



How the CIM Fits in the Enterprise Information Architecture

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Enterprise Goals



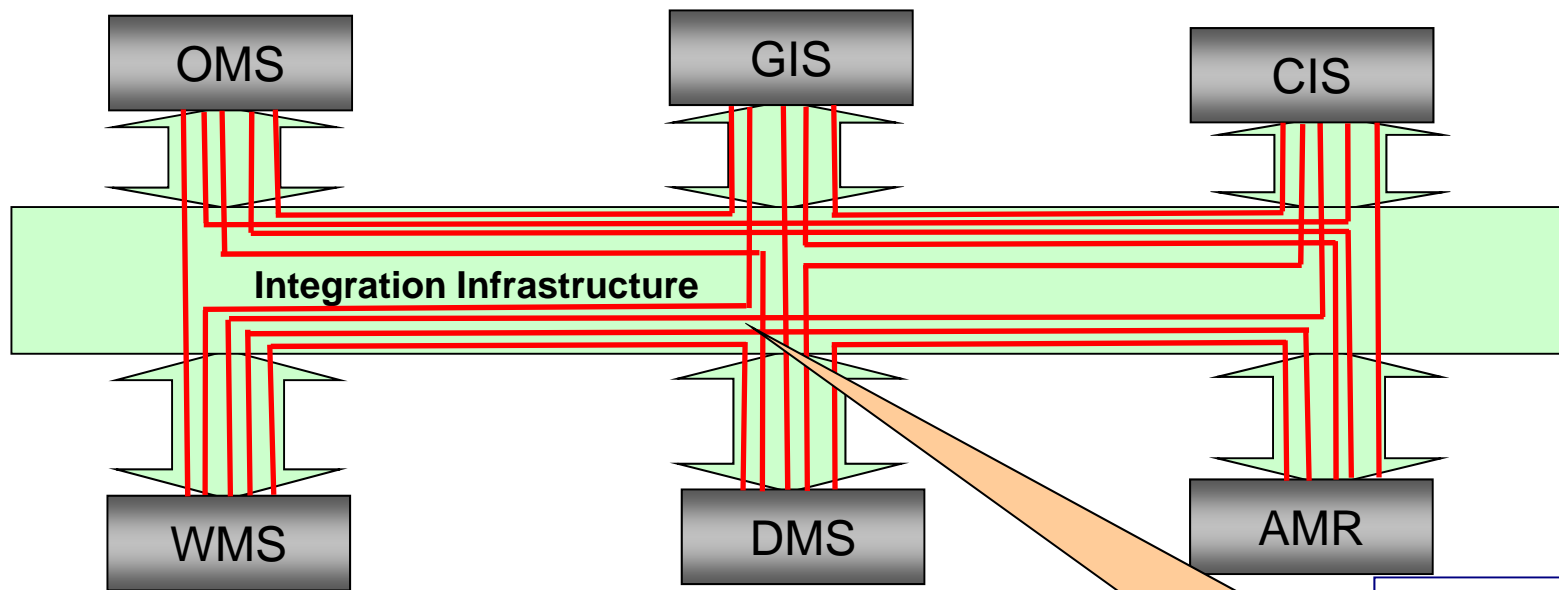
- Scope
 - Internal to a utility/energy company
- Need:
 - Use of common semantics regardless of where and how information is exchanged
- How:
 - Development of overarching Enterprise Information Management strategy and framework
 - Use of standards for enterprise wide information exchange semantics
 - CIM for operational/planning information
 - MultiSpeak
 - HR data models
 - Etc.

System Integration Space



- ESB's provide backbone for most information exchanges
 - Typically work from XML schema definitions
 - No common model behind XML schemas
- IEC 61968 message payload standards are starting point
 - However, modified and additional data fields typically required
- Service definitions are needed
- Issue
 - How to manage and modify changes

Goal: Interface Standards Should Be Based on Common Semantics (e.g., CIM) to Avoid Adding to 'Integration Anarchy'



Data Integration Anarchy!

***Without
Common
Semantics,
Point-to-Point
Integration Will
Continue at the
Data Level***

Integration anarchy is a chaos of:

- (1) duplicated logic,
- (2) duplicated data,
- (3) duplicated effort,
- (4) newly acquired integration difficulties,
- (5) lack of ability to easily create new application functionality from services, and
- (6) lack of ability to support business processes with applications

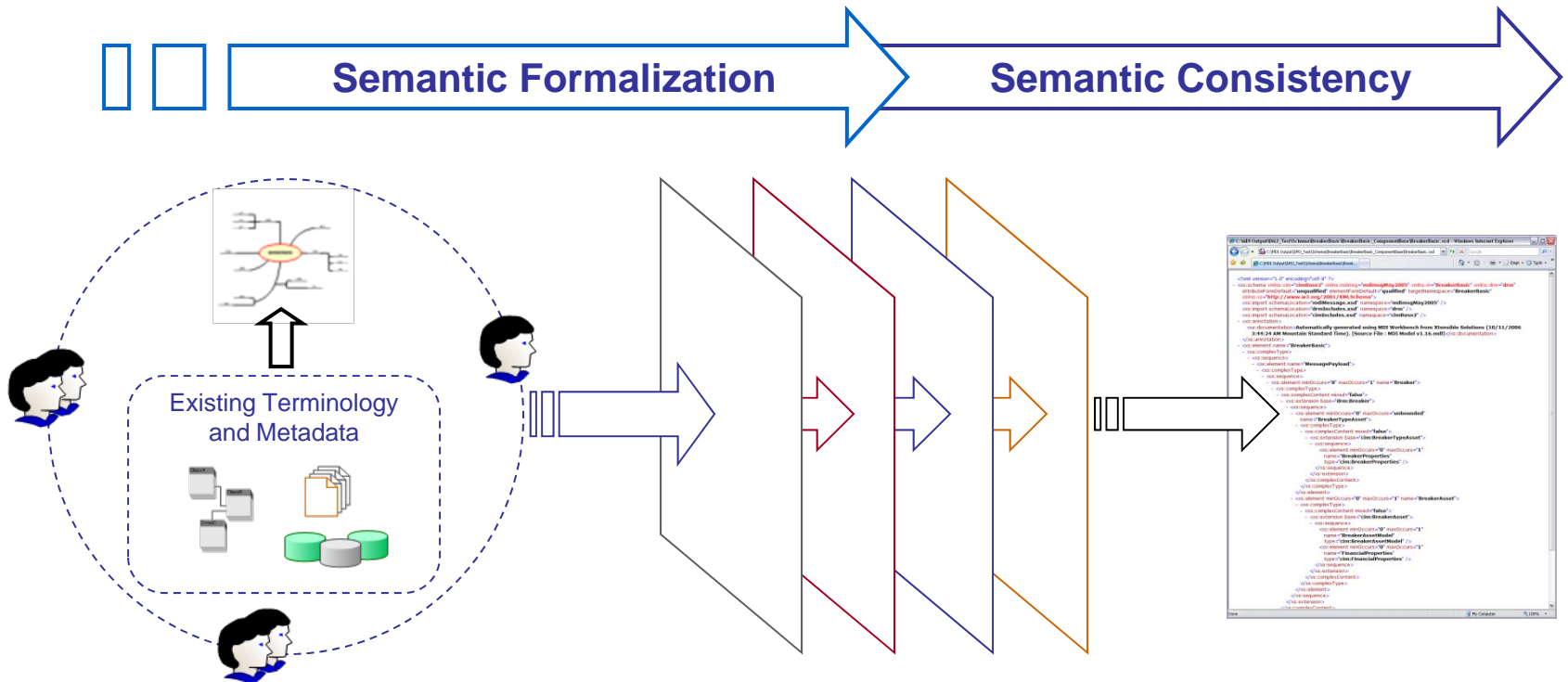
Integration anarchy will result in higher costs and an inflexible, brittle Smart Grid System of Systems

Enterprise data warehouse



- Commercial data models are available for some parts of utility operations
 - Providers are not utility domain experts
 - not based on CIM
 - Results in different semantics than those provided by the CIM in system integration space
- Need utility data model based on CIM
- Example
 - Asset registry/repository
 - Meter data management
 - Customer information
- Other Applications
 - Business Intelligence
 - Composite applications

Developing and Applying Enterprise Semantic Model



Establish Vocabulary

- Use enterprise terminology and metadata along with information standards such as the CIM to collaborate on, identify and refine relevant semantics.

Develop Common Model

- Model using vocabulary terms
- Refine each business context (e.g., Work Order, Service Request)

Generate Implementation

- Semantically Consistent Artifacts (e.g., schemas for messages, databases, etc.)

Business Context Refinement

Solution Needed



- Overarching Enterprise Information Management (EIM) strategy
- Enterprise Semantic Model (ESM) to provide common enterprise-wide semantics that incorporates CIM plus other standards and company conventions
- Generate design artifacts from ESM

Using the IEC Common Information Model (CIM) as a Basis for a Common Systems Language – A Simple Concept With Many Challenges



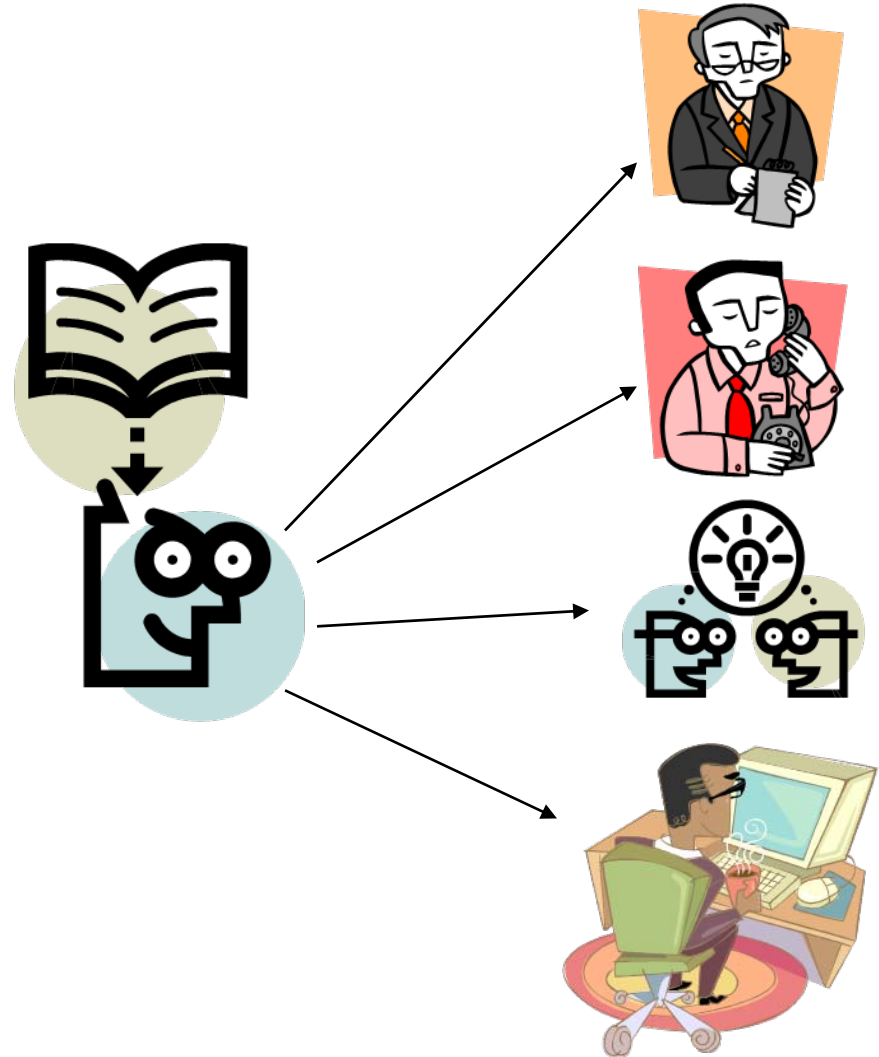
- The same dictionary is used for multiple forms of human communication:

- Letters
- Phone calls
- Conversations
- Emails
- Etc.



- In similar manner, the same CIM is used for multiple forms of computer communication:

- Message Exchanges
- ETL
- Data Warehouses
- Business Intelligence
- Business Process Automation





Enterprise Information Management (EIM) is:

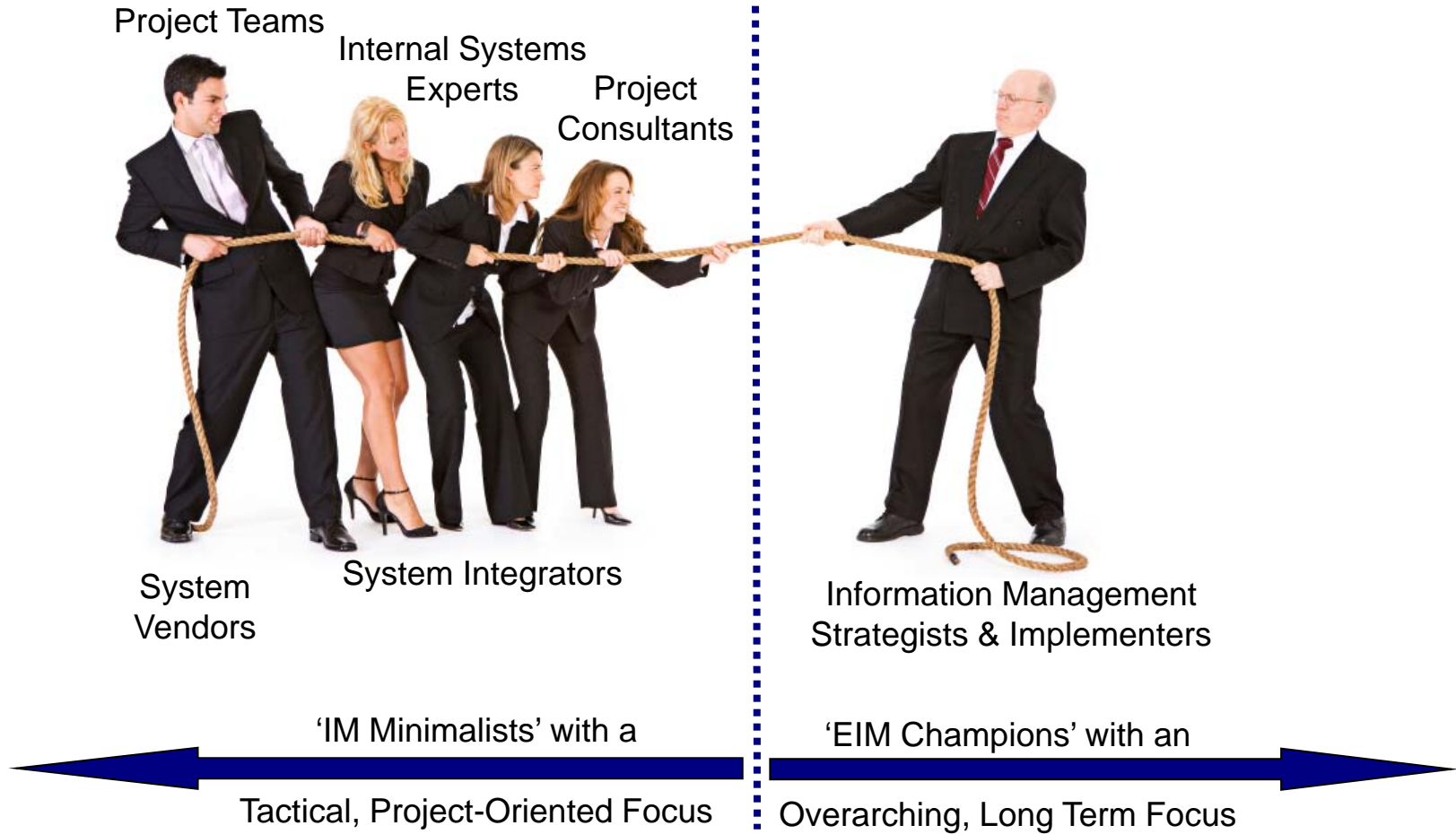
- An organizational commitment to structure, secure and **improve the accuracy and integrity** of information assets,
- to **solve semantic inconsistencies** across all boundaries,
- and support the technical, operational and business objectives within the organization's **enterprise architecture strategy**.
- A commitment to EIM is recognition that *information* in the enterprise is as important as *process* (application development) and *infrastructure* (technology)



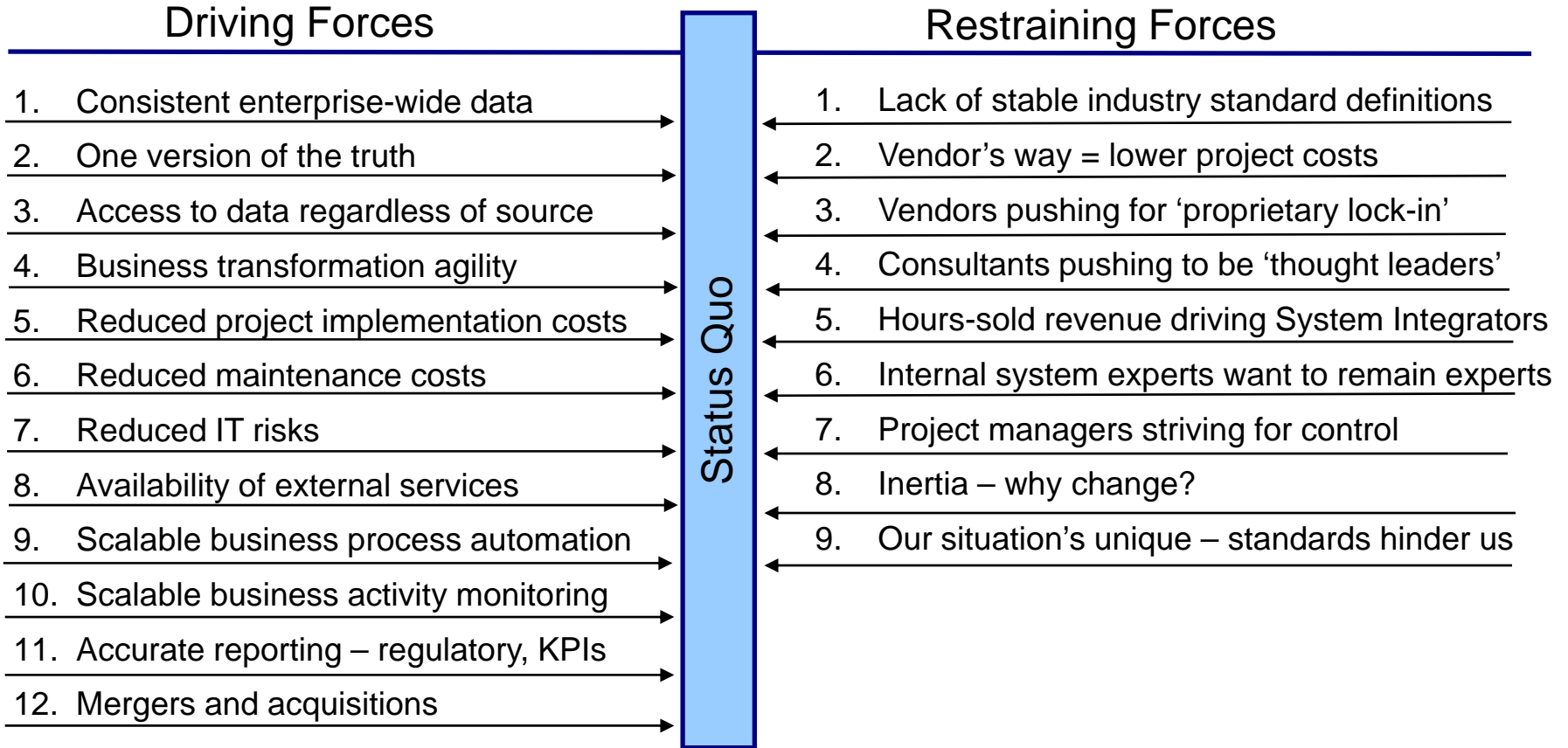
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Who Really Drives Information Management?



Adopting Enterprise Information Management (EIM)



For further information, please refer to the article on page 56 of the January issue of Utility T&D Automation & Engineering:

<http://www.uae-digital.com/uae/200801/>

Architecting for Successful Integration Semantics

- Key to Success is Understanding
 - What things need central planning
 - What things can be left to the local developer/project team
- Need to make active choices regarding:
 - System structure and dynamics – cohesion & coupling
 - Composition & decomposition
 - Data life-cycle ownership across systems:
 - Message level (Work Order, Trouble Ticket)
 - Object level (Crew, Switch, Asset)
- Master planning is important
 - Enterprise Information Management (EIM) Context
 - Avoid falling into the trap of 'Framework Bingo'
 - Use IEC 61968-1 Interface Reference Model (IRM) as a starting point for service portfolio planning

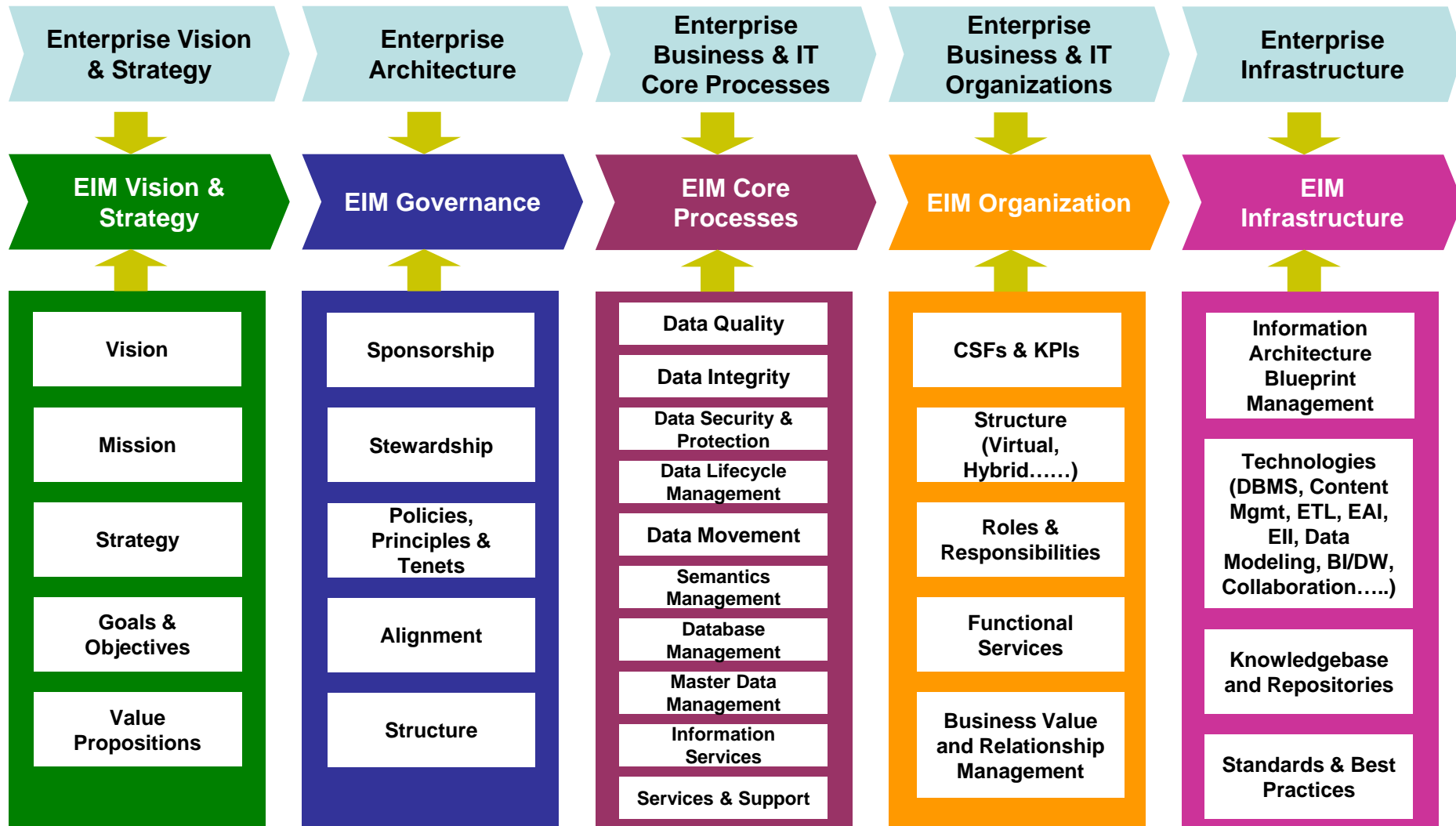


Incremental Development

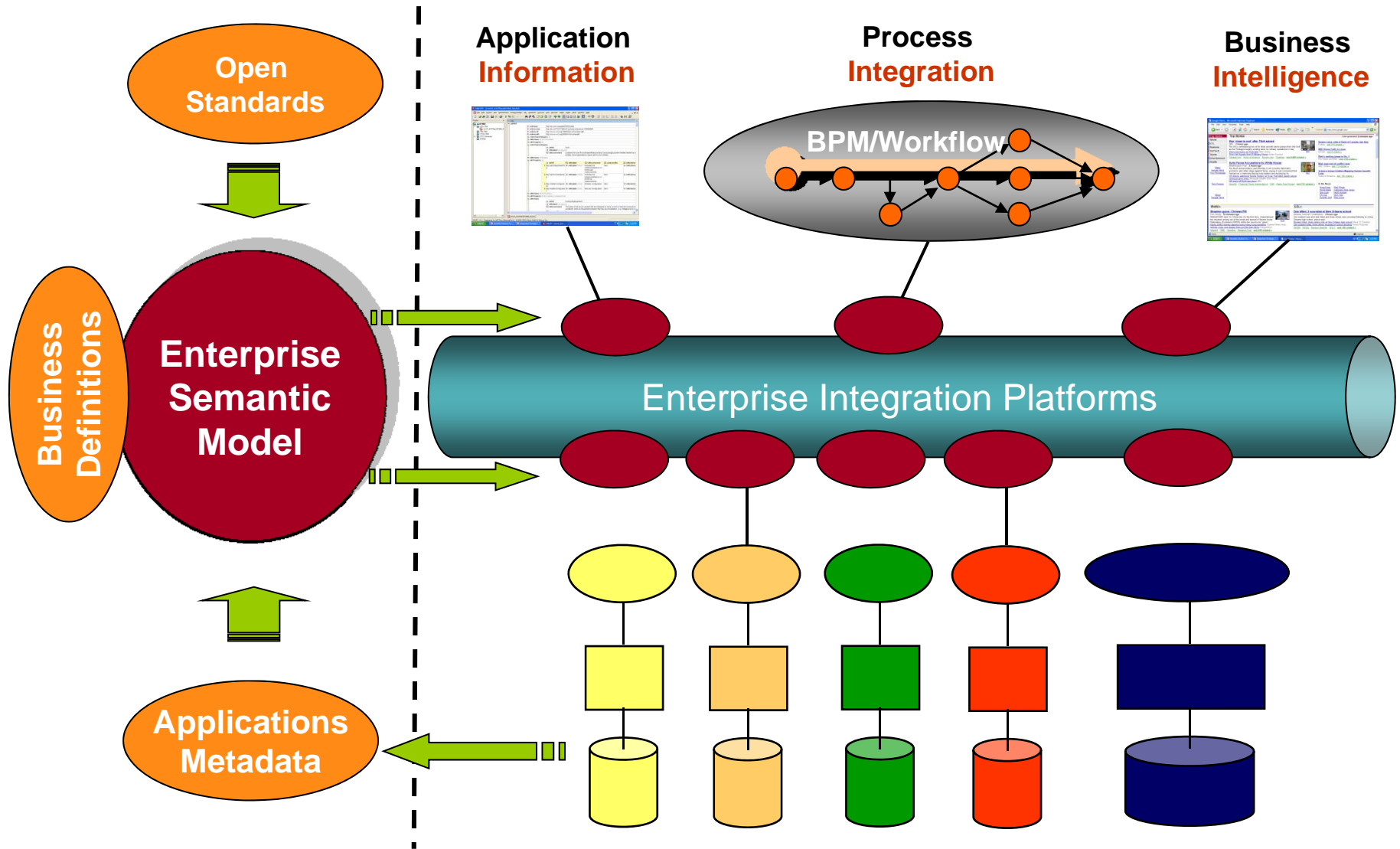


- Used to engender a sense of joint ownership for the ultimate success across the organization
 - Users:
 - Provide feedback so that adjustments can be made impacting business functionality early in the program
 - Use part of the ‘to-be’ system, improving their confidence in the programme’s ability to deliver
 - Suppliers:
 - Early identification of gaps improves ability for satisfactory resolutions within existing budget and schedule
 - Significant changes in underlying business requirements can also be managed, without the need for expensive re-work downstream.
 - Program staff
 - Morale is improved as their confidence grows in their ability to deliver what the users want within the commitments they’ve made
 - Leads to greater enthusiasm and a sense of achievement as their productivity increases

Silos Won't Stop – An Overall EIM Framework Is Needed

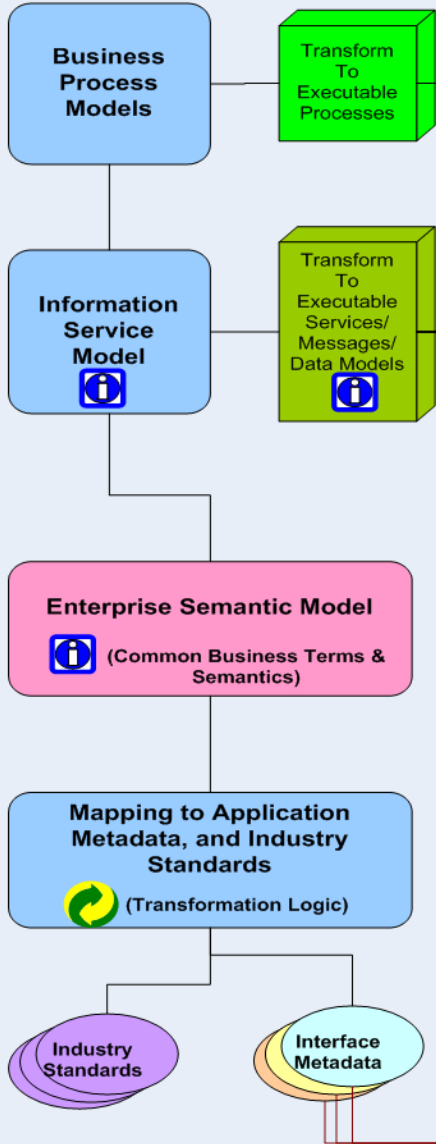


Application of ESM to Enterprise Data Integration

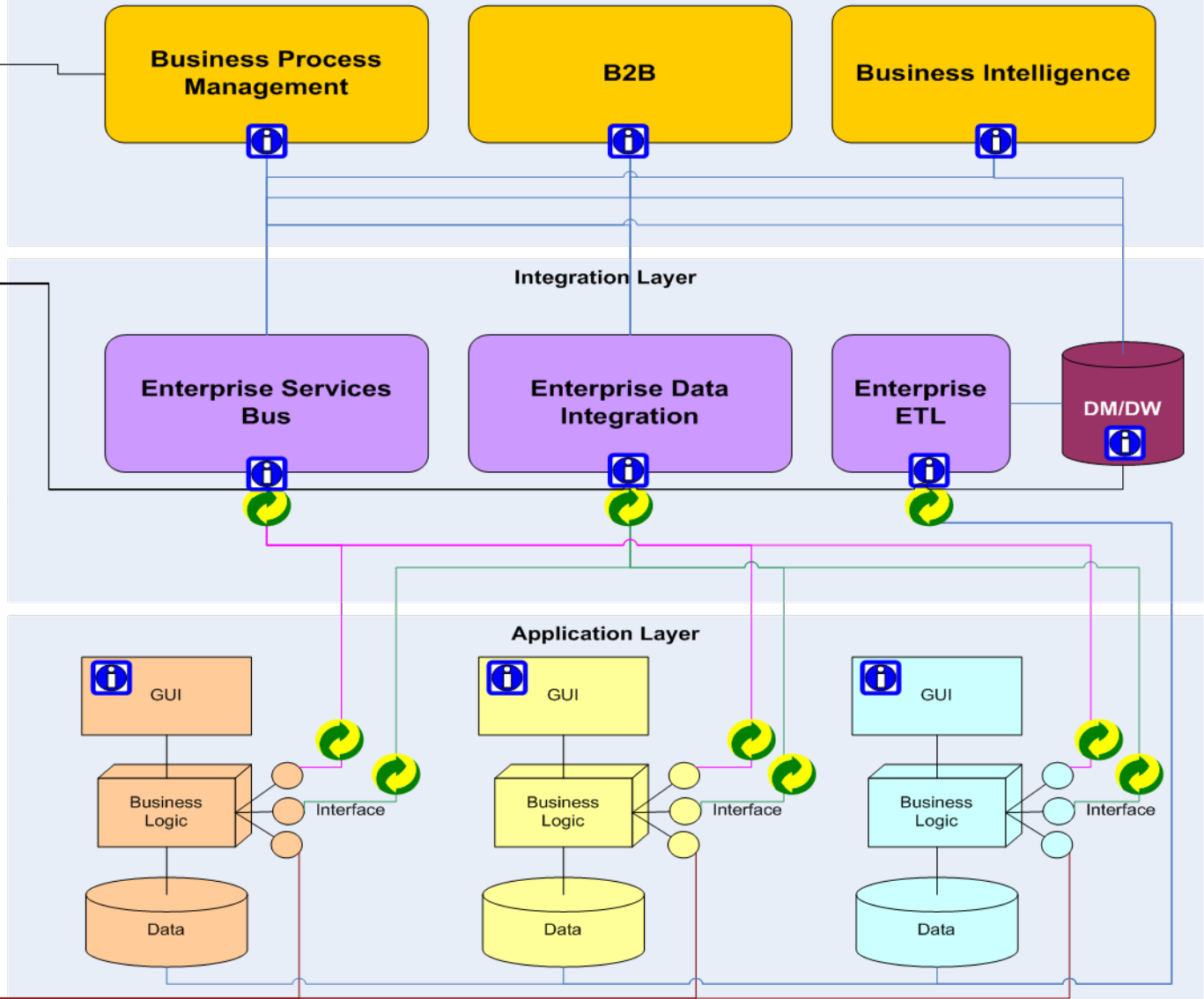


ESM Architecture (Logical)

Business Modeling & Design Layer



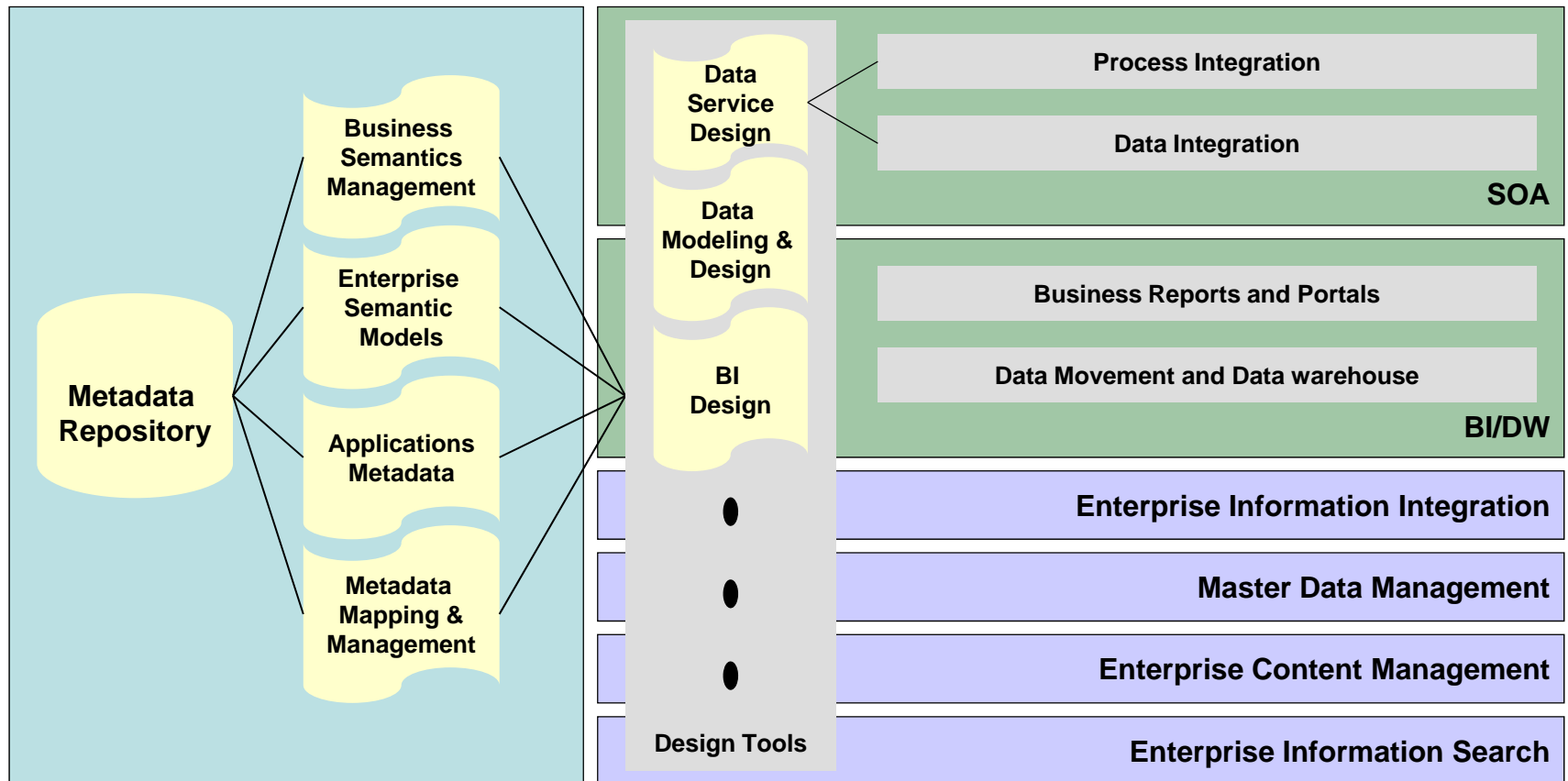
Business Process and Intelligence Layer



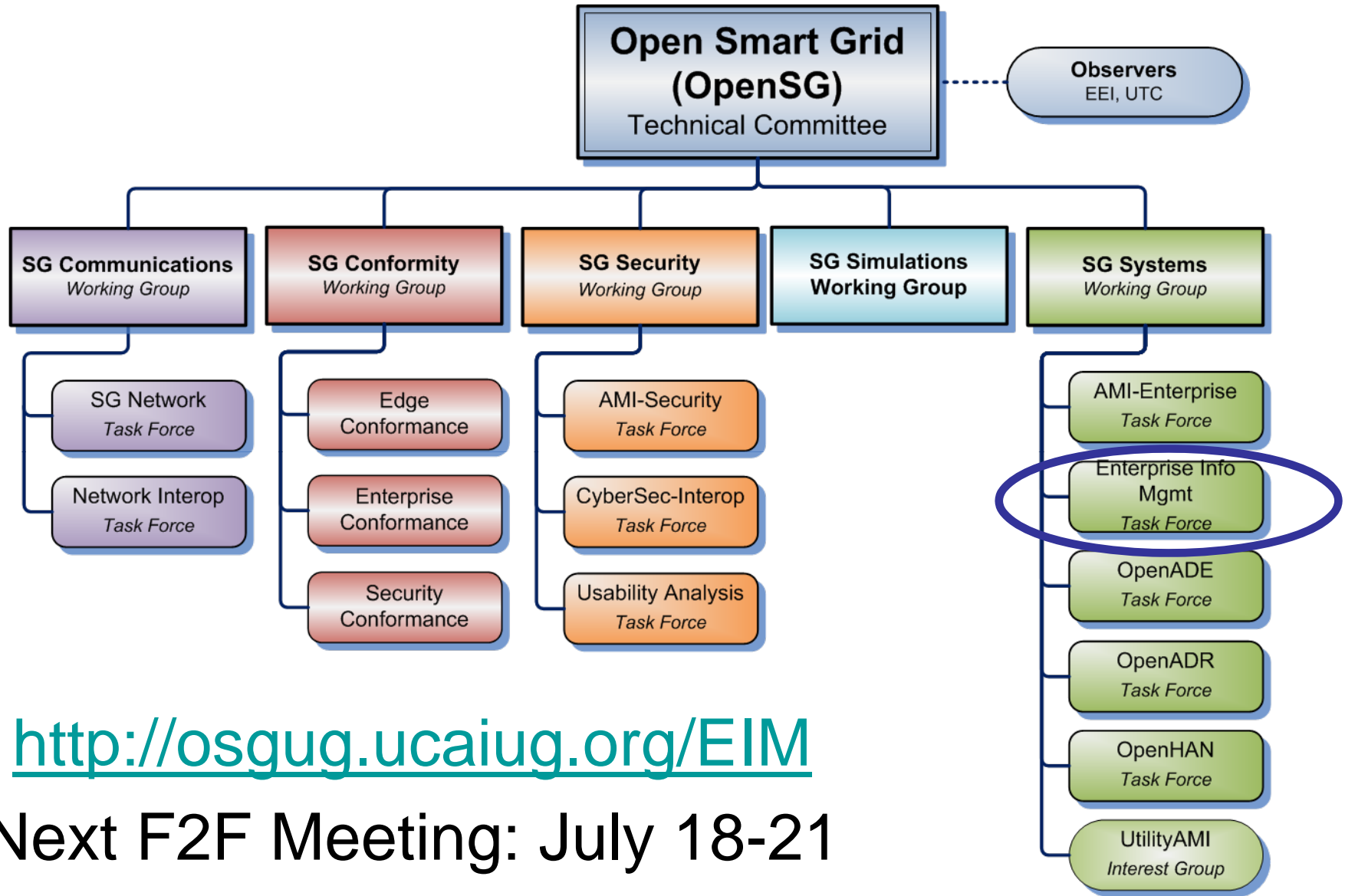
EIM Solution Architecture

EIM Organization, Governance, and IT Lifecycle

EIM Reference Architecture, Best Practice Methods, Patterns and Frameworks



A Key User Group For EIM



<http://osgug.ucaiug.org/EIM>

Next F2F Meeting: July 18-21

EIM Tangible Benefits



- **Enabling the benefits of Major Business Programs** – EIM is essential for delivering the business solutions in the right way to enable intended business benefits, and to reduce total cost of ownership.
- **Business Productivity Gains (avoided cost)** – reduced time to discover, analyze, use, and act on data/information due to more consistent definition and data services.
- **IT capital project savings (avoided cost)** – reduced effort of rediscovery and reinvent for the “**analysis and design**” phase of lifecycle for capital project systems integration work. This complements SOA benefits in the same category which focuses on the “**development**” phase of a capital project.
- **IT integration O&M saving (avoided cost)** – reduced number and effort of maintaining interfaces (services) due to increased reuse and decoupling of systems at the data level.
- **IT BI O&M saving (avoided cost)** – reduced number and effort of developing new or changing existing reports due to increase reuse and more consistent understanding of data.