

Avancier Methods (AM)

Data Architecture

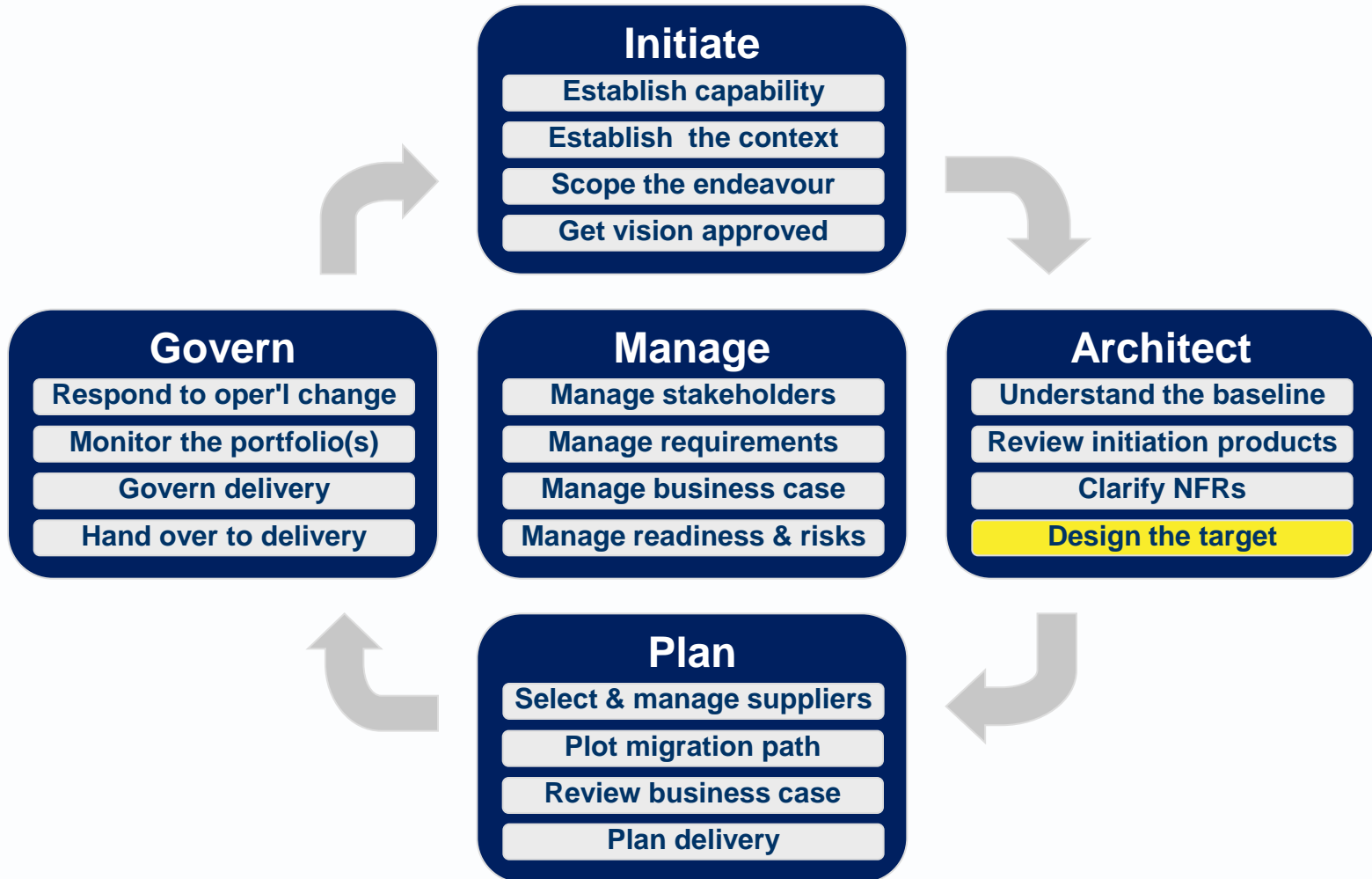
Address Data qualities

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PREFACE

	<i>Passive Structure</i>	<i>Required Behaviour</i>	<i>Logical Structure</i>	<i>Physical Structure</i>
Business		<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Business Service</div> <div style="border: 1px solid black; padding: 5px;">Business Process</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Function</div> <div style="border: 1px solid black; padding: 5px;">Role</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Org Unit</div> <div style="border: 1px solid black; padding: 5px;">Actor</div>
Data / Information	Data Entity	Data Flow	Log Data Model	Data Store
Applications		<div style="border: 1px solid black; padding: 5px; text-align: center;">IS Service</div>	<div style="border: 1px solid black; padding: 5px; text-align: center;">Application Interface</div>	<div style="border: 1px solid black; padding: 5px; text-align: center;">Application</div>
Infrastructure Technology		<div style="border: 1px solid black; padding: 5px; text-align: center;">Platform Service</div>	<div style="border: 1px solid black; padding: 5px; text-align: center;">Platform Interface</div>	<div style="border: 1px solid black; padding: 5px; text-align: center;">Platform Applicat'n</div>

Design the target (AM level 2)



Design target data architecture (AM level 3)

1. Define the business context for data creation and use
2. Define data flows (I/O messages, displays, forms and reports)
3. Define data dictionary or canonical data model
4. Define data store(s): relational and document stores
5. **Address data quality issues**

- ▶ Leading bank is urgently seeking a proven EA to engage and lead IT projects including
 - the Enterprise Information Architecture
 - information models and flows,
 - data dictionaries. data standards
 - **data quality standards and processes**

- ▶ develop and maintain the logical Enterprise Information Architecture that enables seamless information interoperability of all Bank systems for efficiency and cost-effectiveness.

- ▶ eutopiaonline.com

- ▶ Confidentiality
 - ▶ Secure from unauthorised access
 - ▶ See next slide

- ▶ Integrity
 - ▶ Consistent with other data
 - ▶ Conformant to rules
 - ▶ Correct - true
 - ▶ Controlled – not open to change without authority

- ▶ Availability
 - ▶ See design for NFRs

TOGAF/AM: Data Security Diagram

- ▶ to depict which actor (person, organization, or system) can access which enterprise data.
- ▶ can be shown in a matrix between objects or as a mapping.

Data entity Role/actor	Customer	Product	Invoice	Employee
HR manager				Can read
Product manager		Can read		
Salesman	Can read	Can read	Can read	
1st line support	Can read	Can read	Can read	
Fulfilment agent	Can read	Can read		

- ▶ can be used to demonstrate compliance with data privacy laws and other applicable regulations (HIPAA, SOX, etc).
- ▶ should also consider any trust implications where an enterprise's partners or other parties may have access to the company's systems

- ▶ The business owns business data (IT doesn't)
- ▶ A **data owner** is a manager accountable for quality of data
- ▶ E.g.
 - the Registrar owns student data;
 - the Treasurer owns financial data
 - the VP of Human Resources owns employee data.
 - (e.g. employee pay grade, salary)
- ▶ Busy data owners appoint **data stewards**

- ▶ **Data steward:** a person responsible for the management and fitness of *data* elements - both the content and metadata.

- ▶ **Data stewardship:** the management and oversight of an organization's data assets to help provide business users with high-quality data that is easily accessible in a consistent manner.

- ▶ Data owner/steward may (e.g.) decide which copy of data is master
 - Might also own the system that creates it and maintains it
 - But might not

- ▶ A system administrator or **Data Custodian** is a person who has technical control over an information asset dataset.

Semantic interoperability is an issue

- ▶ “semantic interoperability
 - the ability of human and automated agents to coordinate their functioning based on a shared understanding of the data that flows among them
- ▶ is a major economic enabler.”
- ▶ “Semantic interoperability problems drive up integration costs across industry.”
- ▶ EITAGlobal (www.eitaglobal.com)

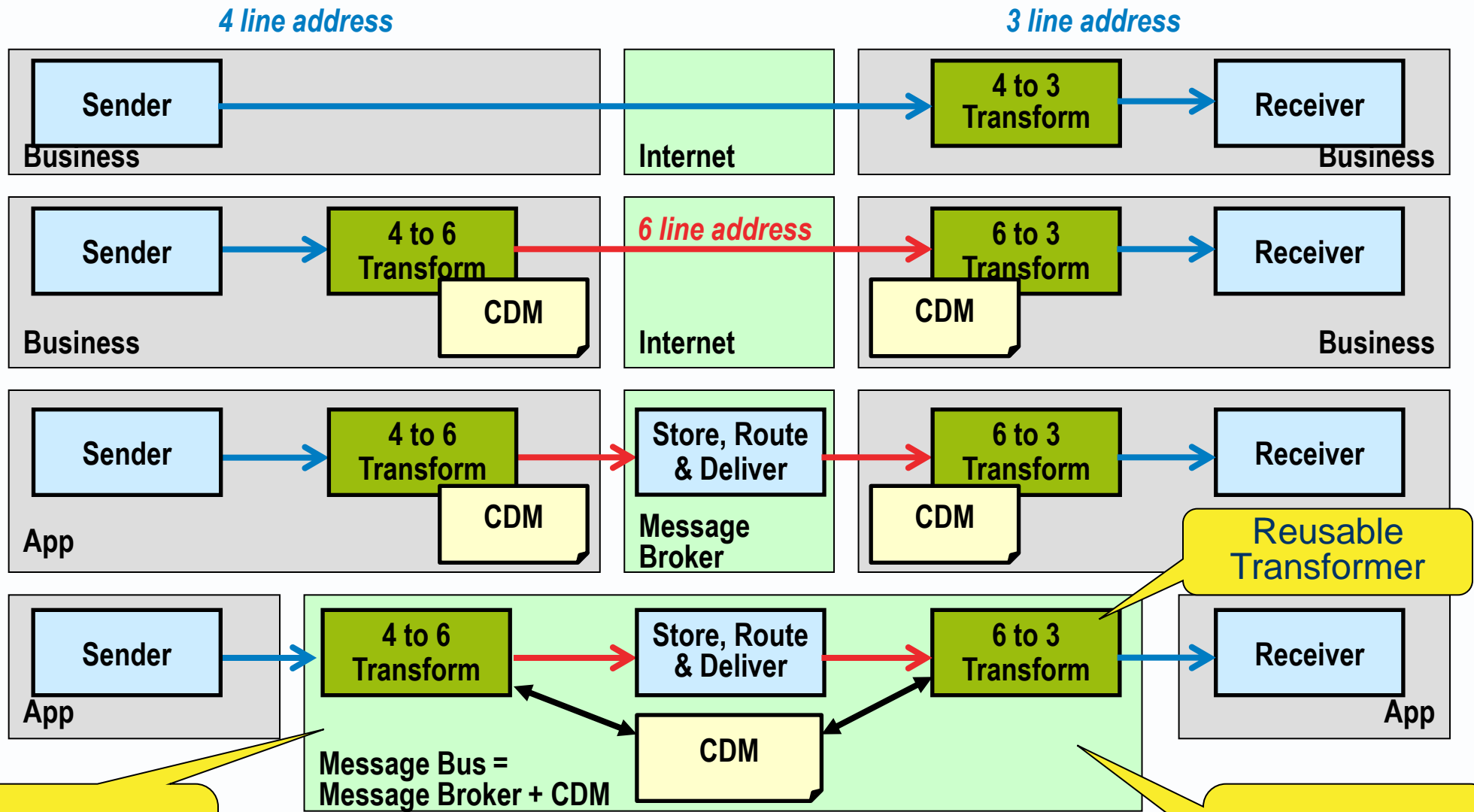
Semantic interoperability as a data architecture concern

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 - data quality standards and processes
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- ▶ eutopiaonline.com

- ▶ Business data can be structured according to many domain-specific languages – some bespoke, some standard.

- ▶ Data architects
 - are concerned to ensure senders and receivers share the same understanding of a data flow's contents
 - research standard “canonical data models” as the need arises.

Four apps architectures using a Canonical Data Model



Tedious for point to point

Good for many to many

- ▶ A short tour of the non-technical industry efforts to create a common XML-based vocabulary for specified purposes and industries. PETE O'DELL "Silver Bullets"
- ▶ **1. Astronomy.** See <http://fits.gsfc.nasa.gov>.
- ▶ **2. Built environment, and infrastructure systems integration.** See www.obix.org.
- ▶ **3. Distribution/Commerce.** See www.rosettanet.org.
- ▶ **4. Education.** See www.sifinfo.org.
- ▶ **5. Financial reporting.** See www.xbrl.org.
- ▶ **6. Financial research.** See www.rixml.org.
- ▶ **7. Food.** See www.mpxml.org.
- ▶ **8. Healthcare.** See www.hl7.org.
- ▶ **9. Information technology architecture.** (opengroup.org)
- ▶ **10. Instruments.** See www.nasa.gov
- ▶ **11. Insurance.** See www.acord.org.
- ▶ **12. Legal.** See www.legalxml.org.
- ▶ **13. Manufacturing.** See www.pslx.org.
- ▶ **14. News.** See www.iptc.org.
- ▶ **15. Oil and gas.** See www.pidx.org.
- ▶ **16. Publishing.** See www.oasis.org.
- ▶ **17. Real Estate.** See www.RETS.org.
- ▶ **18. Research.** See www.casrai.org.
- ▶ **19. Telecommunications.** See www.atis.org. + TMF

Also

- ▶ FPML (financial products)
- ▶ FIXML (financial instruments)
- ▶ OASIS
 - Names?
 - Addresses?
- ▶ Open Travel Alliance (OTA)
 - cars, hotels, insurance, airports, currencies, countries
- ▶ Air travel – PNR passenger name record
- ▶ ARTS (association of retail, textile...)
- ▶ Open Geospatial Consortium (OGC)
- ▶ JISC – universities - HEDIIP
- ▶ TransXchange SIRI
- ▶ TRANSMODEL

- ▶ Whitemarsh Short Paper Series on
 - Database Standards,
 - Database Design,
 - Data Interoperability and
 - Metadata Management

- ▶ Whitemarsh@Wiscorp.com

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