Service Delivery and Asset Management for South African Utilities

Heinz Fischer
Overview – Service Delivery & Asset Mgmt

• Introduction to Vetasi
• Maintain Current Asset Register
• Unify Processes for Asset, Work and Supply Chain Management
• Integrate data sources
  • Asset Register
  • Service Desk
  • Work In Progress
  • Spatial/GIS
  • SCADA
  • Financial
• Planned & Unplanned Work Management
• Mobile Work Management
• HS&E Management
Vetasi In Asset Management

• Physical Asset Management
  • Information Systems
  • Full compliment of AM Services

• Facilities Asset Management
  • Information Systems

• IT Asset Management
  • Information Systems
  • ITIL Standard Processes

Production Equipment

Facilities

Transportation Assets

IT Hardware and Software
Vetasi: International Expertise Local Delivery

- 100+ Asset Management Experts
- Integrated Support Desk
- Share Best Practices

- Pool Industry knowledge and experience
- Share Training Programs
In Africa

- Since 2009
- BBBEE level 2 contributor
- Full Asset Management service Provider
- South Africa, SADC Member States, Cameroon, Nigeria, Uganda, Kenya, Ethiopia, etc.
Some Vetasi Customers
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- Planned Vs Unplanned Maintenance
- Mobile Work Management
Process Impact on Asset Register

IIMM
GRAP 17
GAAP
PAS 55
ISO 55000
Asset Depreciation Schedules
Master Data: Standardize approach

- International Standards
- Organisation Specific Standards
- Item Master Catalogue

Standard Asset Catalogue

System Generated Description: ITEM: ABC001
Transformer, Major Power: Mfr ABB, Model: 1100Z2, PV 11000 V, SV 380 V, 20 MVA.
Asset Dictionary

Classification + Attributes, Values, Unit of Measure = Asset Dictionary

Specifying Values:
Attributes:
- Cost
- Length
- Output
- Input
- Make
- Manufacturer

Unit of Measure:
- Power - Kw
- Meters - M
- Litres - L
- Voltage - V
- Ampere - A

Specification:
1) Class: Transformer
2) Subclass: Power
3) Make:
4) Model:
5) Primary Voltage: kV
6) Secondary Voltage: kV
7) Capacity: MVA
   - Current Primary: A
   - Current Secondary: A
   - Cooling: air/oil
ITEM: ABC001

Specification:
1) Class: Transformer
2) Subclass: Power
3) Make: ABB
4) Model: 1100Z2
5) Primary Voltage: 11000V
6) Secondary Voltage: 380V
7) Capacity: 20MVA
Current Primary: 100 A
Current Secondary: 3000 A
Cooling: oil

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Optimizing the Repair Loop

Optimization involves a robust IT system that breaks operational silos and fosters open communication.

SERVICEABLE
- The supply pattern for rotables needs efficient “transit time” for the CORE unit to move through the loop, and also the pricing, reliability and safety parameters need to be monitored for cost savings and regulatory compliance.

CORE UNIT
- Inventory may sit in Operators hangar or warehouse for longer than necessary.
- The longer a CORE unit takes to get through the loop, the more money will be tied up in inventory that we need to hold to meet demand patterns.
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Service Desk

Incidents

- E-mail

Automated Alerts

- Web Service Request

Incidents & Service Requests

- Call Agent
Service Management Process

Customer Call → Create Service Request → Classify Request

Work Planning → Create Work Order
Location Identification

Search Map
Visual Asset Management & Spatial/GIS Capability
1. Financial Reporting Structure

- Water Supply
  - Treatment Works
    - Civil
    - Mechanical
    - Electrical
    - Inlet System
  - Pump Station

2. Location Structure Engineering

- Water Supply
  - Treatment Works North
    - Inlet System
    - Treatment System
  - Pump Station

- Feed Pump System
  - Feed Pump 1
    - Pump Assembly 1000
      - # 1000MTR Motor, Electric, AEG, 380V, 200kW, Frame 1234
      - # 1000PMP Pump, Centrifugal, Sulzer, model, 30BZ, 5 stage, 30 bar, 20 cubm

3. Asset Assembly

- GIS
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Planning to Execution of Work

**Functions:**
- Job Plans
- Resource selection
  - Material
  - Labour
  - Tool
  - Services
- Planning Tools
- Dispatching Tools
- Mobility Tools

CAPEX, Preventive Maintenance, Service Requests, Incidents

Work Planning

Material, Resource Planning

Approve Work

Dispatching

Assignment

Crew Scheduling

Field Force Management
Scheduling: Resource Load & Availability
Roles in Managing Work

**Scheduler/Planner**
- Defines and adjusts labor/crew availability along with resource leveling
- Capacity Planning
- Assigns work orders to resources
- Continuously optimizes the schedule as the operational environment changes
- Sequence and route work assignments based on geography

**Dispatcher**
- Monitor field resources and work order progress and status
- Monitor the location of field resources compared to open orders
- Enter status and complete work orders on behalf of technicians who don’t have mobile devices
- Sequence and route ongoing work assignments based on geography and optimization

**Field Technician**
- Supervisor approves and assigns work on mobile devices
- Receive work orders in the field and provide real time status updates to dispatch
- Complete, edit and approve work orders on mobile devices along with viewing work on a map with optimal driving directions
- Notify dispatch of potentially dangerous situations, incomplete work
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Work Management Focus Areas

Capacity Planning
- Forecast Work
- Identify Resource Gaps

Resource Availability:
- Assets
- Location
- Material
- Tools
- Labor/Crews

Resource Leveling

Resource Optimization
- Graphical UI
- Labor and Crews

Assignment
- Graphical UI
- Public Map Control
- Route Optimization
- Labor and Crews

Dispatching
- Assign Emergency Work
- Communication To Field Technicians

Real-time Communication

Schedule Compliance
Simplification of Work applying Mobility

- Benefits
  - Elimination of paper
  - Data captured at the "point of performance"
  - Work steps reduced from 11 to 4
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HS&E Management Add-on
# Benefits – Business Operating Efficiencies

<table>
<thead>
<tr>
<th>Benefits Summary</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
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<tbody>
<tr>
<td>Total Benefits</td>
<td>R 17,052,981</td>
<td>R 21,320,257</td>
<td>R 22,421,639</td>
<td>R 60,794,877</td>
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<td><strong>Business Operating Efficiency</strong></td>
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<tr>
<td>Reduce MRO Inventory Costs</td>
<td>R 4,272,000</td>
<td>R 4,485,599</td>
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<td>Avoid Maintenance Staff Labor Costs</td>
<td>R 3,388,177</td>
<td>R 4,686,975</td>
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<td>Avoid Enterprise Asset Ops and Admin Staff Labor Costs</td>
<td>R 2,673,003</td>
<td>R 3,697,654</td>
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<td>Avoid Asset Replacement Costs</td>
<td>R 2,612,000</td>
<td>R 2,742,605</td>
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<td>Reduce Compliance Labor, Management, and Penalty Costs</td>
<td>R 1,785,318</td>
<td>R 2,496,471</td>
<td>R 2,658,742</td>
<td>R 6,940,531</td>
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<td>Reduce Dispatch Costs - Fixed and Variable</td>
<td>R 481,212</td>
<td>R 665,677</td>
<td>R 698,964</td>
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<td>Avoid Maintenance Supervisor Staff Labor Cost</td>
<td>R 453,848</td>
<td>R 627,825</td>
<td>R 659,217</td>
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<td>Reduce MRO Inventory - Carrying Costs</td>
<td>R 416,518</td>
<td>R 576,185</td>
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<td>Improve MRO Strategic Sourcing Strategies</td>
<td>R 405,001</td>
<td>R 560,253</td>
<td>R 588,266</td>
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<td>Reduce MRO Inventory Shrinkage</td>
<td>R 256,318</td>
<td>R 354,570</td>
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<td>Improve Warranty Recovery</td>
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<td>R 331,999</td>
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<td>Reduce Setup and Reconfiguration Costs</td>
<td>R 51,382</td>
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<td>Avoid Maintenance Overtime Costs</td>
<td>R 10,849</td>
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<td>Optimize MRO Inventory - Carrying Costs</td>
<td>R 5,856</td>
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<td>Reduce Dispatch Labor Costs</td>
<td>R 826</td>
<td>R 870</td>
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Heinz Fischer
Asset, Work & Supply Chain Management Consulting
Since 1998

Office: +27 12 348 4617
Mobile: +27 83 652 2723
Email: heinz.fischer@vetasi.com