The role of Asset Management in the Public Sector

Ernst Swanepoel
SAAMA Council Member
What is the purpose of Asset Management?

I don’t know. The computers are down.
TOPICS

• Accountability for Asset Management
• Physical asset management: Strategic Business Process Model
• Asset Management “Best Practices”
• Business and Asset Life Cycles
• Life Cycle Asset Management Costs
• Best Practices:
  – Asset Management
  – Maintenance Management
Accountability for Asset Management

- Who is accountable for the condition of the asset?
- What is our core service to our customers?
a) Accountability & PFMA

- **Treasury systems’ requirements**
  - “The effectiveness and appropriateness of systems and procedures used to manage state assets is vital”
  - “Great emphasis should be placed on ensuring better accounting practices and procedures, to ensure that state assets are managed and utilized in the most effective way to achieve the required results as defined for each entity within the Public Sector”
b) Accountability & PFMA

• Treasury’s systems requirements
  “Good asset management is critical in any business environment and more so in the public sector as they are vital to providing a foundation for economic activity”

• PFMA Section 38
  –places the responsibility on the accounting officer for financial and risk management of the entity as well as the effective and efficient use of the resources thereof. The section further specifically tasks the accounting officer with the management, including the safeguarding and maintenance of assets and the management of liabilities.
c) Accountability & PFMA

• Asset and work
  - enterprise-wide visibility and lifecycle management for your physical assets to decrease costs, increase asset availability and minimize downtime.

• Material and Procurement
  - Leverages your corporate buying power by centralizing purchasing for multiple locations and helps you manage and optimize spare parts inventory while minimizing carrying costs and providing inventory visibility across your entire organisation.
d) Accountability & PFMA

• **Safety and Compliance**
  
  – Helps you comply with all regulatory issues in your industry while reducing non compliance penalties and improving asset utilisation and uptime.

• **Design Engineering**
  
  – Utility engineers can create accurate plans for new construction, including necessary equipment and budgets in a fraction of the time.
e) OHS Act & PFMA

- Adhere to all applicable legislation
- Implement and maintain a compliance management system for each construction and maintenance project
- Compliance with the requirements of the OHSACT and its Regulations
  - Attract personal liability, penalty and criminal record
 Until July 2003

- Liability for health and safety vested with the asset owner, and ........

- Section 37 (2) agreement implemented to ensure that contractors accept joint responsibility
  - which is project managed
Asset Management “Best Practices”?

CUSTOMER EXPECTATIONS
- Level of Service
- Cost

LEGISLATIVE REQUIREMENTS
- Financial
- Environmental

CONSIDER ASSET SOLUTIONS
- Maintain/ renew/ upgrade/ dispose of existing assets
- Create new assets

CONSIDER NON-ASSET SOLUTIONS
- Failure Management
- Insurance
- Demand Management

IMPLEMENT ASSET MANAGEMENT SOLUTION

Strategic Planning
Tactical Planning
Operational Planning

Property Management “Best Practices”?

Current property user requirements are delivered?

Future Demand

Possible future property user requirements known

Current Gap

Property Gap

Future Gap

Demands on the future property base

Property Management strategies to close the Gaps

Cradle of Safety Certified Physical Asset Configuration Management
Business and Asset Life Cycles

a. Project Life Cycle

- Concept
- Feasibility
- Development
- Planning
- Implementation
- Handover
- Maintain

SCM Cycle

Business Mission
Organisational Strategy
Divisional Objectives
Project Portfolios
Executable Programmes
Projects

Business Life Cycle
b) SCM CYCLE (Generic)

Legend:
- AMU = Asset Management Unit
- PMO (Organisational Programme Management Office)
- PPSG = Policies, Procedures, Standards & Guidelines
c) Maintenance Cycle (Generic)
c) Maintenance Cycle (Generic)

Condition

Routine work only

Routine work only

Maintain

Routine work only

Routine work only

Maintain & Crisis Repair

Rehabilitate

(“partial” upgrade)

Rehabilitate

(“Major” upgrade)

Rehabilitate

Crisis Management

Condition

SP SLA Critical Threshold

100%

EOL

EOL

EOL

EOL

EOL

EOL

EOL

EOL

EOL

EOL

EOL

Cost effort – Time Frame
Full Life Cycle Asset Management ISO 5500+

1. General Requirements
   - (ISO 5500x)
   - Master Integrated Asset Management Programme

2. Asset Management Policy (PPSG)
   - Asset Investment Policy
   - Maintenance Management Policy
   - Programme Prioritisation Policy

3. Asset Management Strategy
   - Master (Investment) Plans
     - Technology Plans
     - Asset types and Life Cycles
     - Programme Management PPSG
   - Maintenance (Strategic & Operational)
     - Routine Maintenance
     - Fault Management
     - Replacement Management
   - Programme Upgrade Cycles

4. Asset Management Enablers and Project Performance
   - Project Governance and Structures
   - Configuration and documentation
   - Management of Change
   - Training, awareness & competence
   - Contingencies
   - Management Production Systems
     - Integrated Asset Management
     - GIS and Spatial
     - Drawing Offices
   - Information Management
   - Risk and Legal

5. Asset Management Plans (Implementation)
   - Life Cycle Planning
   - Maintenance Policy
   - Tools, Facilities & Equipment
   - PMO and Project Support

6. Performance Assessment and improvement
   - Condition Monitoring (ON LINE)
   - RCM (Reliability Centered)
   - Audits (DYNAMIC)
   - Compliance Evaluations
   - Differentiation
   - New technologies (Impacts)
   - PMO streamlining (Technology)

7. Management Review
   - Organisational Alignment
   - Business Plan Impact & Updates
   - Values, Policies, etc.

- ISO 9000 Compliant
- IIMM supported
- BCI compliant
- RSR Compliant
EAM: Best Practices Model

Enterprise Asset Management (EAM)

Continuous Improvement

Total Productive Maintenance

Financial Optimisation

Operations Involvement

Reliability Engineering

Predictive Maintenance

Asset Condition Management

Configuration Management

Stores and Procurement

Work Flow & Documentation System

CMMS (Computerised Maintenance Management System)

Technical and Interpersonal Training

PREVENTATIVE MAINTENANCE

Asset Optimisation Achieved

Our Challenge
Life Cycle Asset Management Costs

Revenue Generators

**Project Life Cycle**

- Asset Design
- Asset Creation
- Asset Configuration

**Product Life Cycle**

Warrantee Period
- Routine Maintenance
- Preventive Maintenance
- Front Line Maintenance
- First Line Maintenance

Post Warrantee
- Routine Maintenance
- Preventive Maintenance
- Front Line Maintenance
- First Line Maintenance
- 2nd Line Maintenance
- Repairs & Refurbishment

**Profitable Facilities Management**

**High Cost Facilities Management**
Life Cycle Asset Management Costs

**Life Cycle Cost Schematic**

- Asset Design Life
- Investment Capital Cost
- Operating Costs
- Scrap Costs
- Labour rates
- Disposal Process Costs
- Throughput (e.g. commercial)
- Composite Yield (Maintenance)
- Availability
- MTTR
- MTBF

**Asset Management Costs**

- TOTAL CAPITAL COSTS
- Project Life Cycle
- Product Life Cycle
- Facilities Management
- "Death Trap"
- Investments
- Operations

**Calculations**

- \[ \sum \text{"Calculator"} \]
Life Cycle Asset Management Costs

The COST Model

Funds

Equipment & Material
  - Reliability
  - Maintainability

People
  - Skills
  - Benefits

Facilities & Information
  - Spare parts cost/failure
  - Repair time
  - Wages

No of failures/annum

Deterioration

Unavailability & Environmental Safety & Quality Effects, etc.

Crisis Management

Capital Costs

Resource Costs
  - Training Costs
  - Maintenance Services, Tools & Depots, Energy Costs
  - Costs of Systems & Documentation

Job Costs

Consequence Costs
  - Costs of Lost Production, Safety & Quality effects
  - Extra Capacity Costs, Refurbishment & Upgrade
  - Lost Opportunity Costs
Optimum Life Cycle Investment Costs

Total Cost of Ownership (TCO) (100%)

- Acquisition (Project Costs)
- Operating & Maintenance
- Latest Start of Replacement Acquisition

Asset to be replaced

Years

Real Time

%
Cost Overrun

Total Cost of Ownership (accumulative) (TCO)

- Dramatic Increase in Total Costs
- Substantial REDUCTION of total Asset Life
- ORG forced into new acquisitions prematurely
- Major IMPACT on MTEF
The maintenance system

Do Safety Awareness Field Education (SAFE)

Maintain Organisation Structure → Develop People

Develop Business Plan → Develop Production Plan

Plan Infrastructure → Maintain Infrastructure

Determine Equipment Importance → Develop Maintenance Strategy → Develop Medium-term Plan → Activate Maintenance Work

Provide Resources → Do Maintenance Work

Measure Work & Improve → Produce

Work management cycle

Infrastructure management cycle

Asset management cycle

Organisation management cycle

Safety management cycle

The desired asset management strategy

EAS-14/03-26
Crisis Management will get us stuck here …

**Work management cycle**

1. Determine Equipment Importance
2. Develop Maintenance Strategy
3. Develop Medium-term Plan
4. Activate Maintenance Work
5. Do Maintenance Work
6. Provide Resources
7. Measure Work & Improve
8. Produce

**Asset management cycle**

1. Improvement Administration
2. Measure Performance & Improve

(Manual measurements)
Maintenance Focus: AMU

Maintenance VISION

- Value for money
- Maximum utilisation of resources
- Leadership and involvement
- Communication
- Training

Vision
Maintenance Focus: AMU

Maintenance Governance
Asset Management (Evolution)

Circumstantial Management:
- “Wait until Disaster Strikes, then go out and fix it”
- “Fix-it” Mentality

Asset Condition based Management:
- “Working harder, distribute maintenance teams, fix it in a workshop”
- “Working smarter, prevent the asset to fail”

Planned & Predictable:
- “Can you plan a disaster?” (Fix it while it breaks!!)
Asset Management (Evolution)

PAS 55 – ISO 5500+
ISO (9000+14000)

Planned & Predictable

SUSTAINABLE GROWTH

Asset Condition Management

Maintenance Integration

Continuous Improvement

Availability

Life Cycle Profit

Asset Condition based Management

Circumstantial Management

Current Predicament

“Fire Fighting Maintenance”

Preventive Maintenance

Ad hoc Maintenance

Apply Systems

“Fix-it” Mentality

This is where we come from

Business Approach

TURN-AROUND THRUST

Planned & Predictable

Asset Condition Monitoring
CONCLUSION

• The management of physical assets is the cornerstone of our Economy
• Asset Management Practitioners should take the lead in the management of assets towards maturity.
• Programme and Project Management are the most critical focus areas for the restructuring of our assets and the creation of jobs for the years to come.
Context of Asset Management

- Data management
- Condition monitoring
- Risk management
- Quality management
- Environmental management
- Systems and software engineering
- Life cycle costing
- Dependability (Reliability, Availability, Maintainability, Supportability)
- Configuration management
- Sustainable development
- Inspection
- Non-destructive testing
- Pressure equipment
- Financial management
- Value management
- Shock and vibration
- Acoustics
- Qualification and assessment of personnel
- Project management
- Property and property management
- Facilities management
- Equipment management
- Commissioning process
- Energy management

ISO 55000