

The Asset Institute

Joe Mathew
Chief Executive

Who are we?

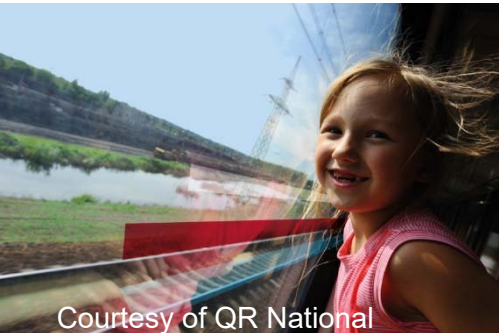
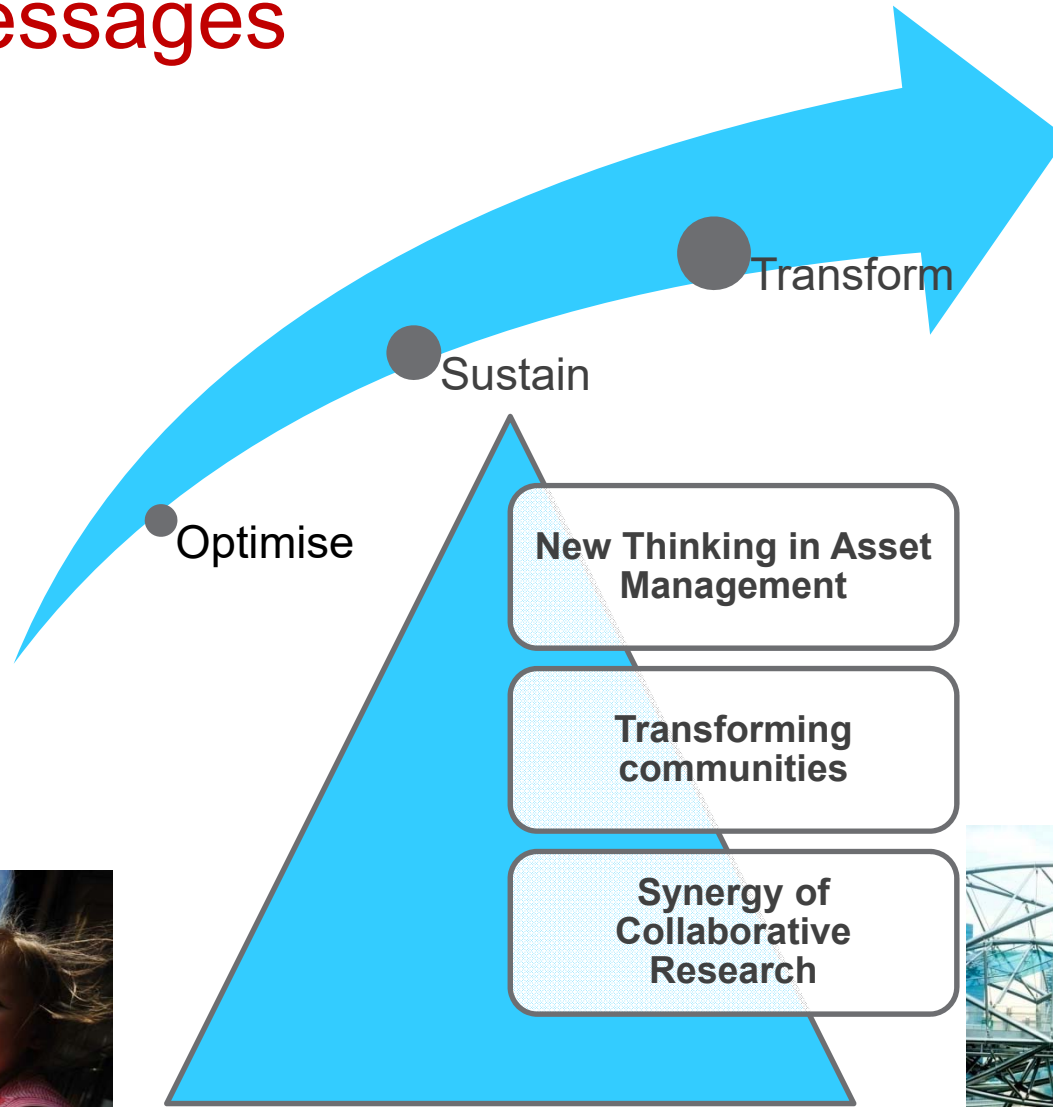


Vision

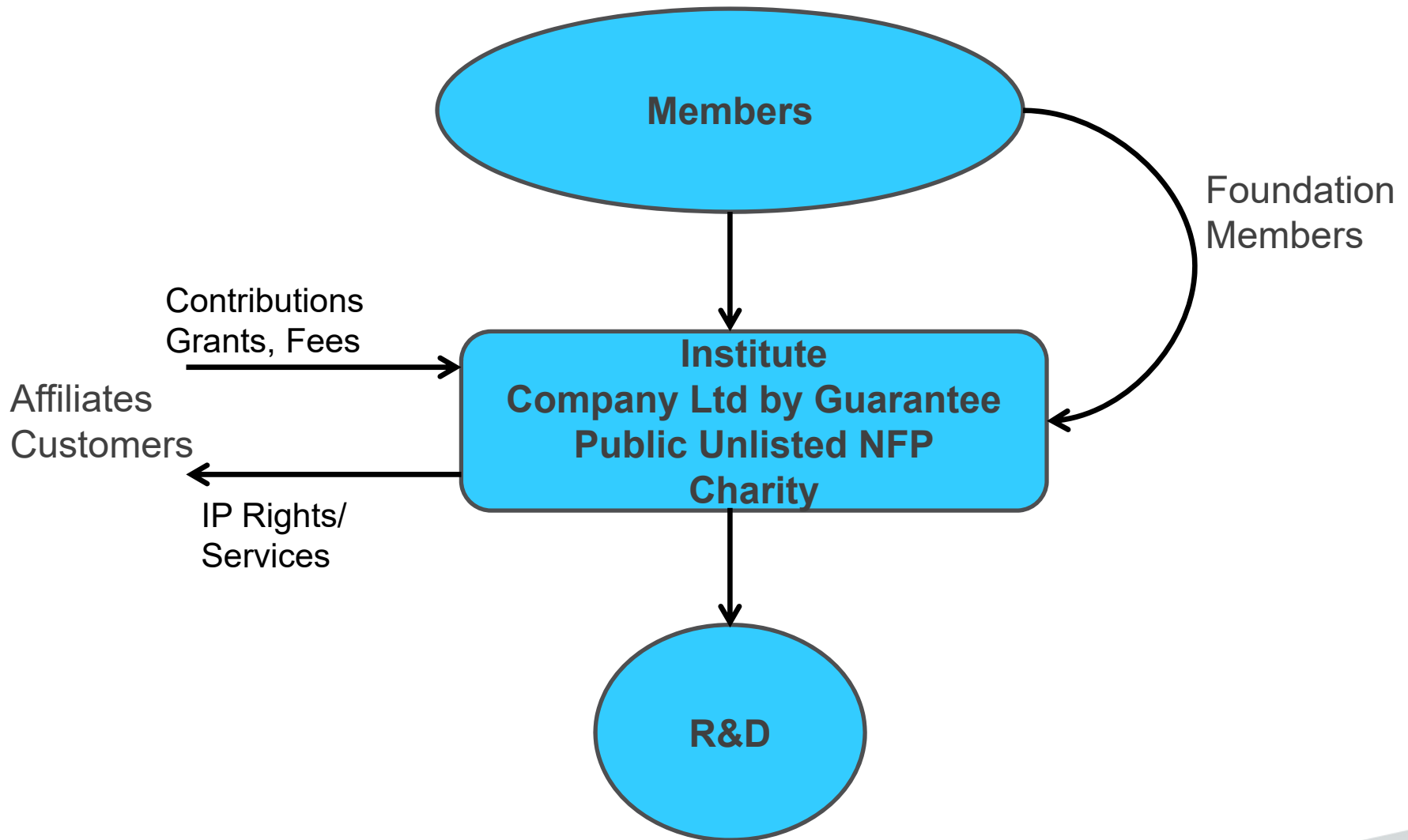
The Asset Institute will be a
leading International
Research Institute providing
transformational
Infrastructure and
Engineering Asset
Management solutions



Key Messages



Institute Model



Corporate Attributes



Research Themes

Design & Construction

Organisation & Planning

Integration & Interoperability

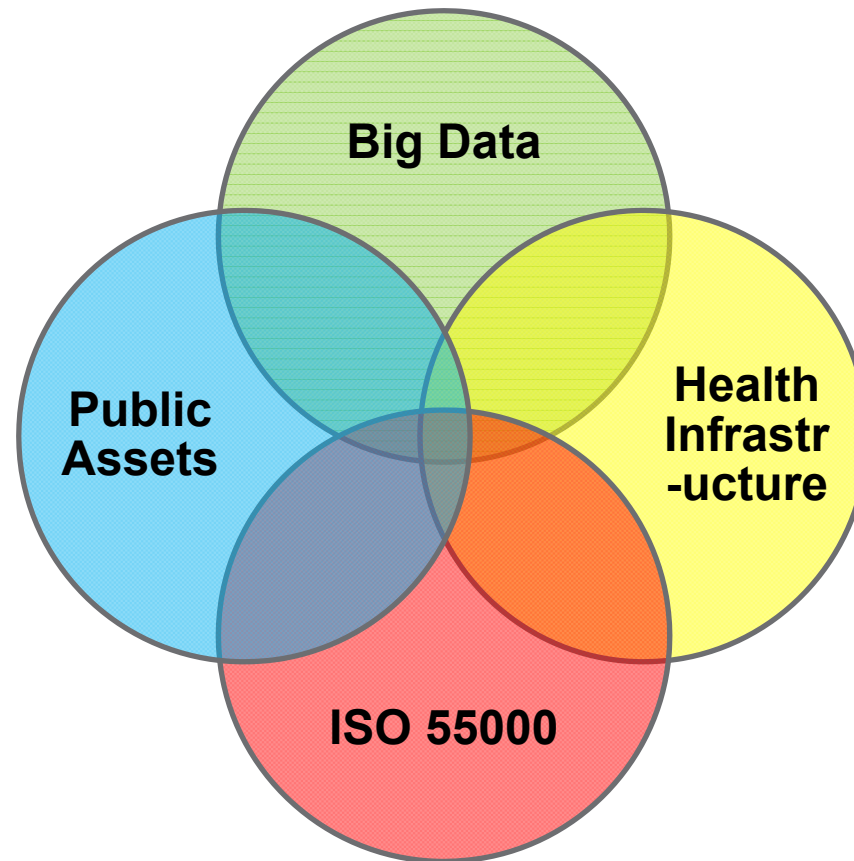
Asset Health and Analytics

Recovery & Continuity

Sustainability & Resilience

Learning & Development

AI Special Interest Groups



Value Proposition for Industry Members

Enables resources to focus on issues directly affecting competitive success. These resources would now be augmented by those resources that may be diverted from asset related development programs that can now be more readily conducted by the AI.

In turn, execution of projects by the AI will target reduced cost, time to market and risk compared with alternatives because of the depth of its resources and its interdisciplinary collaborative structure.

Reduced cost may also result from innovative development projects where outcomes may be uncertain and may attract the support of government-R&D funding.

Value Proposition for Research Members

Enables research organisations to focus on those R&D projects that are critical to the success of commercial organisations thereby attracting the support and funding necessary for this work.

This assists R&D organisations to filter projects that will attract serious funding from those projects that are less likely to do so.

DELIVERING OPERATIONAL EFFECTIVENESS IN ASSET INTENSIVE INDUSTRIES THROUGH ASSET INTELLIGENCE

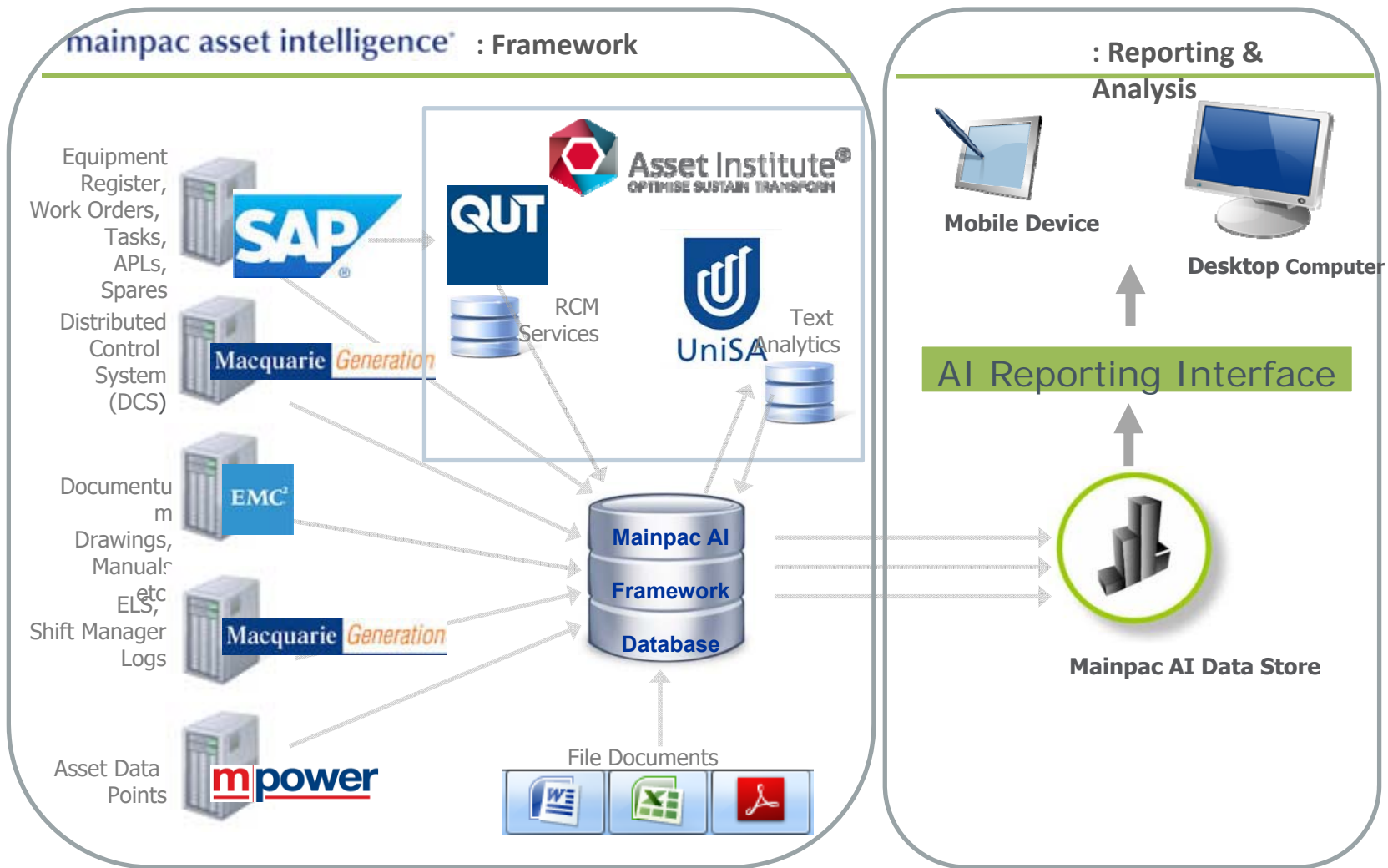


OPTIMISED PRODUCTIVITY, SERVICE QUALITY, COST AND RISK OUTCOMES



ASSET INTELLIGENCE IN POWER GENERATION

Technology Architecture



Product Modules

Asset Portfolio Management

Understand portfolio performance, risk and cost against objectives.
Drill down from asset portfolio to asset systems, classes and asset components.
Compare performance across sites/assets.

Capital Planning & Budgeting

Model investment scenario's to optimise long term asset performance, cost and risk.
Develop CAPEX and OPEX budgets.
Forecast revenue generated by assets
Determine right time to upgrade, renew and decommission assets.

Reliability Engineering

Analyse failure rates for an asset class.
Apply algorithms to determine optimal maintenance strategy and frequency at an asset level.
Integrate with EAM/ERP to automatically update PM's and condition thresholds.

Operations & Maintenance Planning

Integrated operations and maintenance planning to align demand, maintenance requirements and resource constraints.
Forecast production based on contract quantities.

Information Gateway

Respond to operational events using near real-time data from disparate information sources.

Information Gateway Navigator

Adjustable Date Range

The screenshot displays the Information Gateway Navigator interface. At the top, there is a navigation bar with tabs for Information Gateway, Equipment Register, Operator Logs, DCS Tags, Drawings, Application Parts, POR, Work Orders, Availability, Lubrication Schedule, and Timeline. Below this, the main content area is divided into several sections:

- Information Gateway:** A search bar and a date range selector showing 'From 23/03/2009' and 'To 21/01/2013'.
- Plant Unit No:** A dropdown menu showing 'WW7' and 'WW8'.
- Equipment Hierarchy:** A tree view showing various equipment items under the '7 BOILER' category, including '7 BOILER AIR & GAS CONTROL', '7 BOILER ASH COOLER', '7 BOILER CIRCULATION SYSTEM', '7 BOILER DRUM', and '7 BOILER ECONOMISER'.
- Plant Record:** A summary of plant items, including 'Plant Equipment Records: 2', 'Operator Logs: 0', 'DCS Tags: 0', 'Drawings: 0', 'Application Parts List: 1 with 28 items', 'Plant Outage Reports: 0', 'Open Work Orders: 4', 'Availability Events: 21', and 'Lubrication Schedules: 60'.
- Mill Feeder:** A section with an 'Open Image' button and a photograph of a mill feeder.
- Graphical Plant Representation:** A detailed schematic diagram of the plant layout, showing various components like 'FURNACE', 'ECONOMISER', 'Mill A-F', 'FDR A-F', 'Prim. Air Heater A/B', 'Second Air Heater A/B', 'Forced Draft Fan A/B', and 'Induced Draft Fan A/B'.

Selectable Asset Hierarchy

Graphical Plant Representation

DCS Sensor Data

Information Gateway | Equipment Register | Operator Logs | **DCS Tags** | Drawings | Application Parts | POR | Work Orders | Availability | Lubrication Schedule | Timeline

DCS Tags

Search

Plant Unit No
 WW7 | WW8

Plant Record
 7 BOILER/7 FORCED DRAFT FANS/7B FORCED DRAFT FAN

From 23/03/2009 To 2013 21/01/2013

- Equipment Hierarchy
- 7 BOILER
 - 7 BOILER AIR & GAS CONTROL
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH COOLER
 - 7 BOILER ASH HOPPER
 - 7A BOILER ASH HOPPER
 - 7B BOILER ASH HOPPER
 - 7 BOILER CHEMICAL INJECTION - HYDRA
 - 7 BOILER CIRCULATION SYSTEM
 - 7 BOILER CIRCULATION SYSTEM
 - 7A BOILER CIRCULATION PUMP
 - 7B BOILER CIRCULATION PUMP
 - 7C BOILER CIRCULATION PUMP
 - 7D BOILER CIRCULATION PUMP

- Tag Name
- | | |
|---------|---------|
| A11T010 | A11T020 |
| A12Q010 | A12T020 |
| A12T030 | A16T010 |
| A16T020 | A16Y019 |
| A17Q010 | A17T020 |
| A17T030 | |



Tag Readings (4885)

| Timestamp | A16T010 | A16T020 | A16Y019 | A17T020 | A17T030 |
|-----------------------|---------|---------|---------|---------|---------|
| 1/01/2012 12:00:00 AM | 17.00 | 16.00 | 0 | 20.56 | 19.30 |
| 1/01/2012 9:00:00 AM | 13.00 | 13.67 | 0 | 16.00 | 15.00 |
| 1/01/2012 6:00:00 PM | 18.00 | 16.00 | 0 | 19.25 | 19.00 |
| 2/01/2012 3:00:00 AM | 17.07 | 16.00 | 0 | 18.00 | 18.00 |
| 2/01/2012 12:00:00 PM | 15.83 | 15.06 | 0 | 16.06 | 16.33 |
| 2/01/2012 9:00:00 PM | 20.00 | 18.95 | 0 | 21.00 | 21.00 |
| 3/01/2012 6:00:00 AM | 17.35 | 17.00 | 0 | 18.00 | 17.00 |
| 3/01/2012 3:00:00 PM | 19.56 | 18.79 | 0 | 20.79 | 20.00 |
| 4/01/2012 12:00:00 AM | 22.00 | 21.00 | 0 | 22.28 | 22.00 |
| 4/01/2012 9:00:00 AM | 18.65 | 19.00 | 0 | 19.00 | 19.00 |

Work Order Profile and Root Cause

Information Gateway | Equipment Register | Operator Logs | DCS Tags | Drawings | Application Parts | POR | Work Orders | Availability | Lubrication Schedule | Timeline

Work Orders

Plant Unit No: WW7 | WW8

Equipment Hierarchy: 7 BOILER > 7 BOILER AIR & GAS CONTROL > 7 BOILER ASH COOLER

Plant Record: 46 Plant Items

From: 23/03/2009 | To: 21/01/2013

Work Order Timeline | **Work Order Profile** | Overdue Work Orders | Mean Time Between Work Orders | Maintenance Mix

Work Order Profile

| Category | Workplace Inspection | Safety | Incident Report Actions | Barricade Register | Actions from OHS Meetings |
|-----------------|----------------------|--------|-------------------------|--------------------|---------------------------|
| Preventative | 0 | 280 | 0 | 0 | 0 |
| Non-Maintenance | 120 | 0 | 20 | 0 | 0 |
| Defect | 0 | 80 | 10 | 0 | 0 |
| Modification | 0 | 5 | 0 | 0 | 0 |
| Condition Moni | 0 | 0 | 0 | 0 | 0 |
| Operational Ins | 0 | 0 | 0 | 0 | 0 |

Work Orders (524 with 13 open)

| Work Order | Plant No | WO Description | Raised Date |
|------------|-----------|---------------------------------------|-------------|
| 40069471 | WW7PFS | P.F Pipe Walkdown Leak Insp | 29/03/2009 |
| 40069472 | WW8PFS | P.F Pipe Walkdown Leak Insp | 29/03/2009 |
| 40069670 | WW7PFS | P.F Pipe Walkdown Leak Insp | 5/04/2009 |
| 40069671 | WW8PFS | P.F Pipe Walkdown Leak Insp | 5/04/2009 |
| 40069798 | WW8BLRDFB | .Lock out cable in dangerous position | 10/04/2009 |
| 40069863 | WW7PFS | P.F Pipe Walkdown Leak Insp | 12/04/2009 |
| 40069864 | WW8PFS | P.F Pipe Walkdown Leak Insp | 12/04/2009 |

Extended Text

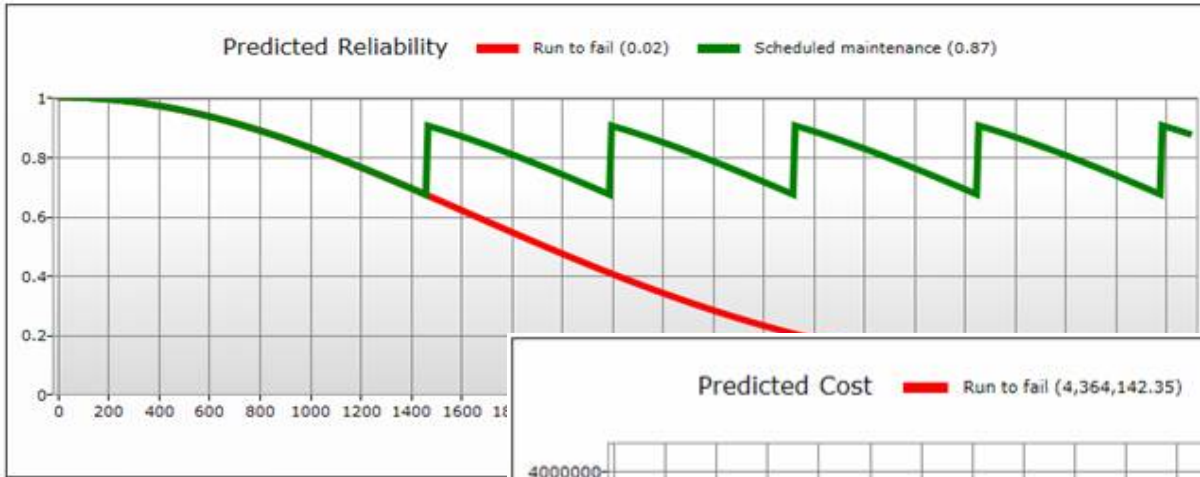
| Work Order | Extended Text |
|------------|-----------------------------------|
| 40069471 | Unit 7 weekly P.F Pipe Inspection |
| 40069472 | Unit 8 weekly P.F Pipe Inspection |
| 40069670 | Unit 7 weekly P.F Pipe Inspection |

Completion Text

| Work Order | Completion Text |
|------------|---|
| 40070199 | PF walkdown complete no leaks detected |
| 40070200 | PF walkdown completed no leaks detected |

mainpac asset intelligence

Reliability Modelling



**Predicted reliability
(time based) of
chosen maintenance
method**



Start date: 15/04/2013 | 15

Mission duration (days): 4500

Earliest PM (days): 0

PM interval (days): 730

Precision: 0.5

View Type: Cost

Update

**Predicted
maintenance costs
over a long term**

Capital Planning & Budgeting

Reloaded: 08/07/2015 21:24

Search

Operational View

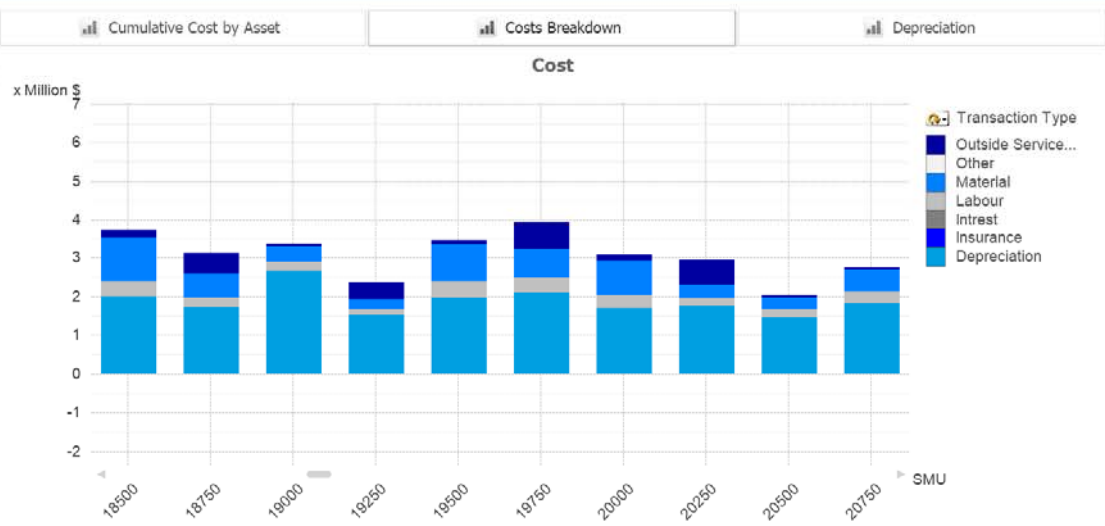
- ARGYLE - NON REIMBURSABLE
- ARGYLE UNDERGROUND
- CLASCO Course Ore S-pile
- CONSTRUCTION PLANT WA
- FINLUCANE ISLAND: RGP-5
- G.Fisher Lab Hire & Devel
- GAP50 Excavation Phase
- GLNG
- GNH Port Hedland D&C
- Hope Downs 4 Rail
- Inpex MHDV
- Karara Rail & Earthworks
- NMM - IDLE PLANT
- NT WORKSHOP
- Q MURCDAM BLOCK

Model No

- 7NQ
- 30T
- 40T
- 630E
- 730 ARTICULATED
- 730 ARTICULATED 30T
- 730E
- 735 ARTICULATED

Operational Asset Status

- Active
- Inactive
- Reference
- Retired
- Suspended



Current Selections

OperationalAssetGroup: TRUCK DUMP
pDescription

2008 2009 2010 2011 Jan Apr Jul Oct
Feb May Aug Nov
QTR 1 QTR 2 QTR 3 QTR 4 Mar Jun Sep Dec

Back Clear Filters Forward

Unit Toggle

KM HR Time

SMU Increment
SMUBlocks = 250

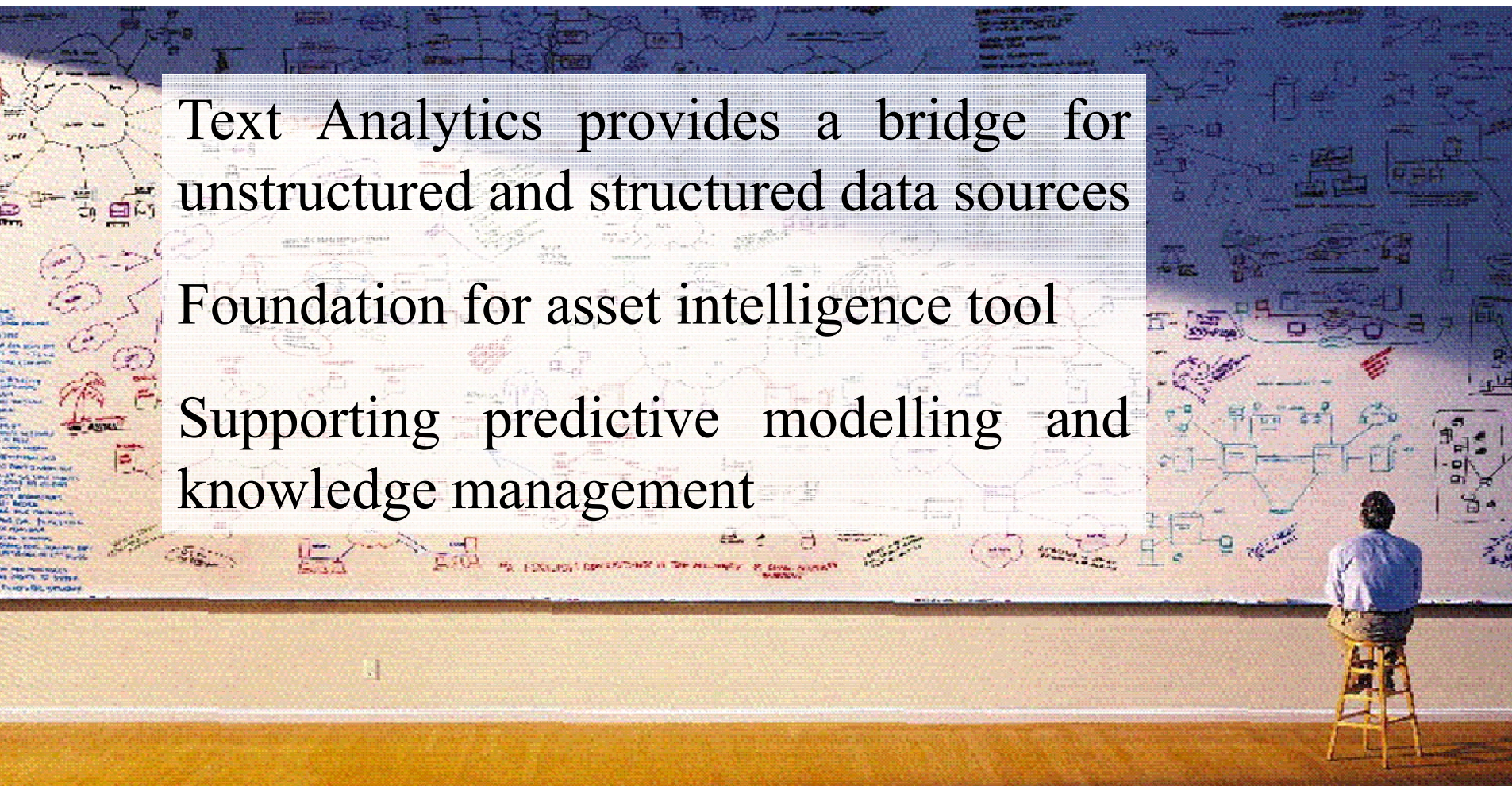
| Operational Asset | Work Orders | Labour | Materials | Services | Depreciation | Movements | | | | |
|------------------------|-------------------------------|--------------|-----------|-----------|--------------|-----------|-----------------|-----------|------------------------|---------------|
| Operational Asset Name | Operational Asset Description | Manufacturer | Model No | Serial No | Market Value | WDV | Asset Life Cost | Usage LTD | Accumulated Impairment | Warranty Date |
| QDT001 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ209 | | \$0 | \$0 | \$1,863 | 27044 | 06/08/2008 |
| QDT002 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ210 | | \$0 | \$0 | \$633,989 | 26154 | 06/08/2008 |
| QDT003 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ211 | | \$0 | \$0 | \$20,298 | 26781 | 22/08/2008 |
| QDT006 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ214 | | \$0 | \$0 | \$35,928 | 28079 | 13/11/2008 |
| QDT007 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ215 | | \$0 | \$0 | \$69,270 | 25813 | 12/11/2008 |
| QDT009 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ217 | | \$0 | \$0 | \$43,558 | 24415 | 07/12/2008 |
| QDT010 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ218 | | \$0 | \$0 | \$25,755 | 27747 | 14/12/2008 |
| QDT011 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ219 | | \$0 | \$0 | \$407,892 | 30303 | 14/12/2008 |
| QDT012 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ220 | | \$0 | \$0 | \$531,652 | 32650 | 18/12/2008 |
| QDT014 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ222 | | \$0 | \$0 | \$215,477 | 31820 | 18/02/2009 |
| QDT015 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ223 | | \$0 | \$0 | \$288,085 | 33345 | 21/02/2009 |
| QDT016 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700AC | MJ224 | | \$0 | \$0 | \$7,399 | 27810 | 19/05/2009 |
| QDT022 | TRUCK DUMP UNIT RIG MT3700AC | TEREX | MT3700 | MJ240 | | \$0 | \$0 | \$428,748 | 32157 | 29/07/2009 |
| QDT059 | TRUCK DUMP UNIT RIG MT4400AC | Bucyrus | MT4400AC | MH573 | | \$0 | \$0 | \$248,596 | 11907 | 10/11/2012 |
| QDT060 | TRUCK DUMP UNIT RIG MT4400AC | Unknown | MT4400AC | MH574 | | \$0 | \$0 | \$290,695 | 9769 | 10/11/2012 |
| QDT062 | TRUCK DUMP UNIT RIG MT4400AC | Bucyrus | MT4400AC | MH576 | | \$0 | \$0 | \$142,569 | 11915 | 12/11/2013 |

Handling Structured and Unstructured Data

Text Analytics provides a bridge for unstructured and structured data sources

Foundation for asset intelligence tool

Supporting predictive modelling and knowledge management



Q&A

Enquiries at email: enquiries@assetinstitute.com