SDSFIE-eSMS Utilities Modeling and Harmonization

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SDSFIE and eSMS Harmonization – Goals

- Per DoD policy, installation data sources like SMS, CAD, CMMS, and geographic information systems (GIS) are strategic assets and must be made *linked*, trustworthy, *interoperable*, and secure.
  - GIS needs to be able to communicate with CAD, CMMS, and SMS… and vice versa
  - GIS and eSMS are at an ideal point in development to allow for this
    - eSMS:
      - Is solidifying their data schemas
      - Has defined their requirements in required attributes and picklists from their engineering database
      - Needs to communicate their data requirements to Components
    - SDSFIE-V:
      - Moving to new major version that includes Component derived detailed utility models
- SDSFIE and eSMS Harmonization
  - Syntactic harmonization – name/nomenclature synchronization and/or crosswalk must be established
  - Semantic harmonization – concept/definitions must be known and aligned
  - Must make logical connections between the “component”, “sub-component”, “section”, and “segment” in eSMS and their counterparts in the SDSFIE-V hierarchy of feature types and sub-classes
    - RPSUID alone will be insufficient to link features between the systems; need lower-level identifier

*defined in DoDI 8130.01

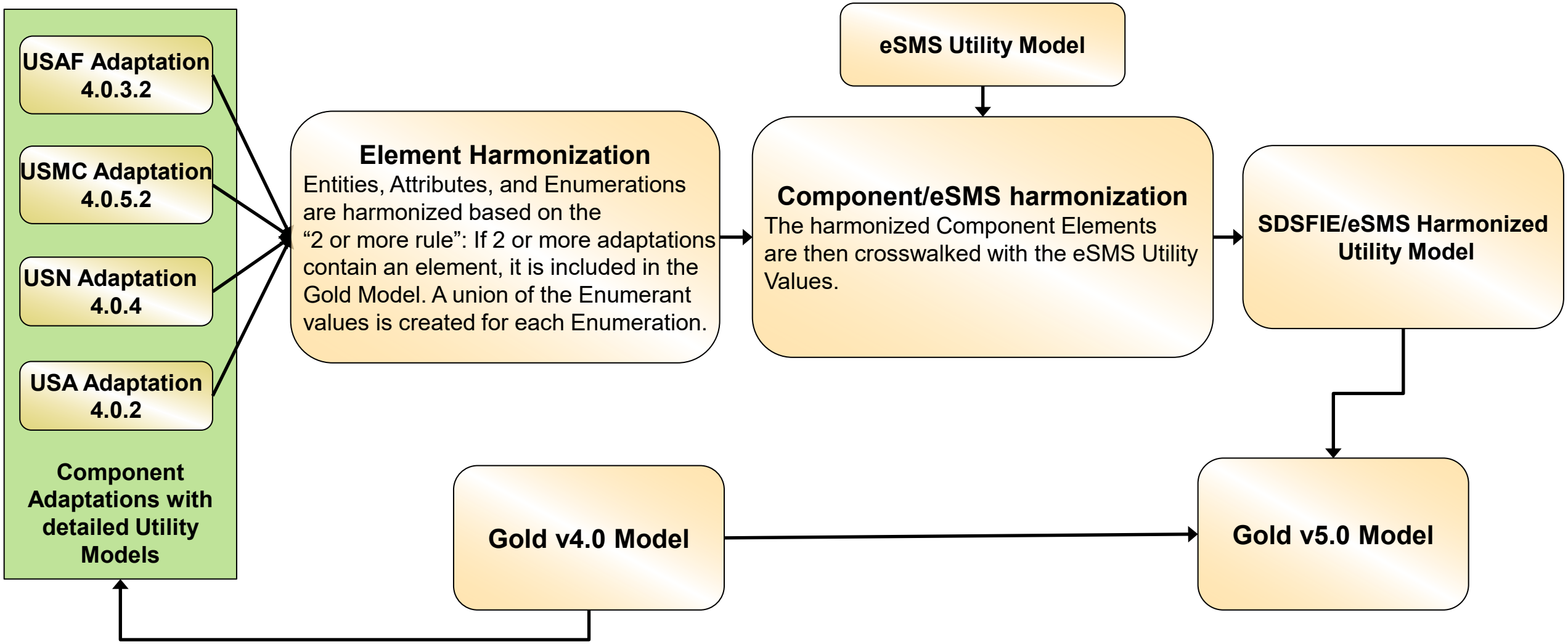
SDSFIE/eSMS Modeling Elements

- Understanding element terminology in the modeling process ensures proper harmonization and data manageability. Even at the element level, SDSFIE and eSMS use varying vocabulary to differentiate between the element types.

←Physical Data Model→ ←----------Logical Data Models----------→

Esri Geodatabase Element Name	**SDSFIE Element Name**	**eSMS Element Name**
• Feature Class • Object Class	Entity • Feature Type • Object Table	Component Type
Field	Attribute	Attribute
Domain	Enumeration	Attribute Values (name)
Domain Value	Enumerant	Attribute Values (values)

SDSFIE/eSMS Utilities Modeling Process



SDSFIE/eSMS Utility Harmonization Example

eSMS Model	Proposed, Harmonized Model	USAF Adaptation	USMC Adaptation	Navy Adaptation	Army Adaptation
Component Name **Definition**	***Entity Model Name*** **Entity Definition**	***Entity Name*** **Definition**	***Entity Name*** **Definition**	***Entity Name*** **Definition**	***Entity Name*** **Definition**
Thermal Tank A tank to hold and/or process water and/or a liquid as part of the thermal energy generation or distribution process.	*TExpansionTank* The location of a tank used in closed thermal systems to absorb excess water pressure, which can be caused by thermal expansion as water is heated.	*TExpansionTank* The location of a tank used in closed thermal systems to absorb excess water pressure, which can be caused by thermal expansion as water is heated.	*TherUtilNode_TExpansionTank* The location of a tank used in closed thermal systems to absorb excess water pressure, which can be caused by thermal expansion as water is heated.		*ThermalUtilityNode* The subdivision of a thermal distribution network, particularly an asset that participates in the transmission of a thermal control substance but is not a pipeline.
Thermal Pipe Fitting Fittings serve as a link connecting and providing restraint for pipe segments.	*TFitting* The location of a mechanical device that connects two or more pipes, or caps or plugs a single pipe, on the thermal system.	*TFitting* The location of a mechanical device that connects two or more pipes on the thermal system.	*TherUtilNode_TFitting* The location of a mechanical device that connects two or more pipes, or caps or plugs a single pipe, on the thermal system.	*TFitting* The location of a mechanical device that connects two or more pipes on the thermal system.	*ThermalUtilityNode* The subdivision of a thermal distribution network, particularly an asset that participates in the transmission of a thermal control substance but is not a pipeline.
Thermal Production Structure Component The location of a component of a thermal production structure which is often found outside of the plant building.	*TProductionStructComponent* The location of a component of a thermal production structure which is often found outside of the plant building.				

Utility Model Processing: Status and Next Steps

	Modeling Step and Description	Step 1: Component-based SDSFIE Model	Step 2: eSMS-SDSFIE harmonized model (Initial Draft)	Step 3: Component Review Complete	Step 4: Final Draft	Step 5: Import to Portal Model Registry	Step 6: SDSFIE-V WG Review Complete	Step 7: IGG Vote on v5.0 Gold
	Target Completion Date: Utility	6/14/2024	6/28/2024	7/12/2024	7/26/2024	8/5/2024	11/12/2024	12/11/2024
Models with eSMS Input	Water Utility	✓	✓	✓	✓	In process		
	Electrical Utility	✓	✓	✓	✓			
	Wastewater Utility	✓	✓	✓	✓			
	Stormwater Utility	✓	✓	✓	✓			
	Thermal Utility	✓	✓	✓				
	Natural Gas Utility	✓	✓	✓				
	Petroleum, Oil, and Lubricants (POL) Utility / FUELER	In process	On hold					
No eSMS Input	Telecommunications Utility	✓	N/A	In Process				
	Compressed Gas Utility	In process	N/A					

Component Point of Contact (POC)

- Each Component has Component Lead that serves on the IGI&S Governance Group (IGG)
- Each Component has a representative to the SDSFIE Vector (SDSFIE-V) Working Group
- Each Component may have a utility modeling liaison responsible for communicating about their Adaptation and other requirements relative to the utility models developed for SDSFIE-V Gold 5.0
- These Component representatives and/or liaisons serve as intermediaries between the SDSFIE Support Contractor team and Component subject matter experts (SMEs)

Component	IGG Member	Vector WG Representative	Utility Model Liaison	Contact Information	SMEs
US Air Force	Scott Ensign	James Ray		james.ray.33@us.af.mil	Ed DeLeon Robert Johnson Tom Sofka
US Army	Vince Nicchitta	Martina Harmon		martina.s.harmon.ctr@army.mil	Luciano Gomes
US Marine Corps	Tim Dougherty	PG Katsourakis	Beven Harris	beven.harris@usmc.mil	
US Navy	Kristy Capobianco	Cherie Montague		cherie.montague@oneworldgeo.com	Kevin Magnone Evan Jones
US Army Corps of Engineers	Jake Watts	Andrea Parish		andrea.parish@usace.army.mil	
Wash. Headquarters Services	Mike Stebbing	Adam Ruf		adam.d.ruf.ctr@mail.mil	
DISDI Office	Dave Labranche	Karen Barnhouse		karen.m.barnhouse.ctr@mail.mil	

Summary

- SDSFIE and eSMS Harmonization Goals
  - Ensuring strategic asset interoperability
  - Syntactic and Semantic harmonization
- SDSFIE/eSMS Modeling Elements
  - SDSFIE and eSMS use different vocabulary for element types
  - Understanding element terminology ensures proper harmonization
- SDSFIE/eSMS Utilities Modeling Process
  - Component Adaptation driven
- SDSFIE/eSMS Utility Harmonization Example
- Utility Model Processing: Status and Next Steps
  - Current Status of Utility modeling
- Components Point of Contact
  - Component POC coordination is essential to continual model development