Next session

- EMMM™ Application Reference Model Workshop (Open Session)
  May 14, 2014 Wednesday 14:00-15:30

  - Introduction & background to the EMMM Framework 14:00-14:15
  - Alignment between components of the EM Framework 14:15-14:30
  - Scope of work for the Application Model project 14:30-15:15
    - Review of Product description
    - Engaging communities, members and the sector?
    - Contributions from Members
    - Meeting schedule and contacts
  - Alignment & feedback to other standards and work groups 15:15-15:30
  - Next steps and next meetings
Establishing EMMM

Gartner Mining: 2007
- Proposed an industry collaboration
- Resulted in the establishment of EMMM
Why?

The objective of EMMM (the Exploration, Mining, Metals and minerals vertical) is to:

realise sustainable business-value through collaboration around a common operating model and, by so doing, enable its members to put their Business-IT investment into areas of differentiation versus standard operating practices and support vendors in their delivery of technical and business solutions to the industry.

“From the boardroom to the rock face”
Best practices in other Industries: *Industry Reference frameworks*

- Information & Communications Technology (TMF with Frameworx)
- Supply Chain (SCOR)
- Retail (ARTS)
- Oil & Gas (PCATS)
- Financial Institution (CIM)

To download version 1.3.2 of the specification, go to: [http://cms.pcats.org/project/osarm](http://cms.pcats.org/project/osarm).
Information and Telecommunications Industry

Frameworks
Frameworks Overview
Frameworks Quick Start Library
Business Process Framework (eTOM)
Information Framework (SID)
Application Framework (TAM)
Integration Framework
Business Metrics

Frameworks Implementation Support
Frameworks Implementation Support
Frameworks Conformance Certification
Business Benchmarking
Business Metrics Automation Certification
Training & Certification

Best Practices
Procurement
Revenue Assurance
Service Level Agreement Management
Software Enabled Services Management
IPsphere

Latest Downloads
Select the standard you would like to download.
- Application Framework (TAM) 4.5
- Business Process Framework (eTOM) 9.0
- Business Process Framework (eTOM) 11.5 beta
- Information Framework (SID) 9.5
- Integration Framework 2.5
- Integration Framework 11.5 beta
- Revenue Assurance Solution Suite 3.0
- Revenue Assurance Solution Suite 3.5 beta
- Business Performance Measurement System (BPMS 5.5.0)
The Association for Retail Technology Standards (ARTS) of the National Retail Federation is an international membership organization dedicated to reducing the costs of technology through standards. Since 1993, ARTS has been delivering application standards exclusively to the retail industry. ARTS has four standards: The Standard Relational Data Model, UnifiedPOS, XML, and the Standard RFPs (in partnership with NRF). Membership is open to all members of the international technology community—retailers from all industry segments, application developers and hardware companies.
EMMM™ (The Exploration, Mining, Metals & minerals Forum)

- Established formally under the auspices of The Open Group in 2008
- Vision, Charter and product portfolio defined
- **Priority**: Business Reference model
- Iterative approach
- Participation from members and others
Exploration and Mining Reference Framework Vision

1. Business “Process” reference model
   - Defining the common definition of our business activities

2a. Business Capability reference map
   - Reference definition of the business capabilities in an exploration and mining enterprise

2b. Information map
   - Common definition of the Information existing

3. Application model
   - Common definition of the Application capability required by an Exploration and Mining enterprise

Defining standard reference models
Business Reference model

Objectives:

- Comprehensive Core Business Process Model
- Cross Industry
- Scale independent
- Mining Type and Method Independent
- Product Agnostic
- Cross all Implantation Phases
  - Green fields
  - Brown Fields
  - Operational
- Extensible
- Customisable

What is a Reference framework:
A reference model is an abstract framework for understanding significant existence and relationships among the entities of some environment. It enables the development of specific reference or concrete architectures using consistent standards or specifications supporting that environment. - OASIS
Exploration and Mining Business Process Reference Model

**Discover**
- Prospect/Explore
  - Identify Area of Interest
  - Acquire Prospecting Rights
  - Execute Sampling Process

**Assess Mineral Resource**
- Collect Engineering Design Information
  - Produce Structural Analysis
  - Produce Grade Analysis

**Engineering Design**
- Develop Business Plan
  - Consider Economic Options
  - Produce Costing Model
  - Examine Financial Alternatives
  - Complete Business Analysis

**Construct**
- Develop Operational Capability
  - Build Mineral Extraction Capability
  - Build Beneficiation Capability
  - Build Facilities
  - Deploy Utilities

**Commission**
- Confirm Acquisition Scope
  - Secure Rights

**Exploit**
- Break Rock
  - Create Access
  - Mine Ore Body
  - Extend Infrastructure

**Beneficiate**
- Handle Material
  - Classify Material
  - Blend Material
  - Store Material

**Sell**
- Engage Customer
  - Follow Up Leads
  - Manage Customer Relationship

**Rehabilitate**
- Initiate Rehabilitation
  - Prepare Rehabilitation Proposal
  - Obtain Approvals for Rehabilitation

**Operational/Mine Site**
- Manage Finances
- Manage Human Resources
- Manage Assets
- Manage Information Technology
- Manage Health, Safety, and Environment
- Manage Risk
- Manage Corporate Relations
- Manage Material

**Enterprise Support**
- Manage Logistics

**Strategic**
- Establish
  - Approve the Project
  - Finance the Project
  - Resource the Project

**Tactical**
- Plan
- Measure
- Control
- Report

**Operational**
- Plan
- Measure
- Control
- Report

**Green Fields**
- Brown Fields

**Beneficiate**
- The process focuses on the processing of ores for the purpose of:
  - Regulating the size of a desired product, removing unwanted constituents, and improving the quality, purity, or assay grade of a desired product.
  - Concentration or other preparation of ore for smelting by, for example, drying, flotation, or magnetic separation and improvement of the grade of ores by milling, flotation, smelting, gravity concentration, or other processes.

**Rehabilitate**
- This process focuses on returning the mining site to a desired improved state concurrently or after the primary mining and associated activities.

**Sell**
- This process focuses on dealing with customers in order to dispose of the product and attain revenue.

**Discover**
- The process by which an exploration target and/or a mineral resource is articulated and defined for acquisition purposes. This process includes:
  - Evaluation of grade and tonnages, pre-feasibility phases, examining the production options, and acquisition of the necessary rights.

**Establish**
- All the activities necessary to create a mining environment (the full infrastructure).
- At a strategic level:
  - Creating the mine, beneficiation plant, environment, supporting facilities & communities, planned financing. At a tactical level:
  - Ensuring mid-term continuity and viability of the mining operation. Typically funded by capital expenditure, e.g., sinking a new shaft, planning and building of extensions to an existing mine. At an operational level:
  - Creating of further access to the ore body with extension to an existing mine.

**Explain**
- For a given mine type, rock type, and mining method, this process includes the breaking and removal of rocks. Rock is a generic term to describe all types of mineral resource host material. It also includes the transport of the broken rock and waste from working place to plant and/or stockpile.

**Beneficiate**
- The process focuses on the processing of ores for the purpose of:
  - Regulating the size of a desired product, removing unwanted constituents, and improving the quality, purity, or assay grade of a desired product.
  - Concentration or other preparation of ore for smelting by, for example, drying, flotation, or magnetic separation and improvement of the grade of ores by milling, flotation, smelting, gravity concentration, or other processes.

**Rehabilitate**
- This process focuses on returning the mining site to a desired improved state concurrently or after the primary mining and associated activities.

**Sell**
- This process focuses on dealing with customers in order to dispose of the product and attain revenue. This process also includes marketing product.

**Discover**
- The process by which an exploration target and/or a mineral resource is articulated and defined for acquisition purposes. This process includes:
  - Evaluation of grade and tonnages, pre-feasibility phases, examining the production options, and acquisition of the necessary rights.
Deliverables from the vertical

The Exploration and Mining Business Reference Model

Getting started with the Exploration and Mining business reference model positions the reader in terms of the first reference model of the group existing within the exploration, mining, metals and minerals vertical.

Concepts and Principles

March 2010

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Technical standard status

The Exploration and Mining Business Reference Model

This document explains the concepts and definitions within the Exploration and Mining Business Reference Model – the first reference model delivered by The Open Group EMMM Forum.

This Standard consists of two deliverables:

- The business reference model diagram (available in Visio and PDF)
- The concepts and definitions document that define the concepts in the diagram.

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Type: Technical Standards (See more like this)

Standards Information Base entry:
- Common Name: EMMM RM
- Status: Adopted
- Service Category: Software Engineering Services
- Service: Architecture
- Type: The Open Group Technical Standard

Availability

FREE PDF
View/download

FREE PDF [PDF Graphic]
View/download

FREE ITEM [Visio Source File]
View/download

https://www2.opengroup.org/ogsys/catalog/C135
Recognition

GARTNER

Research Project: **Mine of the Future**

*An Architecture for an Integrated Mining Enterprise, 2020*

“This initiative (EMMM Reference Model) is the broadest cross-mining activity in progress today”

“The team must be complimented on creating this substantial piece of work and for making it available to the public domain through the auspices of the Open Group.”
EM Business Capability map – definitions
Defining the common language for business owners to scope & plan

01. Reconciling

The ability to identify, analyse and manage variance between planned and actual results in such a way that it highlights opportunities. These opportunities commonly include: methods to create better estimates; improved designs; tighter and more accurate plans and schedules; improved mining techniques to minimise ore loss and dilution; and identifying ways to increase metal recoveries during the extraction and refining processes. The ability to measure and analyse data in this way enables an operation to design and implement process improvements across the entire mining value chain and to allow more accurate planning, forecasting and valuing.

i. Ore and Waste Accounting

The ability to track the quantity and quality of all materials in the processing value chain, both ore and waste, from the mining block through the run-of-mine stockpile (including intermediates, development stocks, drilled stocks, etc) to the finished product, over a defined time period.

ii. Product Accounting

Product accounting capability is the measurement, and as necessary estimation, of product characteristics e.g. mass, entering a plant, the subsequent process streams, and the measurement of product leaving the plant and refinery over a defined time period. The desired capability is to account for all products and to be able to balance the sum of input products to the sums of output products by a reconciliation process. Of particular interest is the quantity of product ‘locked-up’ in the process.