Introduction

• Established practice vs emerging capability?
• Differences?
• What drives preferences?

• What are the foundational elements of a reference implementation for collaboration?
• Analytics: software that discovers patterns in data

Ideally

- Data
- Analytic
- Artifacts

Typically

- Data
- Analytic

- Artifacts

• **Ideally**: data, analytics, and artifacts all equally accessible
• **Typically**: data & analytics walled off
  - Proprietary intellectual property
• Sharing artifacts is more likely
Government: Defense/Intel and Civilian Agencies
Analytic Architectures in Government: Defense and Intelligence

- Established enterprise-wide architectures
- Efforts to refresh existing architectures
- Smaller projects for limited communities
Analytic Architectures in Government: Defense and Intelligence, Implementation Issues

Ideal

Real World Conditions (e.g. Battlefield)
Defense and Intelligence Enterprises

- **DoD JIE** – Department of Defense Joint Information Environment
- **IC ITE** – Intelligence Community Information Technology Enterprise
- **DI2E** – Defense Intelligence Information Enterprise

Distributed Common Ground System

- DCGS – Distributed Common Ground System
Distributed Common Ground System

- AF DCGS – Air Force Distributed Common Ground System
Distributed Common Ground System

- TCRI – Tactical Cloud Reference Implementation
Distributed Common Ground System

- **DIB** – DCGS Integration Backbone
Important points

- Analytic architectures can fit these contexts, **but**...
- Architectures must conform to legal restrictions / protections
- Restrictions dictate how data may be used
Centers for Medicare & Medicaid Services (CMS)

- Some enterprise-wide capabilities for data
  - Integrated Data Repository
  - Chronic Condition Warehouse

- Big data sets
  - 4.5 million claims daily [1]

- Big budget
  - FY2015: $984.5 billion [2]

Centers for Medicare & Medicaid Services (CMS)

Requirements
- Health Insurance Portability and Accountability Act (HIPAA)
- Affordable Care Act (ACA)
- Analytic expediency and integrity
- Decisions must be understandable and justifiable

However, predictive analytics have aided in catching fraud[1]

VA promotes an open source community
- Open Source Electronic Health Record Alliance (OSEHRA)
- Gives third parties a baseline for interacting

**Activity:** Build an ontology to influence future medical record schemas [1]

**Goal:** Demonstrate the value of reasoning for health care

[1] Stoutenberg et al, "Developing a Clinical Care Ontology for the Veterans Health Administration"  
Towards an Analytic Architecture for Industry and Government

Some orgs need an enterprise-wide analytic architecture

Others need individual analytic architectures for specific use cases

...But there is no established ubiquitous solution

Analysis Exchange Model
1. Hub for collaborative analytic activity
2. Allows fusion across different sources
3. Anticipates contributions from across Industry
Object Based Production & Activity Based Intelligence

- **Object Based Production (OBP)**
  - Aggregate knowledge into objects

- **Activity Based Intelligence (ABI)**
  - Reveal the underlying patterns

As expressed in: [https://info.publicintelligence.net/DIA-ActivityBasedIntelligence.pdf](https://info.publicintelligence.net/DIA-ActivityBasedIntelligence.pdf) (Slide 8)
Object Based Production Flow for Intelligence Discovery

Previous approach

OBP approach

As expressed in:
https://info.publicintelligence.net/DIA-ActivityBasedIntelligence.pdf (Slide 4)
Toward an Analytic Architecture for Industry and Government

OBP approach

Our approach
Key Elements of an Analytic Architecture

Orchestrating exchange activity
A “lingua franca” for exchange
Adaptation and fusion services
Conclusions

- Analytic architectures across various government agencies
  - *Different* needs and objectives
  - *Different* scales of data
  - *Common* need to derive valuable knowledge or intelligence

A push exists toward a comprehensive analytic architecture across and beyond their enterprise

Protective legal barriers must be considered
Conclusions

• No settled solutions for any agency
• Right time to consider alternatives
  • Foster collaboration between government and industry
  • Mutual benefit
  • Collaboration can provide new capabilities

• Roundtable’s proposal: *Analysis Exchange Model*
  • Hub for collaboration
  • Flexible for different use cases
Thank you

Questions?