

Eskom Distribution

Asset Management Assessment and Way Forward

The Challenge

Eskom, the national power transmission company in South Africa, faces a number of significant challenges ahead. There is a national stated intent (included in the Constitution) to provide 'universal access' to electricity by 2012 – at present a large proportion of the rural community does not have access to electricity. A further complexity to this requirement is the strong desire (from national government level) to have a uniform rate for the supply of electricity regardless of where the customer is located. Very much in the public eye is the challenge for South Africa to host the soccer world cup in 2010, requiring major and immediate infrastructure build. Funding will be available to support necessary new infrastructure, but it will be imperative to demonstrate that appropriate and cost effective solutions are being proposed and delivered – value for money.

The economy of SA is anticipated to continue to grow at 6% for the foreseeable future. At present the electricity supply infrastructure does not have capacity to support this growth and significant investment will be required –

there are regular requests being made to the public to reduce power demand in order to manage peak supply shortfall. Many electrical infrastructure assets are also now reaching an age where replacement is becoming necessary. Reliability and service quality are becoming an issue – related to both replacement and maintenance of existing assets.

Eskom has been looking at how leading utilities across the world have responded to an increasingly challenging operating environment, and have recognised opportunities to learn from world best practice – in particular the increasingly widespread adoption of asset management as a discipline and business model. Eon Consulting have been working closely with Eskom in supporting the development of solutions. It was agreed in 2006 that Eon Consulting would work with The Woodhouse Partnership Ltd to undertake an assessment of asset management as currently applied in Eskom Distribution. The work was commissioned as a research and development project but with the expectation of developing a structured business improvement plan to close the gap on best practice and specifically to identify practical solutions.

Eskom Distribution’s assets have, in recent times, come under a lot of strain. This has resulted in a decline in network performance. The main reasons for this increase in strain include:

- The rapid expansion of the distribution network to serve South Africa’s increasing electricity requirements;
- The aging of the distribution network and the management problems this causes; and
- The limited resources (money, people and information) available to manage the network assets.

With this in mind it is clear that better asset management is required in order to improve the performance of the distribution network.

The Solution

The ‘Benchmark’ for Asset Management

Publicly Available Specification 55 (PAS 55), published by the British Standards Institution, is the only recognised standard for physical asset management. John Woodhouse (MD of TWPL) chaired the independent working party drawn from leading companies that drafted the specification on behalf of the Institute of Asset Management and BSI. Since its publication in 2004 it has been welcomed not only in the UK, but internationally, as representing a framework for describing what should be in place to enable physical asset-intensive businesses to deliver their targets sustainably while optimising the conflicting pulls of cost, risk and performance. Figure 1 below highlights the PAS 55 elements.

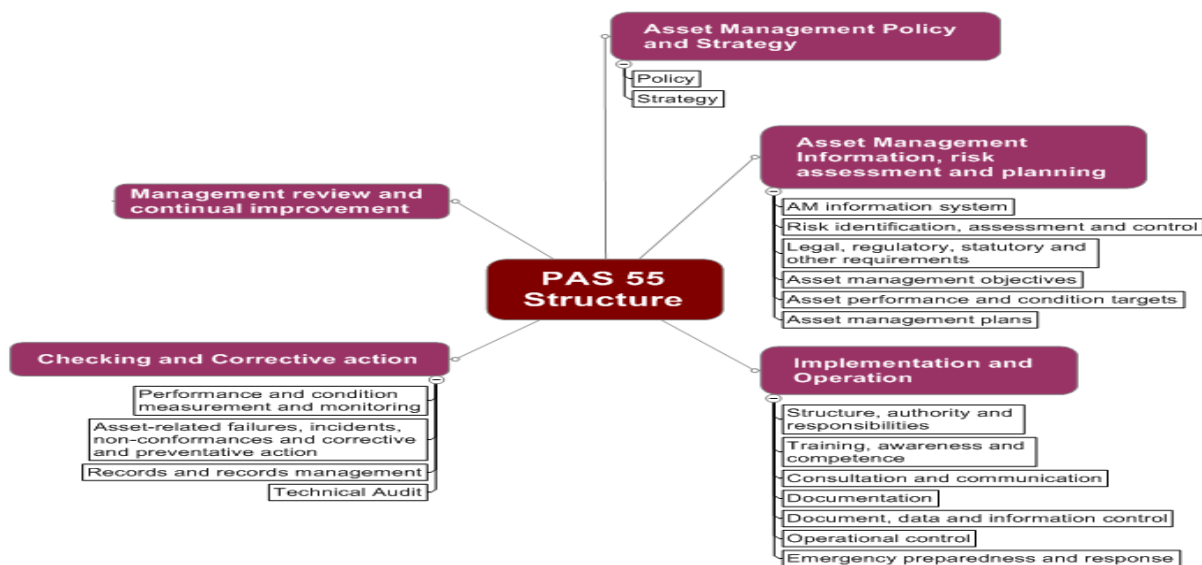


Figure 1

Working Together

TWPL have taken a prominent position in developing an interactive assessment process for evaluating organisations against asset management capability, and have a mature methodology which has been tried and tested with clients over many years. It has been improved and aligned with PAS 55 since 2004.

The international experience and track record of the TWPL team in asset management was a key contributor to the awarding of the contract. TWPL formed a strong partnership with Eon

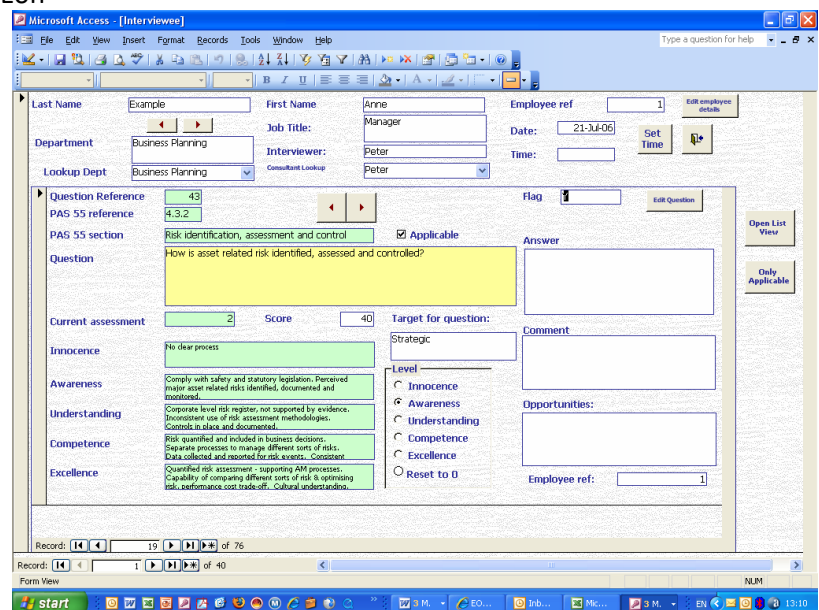
Consulting, who provided a team with local and technical knowledge, management consultancy expertise and, importantly, very good Eskom organisation knowledge. The initial phase of the project was a series of 'knowledge transfer' training sessions, where TWPL trained the local Eon Consulting team in preparation for the assessments.

The assessments were carried out as a series of interviews, focus groups and workshop sessions, leading to both a comprehensive diagnosis of the current situation and a pragmatic 'Roadmap' of the options for the future.

The Assessment Process

The assessment consisted of four elements:

- **One-to-one interviews** with a cross section of middle to executive management staff across Eskom Distribution. The interviews used a selection of options to evaluate the position of the company against a scale of 'innocence to excellence', using examples to help the candidate to agree to the current status of Eskom against the 21 elements of asset management as set out in PAS 55.



The screenshot shows a Microsoft Access form titled 'Interviewee'. It contains the following fields and data:

- Employee Information:** Last Name: Example, First Name: Anne, Employee ref: 1, Job Title: Manager, Date: 21-11-06.
- Interviewer:** Peter, Consultant Lookup: Peter.
- Question Details:** Question Reference: 43, PAS 55 reference: 4.3.2, Question: 'How is asset related risk identified, assessed and controlled?', Current assessment: 2, Score: 40.
- Assessment Scale:**
 - Innocence:** No clear process.
 - Awareness:** Comply with safety and statutory legislation. Perceived major asset related risks identified, documented and monitored.
 - Understanding:** Corporate level risk register, not supported by evidence. Inconsistent use of risk assessment methodologies. Controls in place and documented.
 - Competence:** Risk quantified and included in business decisions. Separate processes to manage different sorts of risks. Data collected and reported for risk events. Consistent.
 - Excellence:** Quantified risk assessment - supporting AM processes. Capability of comparing different sorts of risk & spotting risk-performance cost trade-off. Cultural understanding.
- Form Controls:** Radio buttons for 'Innocence', 'Awareness', 'Understanding', 'Competence', and 'Excellence'. A 'Strategic' checkbox is also present.

Figure 2

Figure 2 is an example screen from the assessment database – a set of more than 200 questions was used in the review. 50 interviews were carried out with a wide cross section of management staff, and statistical analysis was used to demonstrate that the sample was sufficiently robust to support meaningful conclusions.

- **Focus group sessions** – where operational staff (front-line field staff and supervisors) participated in facilitated sessions where the practical application of good practice in the delivery of asset management (such as planned maintenance and emergency response), was explored in a structured environment. This is a practical and essential exercise which reveals any disconnections between company policies and real life practice. About 73 people participated in the sessions.
- **Email questionnaire** – an email questionnaire was also sent out and this resulted in a further 84 contributions.
- **Document and data check** – this is used for confirming some PAS 55 requirements, to validate or qualify the findings of the interviews and focus groups, and also probing into identified areas of weakness.

Results were collated into a detailed report of findings and gaps, with a management summary including areas identified for improvement. The results against the 21 elements of PAS 55 were displayed using a variety of graphical techniques including ‘radar plots’.

Figure 3 below shows such a typical summary (with scores modified to protect confidentiality).

PAS 55	Section
4.1.0	General Requirements
4.2.0	AM Policy and Strategy
4.2.1	Asset Management Policy
4.2.2	Asset Management Strategy
4.3.0	AM Information, Risk Assessment & Planning
4.3.1	AM Information Systems
4.3.2	Risk Identification Assessment & Control
4.3.3	Legal, Regulatory & Statutory
4.3.4	AM Objectives
4.3.5	AM Performance & Condition Targets
4.3.6	AM Plans
4.4.0	Implementation & Operation
4.4.1	Structure, Authority & Responsibility
4.4.2	Training Awareness & Competence
4.4.3	Consultation & Communication
4.4.4	Documentation
4.4.5	Document & Information Control
4.4.6	Operational Control
4.4.7	Emergency Preparedness & Response
4.5.0	Checking & Corrective Action
4.5.1	Performance & Condition Monitoring
4.5.2	Failures, Incidents, Non-Conformance & Actions
4.5.3	Records & Record Management
4.5.4	Audit
4.6.0	Management Review & Continual Improvement

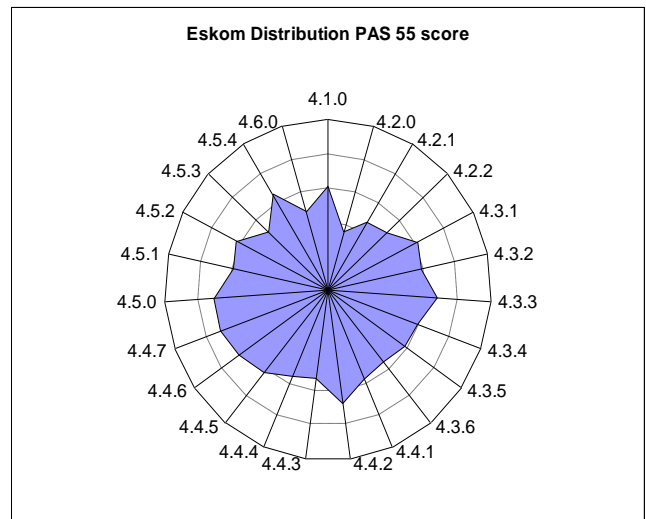


Figure 3

The analysis also considered the *consistency* of asset management performance across the business – comparing results across regions and departments. This identified a number of further improvement opportunities.

The Roadmap

The major findings and gaps were translated into an Asset Management Roadmap™ which is now being progressed with Eskom Distribution. This is in the form of an ‘integrated programme plan for improvement’ which identifies a series of interdependent projects together with their potential benefits.

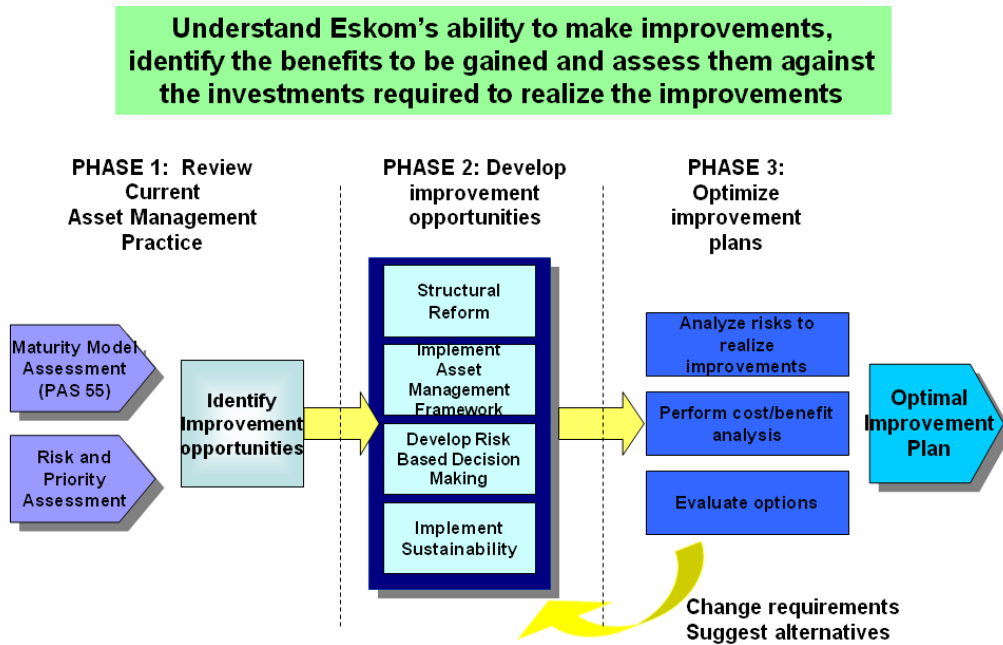


Figure 4

Eon Consulting and TWPL are now continuing to work together with Eskom Distribution in developing and implementing the improvement plan for asset management.

– Ends –

For further information

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Notes to editors

Eskom, one of the top 10 electricity utilities in the world measured on revenue, generates, transmits and distributes electricity in South Africa. It serves a diverse customer base ranging from large industrial firms and municipalities down to poor households in rural areas. The South African government have given Eskom the mandate of building an infrastructure that will support rapid economic growth while giving all South Africans access to electricity.

The Woodhouse Partnership Limited (TWPL) was formed in 1995 by a team of former senior managers of UK blue chip

organisations (including Shell, UKAEA, MoD, Philips and Kvaerner). It has grown to become a world leading authority and source of expertise in the optimal, sustainable management of physical assets. It has offices in the UK, USA and Latin America, with clients in over 25 countries, covering most industry sectors.

Eon Consulting for the optimal was initially set up in 1998 as a joint venture between Ke Consulting and Eskom Enterprises. They are a black economic empowered organisation supplying professional services and skills into the power and telecommunications environment with a long and successful history of providing consultancy services to Eskom.

PAS 55 is a British Standards requirements' specification for the optimal management of physical infrastructure assets. It is rapidly becoming an accepted international benchmark for good practice. For example Ofgem, the UK regulator for electricity and gas sectors, has recently required all such network operators to show PAS 55 compliance by April 2008.