Outline

- What is / Who are the EMMMV?
- How do Mining Software Suppliers operate?
- Changes in the Mining Industry over 30 years
- What are the expected Benefits?
- How will Benefits be measured?
- Concluding Remarks
What is the EMMMV?

- The Exploration, Mining, Metals and Mineral Vertical (EMMMV) is

- A collaboration between mineral industrial sectors and suppliers, under the auspices of The Open Group

- Why was it formed?
  - To realise sustainable business value through a common operating model to allow members to put their Business-IT investment into areas of differentiation vs. standard operating procedures and support vendors in the delivery of technical and business solutions to the industry.
Who are the EMMMV?

- The founder members of the (EMMMV) are

**Operators**
- AngloGold Ashanti
- Anglo Platinum
- Debswana
- Exxarco
- Lonmin
- Rio Tinto Mining and Exploration
- SASOL

**Suppliers**
- Datamine
- GijimaAst
- Real IRM
- SAP
How do Mining Software Suppliers Operate?
Successful implementations are the balanced combination of technology, people and process.

All aspects which are standard parts of what the EMMMV hopes to achieve.
Operational Process Analysis

Value Creation
Mining Software Suppliers area of focus.

Operations Support
Enterprise Resource Planning
ERP – The domain of Mincom, SAP and Oracle, etc.
Operational Process Analysis to Solution Footprint

**Open Pit**
- DHLite, DHLogger, SSLite, SampleStation, MineMapper 3D, Fusion Server, Fusion Client, Downhole Explorer, Terrain Laboratory Information Management System (LIMS)
- NPV Scheduler +GRE*
- Mine Flow Optimizer
- MultiMine Scheduler
- Operation Scheduler
- Mine2-4D Open Pit
- Production Scheduler
- OreController, Survey, Blast Design, ISTS Blend/Grade Optimizer
- Release 2006 * GRE = Geo-risk Enabled

**Underground**
- Studio, Block Modeling, Grade Estimation, Wireframing, Statistics, Stereonet, Geo-Sculpting Geostatistics, Variogram Analysis, Unfold, Conditional Simulation, etc.
- Mineable Res Opt +GRE*
- Ore Finder Stereonet
- Operation Scheduler
- Mine2-4D Underground Production Scheduler
- Survey, Blast Hole Ring Design
- Raw Materials Manager Blast Design, ISTS Blend/Quality Optimizer

**Ind. Minerals**
- MultiMine Scheduler
- Operation Scheduler
- Mine2-4D Open Pit Production Scheduler
- Raw Mat. Scheduler +GRE*
- MultiMine Scheduler

Other Mining Software suppliers have similar process / product matrices - often using different terminology
Most other software suppliers have similar processes – again often named differently
Datamine Strategy

- Datamine 3 Year Plan
  - Retain current business model, add Operational Improvement Practice

Most software suppliers have similar strategies – once again often named differently

MULTITUDE OF TERMS MAKES IT DIFFICULT FOR CLIENTS TO GRASP WHAT IS OFFERED
Changes in the Mining Industry
1978 – Africa

Where
- Head Office – South Africa
- Regional Offices - < 10 countries

What
- Gold; Diamonds; Platinum

Who
- < 10 Major Companies
- Experienced technical skills at all levels
- Average time with one company > 10 years
- Little reliance on external consultants

When
- Time between discovery & mine opening 10-15 years

How
- Lots of ‘feet on ground’ & NO PC’s !!!
2008 – Africa
- Where
  - Head Office – London; Melbourne, Toronto, Johannesburg etc.
  - Regional Offices > 30 countries
- What
  - Uranium; Copper; Nickel; Platinum then Gold; Diamonds;
- Who
  - > 200 Companies
  - Technical skills shortages at all levels
  - Average time with one company < 2 years
  - Universal reliance on external Consultants
- When
  - Time between discovery & mine opening 1 – 3 years
- How
  - More reliance on remote sensing & lots of PC’s !!!!
  - More reliance on support via email, cell phones, fly-in / fly out visits
2008 Typical Mining Company Operation

2008 Data flow is considerably more complex than it was in 1978
What has driven all this interest in Mining?

- **Commodity Prices – 2003 to 2008**

  - **Cu** 441% increase
  - **Sn** 375% increase
  - **Ni** 243% increase
  - **Pt** 243% increase

This is why there are over 200 companies active in the EMMMV arena.
What is driving the skills shortage?

- Employee Ages - Illustrative

![Graph showing employee ages in 1978 and 2008](chart)

This is why there is great reliance on Mining Consultants – many of whom are past traditional Retirement Age.
Other Key observations from EMMMV founders

- Industry restructuring with mergers & acquisitions & focus on core business
- Industry opening up – leadership coming from new places
e.g. Cynthia Carol; Tokyo Sexwale; Ferdie Dieppenaar
- Demand far exceeding supply – so makes collaboration easier
- Increased legislation, across many countries makes collaboration essential –
  (anyone tried to read the Sorbannes Oxley Act ?)
- Availability and pricing of energy becoming a constraint
- Mechanisation and automation becoming a reality – escalating the technological sophistication of the environment.
What are the expected benefits?
A common set of terms

Discover, Explore, Find, Uncover

What is the correct term for the first part of the Mining Pipeline?

Plan, Reconcile, Report

These sorts of terms can have many different interpretations
A common set of activity knowledge

<table>
<thead>
<tr>
<th>Activity</th>
<th>What</th>
<th>Who</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan Drillholes</td>
<td>Plan the location of the drillholes for the chosen time period.</td>
<td>Supervising Geologist</td>
<td>Planning Office</td>
</tr>
</tbody>
</table>

The choice of software is just one of 10 questions about each activity
Interacting with other EA practitioners
How will the benefits be measured?

- **Common Architecture Deliverables**
  
  Process posters appearing in Mining Companies & suppliers offices

- **Architecture deliverables being used**
  
  Project planning & execution undertaken using Architecture deliverables

- **More companies joining the EMMV**
  
  Current membership = 12

    2009 membership > 30 ??
Concluding Remarks

- **EMMMV is here to stay**
  Founder members are all keen to see EMMMV develop and become the key industry standard.

- **EMMMV founders have vast experience**
  > 250 years of mining experience

- **New business requires agility**
  EMMMV membership will enable companies to be more agile and able to better adapt to changing circumstances in the EMMM area.

  *So what are you waiting for - Join up NOW !!!!*

  **THANK YOU**