An Introduction to the MIKE2.0 Methodology

Introducing MIKE2.0
An Open Source Methodology for Information Development

http://www.openmethodology.org
## Agenda

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Taking an Information Development Approach</th>
<th>MIKE2.0 (Method for an Integrated Knowledge Environment)</th>
<th>Applying MIKE2.0</th>
<th>Open Source Version of MIKE2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Objectives for Today</em></td>
<td><em>Executive Level Issues Related to Enterprise Data Management</em></td>
<td><em>Overview</em></td>
<td><em>Business and Technology Blueprint - Example Task Walkthroughs</em></td>
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</tr>
<tr>
<td><em>Key Terminology</em></td>
<td><em>The Changing Model for the Enterprise</em></td>
<td><em>Strategy</em></td>
<td><em>Activity 1.4 Organisational QuickScan</em></td>
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<td><em>Architecture</em></td>
<td><em>Activity 1.5 Future State Vision for Information Management</em></td>
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### Taking an Information Development Approach
- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

### MIKE2.0 (Method for an Integrated Knowledge Environment)
- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

### Applying MIKE2.0
- Business and Technology Blueprint - Example Task Walkthroughs
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  - Activity 1.5 Future State Vision for Information Management
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### Open Source Version of MIKE2.0
Appendences that are included should we need to go into more detail on MIKE2.0 include:

- The Changing Enterprise - Information Development Rationale
- SAFE Architecture
- Data Governance and the Information Development Organisation
- The MIKE2.0 Open Source Approach

All MIKE2.0 content available through the open methodology is available at:

- [http://www.openmethodology.org](http://www.openmethodology.org)
Agenda

Discussion Questions and Breakout Sessions

Discussion Questions/Breakout Sessions cover the following topics:

1. Roles and Responsibilities
2. Data Management Issues are our clients
3. Continuous Implementation Strategy
5. Reference Data Management Practices
6. Data Governance Organisation
7. MIKE2.0 Demo
Objectives for Today:

1. Team Overview
2. Introduce the MIKE2.0 Methodology
3. To gather information required for scoping the project through questions and breakout sessions
4. To go through any initial questions that the you may have related to the MIKE2.0 approach
Introduction

Discussion Question – Roles and Responsibilities

What is your role in the Organisation?

What is your level of experience around Data Management?

What would you like to get out of today?

Is there an area you would like to cover today that is not in the introduction?
Introduction

Key Terminology for Today

What is MIKE2.0?
- MIKE stands for Method for an Integrated Knowledge Environment
- MIKE2.0 is our comprehensive methodology for Enterprise Information Management
- MIKE2.0 brings together important concepts around Open Source and Web 2.0
- The open source version of MIKE2.0 is available at: http://www.openmethodology.org

What is SAFE?
- SAFE stands for Strategic Architecture for the Federated Enterprise
- SAFE is the architecture framework for the MIKE2.0 Methodology

What is Information Development?
- Information Development is the key conceptual construct for MIKE2.0
- We want people to think about developing information just as they think about developing applications
<table>
<thead>
<tr>
<th>Agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
</tr>
<tr>
<td>• Objectives for Today</td>
</tr>
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<td><strong>Applying MIKE2.0</strong></td>
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<td><strong>Open Source Version of MIKE2.0</strong></td>
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# Agenda

## Introduction
- Objectives for Today
- Key Terminology

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- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

## MIKE2.0 (Method for an Integrated Knowledge Environment)
- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

## Applying MIKE2.0
- Business and Technology Blueprint - Example Task Walkthroughs
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  - Activity 1.5 Future State Vision for Information Management
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## Open Source Version of MIKE2.0
Executive Business Drivers for Data Management

*Information is the Key to Competitive Success*

The era of ubiquitous technology has lead to a new challenge - managing ubiquitous data. We now find that every client we work with has a major data challenge:

- Data quality is at the core of regulatory and customer pressures
- System failures are largely data not technology driven and can be mitigated by data rectification
- Better business intelligence is at the core almost every major business recommendation
- Data warehousing is now mainstream, not an afterthought, and is at the core of data convergence strategies
- A successful approach to IT transformation is data-dependent

We believe meaningful, cost-effective Business and Technology change processes can only be achieved with a successful approach for Information Management that we call *Information Development*. 
Executive Business Drivers for Data Management

The problem has been recognised but action is slow

Despite the Impact of Poor Data Quality, Most Organisations Do Not Address it Comprehensively

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<tr>
<th>What’s the status of your organisation’s data governance initiative?</th>
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<tr>
<td>No plans</td>
<td>42%</td>
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<tr>
<td>Under Consideration</td>
<td>33%</td>
</tr>
<tr>
<td>Design or implementation phase</td>
<td>17%</td>
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<tr>
<td>Deployed</td>
<td>8%</td>
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CIOs are faced with both sides of the business; needs for growth and expansion and cost justification for each IT project.

Institutions are spending Millions each year on IT but feel they have reached the limits that enable them to contain costs yet enable large-scale acquisitions.

- In the post Sarbanes-Oxley environment where CFOs are asked to sign off on financial statements, the quality of data and the systems that produce that data are being scrutinized now more than ever before.
- Growth can only come with efficient architectures and synergistic investments in technology.

Risk compliance in financial institutions has become more complicated by a number of regulations such as Basel II accord and USA Patriot act.

A siloed approach to compliance is no longer valid, significant savings can be found in the pooling of initiatives around risk.

In an environment where CMOs are being asked to grow revenues with less manpower than ever before, new regulations are getting in their way of being effective.

Privacy policies, and opt out policies are destroying pre existing databases and making it hard to cross sell and up sell existing customers.

Quality data is best found from a centralized data warehouse that contains every interaction with the customer as well as when and where it is appropriate to contact them.
Executive Business Drivers for Data Management

**Today’s architectures are more dependent on quality data**

**IT**

**The last half of the 20th Century**
- Custom Development and Private Data
- Packaged Systems and Proprietary Data
- Multiple ‘points of truth’ for customer and product data
- All companies at the same level of flexibility and maturity with respect to Information Development
- Data Access and Management a major cost factor in the business
- Uncoordinated Webifying.
- Installing a new application is not the problem its converting the data to the new application.

There is time to prepare. Take iterative, low risk steps during the preparation period.

Have focus and staying power to achieve useful preparation while addressing short term business value.

**IT**

**The 21st Century**
- Functionality via multiple channels
- Re-usable Services via these same multiple channels
- Managed Services for unique or complex capabilities
- Internet Architecture everywhere
- Increased volatility in application choices and advancements across all channels
- Integrated Web Services (increase on self-service)
- Enhanced collaboration among business partners

**Flexibility in Accessing and Using Information is King**
Agenda

Introduction
- Objectives for Today
- Key Terminology

Taking an Information Development Approach
- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

MIKE2.0 (Method for an Integrated Knowledge Environment)
- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

Applying MIKE2.0
- Business and Technology Blueprint - Example Task Walkthroughs
  - Activity 1.4 Organisational QuickScan
  - Activity 1.5 Future State Vision for Information Management
  - Activity 2.2 Strategic Requirements for Technology Backplane Development

Open Source Version of MIKE2.0

Running Time
- Introduction: 30 minutes
- Taking an Information Development Approach: 60 minutes
- MIKE2.0: 120 minutes
- Applying MIKE2.0: 180 minutes
- Open Source Version of MIKE2.0: 240 minutes
Business users know how important it is to have the right data. Non-technical users are often the best at seeing our systems environment through a “balanced view”.

<table>
<thead>
<tr>
<th>Business Function and Process</th>
<th>Strategy</th>
<th>Process</th>
<th>Organisation</th>
<th>Technology</th>
<th>People</th>
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<tbody>
<tr>
<td>Integration and Infrastructure</td>
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<tr>
<td>Information</td>
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This model has always existed, yet there has been an increasing “over-development” of function and systems by organisation structure, pricing and skill set. This model is now beginning to change.
Information holds the key to competitive advantage:

- Applications come and go but much of the core data is the same
- You can’t start over with data – we have no choice but to fix the past
- The impact of getting information development wrong is greater— the cost of change is higher
- We need to get the basics right first for information development: data investigation, re-engineering, modelling and metadata management

To get efficiencies to at an enterprise-level, we should separate Application Development from Infrastructure & Information Development (but they must complement one another)
In summary, Information Development is about:

- Driving an overall approach through an information management strategy
- Enabling people with the right skills to build and manage new information systems while creating a culture of information excellence
- Building an information management organisation that is structured in the most efficient manner to deliver solutions for the business
- Improving governance processes around information compliance, policies, practices and measurement
- Delivering contemporary technology solutions that meet the needs of today’s highly federated organizations

Information Development is about re-balancing our view of the Enterprise
**Agenda**

**Introduction**
- Objectives for Today
- Key Terminology

**Taking an Information Development Approach**
- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

**MIKE2.0 (Method for an Integrated Knowledge Environment)**
- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

**Applying MIKE2.0**
- Business and Technology Blueprint - Example Task Walkthroughs
  - Activity 1.4 Organisational QuickScan
  - Activity 1.5 Future State Vision for Information Management
  - Activity 2.2 Strategic Requirements for Technology Backplane Development

**Open Source Version of MIKE2.0**
**Agenda**

<table>
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<tr>
<th>Introduction</th>
<th>30</th>
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<td>- Key Terminology</td>
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**Taking an Information Development Approach**

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**MIKE2.0 (Method for an Integrated Knowledge Environment)**

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**Applying MIKE2.0**

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**Open Source Version of MIKE2.0**

| 240 |
MIKE2.0 Overview

What is MIKE2.0?

MIKE2.0 is a delivery methodology for Enterprise Information Management projects. MIKE2.0 is a comprehensive methodology that can be applied across a number of different projects within the Information Management space, including those that apply to:

- Information Strategy & Governance
- Data Investigation and Re-Engineering
- Data Integration
- Data Migration (once-off batch migration and parallel runs)
- Data Warehousing (traditional)
- Data Warehousing (real-time, services-oriented)
- Data Mart Consolidation
- Application-specific warehouses or migrations
- Master Data Management
- Data Convergence
- IT Transformation

The MIKE2.0 methodology has been built from the experiences of a number of projects around the world and with the input of many leaders in the area of Information Management.
MIKE2.0 Overview

The overall structure of the MIKE2.0 Methodology

Information Management Solution Suite

Delivered through a Collaborative Approach with the IM Profession and our Alliance Vendors

Enterprise Information Management

Solution Capabilities that provide a foundation for Suite Delivery

- Overall Implementation Guide
- Usage Model
- Core Solutions
- Supporting Assets

Business Solutions

Architecture Framework

Governance Framework

Commercial & Open Source Product Solutions

Sets the new standard for Information Development through an Open Source Offering
MIKE2.0 Overview

The 5 Phases of MIKE2.0

Focus Area for this Project

Information Development through the 5 Phases of MIKE2.0

Strategic Programme Blueprint is done once

Continuous Implementation Phases

- Phase 1: Business Assessment
- Phase 2: Technology Assessment
- Design
- Development
- Deploy
- Improve

Increment 1
Increment 2
Increment 3

Begin Next Increment

Phase 3, 4, 5

Improved Governance and Operating Model

Roadmap & Foundation Activities
MIKE2.0 Overview

Key aspects of the approach

Key features of MIKE2.0:

- **Architecturally-driven and is not tied to a document-based approach**
  - Uses “Foundation Capabilities” but also includes advanced technologies (SOA, Search, unstructured data management) – with use of Metadata
  - Primarily focused on the technology backplane of integration and data management
  - Complements other Enterprise Frameworks such as Zachman and TOGAF

- **Vision for Open, neutral and collaborative environment**
  - Is not vendor-specific (although there are vendor-specific supporting assets)
  - Links directly into our knowledge management systems where we have done similar on past projects
  - MIKE2.0 Public Assets will be brought to the Open Source community
  - Includes a web-based collaboration environment that provides an organizing framework for the area of Information Development

- **Employs a continuous implementation approach as opposed to waterfall**
  - Can be applied at the enterprise level, but allows for tactical projects
  - Summary Blueprints and Roadmaps are used for continuous communication
Are you following a similar approach?

- Is there a systematic process that you follow from a data management perspective – within IT, the overall business and across departments?
- How will our work need to integrate in with these methods?
- Do this methods tend to be at a detailed technical level or are they content-neutral?
- Are you following an existing methodology or approach, such as:
  - TOGAF - Enterprise Architecture
  - Zachman Framework - Enterprise Architecture
  - Larry English - Total Information Quality Management
  - Inmon/Kimball – Data Warehousing
Introduction
- Objectives for Today
- Key Terminology

Taking an Information Development Approach
- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

MIKE2.0 (Method for an Integrated Knowledge Environment)
- Overview

  Strategy
- Architecture
- Data Governance through an Information Development Organisation

Applying MIKE2.0
- Business and Technology Blueprint - Example Task Walkthroughs
  - Activity 1.4 Organisational QuickScan
  - Activity 1.5 Future State Vision for Information Management
  - Activity 2.2 Strategic Requirements for Technology Backplane Development

Open Source Version of MIKE2.0
What is a MIKE2.0 Blueprint?

- A relatively high-level vision of an organisation’s envisaged Future-State
- The XBR Blueprint is inclusive of Strategy, Organization, People, Process, and Technology and the Solution Definition
- Driven by the established Technology Principles and Business Priorities.
- Much of the focus of this phase of work is on the Business Strategy and Technology Architecture
- Once completed, the Blueprint is thought of as a relatively static representation of the Current-State and Future-State with identified intermediate states.

What is a MIKE2.0 Roadmap?

- The Roadmap is derived from the Blueprint.
- It is a translation of the Blueprint into a dynamic representation of ‘what it takes’ to actually do the implementation.
- It is a plan that can be directly implemented.
- It is complemented in Phase 3 by Foundation Activities – those areas of Data Management and Infrastructure that are required first in the implementation stages of a project

This approach provides a clear set of deliverables that aligns strategic to tactical and business to technology
Are you utilizing an approach that facilitates continuous development?

- What happens when business requirements change?
- Does your organization use a method employing a “blueprint”, “roadmap”, and “framework” and have consistent definitions?
- How have you ensured that your incremental progress is aligned with you strategic vision and tactical project goals?
- Have you had issues aligning tactical projects with strategic initiatives?
- Have you had an experience that you strategy was either too high-level, too detailed, out of touch or too serial?
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- Objectives for Today
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**MIKE2.0 (Method for an Integrated Knowledge Environment)**
- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

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  - Activity 1.5 Future State Vision for Information Management
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MIKE2.0 Architecture Framework

Why the need for architecture – it's complicated!

- Enterprise Applications
  - Tightly Integrated Applications
  - 'Integration Apps' Developed Over Time
  - Staging Areas
  - Integrated Data Store
  - Orchestration of Integration Processes
  - Data Validation & Monitoring
  - Reusable Services
  - Common Data and Metadata Services
    - Technical DM Services
      - Shared SCD job
      - Shared Functions
      - CDC Capabilities
      - Process Automation
      - Data Standardisation
      - Technical Functions
    - Interface Services
      - Service Requestors
      - Service Providers
    - Mediator Services

- Composite Applications
  - Data Quality Management

- Integration Infrastructure
  - Technical Functions
  - Data Standardisation
  - CDC Capabilities
  - Shared Functions
  - Shared SCD job
  - Technical Services
  - Operational Metadata
  - Business Metadata

- Producers and Consumers (Operational Apps)
  - Systems
  - Sales Systems
  - Support Systems
  - Tightly Integrated Applications
  - Enterprise Analytics

- Master Data
  - CDI
  - PDI

- Common Data and Metadata Services
  - Reference Data
  - Application Data Stores
  - Common Data
  - Data Warehouse
  - Adv Risk Analytics
  - Op Risk
  - Calcs
  - Mining
  - Prection

- Analytical Data Stores
  - Integrated, Normalised, Detailed, Latest
  - Reference Data
  - Mediator Services
  - Service Providers
  - Business Metadata

- Orchestration of Integration Processes
  - Service Requestors
  - Operational Metadata
  - Business Metadata
MIKE2.0 Architecture Framework

The SAFE Architecture – Strategic Component View
Data Profiling typically forms the first step in building capabilities for Information Development by providing a quantitative assessment of an organisation’s data. It also typically involved an ongoing monitoring process that is put in place once the solution has been implemented.

Data Standardisation refers to the conditioning of input data to ensure that the data has the same type of content and format. Standardised data is important for effectively matching data, and facilitating a consistent format for output data.

Data Matching is the ability to provide probabilistic matching to any relevant attribute – evaluating user-defined full fields, parts of fields, or individual characters. This is done by assigning agreement weights and disagreement weights to key data elements, based on a number of factors such as frequency distribution, discriminating value, and reliability. Data Matching results can be used for linkages and de-duplication.

Data Modelling is a set of techniques used to move from a very high level expression of information requirements to the detailed physical implementation of data structures. The Conceptual Data Model should typically precede the Logical Data Model (LDM), and Physical Database Design and Database Implementation follow the development of the LDM.

Data Enrichment: Data enrichment involves adding additional information to data records to fill gaps in the core set of data. The most commonly added enrichment data involves location information such as geocodes or delivery identifiers, customer contact information, personal information such as date-of-birth or gender codes, demographic information or external events.

Metadata is ‘data about data’, providing further descriptors to turn data into information. As the most basic level, it means siloed metadata repositories that provide either additional information in the case of data dictionaries or may provide an abstraction layer in a user-driven reporting environment.
The Network is made up of LANs, WAN, Intranet and Internet capabilities. The network is a foundation capability for nearly all applications and processes.

**Process Automation** provides fulfillment of both long-lived and short-lived business processes. Long-lived processes tend to be tightly-coupled (e.g. fulfillment of an order) whereas short-lived processes are loosely coupled (e.g. synchronization of customer contact data). Long-lived processes oftentimes involve human interactions; short-lived processes are more likely to be fully automated.

The ETL process is typically used for data integration; its analogous components for application integration include middleware and process automation. There is overlap and convergence in these areas: ETL tools can be used for application integration through application tier, application integration technologies can be used for data integration. At this time, vendors still tend to have multiple products in this space and the products tend to perform better in their primary area of functionality.

Middleware involves the use of application integration technologies such as adapters, connectivity layer. As capabilities become more advanced, integration components use the **Enterprise Service Bus** as a common communications channel where services interact with one another. This layer provides a logical data communication session and services to allow reliable communications between inter-connected systems.

The Platform consists of the hardware and associated software that provide capabilities across the technical backplane. Mainframes, midranges and database management systems are fundamental to this layer, which also includes software that supports the running of integration suites. The platform layer also consists technologies such as the database RDBMS.

Many aspects of Security - access management, single sign on, encryption, etc. would be required part of the SAFE Technology Backplane. A number of vendor solutions exist to address security issues—most requiring custom configuration changes.

**Operations and Monitoring** of the environment is included at this layer. All software and hardware needed to operate and manage the technology are included. Management software includes the product necessary to manage the complete SDLC process such as configuration management, defect management, deployment and testing tools.
**MIKE2.0 Architecture Framework**

*Key Components in a Services Oriented Architecture*

**Interfaces Services** encapsulate discrete application functions and expose them via the Common Messaging Model. Although logically seen as one entity, an Interface Service often contains multiple physical components. Interface Service and implemented as either *Service Requesters* or *Service Providers*. Multiple services can be brought together into a *Composite Application*.

**Data Management Services** are specialized Business Services that facilitate data synchronization. In the past, the functionality provided by Data Management services has been associated with batch data integration and offline data quality improvements. The need for real-time synchronization of data to distributed systems mandates that these capabilities be available for invocation in an event-based fashion. Examples include standardisation services, matching services and de-duplication services.

Across the Enterprise, redundant data exists in a number of applications for multiple entities. The *Data Mastering Model* governs the exchange of information between applications by defining the rules for data ownership of a particular business event.

The *Common Messaging Model (CMM)* is the framework for modelling “data in motion” and enables standardised information exchange across multiple applications, departments or organizations. CMM Messages are built based on standards (e.g. industry models, corporate standards) and evolve over time based on usage and new requirements.

**Services Orchestration** provides discovery and scripting capabilities that allow is to find services across the enterprise, link them together with orchestration scripts and run the execution of this process with an orchestration engine. Services Orchestration is supported by open and common standards for the development, integration and operations of an enterprise services environment.

A centralised *Service Container* provides the repository of existing services; different technologies use different types of service containers (e.g. UDDI for Web Services). In addition m

**Metadata Services** provide fine and coarse grained services to build reusable platform independent metadata capabilities to drive a Model Driven Architecture. Metadata Services are enabled by the Foundation Capabilities and Enabling Technologies for metadata that have emerged from standards bodies such as the Object Management Group (OMG), the Java Community, Vendors and other standards groups. There is a metadata management overlay across each architectural component.
### MIKE2.0 Architecture Framework

### Shared and Common Information Stores

#### Enterprise Reporting
- **Executive Dashboards**
- **Transactional Reporting**
- **Functional Reporting**
- **Analytical Reporting**

#### Common or Shared Repositories
- **Integration Repositories**
  - Transient Process Data
  - Service Containers
  - Metadata Stores
- **Application Data Stores**
- **Reference Data Stores**
- **Master Data Stores**
- **Operational Data Store (ODS)**

#### Data Warehouse
- **Data Marts**
  - Profit
  - Sales
  - Marketing
  - Other

### Function and Description

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<th>Function</th>
<th>Description</th>
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<tr>
<td><strong>Executive Dashboards</strong></td>
<td>Executive Dashboards are usually web portal-based, graphical displays of key performance indicators, structured as an executive information system. They allow you to visually keep track of overall company’s or business unit’s performance. They also provide easy drill down to the lower level information elements, if deeper detail is required. Executive Dashboards are often used to display Balanced Scorecards.</td>
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<td><strong>Transactional Reporting</strong></td>
<td>Reporting that concerns itself with measuring the volume of business activity of the company. These are usually broken down by channels, geography, departments, etc.</td>
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<tr>
<td><strong>Functional Reporting</strong></td>
<td>Reporting that concerns itself with the performance level of business functions. These may include volumes, productivity, average duration, achievement of service levels, etc.</td>
</tr>
<tr>
<td><strong>Analytical Reporting</strong></td>
<td>Reporting that attempts to discover new business knowledge, patterns of behavior, complex relationships and other things from a body of data. Also known as ‘data mining’. It usually requires the association of data from a variety of sources.</td>
</tr>
<tr>
<td><strong>Application Data Stores</strong></td>
<td>Application data stores are databases associated with specific enterprise applications. They may also be accessible by other applications, or they may provide an API layer to access data or functionality associated with the application.</td>
</tr>
<tr>
<td><strong>Interactive Operational Data Store (IODS)</strong></td>
<td>The iODS is used to store data that is common to the enterprise and utilized in real-time on a transactional basis. Additionally used for operational reporting. Master Data Stores can provide iODS, transactional and analytical roles.</td>
</tr>
<tr>
<td><strong>Data Warehouse</strong></td>
<td>A data warehouse is used to store data that is common to the enterprise and utilized for reporting and analytical purposes. It consists of data that has been copied from other sources (application data stores and operational data stores) on a periodic basis. Data warehouses are created to support reporting and analytical research. They employ data models that are different from application and operational data stores to support these requirements. They also allow reporting and analytics to be done without adversely affecting transactional performance in the other data stores.</td>
</tr>
<tr>
<td><strong>Data Marts</strong></td>
<td>Data marts are data stores that are built from extracts from the data warehouse and sometimes from application data stores. These employ specific data models for the specific domains, reports or analytics they are intended to support.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Mart</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Profit</strong></td>
<td>Data mart to support profit determination.</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td>Data mart to support revenue determination.</td>
</tr>
<tr>
<td><strong>Sales</strong></td>
<td>Data mart to support sales reporting and analytics.</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
<td>Data mart to support marketing reporting and analytics.</td>
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</tbody>
</table>
We treat architecture as a process to go from a strategic conceptual architecture to an implementable Solution Architecture. Key steps include:

1. Revise overall architecture models if required, initial assessments of current-state and vision.
2. Definition of Guiding Principles.
3. Create Strategic Conceptual Architecture.
4. Define High Level Solution Architecture Options.
5. Gathering of Strategic Requirements for Integration and Information.
6. Definition of the Logical Architecture to understand what capabilities are needed from products.
7. Map Logical Architecture to Physical Architecture to pick vendors.

Strategic Business and Technology Architecture activities are done once, more detailed activities are done for each delivery increment.
Where are you at in terms of Metadata Management Maturity?

- What are the steps that you go through?
  - Are you following data modeling best practices and developing a rich data dictionary?
  - Are you taking an active approach to metadata management as part of the SLDC – will you be using a model-driven approach?
  - Are you finding gaps in vendor technologies?
  - What happens when you make changes in design time?

- How do you measure if you are on track?
  - Assessing impact of changes
  - Data relationships and flows
  - Synchronized metadata
### MIKE2.0 Architecture Framework

**Discussion Question – Metadata Management Practices**

**Where are we at in terms of Metadata Management Maturity?**

<table>
<thead>
<tr>
<th>Metadata</th>
<th>IMM Level 1</th>
<th>IMM Level 2</th>
<th>IMM Level 3</th>
<th>IMM Level 4</th>
<th>IMM Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• SME knowledge at best</td>
<td>• Metadata physical data dictionary available</td>
<td>• Metadata repositories rationalized</td>
<td>• Approved enterprise Meta Information Architecture</td>
<td>• Model driven Metadata supports production use</td>
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<tr>
<td></td>
<td>• Little written down for re-use</td>
<td>• Messaging catalog exist but mostly ad hoc</td>
<td>• Model driven approach to metadata validated</td>
<td>• Model driven metadata repository initial implementation</td>
<td>• Metadata key to cost removal</td>
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<td></td>
<td>• Metadata tool not used</td>
<td>• SMEs assigned to populate business Metadata</td>
<td>• SME population of business Metadata completed</td>
<td>• Interdependent Metadata rationalized</td>
<td>• Metadata replace much of the SME collaborations</td>
</tr>
<tr>
<td></td>
<td>• Metadata does not exist outside of project documentation</td>
<td>• Metadata repository used primarily as data dictionary</td>
<td>• Initial use of metadata at production and design time.</td>
<td>• Model driven metadata formulated</td>
<td>• Model driven metadata participates in production</td>
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<tr>
<td></td>
<td>• Little awareness of metadata</td>
<td>• Requirements metadata repository in progress</td>
<td>• Use models for metadata initiated</td>
<td>• Metadata rationalized across multiple repositories</td>
<td>• Metadata drives requirements and analysis</td>
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<td></td>
<td>• No metadata staffing</td>
<td>• Part time staffing for metadata</td>
<td>• Model Driven metadata being explored</td>
<td>• Metadata mapped to Business processes</td>
<td>• Metadata supports impact analysis for data changes</td>
</tr>
</tbody>
</table>
How have you set up or plan to set up an environment to control Reference data?

- Do you experience reference data conflicts?
- Do you have a data mastering model?
- How do you manage overlap in reference data?
- What kinds of approaches do you use for improving data quality in reference data?
- What data synchronization techniques do you use to solve complex issues with reference data in a highly federated environment?
# Agenda

## Introduction
- Objectives for Today
- Key Terminology

## Taking an Information Development Approach
- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

## MIKE2.0 (Method for an Integrated Knowledge Environment)
- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

## Applying MIKE2.0
- Business and Technology Blueprint - Example Task Walkthroughs
  - Activity 1.4 Organisational QuickScan
  - Activity 1.5 Future State Vision for Information Management
  - Activity 2.2 Strategic Requirements for Technology Backplane Development

## Open Source Version of MIKE2.0
MIKE2.0 Overview

What is Data Governance?

There are varying definitions of the term “Data Governance”. Whilst there is consensus that Data Governance includes Data Quality Management, it is difficult to get a consistent definition even at a high level. There are 3 primary reasons for this:

- **Data Quality is a complex topic that involves more than just the accuracy of data.** Data Quality is typically measured across 7 quantitative dimensions and a number of qualitative dimensions. **Composite data management issues such as referential integrity** problems could also be considered data-quality issues.

- **Data Quality Management involves more than just addressing historical data quality issues** through data profiling and re-engineering. **It involves preventing these issues** from occurring in the first place. **Issue prevention is complex**, sometimes involving changes to source systems, business processes and supporting technology. Issues for some systems or users may not present a problem for others.

- **Data Governance can be seen to mean more than just Data Quality.** It is sometimes used to cover a collection of best practices around the management of information, such as the ability to secure data, provide real-time access to data and deal with complex integration issues. Organizational efficiency and agility are also sometimes described as part of Data Governance.

MIKE2.0 (Method for an Integrated Knowledge Environment) provides an approach for this broader definition of Data Governance and refers to this overall approach as “Information Development”.
The MIKE2.0 approach for improving Data Governance goes across all 5 phases of the methodology. The most critical activities for improving Data Governance are as follows:

- **Activity 1.4 Organisational QuickScan**
- **Activity 1.6 Data Governance Sponsorship and Scope**
- **Activity 1.7 Initial Data Governance Organization**
- **Activity 2.7 Data Governance Policies**
- **Activity 2.8 Data Standards**
- Activity 3.5 Business Scope for Improved Data Governance
- Activity 3.6 Enterprise Information Architecture
- Activity 3.7 Root Cause Analysis on Data Governance Issues
- Activity 3.8 Data Governance Metrics
- Activity 3.11 Data Profiling
- Activity 3.12 Data Re-Engineering
- **Activity 5.11 Continuous Improvement - Compliance Auditing**
- **Activity 5.12 Continuous Improvement - Standards, Policies and Processes**
- **Activity 5.13 Continuous Improvement - Data Quality**
- **Activity 5.14 Continuous Improvement - Infrastructure**
- **Activity 5.15 Continuous Improvement - Information Development Organization**
- **Activity 5.16 Continuous Improvement – MIKE2.0 Methodology**

Other MIKE2.0 Activities are also relevant, but these are particularly focused on Data Governance
The ‘firm structures solution’ includes a governance framework comprised of five components: **organisational structure, data policies, data processes, data administration, and quality tracking**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organisation</strong></td>
<td>The organizational structure is the administrative and functional group required to achieve the objectives of the data governance program. This includes sponsors, program leads, data owners, technical architects and analysts</td>
<td>Governance Organisation Model will include:</td>
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<tr>
<td></td>
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<td>- Executive Sponsor</td>
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<td>- Data Quality Leader and Analysts</td>
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<td>- Data Owners</td>
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<td>- Enterprise Technology Manager</td>
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<tr>
<td><strong>Policies</strong></td>
<td>The policies provide the framework for decision making and issue resolution amongst different groups. The policies also provide the strategic and operational direction for data quality</td>
<td>Data Governance Policies:</td>
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<tr>
<td></td>
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<td>- Quality Policy Oversight</td>
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<td>- Quality Measurement</td>
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<td>- Reference Data Management (e.g. client structure, account)</td>
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<tr>
<td><strong>Processes</strong></td>
<td>Procedures that ensure consistent approach to defining data elements, ownership, business rules, and managing issues/exceptions</td>
<td>Data Governance Processes:</td>
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<tr>
<td></td>
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<td>- Issue Resolution</td>
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<td>- Initiative Prioritization</td>
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<td>- Exception Reporting</td>
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<tr>
<td><strong>Administration</strong></td>
<td>The data administration involves maintenance of consistent data definitions and business rules across the enterprise</td>
<td>Metadata Administration includes:</td>
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<td></td>
<td>- Business Definitions – Reports, Attributes, etc</td>
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<tr>
<td></td>
<td></td>
<td>- Technical Definitions – Data Models, Tables, etc</td>
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<td>- Operational Definitions – Batch load stats</td>
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<tr>
<td><strong>Tracking</strong></td>
<td>The quality tracking component tracks and assesses the quality of data across the organization.</td>
<td>Data Quality Tracking Metrics:</td>
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<td>- Accuracy</td>
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<td>- Integrity</td>
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<td>- Validity</td>
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</table>
META Group developed a 5-level Information Maturity Model (IMM) to use as an information maturity guideline. We have extended this model as part of MIKE2.0.

It is similar to the Software Capability Maturity Model (CMM) and focuses initially on data quality.

The key criteria for assessing information maturity is being able to measure it.

**Level 1**
**Aware**

There is awareness that problems exist but the organization has taken little action regarding how data is managed.

**Level 2**
**Reactive**

Awareness and action occur in response to issues. Action is either system- or department-specific.

**Level 3**
**Proactive**

Information Development is part of the IT charter and enterprise management processes & exist.

**Level 4**
**Managed**

Information managed as enterprise asset and well-developed engineering processes and organization structure exists.

**Level 5**
**Optimized**

Information Development is a strategic initiative, issues are either prevented or corrected at the source, and best-in-class solution architecture is implemented. Focus is on continuous improvement.

MIKE2.0 uses an objective assessment of your current and desired information maturity levels to construct a program for improving Data Governance.
Data Governance Organisational Model

Value of a Centre of Excellence Approach

A Centre of Excellence Brings together a set of essential functions to support the successful delivery of program and projects.

It is focused on achieving:

- Better reuse capabilities across projects
- Improved software quality
- Reduced speed of delivery
- Cost takeout through shared infrastructure
- Cost takeout through shared skill sets

It is a comprehensive approach that involves a well-defined:

- Governance Model
- Organisational Structures for Management, Architecture and Delivery
- A Common Architecture
- Maintenance and Support Approach

It is a leading best practices in systems development
Data Governance Organisational Model

Discussion Question: Data Governance Organisation

What are the pros and cons of a shared model?

- Benefits that you have recognized?
  - Reuse
  - Cost savings
  - Organizational-wide consistency

- Problems you encountered?
  - Funding
  - Delayed/Halted Projects
  - More strained relationship with Business

- Lessons Learned?
## Agenda

<table>
<thead>
<tr>
<th>Section</th>
<th>Time</th>
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<tbody>
<tr>
<td><strong>Introduction</strong></td>
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<tr>
<td>- Objectives for Today</td>
<td>30</td>
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<tr>
<td>- Key Terminology</td>
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<tr>
<td><strong>Taking an Information Development Approach</strong></td>
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<tr>
<td>- Executive Level Issues Related to Enterprise Data Management</td>
<td>60</td>
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<tr>
<td>- The Changing Model for the Enterprise</td>
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<tr>
<td><strong>MIKE2.0 (Method for an Integrated Knowledge Environment)</strong></td>
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<tr>
<td>- Overview</td>
<td>120</td>
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<td>- Strategy</td>
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<td>- Architecture</td>
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<tr>
<td>- Data Governance through an Information Development Organisation</td>
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<tr>
<td><strong>Applying MIKE2.0</strong></td>
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<tr>
<td>- Business and Technology Blueprint - Example Task Walkthroughs</td>
<td>180</td>
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<tr>
<td>- Activity 1.4 Organisational QuickScan</td>
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<td>- Activity 1.5 Future State Vision for Information Management</td>
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<td>- Activity 2.2 Strategic Requirements for Technology Backplane Development</td>
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<tr>
<td><strong>Open Source Version of MIKE2.0</strong></td>
<td>240</td>
</tr>
</tbody>
</table>
Agenda

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Open Source Version of MIKE2.0
Applying MIKE2.0

Typical Timeframes for Strategic Initiatives

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<td>1</td>
<td>Define High Level Project Scope</td>
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<td>Phase 1 – Business Assessment and Strategy Definition Blueprint</td>
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<td>1.1 Strategic Mobilisation</td>
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<td>1.2 Enterprise Information Management Awareness</td>
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<td>1.3 Overall Business Strategy for Information Development</td>
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<td>1.4 Organisational QuickScan for Information Development</td>
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<td>1.6 Data Governance Sponsorship and Scope</td>
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<td>1.7 Initial Data Governance Organisation</td>
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<td>Phase 2 – Technology Assessment and Selection Blueprint</td>
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<td>2.1 Strategic Requirements for BI Application Development</td>
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<td>2.3 Strategic Non-Functional Requirements</td>
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<td>2.4 Current-State Logical Architecture</td>
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<td>2.5 Future-State Logical Architecture and Gap Analysis</td>
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<td>2.6 Future-State Physical Architecture and Vendor Selection</td>
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<td>2.9 Software Development Lifecycle Preparation</td>
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<td>2.10 Metadata Driven Architecture</td>
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<td>2.11 Technology Blueprint Completion</td>
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Scoping in a “Phase 0” can be beneficial to review variables.

- **Top 10 Variables in Scoping the Top-Down Approach**
  1. Complexity of the business problem
  2. Depth of current-state analysis required
  3. Scope of systems and complexity of the environment
  4. Level of detail needed around programme planning
  5. Level of financial analysis required to define the project Business Case
  6. Organisational review requirements such as skill sets, organisational structure
  7. Whether any of the proposed activities have already been completed
  8. Availability of Subject Matter Experts and level of system documentation
  9. Vendor Selection requirements
  10. Detail around detailed Data Governance activities (standards, policies)

- **Some organisations start with a “Bottom Up” approach**
  - Metadata Repository to define common terms
  - Data Quality Initiative focused on Quick-Win ROI
# Agenda

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Taking an Information Development Approach</th>
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</table>
MIKE2.0 Task Overview: IM QuickScan

Where it fits in the overall approach

The Information Maturity QuickScan assessment occurs in Phase 1 of the methodology – along with other brief assessments.
## MIKE2.0 Activity Overview: Organisational QuickScan

Where it fits in the overall approach

<table>
<thead>
<tr>
<th>Activity 1.4 Organisational QuickScan for Information Development</th>
<th>Responsible</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4.1 Assess Current-State Application Portfolio</td>
<td></td>
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</tr>
<tr>
<td>1.4.2 Assess Information Maturity</td>
<td></td>
<td></td>
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<tr>
<td>1.4.3 Assess Economic Value of Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4.4 Assess Infrastructure Maturity</td>
<td></td>
<td></td>
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<tr>
<td>1.4.5 Assess Key Current-State Information Processes</td>
<td></td>
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<tr>
<td>1.4.6 Define Current-State Conceptual Architecture</td>
<td></td>
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</tr>
<tr>
<td>1.4.7 Assess Current-State People Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4.8 Assess Current-State Organisational Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4.9 Assemble Findings on People, Organization and its Capabilities</td>
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</tbody>
</table>
META Group has developed a 5-level Information Maturity Model (IMM) to use as an information maturity guideline. It is similar to the Software Capability Maturity Model (CMM) and focuses initially on data quality. The key criteria for assessing information maturity is being able to measure it.

Level 1: Aware
There is awareness that problems exist but the organization has taken little action regarding how data is managed.

Level 2: Reactive
Awareness and action occur in response to issues. Action is either system- or department-specific.

Level 3: Proactive
Information Development is part of the IT charter and enterprise management processes and organization structure exists.

Level 4: Managed
Information managed as enterprise asset and well-developed engineering processes and organization structure exists.

Level 5: Optimized
Information Development is a strategic initiative, issues are either prevented or corrected at the source, and best-in-class solution architecture is implemented. Focus is on continuous improvement.

IM QuickScan uses an objective assessment of your current and desired information maturity levels to construct a roadmap for improving data quality.
MIKE2.0 Task Overview: IM QuickScan

Task 1.4.2 Assess Information Maturity

- The IM QuickScan Assessment Framework can be used to assess the client in 6 dimensions.
  - People/Organisation
  - Practice
  - Policy
  - Measurement
  - Compliance
  - Technology

- Each of the dimensions has multiple factors within it, which are used to group a result-set of questions

- Provides a set of questions baselined against industry practices in Information Maturity

- Interactive sessions are held with key members of the organization’s business and technical architecture teams

- Can be used to understand the major challenges being faced by the organisation

- Can help provide the initial steps toward the vision for the future state
MIKE2.0 Task Overview: IM QuickScan

Task 1.4.2 Assess Information Maturity
MIKE2.0 Task Overview: IM QuickScan

**Task 1.4.3 Assess Economic Value of Information**

IM QuickScan results can be used to provide a calculation on the Economic Value of Information in an Organisation.

The high-level steps are as follows:

1. The value of the organisation is determined based on market value: \( V_{\text{org}} = \text{Share Price} \times \text{Number of Shares} \)

2. BearingPoint has conducted market research to determine an Information Coefficient, \( IC \), that is typical of Financial Services Institutions: \( V_{I} (\text{theoretical}) = V_{\text{org}} \times IC \)

3. IM QuickScan is applied to understand current-state and planned Information Efficiency, IE:

\[
\begin{align*}
IE_{\text{current}} &= \frac{IMQS_{\text{current}}}{IMQS_{\text{Benchmark}}} \\
IE_{\text{future}} &= \frac{IMQS_{\text{future}}}{IMQS_{\text{Benchmark}}}
\end{align*}
\]

4. Once an information efficiency ratings have been determined for the current-state and target-state, the potential value gains can then be quantified.

\[
\begin{align*}
V_{I} (\text{estimated})_{\text{current}} &= V_{I} (\text{theoretical}) \times IE_{\text{current}} \\
V_{I} (\text{estimated})_{\text{future}} &= V_{I} (\text{theoretical}) \times IE_{\text{future}} \\
V_{I} (\text{estimated})_{\text{Gains}} &= V_{I} (\text{estimated})_{\text{future}} - V_{I} (\text{estimated})_{\text{current}}
\end{align*}
\]

5. Quantitative estimates can then taken against this largely qualitative model.
# Agenda

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Running Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Objectives for Today</td>
<td>30</td>
</tr>
<tr>
<td>● Key Terminology</td>
<td></td>
</tr>
</tbody>
</table>

## Taking an Information Development Approach

- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

## MIKE2.0 (Method for an Integrated Knowledge Environment)

- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

### Applying MIKE2.0

- Business and Technology Blueprint - Example Task Walkthroughs
  - Activity 1.4 Organisational QuickScan
  - Activity 1.5 Future State Vision for Information Management
  - Activity 2.2 Strategic Requirements for Technology Backplane Development

## Open Source Version of MIKE2.0

- 240
MIKE2.0 Activity Overview: Future State Vision

Where it fits in the overall approach

The Future State Information Management Environment starts with the definition of Guiding Principles and a Conceptual Architecture

Information Development through the 5 Phases of MIKE2.0

- Phase 1: Business Assessment and Strategy Definition Blueprint
- Phase 2: Technology Assessment
- Phase 3, 4, 5: Development
- Increment 1, Increment 2, Increment 3
- Roadmap & Foundation Activities
- Design
- Development
- Deploy
- Operate

Strategic Programme Blueprint is done once

Continuous Implementation Phases

1.1 Strategic Mobilisation
1.2 Enterprise Information Management Awareness
1.3 Overall Business Strategy for Information Development
1.4 Organisational QuickScan for Information Development
1.5 Future State Vision for Information Management
1.6 Data Governance Sponsorship and Scope
1.7 Initial Data Governance Organisation
1.8 Business Blueprint Completion
1.9 Programme Review

Begin Next Increment

Phase 3, 4, 5

Improved Governance and Operating Model
MIKE2.0 Activity Overview: Future State Vision

*Where it fits in the overall approach*

<table>
<thead>
<tr>
<th>Activity 1.5 Future-State Vision for Information Management</th>
<th>Responsible</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5.1 Introduce Leading Business Practices for Information Management</td>
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<tr>
<td>1.5.2 Define Future-State Business Alternatives</td>
<td></td>
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<tr>
<td>1.5.3 Define Information Management Guiding Principles</td>
<td></td>
<td></td>
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<tr>
<td>1.5.4 Define Technology Architecture Guiding Principles</td>
<td></td>
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</tr>
<tr>
<td>1.5.5 Define IT Guiding Principles (Technology Backplane Delivery Principles)</td>
<td></td>
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<tr>
<td>1.5.6 Define Future-State Information Process Model</td>
<td></td>
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<tr>
<td>1.5.7 Define Future-State Conceptual Data Model</td>
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<td></td>
</tr>
<tr>
<td>1.5.8 Define Future-State Conceptual Architecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5.9 Define Source-to-Target Matrix</td>
<td></td>
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<tr>
<td>1.5.10 Define High-Level Recommendations for Solution Architecture</td>
<td></td>
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</tbody>
</table>
MIKE2.0 Task Overview: Conceptual Architecture

Task 1.5.3 Define Information Management Guiding Principles

Information Management Principles

Information Management Principles provide a framework for how information is to be shared, captured, stored and modeled and kept reliable across the environment. They are the first step in the definition of the Information Development environment. As organisations need to be able to clearly enunciate the principles by which it leverages information, Information Management Principles are particularly important. Implementing solid Information Management these principles will result in an enterprise that excels at leveraging data for the benefit of all of its stakeholders by providing better service and a better financial return. These Principles should be referred to throughout the implementation programme as they provide an overall guide for the implementation teams.

*Principle #1: Fact-based decision making*

The first and most important information principle is that the information asset should be leveraged every day in every decision. Both strategic and operational decisions should be based on facts which can be sourced back to data which is held by the enterprise.

*Principle #2: Integrated data with consistent definitions*

Accepting that one of the major assets of any large organisation is information, there is no value in each unit of the enterprise being part of the whole unless it is able to leverage that enterprise asset in an integrated way (i.e., not just the specific part that applies to the one unit).

*Principle #3: Appropriate retention of detailed data*

Information should be retained whenever physically possible within the constraints of government legislation, corporate ethics and privacy commitments. While data is of greatest value when aggregated and interpreted, it is important that the most granular or detailed data be retained to allow for other interpretations and aggregations to be made in the future.
MIKE2.0 Activity Overview: Future State Vision

Task 1.5.8 Define Future State Conceptual Architecture

The Conceptual Architecture is a starting point in an iterative architectural process

- Initial interviews to define vision
- Define Guiding Principles
- Create Conceptual Architecture
- Gather Strategic Requirements
- Define Logical Architecture to understand what capabilities are needed from products
- Map Logical Architecture to Physical Architecture to pick vendors
- Gather detailed implementation requirements
- Define Solution Architecture
- Technical and Implementation Architecture
- Revise overall architecture models if required

The SAFE Framework provides a Conceptual Architecture as a starting point
The shared repositories typically support reporting and analysis across the enterprise. Typically they are populated by hundreds of downstream feeds from the production environments. Most of these downstream feeds have just evolved over time with little documentation to support maintenance. They are a major barrier to the transition from legacy systems to new production environments.

Reference data and master data can be used to support operational or analytical processes. This information is typically represented across many systems; data mastering rules for how this information is synchronised are critical to ensuring the integrity of the overall information environment. Many organisations have a warehouse environment that is an example of a shared repository of corporate information. It will receive feeds from both private (application) data stored and shared repositories.
Show below are sample outputs of high-level Solution Architecture options at the level they would be produced for this task. Typically, there will be a few architecture models with supporting text.

This proposed solution includes 3 viable options:

1. **Option 1**: Use a Vendor model as the base logical data model for integrated Operational Data Store, going through a map-and-gap exercise to complete the model. This model is closely aligned to the existing data classification/taxonomy model that has been adopted organisation-wide.

2. **Option 2**: Develop & build a hybrid data model consisting of existing data models used across the organisation from existing systems. These base models will need to be supplemented and integrated with other models currently used in enterprise applications.

3. **Option 3**: Develop and build a logical, normalised data model in-house for the, based on the existing data classification/taxonomy model that has been adopted organisation-wide and a well-defined set of user requirements.
# Agenda

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Running Time</th>
</tr>
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<tbody>
<tr>
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**Taking an Information Development Approach**

<table>
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<tr>
<th>Running Time</th>
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<td>60</td>
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</table>

- Executive Level Issues Related to Enterprise Data Management
- The Changing Model for the Enterprise

**MIKE2.0 (Method for an Integrated Knowledge Environment)**

<table>
<thead>
<tr>
<th>Running Time</th>
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<td>120</td>
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</table>

- Overview
- Strategy
- Architecture
- Data Governance through an Information Development Organisation

**Applying MIKE2.0**

<table>
<thead>
<tr>
<th>Running Time</th>
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<tr>
<td>180</td>
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</table>

- Business and Technology Blueprint - Example Task Walkthroughs
  - Activity 1.4 Organisational QuickScan
  - Activity 1.5 Future State Vision for Information Management

- Activity 2.2 Strategic Requirements for Technology Backplane Development

**Open Source Version of MIKE2.0**

<table>
<thead>
<tr>
<th>Running Time</th>
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<tbody>
<tr>
<td>240</td>
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</tbody>
</table>
MIKE2.0 Task Overview: Strategic Requirements

Where it fits in the overall approach

Defining Strategic Requirements for the Technology Backplane starts with the base set of capabilities required for infrastructure and data management.
MIKE2.0 Task Overview: Strategic Requirements

Where it fits in the overall approach

Activity 2.2 Strategic Requirements for Technology Backplane Development

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Status</th>
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<tr>
<td>2.2.1 Define Foundation Capabilities for Information Development</td>
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<tr>
<td>2.2.2 Define Foundation Capabilities for Infrastructure Development</td>
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</tr>
<tr>
<td>2.2.3 Define Advanced Capabilities for Information Development</td>
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<tr>
<td>2.2.4 Define Advanced Capabilities for Infrastructure Development</td>
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</tr>
</tbody>
</table>
MIKE2.0 Task Overview: Strategic Requirements

**Task 2.2.2 Define Foundation Capabilities for Infrastructure**

This list of strategic capabilities can then be used to feed into a vendor selection process in Activity 2.6.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Categories</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>Does the tool handle concurrent usage on overlapping datasets?</td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Does the tool function in a C/S fashion using a shared repository?</td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Does the tool allow repository access by third-party producers?</td>
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</tr>
<tr>
<td>Convergence</td>
<td>Can the outputs of data profiling be used directly in the business operations?</td>
<td></td>
</tr>
<tr>
<td>Convergence</td>
<td>Do outputs feed directly into a metadata repository?</td>
<td></td>
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<tr>
<td>Convergence</td>
<td>What is the level of integration to a data re-engineering tool?</td>
<td></td>
</tr>
<tr>
<td>Convergence</td>
<td>Can jobs be componentized to be used by interfacing systems?</td>
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</tr>
<tr>
<td>Convergence</td>
<td>Is the tool integrated with other integration products (e.g., BRP)?</td>
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<tr>
<td>Standards</td>
<td>Does the tool support using open standards (e.g., XML, J2EE)?</td>
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</tr>
<tr>
<td>Standards</td>
<td>Does the tool support web services interfaces?</td>
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<tr>
<td>Scalability</td>
<td>Does the tool offer support for parallel processing?</td>
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<tr>
<td>Scalability</td>
<td>Does the tool support parallel processing by running a single job across multiple CPUs on a server?</td>
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</tr>
<tr>
<td>Scalability</td>
<td>Does the tool support parallel processing by running a single job across multiple nodes in a cluster or grid?</td>
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<tr>
<td>Scalability</td>
<td>Can the tool support projected 3-year business growth volumes?</td>
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</tbody>
</table>

**Evaluation Categories**
- Architecture
- Automation
- ETL Integration
- Operations
- Vendor

<table>
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<tr>
<th>Evaluation Value</th>
<th>Optimal Value</th>
<th>Eval Value</th>
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<td>4.117647</td>
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## Agenda

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<thead>
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<th>Time</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Introduction</td>
</tr>
<tr>
<td>60</td>
<td>Taking an Information Development Approach</td>
</tr>
<tr>
<td>120</td>
<td>MIKE2.0 (Method for an Integrated Knowledge Environment)</td>
</tr>
<tr>
<td>180</td>
<td>Applying MIKE2.0</td>
</tr>
<tr>
<td>240</td>
<td>Open Source Version of MIKE2.0</td>
</tr>
</tbody>
</table>

### Introduction
- Objectives for Today
- Key Terminology

### Taking an Information Development Approach
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### Open Source Version of MIKE2.0
MIKE2.0 Open Source Model

Open Source, Data Governance & Management Consortium

Why Open Source?
- User-driven Innovation and Best Practice Everywhere
- Globally, Distributed Collaborative Framework, Non-Existent So Far
- Build evangelists for our approach
- Create new revenue streams by providing support for the methodology
- Continual improvement on the approach from a global team of experts

Why a Data Governance & Management Consortium?
- To manage our Open Source initiative
- Encourage sharing by allowing others to be part of the leadership team
- Heightened Importance of Data Governance and Management as an Industry
MIKE2.0 Demonstration
An Brief Overview of the Methodology

5 Phases of MIKE2.0 – Demonstration of the Wiki-Based Solution, starting with the Usage Model

Overall Implementation Guide

- Phase 1 – Business Assessment and Strategy Definition Blueprint
- Phase 2 – Technology Assessment and Selection Blueprint
  - Vendor Assessment QuickScan
- Phase 3 - Roadmap and Foundation Activities Use advanced collaboration technologies for discussing, sharing and building content
  - Activity 3.7 Data Profiling
  - Activity 3.8 Data Re-Engineering
- Phase 4 - Design Increment
  - Activity 4.4 ETL Logical Design
  - Activity 4.5 ETL Physical Design
- Phase 5 - Develop, Test and Deploy

Brief on Supporting Assets, link to Intraspect
MIKE2.0 Open Source Model

Bringing Together 3 Big Ideas

We see 3 huge shifts happening in technology at this point in time:

- Web 2.0
- Open Source
- Data Management

These shifts are impacting all industries and are a disruptive force to many traditional business models.

MIKE2.0 brings these 3 ideas together:

- It’s a methodology for Data Management
- It’s built on Open Source technologies
- Public content is “Open Sourced”
- It provides a generalized framework for building an open method
- It focuses on Web 2.0 principles and built on these standards
- Methods will be based on open-ness and collaboration

This is a truly unique approach to methodology and software delivery
Web 2.0 is a collection of Next generation internet services:

- User-created content
- Light-weight, single-purposed
  - [http://www.linkedin.com](http://www.linkedin.com)
- Services-based
  - Google Maps API + Yahoo Geocoding Service = [http://realestateabc.com](http://realestateabc.com)
  - Web Oriented Architecture (WOA): [musestorm.com](http://musestorm.com)
  - [Programmableweb.com](http://www.programmableweb.com)
- Shared revenue models
  - Google Adsense
Web 2.0 Philosophy *:
- Simplicity over Completeness
- Share over Protect
- Advertise over Subscribe
- Early Availability over Correctness
- Select by Crowd over Editor
- Honest voice over Corporate Speak
- Participation over Publishing
- Community over Product

Web 2.0 is about collaboration, sharing and openness. Remember what everyone said the web would be in the late 90s? Its here with Web 2.0.

*Sourced from a recent IT Leadership conference on August 24th, 2006 via http://www.eaipatterns.com/ramblings/45_web20.html
What the Analysts are saying ...

**Business Week “Web 2.0 Has Corporate America Spinning”**

- “For all its appeal to the young and wired, Web 2.0 may end up making its greatest impact in business.”
- Rod Smith – IBM: “Enterprises have been ringing our phones off the hook to ask us about Web 2.0”.

**Gartner’s 2006 Emerging Technologies Hype Report**

Web 2.0 will have significant business impact over the next 5 years.

**Collective Intelligence** – “...an approach for producing intellectual content that results from individuals working closely together with no centralised authority”, is thought to be the most significant trend.
In 5 to 10 years most software will be free ...

*Greg Stein, Chairman of the Apache Group and Google Engineer*

As the [open-source] stack grows and grows and takes over more areas, there's less money available in packaged products," Stein said. "All of your software [will be] free. It means that over time, you aren't going to be paying for software anymore" but will instead pay for assistance with it.

The shift could take an estimated five to 10 years, he said. "The notion of [a] packaged product is really going to kind of go away," Stein said.

Eventually, a free software project will overtake a commercial effort in functionality; there are almost always more developers in the open-source community, Stein pointed out.

Making money in software will involve selling assistance services for functions such as installation, configuration, maintenance, upgrading, testing and customization, Stein said. Basic software components themselves will be free, he said.

"As our systems grow more and more complex, more and more assistance is necessary," he said.
So What Does All this Mean?

One technology shift is about open building blocks based on standards that provide functional components that are no longer a black box – anyone can improve them, anyone can use them, and they are usually free or very low cost.

The other shift involves greatly improved usability, users driving public content, more sharing and even new revenue streams.

We believe this means more of an IT spend shift towards services and Data Management, but it also means that our Techniques for Managing Data are Even More Important:

- Everyone is driving the content – control is more complex
- More federation and more integration – more data, with more of it distributed
- More sharing of our corporate data – e.g. shared CIF architectures
- New security design challenges – we can’t share everything, but we want to collaborate
- New security risks and new challenges to privacy
MIKE2.0 Open Source Model
Part of the Overall Collaborative Model
MIKE2.0 Open Source Model
Part of the Overall Collaborative Model
MIKE2.0 Open Source Model

Part of the Overall Collaborative Model
What are some of the strengths of MIKE2.0?

- Comprehensive, Modern Approach
  - Scope covers Enterprise Information Management, but goes into detail in areas to be used for more tactical projects
  - Architecturally-driven approach that starts at the strategic conceptual level, goes to solution architecture
  - Not linked to document-based approach
  - A comprehensive approach Data Governance

- Collaborative, Open Source Methodology for Information Development
  - Better means to provide feedback on value of content through discussion pages
  - Balances adding new content with release stability
  - Allows non-BearingPoint users to contribute
  - Links into BearingPoint’s existing Project Assets on our internal knowledge management systems
  - Unique approach, we would like to make this “the standard” in the new area of Information Development
  - Methodology is easier to navigate and understand
  - You won’t be locked into BearingPoint
  - Open Source version will be launched soon and you will have access to all open source content
Appendices

Introducing MIKE2.0
An Open Source Methodology for Information Development
The Changing Model for the Enterprise

*Where are we at?*

**IT**

The last half of the 20th Century

- Custom Development and Private Data
- Packaged Systems and Proprietary Data
- Multiple ‘points of truth’ for customer and product data
- All companies at the same level of flexibility and maturity with respect to Information Development
- Data Access and Management a major cost factor in the business
- Uncoordinated Webifying.
- Installing a new application is not the problem its converting the data to the new application.

The era of ubiquitous technology has lead to a new challenge - managing ubiquitous data

Have focus and staying power to achieve useful preparation while addressing short term business value.

**The Cost of Managing and Accessing Information**

**IT**

The 21st Century

- Multi-channel functionality
- Re-usable Services via these same multiple channels
- Managed Services for unique or complex capabilities
- Internet Architecture everywhere
- Increased volatility in application choices and advancements across all channels
- Integrated Web Services (increase on self-service)
- Enhanced collaboration among business partners
- Successful Transformation is data-dependent
- Data issues impact us at the senior levels
- New regulatory and security threats

**Flexibility in Accessing and Using Information is King**
Business users know how important it is to have the right data. The real question is whether IT is giving it enough focus, considering:

- We have more systems and more connectivity than ever before
- Data quality problems cost companies hundreds of billions in lost revenue
- Data security problems are some of our biggest organisational threats
- Customer insight is the key to competition
- Users want information from the system now
- New regulations mean there are serious consequences for execs if there are data problems
The Changing Model for the Enterprise

Considerations related to Data Management Complexity

Classical software engineering problems and their impact to data

1. Latency
2. Transaction Management
3. Access and Security

New challenges

1. Federation – more systems and connectivity than ever before
2. New regulations mean there are serious consequences for execs if there are data problems
3. Greater transparency is required for new partnerships
4. New security threats

Impacts of poor data management

1. **Data Quality** problems cost companies billions in lost revenue
2. **Data Security** problems are some of our biggest organisational threats
3. **New Application Failures** - apps come and go but much of the core data is the same
4. **Once its lost, its lost** – we have no choice but to fix the past
5. **Rework Costs** - the impact of getting information development wrong is greater – the cost of change is higher
The Changing Model for the Enterprise

New models for Application Development

<table>
<thead>
<tr>
<th>Application Development</th>
<th>Strategy</th>
<th>Process</th>
<th>Organization</th>
<th>Technology</th>
<th>People</th>
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<tbody>
<tr>
<td>Infrastructure Development</td>
<td><img src="image1" alt="Diagram" /></td>
<td><img src="image2" alt="Diagram" /></td>
<td><img src="image3" alt="Diagram" /></td>
<td><img src="image4" alt="Diagram" /></td>
<td><img src="image5" alt="Diagram" /></td>
</tr>
<tr>
<td>Information Development</td>
<td><img src="image6" alt="Diagram" /></td>
<td><img src="image7" alt="Diagram" /></td>
<td><img src="image8" alt="Diagram" /></td>
<td><img src="image9" alt="Diagram" /></td>
<td><img src="image10" alt="Diagram" /></td>
</tr>
</tbody>
</table>

Look at how application development has changed in the last 10 years:

- Off-the-Shelf Enterprise (OLTP) Applications
- Workflow and Rules Engines
- Composite Applications (Integration-focused) Applications
- Business Intelligence (Information-focused) Applications
- Integrated Applications

Our Application Development model has certainly changed; our implementation approaches have also needed to change
The Changing Model for the Enterprise

*We are standardizing all Infrastructure Development*

<table>
<thead>
<tr>
<th>Application Development</th>
<th>Strategy</th>
<th>Process</th>
<th>Organization</th>
<th>Technology</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure Development</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Information Development</td>
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</tr>
</tbody>
</table>

How does Integration become like Infrastructure? We make it:

- Standards Based
- Well-defined, inventoried and something we can procure on demand
- Reusable and Reliable
- Modular
- Loosely Coupled

Platform infrastructure continues to be commoditized. We are making great advances through SOAs. Data Integration is finally moving to a reusable model inline with Application Integration.
The Changing Model for the Enterprise

It is now time to focus on Information Development

Information holds the key to competitive advantage:

- Applications come and go but much of the core data is the same
- You can’t start over with data – we have no choice but to fix the past
- The impact of getting information development wrong is greater– the cost of change is higher
- We need to get the basics right first for information development: data investigation, re-engineering, modelling and metadata management

To get efficiencies to at an enterprise-level, we should separate Application Development from Infrastructure & Information Development (but they must complement one another)
The Changing Model for the Enterprise

Information Development Supports a Business Time Model

**Business Time** - Types of Events / Information and Common Business Time Intervals

- Who uses the data?
- What do they do with it?
- What are the business processes supported?
- How do they access the data?
- What is the data quality required?
- What analytics are required?

Typical trending, analytics and summary reporting. DSS and MIS applications. Data Mining, customer segmentation etc. Much information dependent upon legacy interfaces. Quality Monitoring / Metrics.

Operational Monitoring, dynamic performance analytics, operational reporting, confirmation reporting. Order Flow, Billing Payments, usage patterns, new customers

Event Based, immediate response required typically through an exception process. Data Quality Issues, Transaction Augmentation, Outages

- Volume of data or events
- Year
- QTR
- Month
- Week
- Day
- Half Day
- Hour
- 15 Minutes
- 30 Seconds
- 5 Seconds

- MIS
- MIS
- MIS
- MIS
- Operational
- Operational
- Operational
- Near Real Time
- Near Real Time
- Real Time

Metadata
The Changing Model for the Enterprise

This approach involves more than technology

- An overall vision that aligns Business to Technology
  - Strategic Objectives aligned with the Tactical
  - Doesn’t go into too much detail – establish the vision and then ‘Do the Next Right Thing’

- Things at Enterprise Level don’t happen on their own
  - Methodology-driven implementations that traces from Strategy to Operations
  - Governance, Policies and Procedures across the organization

- The Enterprise Modeled at 3 levels
  - Center of Excellence Delivery Models for Information and Infrastructure Development
  - Balance of Power: Architecture, Delivery and Leadership

- Flexibility and Reuse and the Key Drivers
  - Standards Based
  - Foundation Capabilities - get these things in place first

- Right skills
  - Staff have the technologies and processes in place to focus on high-value activities
  - Staff have buy-in to vision across the organization – understand ‘what does it mean to me?’
In summary, Information Development is about:

- Driving an overall approach through an information management strategy
- Enabling people with the right skills to build and manage new information systems while creating a culture of information excellence
- Building an information management organization that is structured in the most efficient manner to deliver solutions for the business
- Improving governance processes around information compliance, policies, practices and measurement
- Delivering contemporary technology solutions that meet the needs of today’s highly federated organizations

To realize this approach most efficiently we should would move to a new organizational model which is known as an Information Development Center of Excellence.
Enterprise Data Management

Conceptual Framework

Enterprise Applications
- Marketing
- Sales
- Order Mgmt
- Care
- Billing
- other

Composite Applications
- Applicaiton
- Portals etc.
- 3rd Party Enablement

Access Points and Interaction Layer
- Real Time OLAP(s)
- Real Time Mart(s)

Common Services
- CDI Services
  - Table / Attribute Assessment
  - Relationship Assessment
- PDI Services
  - Data Replication
  - Data Transfer
  - Data Synchronization
  - Data Transformation
  - Data Mapping
  - Data Standardization
  - Pattern Analysis and Parsing
  - Record Matching
  - Record De-Duping
- Business Services
  - J2EE
  - Enter Svs EB/IB
  - JMS
  - JNCI
  - Policies
  - JSP Services

Data Management Services
- CDI / PDI
  - Customer
  - Product
- Warehouse Processes
- EIS
- DSS
- OLAP
- Analytical Applications
- Analytics DBs

MIS Applications
- Real Time ODS
  - Customer
  - Product
  - Marts ++.

Real Time ODS
- Content
- Network
- other
- Reference

Data Management Services
- Warehouse Environment
- Analytical Applications
- External Data Sources

MIS Applications
- Process Workflow
- Human Workflow
- Transformations
- Adapters
- Message Broker
- Other
Enterprise Data Management

Conceptual Framework – Key Components

Application Interfaces Mapped to Common Messaging Model Attributes - Interface Name, description attributes and business rules for each of the Interfaces in scope. Each of the interfaces will be named in terms of a logical business concept much in the same way entities are named in a database. Interfaces will be modeled in the context of Event Models which are derived from the Business Scenarios.

Application Development
- The Application Development environment consists of a combination of Legacy Systems and Commercial Off-the-Shelf packages (COTS), each of which typically has their own custom or proprietary databases. This domain also includes Composite Application Development. These are applications that do not have their own significant database -- rather they access data that has been made accessible via the Technology Backplane. MIS Analytics and Reporting development functions are within the domain of Application Development.

Application Interfaces Mapped to Common Messaging Model Attributes

<table>
<thead>
<tr>
<th>Interface</th>
<th>Description</th>
<th>Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Interface Inventory
The infrastructure Integration infrastructure supports batch, event, object and message transmissions. All external gateways use this infrastructure. The goal is to move to a standards based infrastructure to the degree possible.

In this mode the Technology Backplane implementation is driven by individual application projects. The integration layer as well as the data layer is funded and implemented at the project level using project preferences. The integration layer in effect automates application to application interfaces – automates the spider web.

In this mode the Technology Backplane implementation is driven by a standards based architecture model. The requirements are driven by a broad understanding across development projects. Funding is provided at the infrastructure level and implementation is on behalf of all projects within the enterprise program. Complexity is removed and flexibility increased.
The architecture recognizes the primary types and levels of information within the architecture. The ‘real time’ ODS is the source of all enterprise customer and product information when an application reaches out beyond its own application boundaries. This environment supports ‘real time’ OLAP and Marts as necessary.

The Enterprise Reference Data Platform is an important aspect for this component of the architecture.

The warehouse environment supports the necessary complex of data marts as well as the typical Executive dashboards (EIS), Decision Support Systems (DSS) as well as the Non-Real Time OLAPs.

The MIS application environment has access to all enterprise data and the data marts that have be set up in their behalf. All data marts should be dependent with respect to enterprise information. That is, the Marts are populated via the enterprise management processes. Any data attributes the Mart creates internally and needed elsewhere in the enterprise are distributed via enterprise information processes.

All data within the enterprise environment is will migrate as opportunities present themselves to enterprise standards definitions.
## Enterprise Data Management

**Conceptual Framework – Key Services**

<table>
<thead>
<tr>
<th>CDI Services</th>
<th>Common Services</th>
<th>PDI Services</th>
</tr>
</thead>
</table>

### Candidate Customer Domain

- Create/Modify Whole of Customer
- View Whole of Customer
- View Customer Membership in Groups or Hierarchies
- Check to see if a customer exists
- Query customer contracts or Service Level Agreements (SLAs)
- View all accounts associated with a customer
- View customer reporting requirements
- View all registered IDs for a given household
- View churn likelihood for a given customer
- Audit customer for missing or invalid information
- View customer status summary
- View customer profiles for marketing, service assurance and billing (finance)
- View Lifetime Value of a Customer

### Candidate Product Domain

- Design a new Product
- Modify a current Product
- Migrate new/modified product to selected production environments
- Review product options in general
- View related products
- View pre-requisite products
- Provide Product Price Quote(s)
- Validate Product Availability
- Validate a proposed Sales Order
- Query product functionality
- Query product configuration rules
- View Marketing Product Catalog
- Request prospective products for a customer
- Request specific products for a particular customer segment.

### Business Services

- All the above are examples of Business Services. However there are a number of candidate services which do not necessarily involve master data.
Enterprise Data Management

**Conceptual Framework – Key Services**

**Common Services**

**Metadata Services**

Metadata will be treated as a strategic resource in the same way as data is treated as a strategic resource.

While Information Development consolidates access to data, making it possible to retrieve information regardless of location and status the metadata repository will be the “yellow pages” of the information enterprise. The goal in the long run is to have a MetaData ‘Warehouse’.

**Metadata management will be a key accountability**

Many metadata repositories fail through lack of maintenance. Users will only trust the repository if it is accurate and up-to-date. To ensure its currency, maintenance of metadata needs to be a key criteria of success for its contributors.

### Interface Inventory

```xml
<xs:element>
  <xs:element name="discountInfoList">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="DiscountInfo" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="discountCode" type="xs:string" /> 
              <xs:element name="effectiveDate" type="xs:string" minOccurs="0" />
              <xs:element name="expirationDate" type="xs:string" minOccurs="0" />
              <xs:element name="currentEffectiveDate" type="xs:string" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:element>
```

### Data Knowledge Base

- Metadata Repository
- Master Attribute Inventory
- Mapping
- Object / Message / Interface

### Catalog(s)

<table>
<thead>
<tr>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table and Attribute Assessment</td>
</tr>
<tr>
<td>Relationship Assessment</td>
</tr>
<tr>
<td>Data Replication</td>
</tr>
<tr>
<td>Data Transfer</td>
</tr>
<tr>
<td>Data Synchronization</td>
</tr>
<tr>
<td>Data Transformation</td>
</tr>
<tr>
<td>Data Mapping</td>
</tr>
<tr>
<td>Data Standardization</td>
</tr>
<tr>
<td>Pattern Analysis and Parsing</td>
</tr>
<tr>
<td>Record Matching</td>
</tr>
<tr>
<td>Record De-Duping</td>
</tr>
</tbody>
</table>
Data Quality does not necessarily imply 100% error free data. The requirement is that it meets the needs of the people who are using it. In addition to errors associated with data, other factors contribute to data quality as well:

- Different organizations use common data elements but apply different definitions and business rules associated with the data. Global businesses will use currency conversion rates that best suits their financial reporting.
- Duplication of addresses interpretation. Addresses of multiple types exist and are often stored in multiple databases. As customers move, the addresses tend to get out of synch over time.
- Even if the data is clean, 2% of the data will become obsolete in any month due to customers that die, move, or change marital status.

### Attributes Table

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>Does the data accurately represent reality or a verifiable source?</td>
</tr>
<tr>
<td>Integrity</td>
<td>Do broken links exist between data that should be related?</td>
</tr>
<tr>
<td>Consistency</td>
<td>Is there a single representation of data?</td>
</tr>
<tr>
<td>Completeness</td>
<td>Is any key information missing?</td>
</tr>
<tr>
<td>Validity</td>
<td>Is the data stored in acceptable format and contain valid values?</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Is the data easily accessible, understandable, and used consistently?</td>
</tr>
<tr>
<td>Timeliness</td>
<td>Is information recorded and made available to systems as rapidly as is required?</td>
</tr>
</tbody>
</table>
The MIKE2.0 approach for improving Data Governance goes across all 5 phases of the methodology. The most critical activities for improving Data Governance are as follows:

- Activity 1.4 Organizational QuickScan
- Activity 1.6 Data Governance Sponsorship and Scope
- Activity 1.7 Initial Data Governance Organization
- Activity 2.7 Data Governance Policies
- Activity 2.8 Data Standards
- Activity 3.5 Business Scope for Improved Data Governance
- Activity 3.6 Enterprise Information Architecture
- Activity 3.7 Root Cause Analysis on Data Governance Issues
- Activity 3.8 Data Governance Metrics
- Activity 3.11 Data Profiling
- Activity 3.12 Data Re-Engineering
- Activity 5.11 Continuous Improvement - Compliance Auditing
- Activity 5.12 Continuous Improvement - Standards, Policies and Processes
- Activity 5.13 Continuous Improvement - Data Quality
- Activity 5.14 Continuous Improvement - Infrastructure
- Activity 5.15 Continuous Improvement - Information Development Organization
- Activity 5.16 Continuous Improvement – MIKE2.0 Methodology

Other MIKE2.0 Activities are also relevant, but these are particularly focused on Data Governance.
MIKE2.0 Methodology

Key Activities for Data Governance

Phase 1. Business Assessment and Strategy Definition Blueprint

<table>
<thead>
<tr>
<th>Quickly Understand Issues</th>
<th>Establish Leadership</th>
<th>Establish Team</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organizational QuickScan</strong></td>
<td><strong>DG Sponsorship and Scope</strong></td>
<td><strong>Initial DG Organization</strong></td>
</tr>
</tbody>
</table>

- Conduct Information Maturity Assessment
- Build Inventory of Information Assets
- Determine Economic Value of Information
- Assess organizational structure, people and their skills
- Confirm scope of Data Governance Program
- Confirm in-scope data subject areas
- Assign Data Stewards to each subject area
- Establishment Data Governance Council
- Assignment of roles and responsibilities
- Definition of communications model and tracking mechanism
- Re-alignment of Business and Technology Strategy

An initial gap analysis is developed by assessing the organization’s current-state issues and vision for the future-state. Data Governance scope driven by high-level information requirements and complemented by the definition of a strategic conceptual architecture.
Driven by information management guiding principles, a Policy Framework and common set of Data Standards are created that will be used throughout the implementation program. MIKE2.0 starts with a reference model for metadata management.
The MIKE2.0 approach to improving Data Governance is focused around Key Data Elements (KDEs). These are the subset of data elements that are used to make the most critical business decisions. The Enterprise Information Architecture is built out over time using these KDEs to define a framework for Master Data Management.
MIKE2.0 Methodology

Key Activities for Data Governance

Phase 3. Roadmap and Foundation Activities (continued)

<table>
<thead>
<tr>
<th>Assess issues with KDEs</th>
<th>Quantitatively Understand DQ</th>
<th>Iteratively fix DQ issues</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Governance Metrics</strong></td>
<td><strong>Data Profiling</strong></td>
<td><strong>Data Re-Engineering</strong></td>
</tr>
</tbody>
</table>

- Define Metric Categories and Measurement Techniques
- Gather Current-State Metrics on each KDE
- Define Target Metrics on each KDE
- Prepare for Assessment
- Perform Column Profiling
- Perform Table Profiling
- Prepare Multi-Table Profiling
- Finalize Data Quality Report
- Prepare for Re-Engineering
- Perform Data Standardization
- Perform Data Correction
- Perform Data Matching and Consolidation
- Perform Data Enrichment
- Finalize Business Summary of Data Quality Impacts

Metrics are defined for how data will be measured initially as well as target measures. Data Profiling is used for quantitative estimates and data is re-engineered in an iterative fashion. Artifacts stored in a metadata model.
MIKE2.0 Methodology

Key Activities for Data Governance

Phase 5. Develop, Test, Deploy and Improve

<table>
<thead>
<tr>
<th>Continuous Improvement</th>
<th>Continuous Improvement</th>
<th>Continuous Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Auditing</td>
<td>Standards, Policies and Processes</td>
<td>Data Quality</td>
</tr>
</tbody>
</table>

- Attain Sponsorship of Data Governance Board
- Define Compliance Auditing Processes
- Train Staff on Compliance Standards
- Conduct Auditing Processes
- Present Auditing Results and Recommendations
- Review and Revise Data Governance Policies
- Review and Revise Data Governance Metrics
- Review and Revise Data Governance Standards
- Review and Revise Data Governance Processes
- Implement Changes as Required
- Conduct Ongoing Data Quality Monitoring
- Associate Data Quality Issues with Root Causes
- Execute Issue Prevention Process

The MIKE2.0 Methodology is based around the Continuous Improvement. That means that we are continually re-factoring towards the strategic vision and there are planned activities to revisit the existing implementation.
### Phase 5. Develop, Test, Deploy and Improve (continued)

<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>Information Development Organization</th>
<th>Contribute to Open MIKE2.0 Methodology</th>
</tr>
</thead>
</table>
| • Re-factor Integration Infrastructure  
• Progressively Automate Processes  
• Review and Recommend Physical Infrastructure Changes  
• Move to a Metadata-Driven Architecture | • Move to a Central Architecture and Delivery Model  
• Develop Staff and their Skills  
• Implement Data Governance Incentives  
• Review and Revise Communications Model | Help improve the overall approach to Data Governance used by our community:  
• Help complete wanted assets  
• Assist with Peer reviews  
• Propose new core supporting assets  
• Recommend extensions to overall methodology  
Be an active collaborator |

### Key Activities for Data Governance

- Contribute to Open MIKE2.0 Methodology
- Re-factor Integration Infrastructure
- Progressively Automate Processes
- Review and Recommend Physical Infrastructure Changes
- Move to a Metadata-Driven Architecture
- Move to a Central Architecture and Delivery Model
- Develop Staff and their Skills
- Implement Data Governance Incentives
- Review and Revise Communications Model
- Help improve the overall approach to Data Governance used by our community:
  - Help complete wanted assets
  - Assist with Peer reviews
  - Propose new core supporting assets
  - Recommend extensions to overall methodology
  - Be an active collaborator

### Users of MIKE2.0 are encouraged to be part of an active community. The collaborative environment for MIKE2.0 allows the core method to be improved over time, whilst within a release cycle and product roadmap for stability.
To formulate, communicate, pilot and deploy a centralised organisation for Information Development is a significant undertaking. The following artifacts from MIKE2.0 can be used to assist in this effort:

- A comprehensive Role Inventory across aspects of the organisation with associated competencies and metrics
- A set of Position Descriptions based upon the Role Inventory
- Organisational Structures populated with these Position Descriptions
- Create assessment material to support manager and staff assessment of individual competencies
- Formulate a Gap Analysis based on target Organizational Structure and Role competencies vs. current capabilities
- To validate the processes and structures of the organization via a pilot script
- A Training profile for staff
- A Recruiting profile recommending to fill typical recruiting needs
- An Organisational Transition Plan across the Data Governance Maturity Model
Data Governance Maturity

Moving Up the Maturity Model

**Level 1 Data Governance Organisation – Aware.** An Aware Data Governance Organisation knows that the organisation has issues around Data Governance but is doing little to respond to these issues. Awareness has typically come as the result of some major issues that have occurred that have been Data Governance-related. An organisation may also be at the Aware state if they are going through the process of moving to state where they can effectively address issues, but are only in the early stages of the programme.

**Level 2 Data Governance Organisation – Reactive.** A Reactive Data Governance Organisation is able to address some of its issues, but not until some time after they have occurred. The organisation is not able to address root causes or predict when they are likely to occur. "Heroes" are often needed to address complex data quality issues and the impact of fixes done on a system-by-system level are often poorly understood.

**Level 3 Data Governance Organisation – Proactive.** A Proactive Data Governance Organisation can stop issues before they occur as they are empowered to address root cause problems. At this level, the organisation also conducts ongoing monitoring of data quality to issues that do occur can be resolved quickly.

**Level 4 Data Governance Organisation – Managed.** A Managed Data Governance Organisation has a mature set of information management practices. This organisation is not only able to proactively identify issues and address them, but defines its strategic technology direction in a manner focused on Information Development.

**Level 5 Data Governance Organisation – Optimal.** An Optimal Data Governance Organisation is also referred to as the Information Development Centre of Excellence. In this model, Information Development is treated as a core competency across strategy, people, process, organisation and technology. a
There is a minimum team structure that should be used for data governance on any project. The example model shows this data governance structure for a Data Warehouse implementation, where the core focus is for risk management.
Data Governance Organisational Model

Level 3 Data Governance Team (FS Institution Example)

Focused on Data Investigation and Re-Engineering

Data Governance Council

- Data Strategy & Queue Management (DSQ)
- Executive Steering Committee
- Data Quality Leader
  Overall Coordination of DQM Strategy Program

Department 1 (eg. Equities)
Department 2 (eg. FID)
Department 3 (IMD)
Department 4 (MCD)
Department 5 (IBD)
Function 1 (eg. Risk)

Data Stewards
(End-to-end Responsibility for these Subject Areas)

Technical Analysts

Source Data Collaboration
- Source Analysis
- Target Analysis

Data Modelling Collaboration
- Source to Logical
- Volume and performance

Physical Design Collaboration
- Performance Characteristics

Business Analysts

Define Standards
- Specification
- Data Capture
- Reporting

Define Business Rules
- Define
- Test Compliance

Business Process Definition
- Document & Model

Definitions
- Entities
- Attributes

DQ Analysts

Compliance Auditing
- Data Standard
- Business Rule
- Data Management Process

Establish Metrics
- Metric Categories
- Target Ratings

Issue Management
- Monitor & Report

Profile & Measure
- Track Results
- Facilitate Root Cause Analysis

Executive Sponsor
Data Stewards
Data Governance Organisational Model
Level 3 Data Governance Team (FS Institution Example)
**Data Governance Organisational Model**

**Level 4 Data Governance Team (FS Institution Example)**

View Focused on Data Stewardship and Ownership, other teams would include technology and Roles from Level 3 Org.

**DATA GOVERNANCE COUNCIL**

- Executive Sponsor
  - C-Level

- DG Steering Committee (Finance, Credit, Enterprise Data Architect, Audit, Retail, Wholesale, etc.)
  - Enterprise Data Architect
  - DQ Program Manager

**MDM**
- MDM Business Owner
- MDM Business Analyst
- Business Analyst – Credit Reports
- IT Steward

**Enterprise Data Warehouse SYSTEM & PROCESS OWNERS**

**BUS DATA CONCEPT OWNERS**
- Classification New Position #4
- Product New Position #4
- Involved Party New Position #5
- Hierarchy New Position #4
- Resource Item New Position #5
- Event New Position #5

**IT DATA STEWARDS**
- Classification tbd
- Product tbd
- Involved Party tbd
- Hierarchy tbd
- Arrangement tbd
- Resource Item tbd
- Event (To Be Assigned)

**SYSTEM OF RECORD OWNERS**

- BUS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd
- BUS: tbd
  - PRMS: tbd
  - IT: tbd
- BUS: tbd
  - CRS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd
- BUS: tbd
  - IT: tbd

**Data Quality Lead**

- Business and Technical Analysts
  - resources to be assigned

**Data Quality Analysts**

- (Pool of resources to be assigned)
In moving to the centralized model for information and infrastructure development, Leadership, Architecture and Delivery must be represented on the team.

The key team members across the areas must actively collaborate through formal and informal reporting relationships to guide a strategic idea to its realization. It is an organizational model that provides a “balance of power” whilst providing an enabler to:

- Align Business and Technology Strategy
- Align Strategic and Tactical Objectives
- Technology procurement efficiencies
- Justify spend based on business case
- Balance risk with speed of delivery
- A common set of technology standards and policies
- Reuse at an enterprise level

This has shown to be a very successful model for contemporary IT organizations and complements a centralized approach for the Technology Backplane. It is a model focused on providing solutions for the Business, driven by the needs of the Business.
Data Governance Organisational Model

Level 5 - Information Development Centre of Excellence
Data Governance Organisational Model

**Level 5 - Information Development Centre of Excellence**

**INFORMATION DEVELOPMENT Leadership Team**

- Executive Sponsor s C-Level
- Information Development Steering Committee (Representatives from Business and Technology)
- XBR Program Manager
- Enterprise Architect

**Architecture Team**

- Chief Architect
- Business Architects
- Information Architect
- Infrastructure Architect
- Business Domains
- Technology Backplane
- Enterprise Architecture

**Delivery Team**

- MIS Business Development Manager
- Information Integration Standards Manager
- Information Repository Development Manager
- Information Process Development Manager
- Information Quality Development Manager

**Information Integration Standards**

- Information Integration / Standards Manager

**Metadata Development and Management**

- Technical Modelling
- Common Information Standards
- Business Modelling
BearingPoint
Management & Technology Consultants