



Physical Asset Management Maturity In Mining

A Case Study

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VIBOT



Monitoring In Asset Management



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Introduction

An asset is an item, thing or entity that has potential or actual value to an organisation. – ISO 55000:2014

Asset Management is systematic and coordinated activities and practices through which an organisation optimally and sustainably manages its asset and asset systems, asset performance, risks and cost over their life cycle in order to achieve organisational goal. - PAS55

AM involves the balancing of costs, opportunities and risks against the desired performance of assets, to achieve the organisational objectives

Risk Management in the mining sector is generally executed for compliance purposes

RM is not approached as a strategic enabler to ensure organisations think and act proactively with respect to the asset portfolio, AM systems and AM



Problem Statement

A common problem facing organisations is to find a balance between these drivers



Why do Mining Organisations not attain the their desired level of AM maturity, which will in turn address business risk?

AM vs Maintenance Management

Asset Management	Maintenance Management
Focuses on Life of an asset	Short-term activities
Proactive	Reactive
Preventative	Corrective
Lead	React
Plan	Respond
Save Long Term	Spend as Needed
Increase Life Cycle	Band-Aid Repairs



AM Maturity

- Measure on how well the organisation is capable of optimising and sustaining performance, risk, investments and costs
- AM Maturity knowledge helps owners understand if they are getting value from their assets.

Three Key questions with regards to Maturity

Where You Are?

- Establish a baseline level that indicate how well assets are taken care of

Where You want to be?

- What are the plans for the future and what assets are required in order to support current and future needs?

How do You get there?

- How will organisation move from current level to desired level of AM Maturity?



AM Maturity Models

- It is a set of structured levels that describe how well different processes of an organisation are able to produce the required outcome in a reliable and sustainable way
- Institute of Asset Management (IAM) published the first AM model with 5 Levels



Do you have ?

A Business Process with the objective of **assessing the client's current asset management maturity** against best practices, as well as its asset performance against benchmarks. Recommendations are made about improvement actions to address the main gaps.

Credit to Pragma's AMIP process

Key AM Implementation Steps

- Understand the organisation AM drivers
- Build upon existing strengths and practices
- Provide Value Immediately
- Recognise that AM is a process
- Prioritise People, Tools and Information
- Invest Smartly – To get a *Bang for you Buck*
- Develop your human resources
- Provide top-down leadership and assign clear ownership for AM activities



AM Challenges and Associated Risk

- Securing senior management that support AM implementation
- Inability to gain full benefit of the implementation
- Disconnect between tactical and implementation groups
- Lack of management involvement and commitments
 - If asset owners don't know what assets they have
 - Over and Under maintaining of assets
 - Not operating assets properly
 - Sub-optimised asset management systems



The Case Study (A-Coal)

Physical Asset Management Maturity in Mining

Coal Processing Plant (eMalahleni),
Mpumalanga Province.

It was commissioned in 2009

The plant is designed to beneficiate 16 million
tons of ROM coal per annum (2400 tons/hour)



Research Methodology

A qualitative approach was chosen – direct and personal contact

Purpose: To establish the challenges inhibiting the achievement of the desired AM Maturity levels

Establishing the importance of stakeholder's involvement

Asses employee's attitude, culture, perceptions, AM understanding and associated benefits of properly executed AM



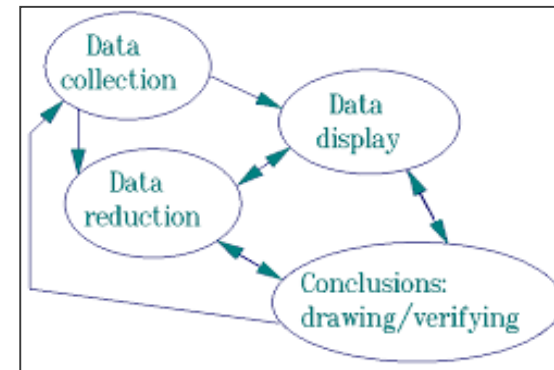
Data Source and Analysis

Documentary Evidence



Semi-Structured Interviews

Participant Observations



Content Analysis



Discussion

Data provided a holistic understanding of implemented systems, framework used for AM assessment results, AM Strategies, policies and Master Plan to achieve AM Maturity desired level

Company A (*Operate & Maintain*) was contracted by A-Coal owner to operate and maintain A-Coal's assets

Company B (*AM Service Provider*) was sub-contracted by Company A to manage their clients

Initial AM Maturity level was 2 in 2011, which was two years later after the plant was commissioned

Desired Target AM Maturity Level was set to level 3 to be achieved after 12 months

It took A-Coal over 3 years to achieve AM Maturity Level 3



Discussion Cont'

Semi-structured interviews were used to explore any problems and successes related to the implementation and execution of AM.

13 Interviews were conducted from: General Manager, Engineering manager, Engineers, Foreman, planners, artisans.

Predominant Themes

- Reactive Mode of operation
- Lack of Asset Management Understanding
- Stakeholder's Involvement
- People's training and development
- Organisational Culture, Skills retention and Transfer



Findings

Organisational Structure was a limiting factor to in improving maturity level. Company B should be reporting to Asset owners not to Company A (operate and maintain company)

Lack of alignment between organisational objectives and operational activities

Lack of management support from Company A in AM steering committee meetings

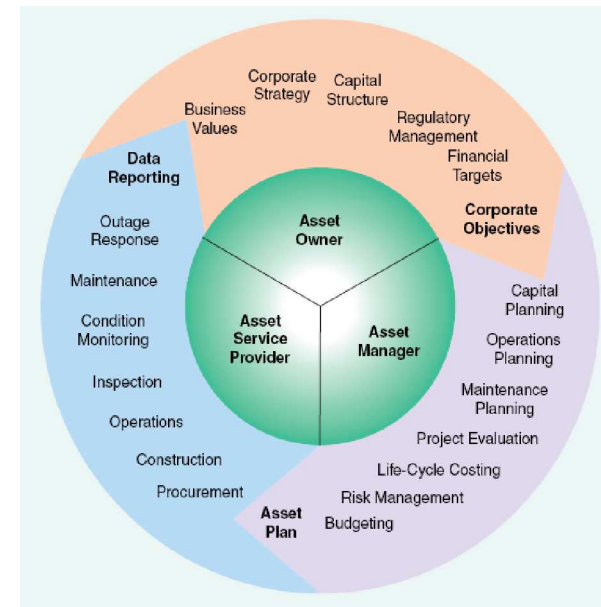
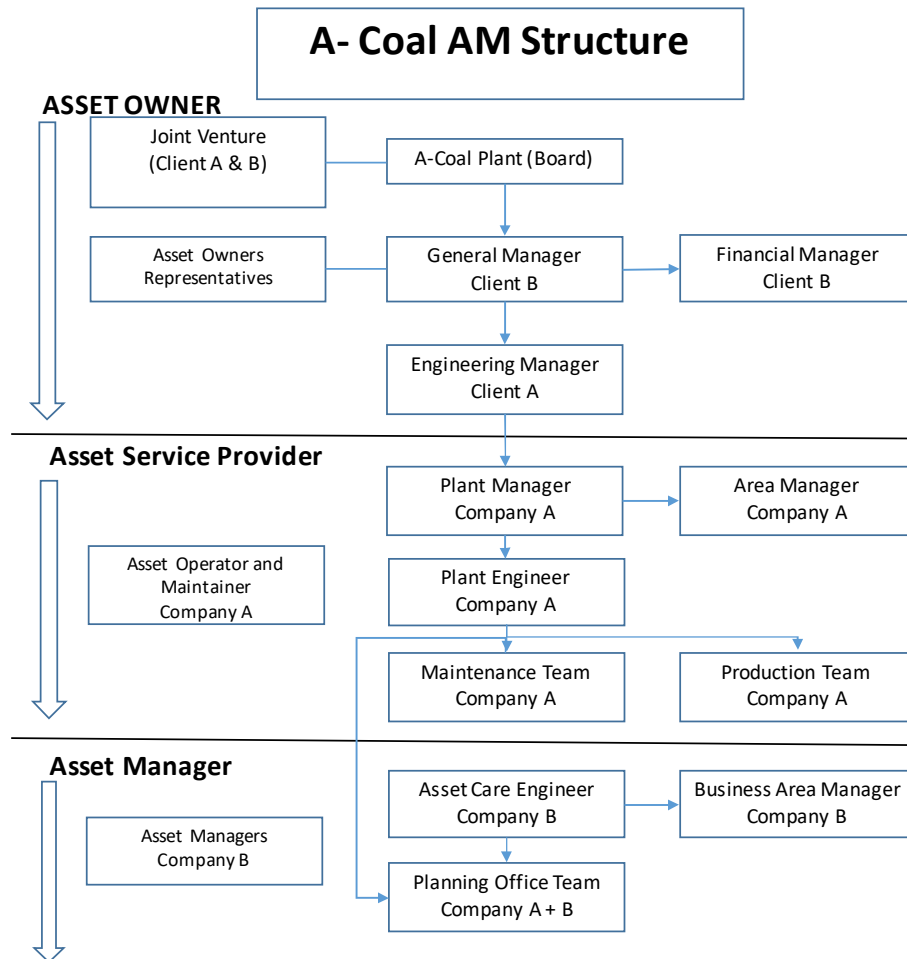
Limited knowledge and understanding of AM principles from management

Losing key role players – dependency syndrome due to lack of systems

Poor management support to drive AM capabilities. Only focused on technical skills improvement



Findings Cont'



Asset Management - A single process and many decisions
(Sourced from Brown and Humphrey, 2005)

Conclusion

Challenges initially experienced during the implementation phase influenced the execution of AM processes

Lack of strong AM leadership with AM knowledge, Organisational structure was not in favour for AM improvements

Insufficient AM training limits the benefits that can be realised from improvement initiatives of committed and motivated employees

To mature AM process costs time and money and AM benefits are not realised immediately. Senior management does not give it much priority

Indirect correlation between business risk and AM Maturity

Low AM Maturity Level – Reactive mode and High risk exposure



Limitations and Future Work

Multiple case studies in other organisations or sectors could lead to a wider spectrum of key challenges to be identified

Biasness due to Single Case study and a single point of view from the researcher conducting interviews, analysis, and formulating findings

Sample size of interviews was small, can be increased a much larger number on future studies



Thank You

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