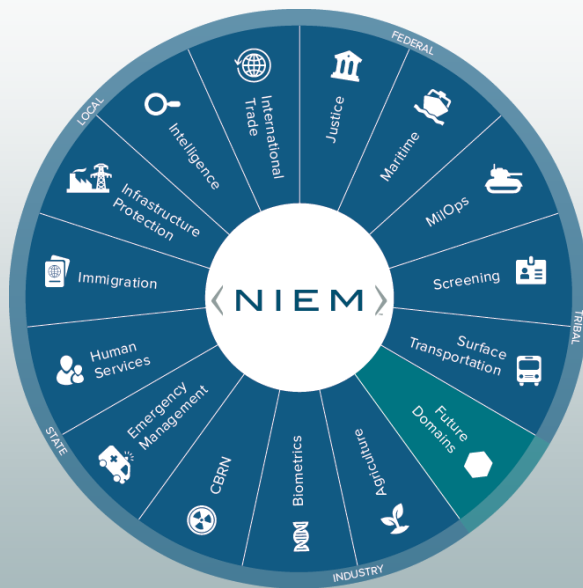


DATA INTEROPERABILITY PROBLEM



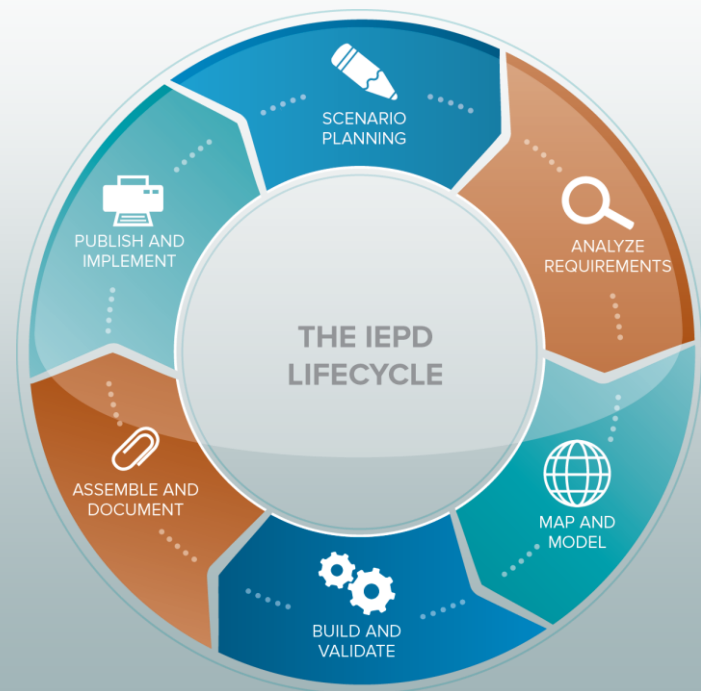
HOW NIEM WORKS

Common Language (Community-driven Data Model)



Built and governed by the business users at federal, state, local, tribal, international, and private sectors

Repeatable, Reusable Process (Information Exchange Development Lifecycle)

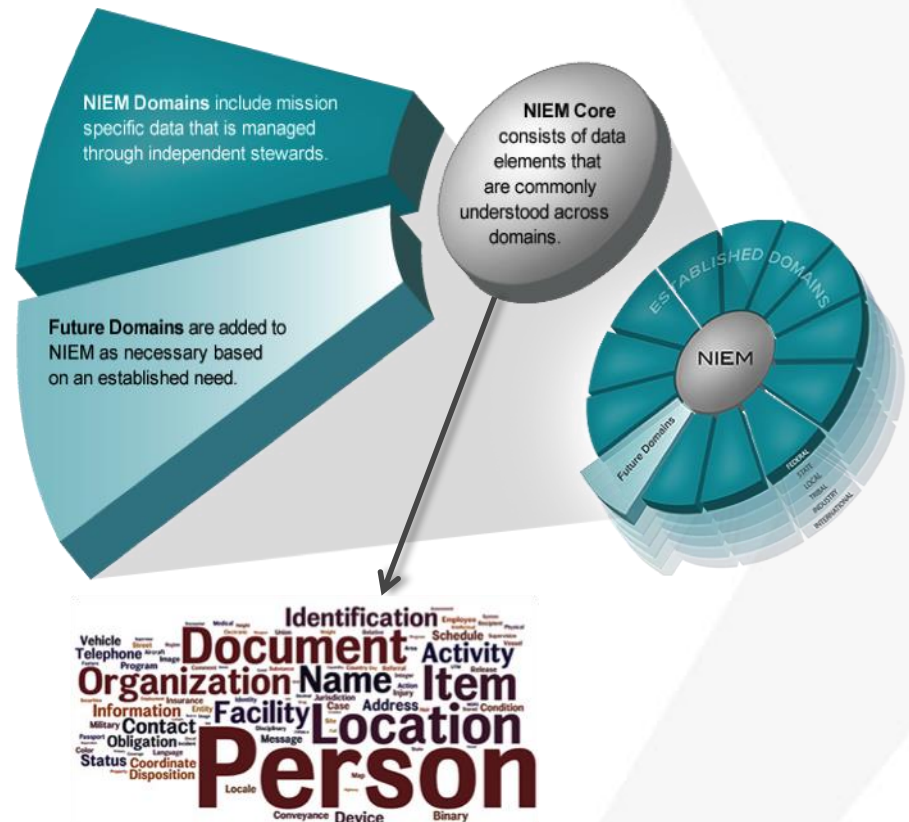


MODEL OVERVIEW

Think of the NIEM data model as a mature and stable data dictionary of agreed-upon terms, definitions, relationships and formats independent of how information is stored in individual agency systems.

The data model consists of two sets of closely related vocabularies: **NIEM Core** and individual **NIEM Domains**.

- Agriculture (*new in June 2017*)
- Biometrics
- Chemical, Biological, Radiological, & Nuclear
- Emergency Management
- Human Services
- Immigration
- Infrastructure Protection
- Intelligence
- International Trade
- Justice
- Maritime
- Military Operations
- Screening
- Surface Transportation



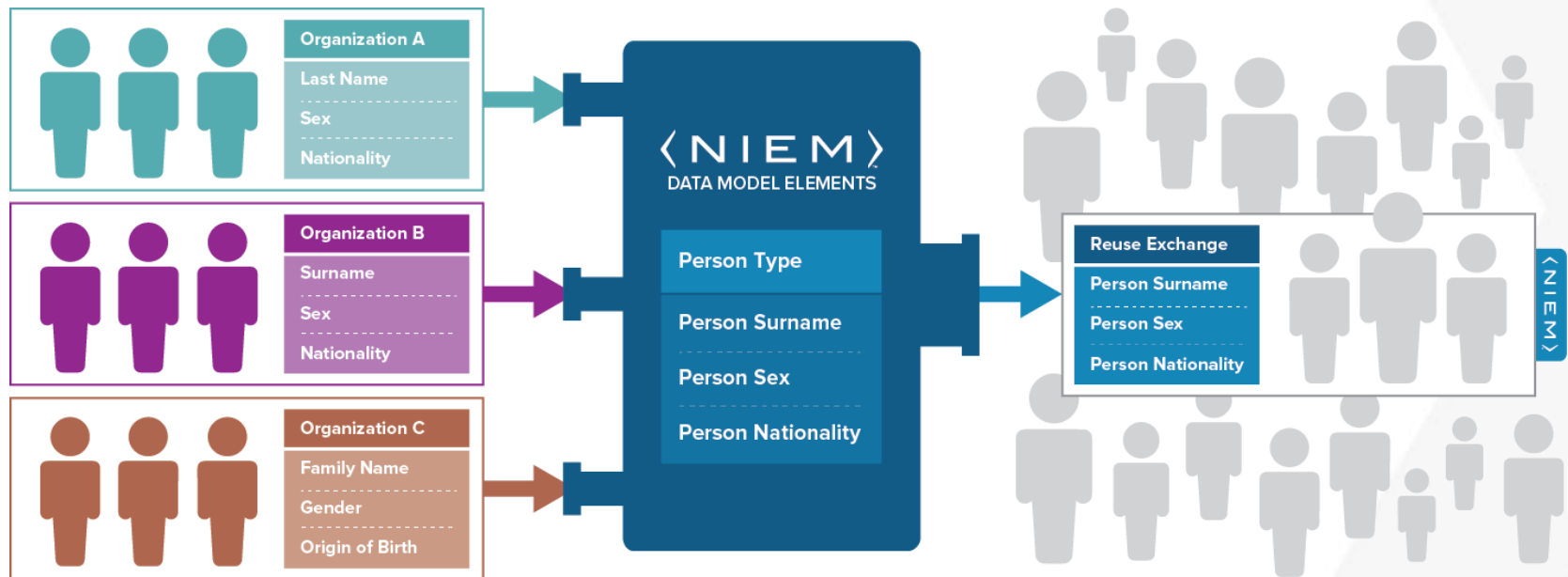
NIEM IN ACTION: HOW NIEM EXCHANGES DATA COMPONENTS AND DATA ELEMENTS

NIEM IS

a common vocabulary that enables efficient information exchange across diverse public and private organizations.

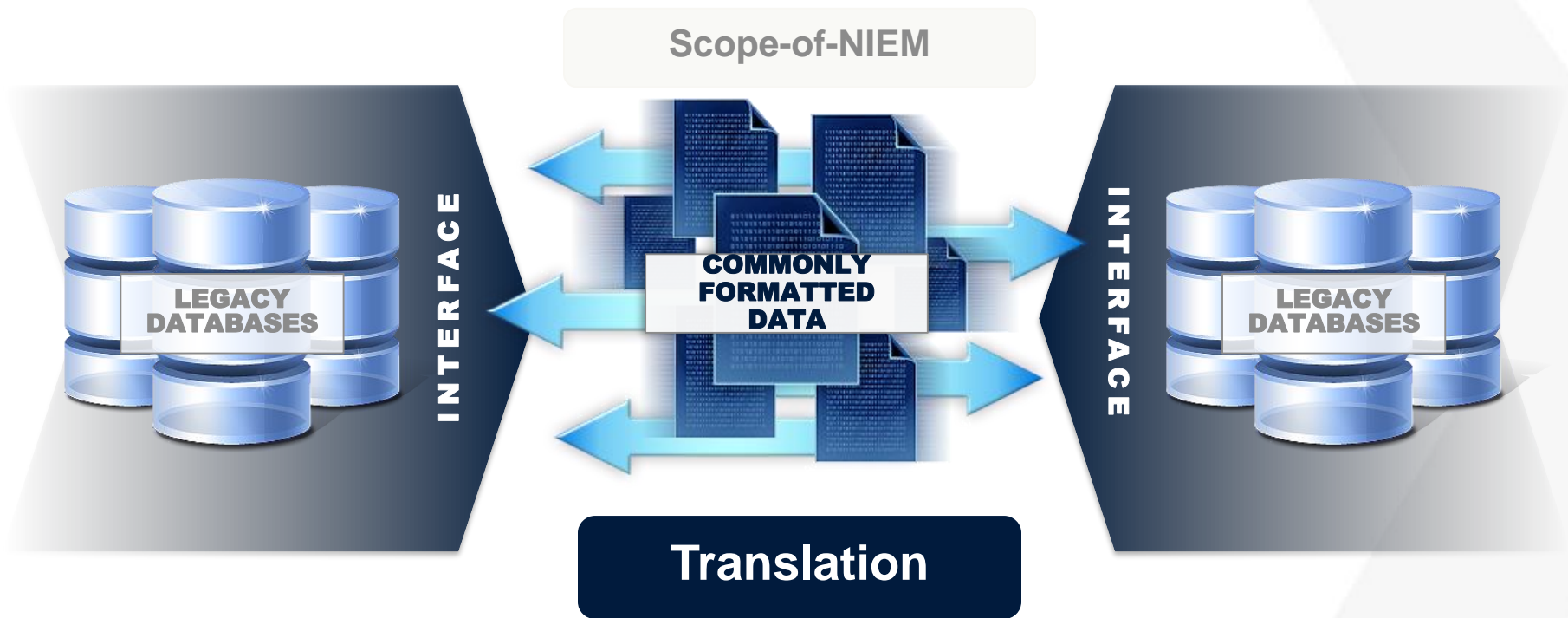
NIEM IS NOT

a system or database; it does not specify how to transmit or store data.



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

STANDARDIZING DATA MOVING ACROSS SYSTEMS



NIEM intentionally does not address standardizing data inside legacy systems. NIEM serves as a translation layer (providing a common understanding) between and across disparate systems.

NIEM PROMOTES...

Collaboration

NIEM brings stakeholders together through reuse and community engagement.

Consistency

NIEM provides consistency through reusable schema, which allows for many implementation options.

Development

Flexible and extendable, NIEM saves development time through agreed-upon elements, relationships, and formats independent of how information is stored in individual systems.

Support

New users can leverage what already exists and engage directly with other NIEM members for assistance.

WHICH LEADS TO

**Lower Development
Costs**

**Enhanced Mission
Capabilities**

Common Vocabulary

**Reduced Maintenance
Costs**

HOW NIEM GOT STARTED

THE BEGINNING OF NIEM: PART 1

To understand how NIEM began watch this short video.



Please click *play* to begin.

https://www.youtube.com/watch?v=1Syaq9PU_Sw&spfreload=10

THE BEGINNING OF NIEM: PART 2

Parallel to work that was being done within the justice community, was the stand-up of the U.S. Department of Homeland Security—which was also beginning to work toward data standardization.

Collaborative efforts by the justice and homeland security communities—to produce a set of common, well-defined data elements for data exchange development and harmonization—led to the beginnings of NIEM.

TO RECAP: HISTORY OF NIEM

Started by a handful of organizations supporting state and local government, 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. Over two decades of demonstrated success and delivery of data interoperability!

By joining forces to overcome the challenges of information exchange across government boundaries, a grassroots effort called the Global Justice Information Sharing Initiative was established.

The Department of Homeland Security (DHS) was established November 25, 2002.

The Global Justice XML Data Model (GJXDM) was announced in April 2003.

Built upon GJXDM's success and lessons learned, NIEM was launched in April 2005 by DHS and DOJ. HHS joined as the third primary sponsor in 2010.

NIEM Military Operations (MILOPS) domain established December 2013.

DoD CIO accepts the NIEM Executive Sponsorship from DHS. DHS, DOJ, and HHS maintain primary sponsorship. Joint Staff J6 established as the NIEM Management Office October 2018.

NIEM continues to mature with new communities and partners...

HOW NIEM WORKS

NIEM SIMPLIFIED



Please click *play* to begin.

<https://www.niem.gov/news/Pages/niem-simplified.aspx>

WHO USES NIEM?

WHO USES NIEM?

NIEM is in the public domain and available for any agency or organization to use. We can track use of NIEM across the majority of federal agencies and 50 states, as well as internationally.

Collective effort underway to get full picture of NIEM adoption and parallels for further advancing “data as an asset” and global adoption of standards based within government.

<https://www.niem.gov/about-niem/success-stories>



“Are You NIEMified?” is a community-building campaign to track NIEM adoption.

NIEMified (adjective): Indicating an entity such as a project or organization that has implemented a NIEM-based exchange to advance their mission.

SELECT NIEM DOD ENGAGEMENTS (1 /3)

Effort	Partner ORGs	Overview	Engagement
MILSTD 6040 U.S. Message Text Format (USMTF)	USMTF CCB	Onboard/Technical Support to transform existing USMTF XML into a NIEM conformant construct. Potential to include 20,000 new data components into the MilOps Domain	DOD
MILSTD 6016 Tactical Data Link (Link-16) J-series messages XML standardization	Joint Multi-TDL CCB	Approved Draft Interface Change Proposal to develop Appendix to provide guidelines for generation of J-Series message data as NIEM conformant XML	DOD
MILSTD 6017 Variable Message Format (VMF)	JMSWG XMLSG	Development of a NIEM Conformant variant of VML	DOD
Integrate NIEM into STANAGs	JS J6, NATO ACT / NCI Agency, IERHWG	Incorporate NIEM Naming and Design Rules (NDRs) into the NATO Core Data Framework (NCDF) and messages from the MIM. Evolve an information exchange environment that supports multiple semantic models (ie MIM, NATO MTFs, etc)	Multinational
NCDF Data Standardization / Exchange Demonstration at Coalition Warrior Interoperability Exercise (CWIX 2019)	JS J6, USMC/MCTSSA, ACT/NATO, NCIA, DEU/MIP	Early use case of NCDF processes (IER, IES, and Implementation); mediation between FFI and MIP using NIEM NDR; followed NATO's web services standard (WSMP)	Multinational
USSOCOM Data Strategy	USSOCOM	Incorporated NIEM as a standards based approach to sharing information in the USSOCOM J3x Data Strategy	DOD
National Institute of Standards and Technology (NIST) Big Data Framework	NIST	Incorporated NIEM into the NIST Big Data Interoperability Framework: Volume 7, Standards Roadmap	U.S. Government
Defense Forensics and Biometrics Agency (DFBA)	Defense Bio-Forensic Enterprise	Technical support: Forensic and Biometric semantic vocabularies shall re-use elements of the NIEM information exchange schema, in order to facilitate interoperability	DOD
Unmanned Control Segment (UCS) Architecture	SAE / AT&L	Incorporate NIEM conformant XML standard to UCS architecture	DOD

Standards & Governance

IEPD Dev & Implementation

Demonstration

SELECT NIEM DOD ENGAGEMENTS (2/3)

Effort	Partner ORGs	Overview	Engagement
Joint Non-Kinetic Effectiveness (JNKE) for Offensive Cyber Operations	JTCG For Munitions Effectiveness (ME)	Incorporate JTCG/ME JNKE Offensive Cyber Operations (OCO) NIEM IEPD data into NIEM reference schema	DOD
Security Equipment Integration Working Group (SEIWG)	Physical Security Enterprise & Analysis Group	Tech Support to implement NIEM IEPDs supporting Force Protection Systems Sensor Information message exchanges	DOD
Tactical Service Oriented Architecture (TSOA)	USMC/MCTSSA	Onboard Alignment of their message schema to NIEM conformant JSON	DOD
Warfighter Mission Area Architecture Federation and Integration Portal	JS J6 AID USA/TRADOC	Tech Support WMA AFIP NIEM IEPD supporting exchanging DoDAF artifacts across a Service level federation (ArCADIE)	DOD
Defense Security Service (DSS) Enterprise Data Management Strategy (EDMS)	DITMAC, DMDC	DSS incorporated NIEM Into its EDMS and exercised NIEM in developing two IEPDs: Contract Security Classification information (e.g., DD-254) and Joint Personnel Adjudication System (JPAS) personnel and facility data.	DOD
Navy Authoritative Data Environment (ADE) 2.0 NIEM IEPD Pilot	Navy	Pilot effort to develop and demonstrate a NIEM IEPD in support of larger Navy Manpower, Personnel, Training, and Education (MPTE) effort to adopt NIEM for ADE 2.0.	DOD
Air Force GPS Next Generation Operational Control System (OCX)	AF SMC	Implement NIEM IEPDs in support of next generation GPS information exchanges with the user community. Using NIEM 2.1 due to use of MagicDraw.	DOD
USAF Cursor on Target (CoT)	AFSOC, AFLCMC	Implement NIEM v3.0 conformant representation of CoT ver 2 0	DOD
Antisubmarine Warfare (ASW) Community of Interest (COI)	ASW COI	Map ASW COI data model (ACM) UML track information to allow NIEM conformant information exchanges	DOD

SELECT NIEM DOD ENGAGEMENTS (3/3)

Effort	Partner ORGs	Overview	Engagement
Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX)	ACT/NATO, Canada, DOD	NATO Trusted Information Exchange Services (TIES) data centric security with a data lake	Multinational
Trident Spectre 2019	US Army NVESD, Intelligence Community	Demonstrate NIEM conformant JSON information exchanges between sensor systems and decision support applications in the Common Interoperability Layer (CIL)	Interagency
Simulated Interactive Robotic Initiative (SIRI)	JS J6, ACT/NATO USMC/MCTSSA	Establish uniform data standards and services implementation processes; codify data standardization in NATO policy	Multinational
Tactical Infrastructure Enterprise Services (TIES) Coalition Warfare Program (CWP)	JS J6, ACT/NATO, FRA, DEU, ITA, NOR, Army/PM MC	Implement C-COP IEPD; NATO's (NCIA) NIEM conformant information exchanges for secure web service access control	Multinational
US NAVY – Robotic and Autonomous Systems Information Interoperability	NAVAIR PMA 281	Demonstrate standardized data interfaces uses in Advanced C2 NIOP. Demonstrate manned-unmanned capabilities	DOD
USAF – Robotic and Autonomous Systems Information Interoperability Line of Effort	USA RCO	Apply NIEM construct to USAF unmanned systems messaging standard (UCI) to improve configuration management and ability to share information with non-USAF partners	DOD
GCCS-JE Demonstration Experiment	DOD CIO, DISA, JS J6	Incorporate NIEM conformant information exchanges into the GCCS-JE experiment	DOD
DHS HSIN and MPE alignment	DHS, JS J6	Interface standardization between Homeland Security Information Network and DOD Mission Partner Environment	Interagency
CCMD Data Storage Access and Use	JS J6; PACOM	Prototype CCMD access to multiple data storage capabilities through NIEM conformant information exchanges	DOD

NIEM'S BENEFITS & IMPACTS

NIEM PROVIDES...

Collaboration

Brings stakeholders together through reuse and community engagement

Consistency

Provides a standardized framework and mature governance

Development

Supplies tools to aid in discovery and creation of exchanges

Support

Provides technical assistance and training

Which Leads To

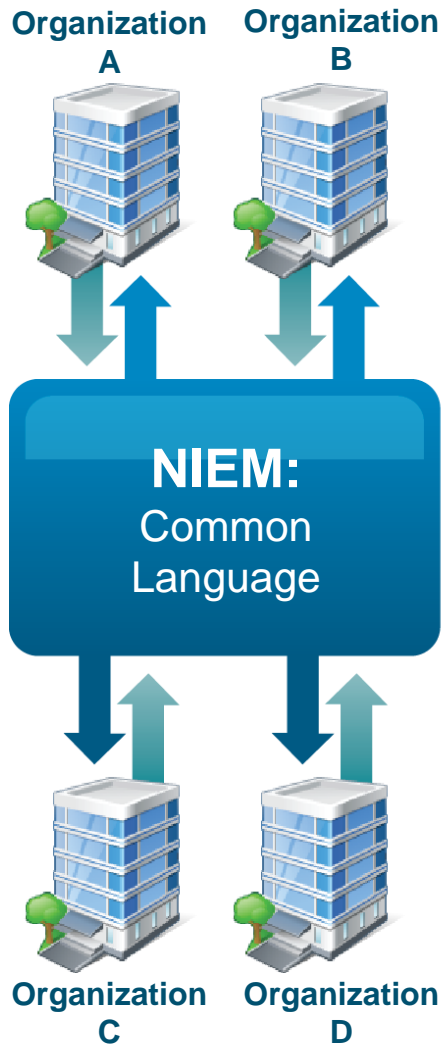
Lower Development Costs

Enhanced Mission Capabilities

Common Vocabulary

Reduced Maintenance Costs

BENEFIT: COMMON LANGUAGE



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

When developing information exchanges, agreeing to a common set of data elements and definitions is a frequent challenge. NIEM was built to address this challenge.

For example: a previous data exchange included four partner organizations. As one of the four partner organizations, you would have had to connect to three different systems and negotiate a common language between them. Now, it’s just your language and NIEM.

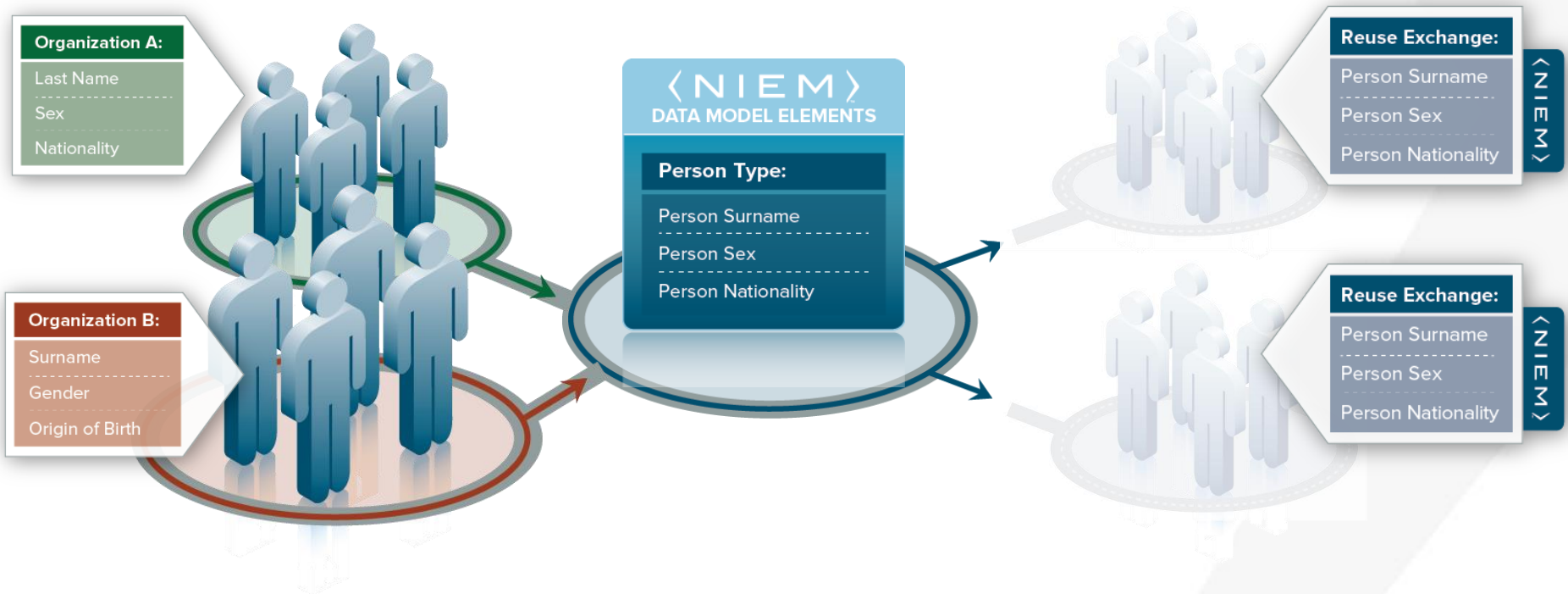
NIEM provides this common vocabulary, thus a place to start—saving time and money.

BENEFIT: INTEROPERABILITY

NIEM provides a consistent starting point for creating information exchanges so that the sender and receiver of information share a common, unambiguous understanding of the meaning of that information.

This ensures that information is understood and carries the same consistent meaning across various communities, irrespective of technologies, allowing interoperability to occur.

Interoperability is a characteristic of information systems that use NIEM to exchange information—NIEM allows for the quick and easy addition of exchange partners, irrespective of technologies being used.

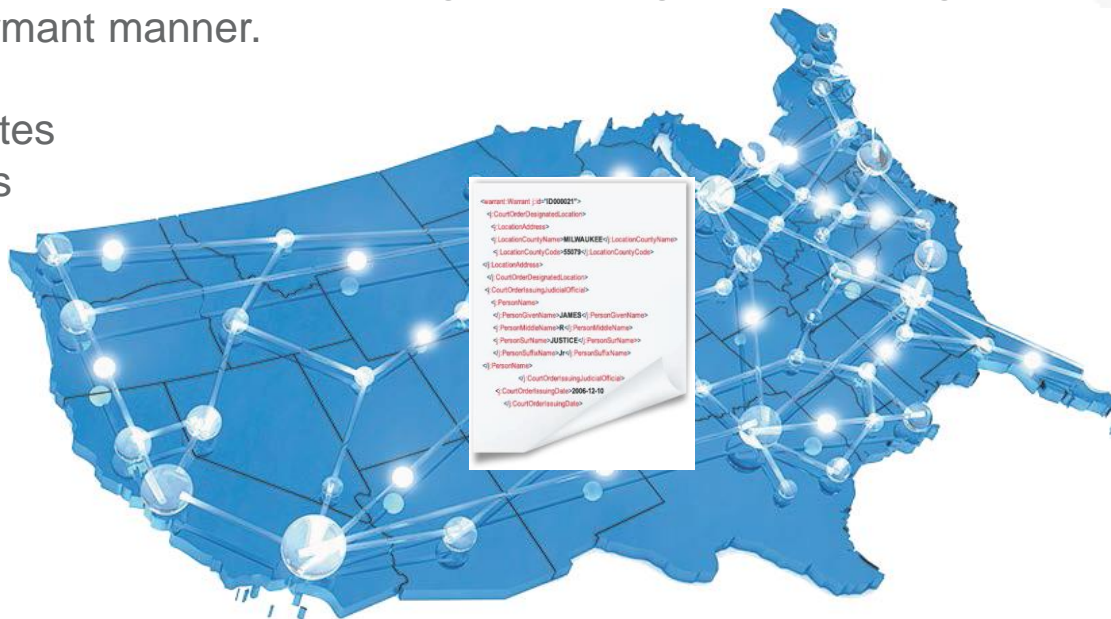


BENEFIT: COMMUNITY COLLABORATION

Mission challenges and opportunities are too large for any one organization, sector, unit, or nation to take on alone—they must be addressed collaboratively.

NIEM is a data model used to facilitate information exchange among partners in various disciplines, government-wide. With NIEM, information exchange partners come together to identify what data needs to be exchanged, then agree to exchange that data in a standards-conformant manner.

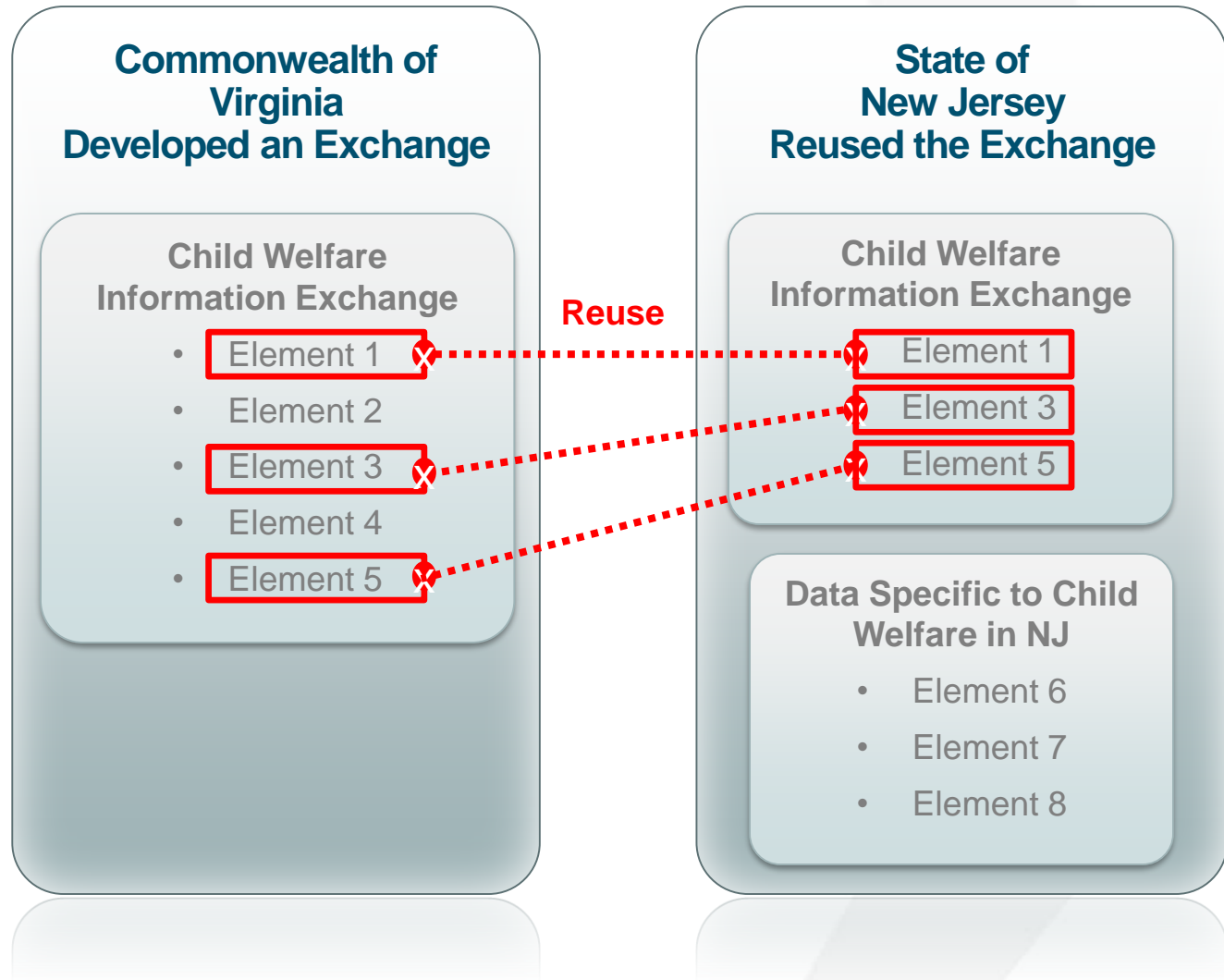
The use of NIEM accelerates collaboration in and across communities.



BENEFIT: REUSE OF AN EXCHANGE

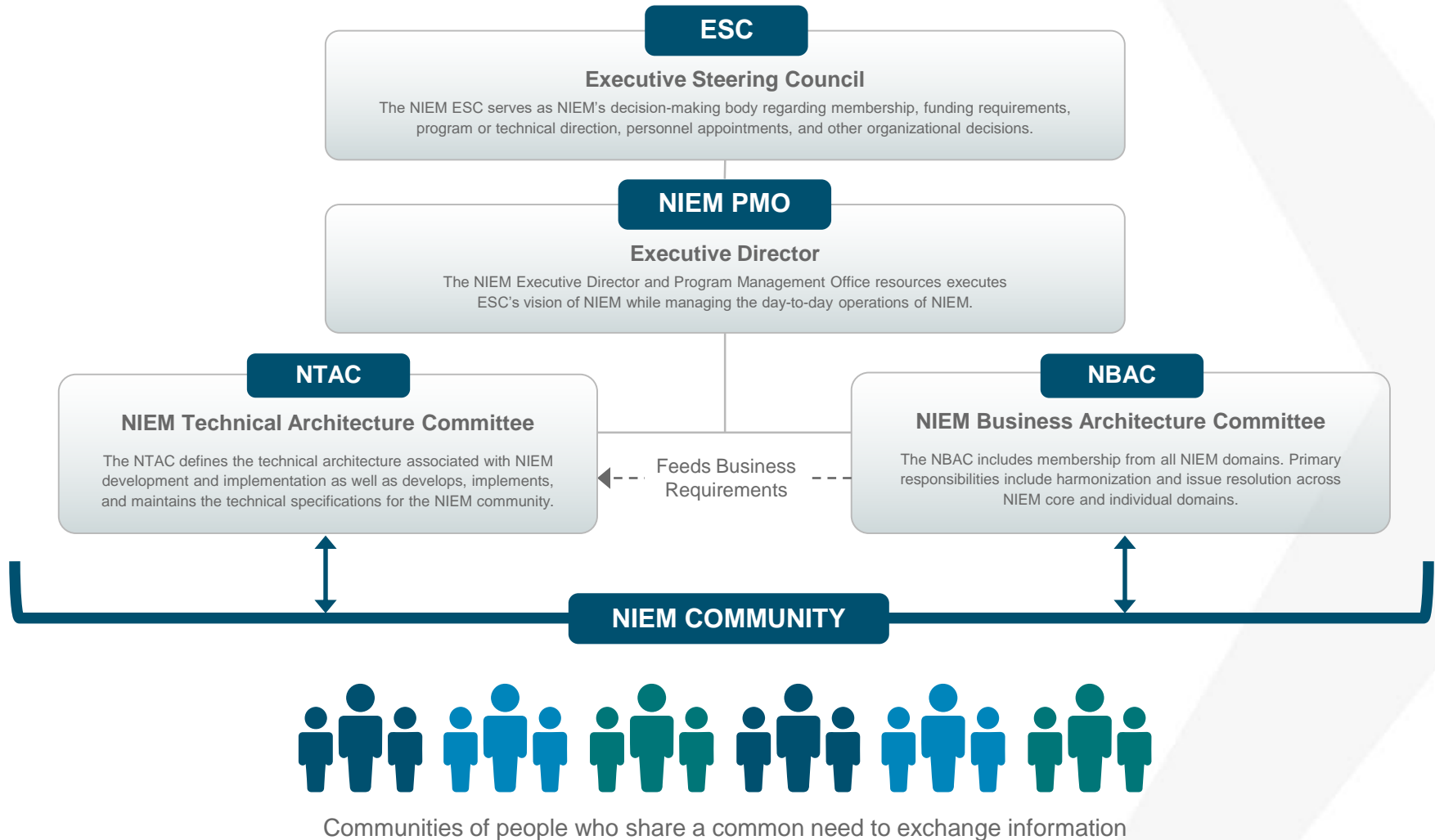
Since NIEM exchange developers follow the same technical framework, they can borrow from and reuse each other's work.

Because the NIEM data model is composed of data elements that cross sectors, functions, and geographic boundaries, an exchange developed for one organizational business requirement could be “reused,” partially or fully, for a different need within or by another organization.



HOW IS NIEM GOVERNED?

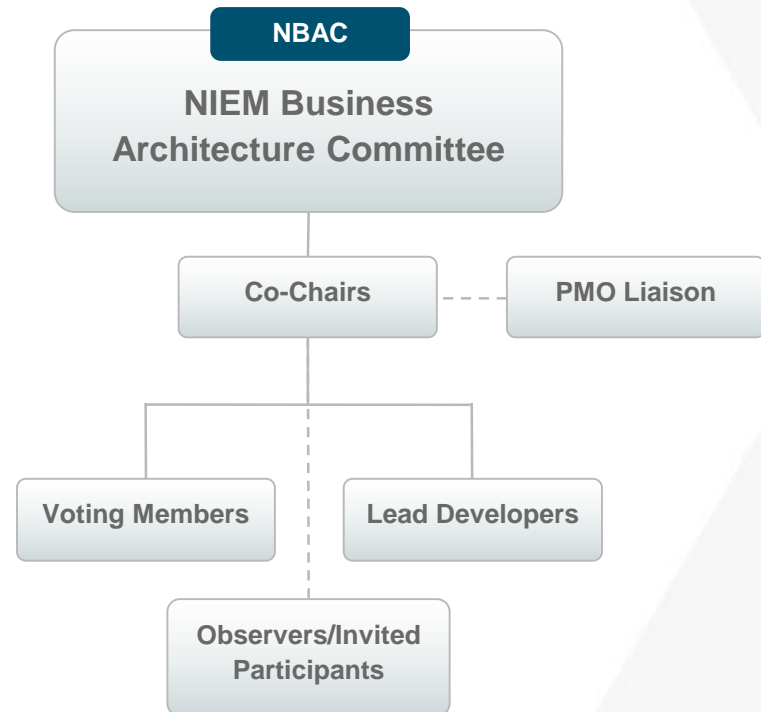
NIEM'S GOVERNING STRUCTURE



NBAC OVERVIEW

The mission of the NBAC is to set the business architecture and requirements of NIEM, manage NIEM core, and facilitate the processes for the regulation and support of NIEM domains.

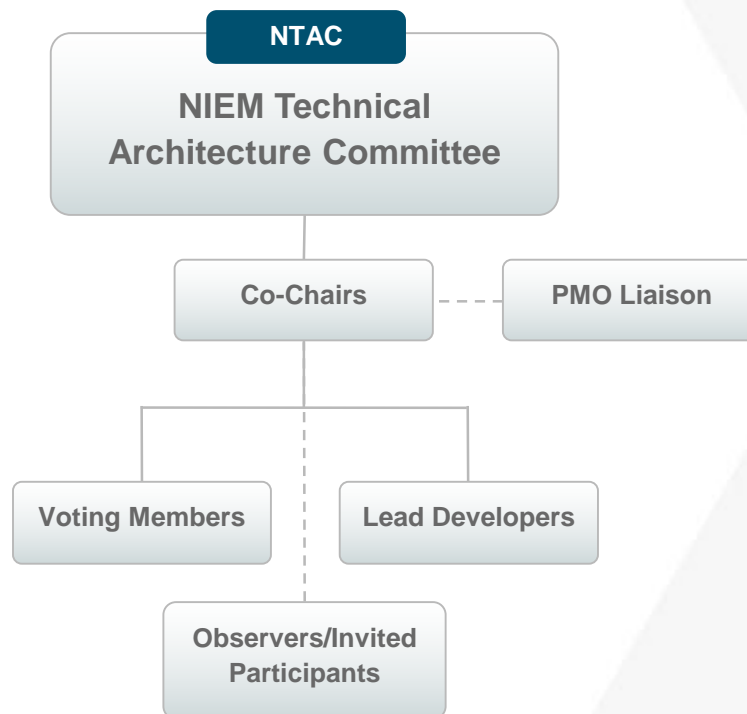
- Provides management and oversight of the NIEM core, the central part of the NIEM data model that is commonly understood across all domains.
- Assists new domains in onboarding to the NIEM community and promotes interactions between domains to collectively guide the NIEM community.



NTAC OVERVIEW

The mission of the NTAC is to define and support the technical architecture of NIEM.

- The NTAC documents, implements, and maintains technical specifications for NIEM.
- In addition, the NTAC is responsible for providing robust and effective development of the NIEM core structure and complementary processes to support and enable users to efficiently develop, use, and reuse NIEM-conformant model package description components.



NIEM COMMUNITY STAKEHOLDERS

The NIEM community continuously communicates with six different stakeholder types. Each stakeholder is interested in NIEM and how it can help its organization or project for different reasons



Executives

NIEM minimizes the time-to-market while allowing maximum flexibility.



Program Managers

NIEM can make a job easier by helping teams build exchanges in less time, for less money time.



Architects

NIEM offers a better way to exchange data and is adaptable; it can be modified or new capabilities added to an existing exchange.



Developers

Tools and support are available to make exchange development easier and faster.



Implementers

NIEM can lower the cost of maintenance in comparison to legacy formats.



Tool Providers

NIEM can be an avenue to connect with customers who have an interest in information sharing capabilities.

NEAR-TERM OUTREACH OBJECTIVES FY 19

- **Principal Partner Transition:**
 - Intent: Identify NIEM Partners and Announce DoD's NIEM Stewardship Role
 - Motivation: Entice future potential partners

- **Ambassador Corps Development and Support:**
 - Intent: Identify, Recruit, and Leverage Ambassadors to Share the NIEM Message
 - Motivation: Create a force multiplier

- **Education and User Expansion:**
 - Intent: Expand user base to include Federal, State, Local, Tribal, and International partners
 - Motivation: Sprinkle "NIEM Dust" far and wide

NIEM MANAGEMENT OFFICE UPDATE

CURRENT FOCUS (1/2)

- Strategic Vision update
- NIEM 4.2 Minor Release June 2019
- Executing NIEM Governance
 - NIEM Executive Steering Council Updates
 - NBAC & NTAC Enterprise Collaboration
- NIEM Adoption
 - Interagency
 - State, local, Tribal
 - International

CURRENT FOCUS (2/2)

- Information Exchange Package Documentation (IEPD) Registry
- Developing NIEM support plans for:
 - Artificial Intelligence (AI)
 - Cyber Security
 - Cloud
 - Open Data Act
 - Unified Modeling Language (UML)
 - JSON

NEED YOUR SUPPORT

- How does NIEM MO can improve customer support and data model management?
 - MILOPS CCB Process Improvement Recommendations
- What tech enabler currently in use to assist in extract, transform, load?
- For future integration enabling, cloud migration, How can NIEM MO support requirements?
- What is being done well by data curation today? How can we improve?

HOW TO GET STARTED

MORE ON NIEM



www.NIEM.gov



<https://beta.movement.niem.gov>



GitHub

[NIEM.github.io](https://github.com/NIEM)



LinkedIn

<http://www.linkedin.com/groups?gid=1903175>



Twitter

www.twitter.com/NIEMConnects



YouTube

www.YouTube.com/NIEMConnects

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