

Asset Management:

Joining up the jigsaw puzzle –

PAS 55 standards for the integrated management of assets



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Competing interpretations and definitions

Even a fairly superficial survey of uses for the term “Asset Management” reveals some fundamental differences in interpretation and usage. There are three distinct families of common current use of the term:

1. The **financial sector** has long used the phrase to describe the management of a stock or investment portfolio – trying to find the best mix of capital security/growth and interest rates/yield.
2. **Equipment maintainers & software vendors** have also adopted the name in an attempt to gain greater credibility and ‘voice’ for their activities. As ‘maintenance’ has for so long been treated as a necessary evil and low on the budgeting priority list, perhaps calling it ‘Asset Management’ instead will raise awareness on the corporate agenda? ‘Asset Management’ becomes, therefore, a more sellable way of saying ‘better and more business-focussed maintenance’.
3. Many **infrastructure or plant owners and operators** have adopted ‘Asset Management’ to describe their core role in life – both caring for, and making best sustained use of, physical plant, infrastructure and its associated facilities. This is the interpretation that the new British Standards specification, PAS-55 is focussed upon, and is the subject of this article.

Of course there are significant challenges in such multi-dimensional optimisation. The uncertainties about asset behaviour, future requirements, performance value, costs and risks all contribute to make the issues ‘fuzzy’. Furthermore, we tend to organise ourselves into groups of functional specialism (see Figure 1) so that we do not see the whole picture anyway. Departments are set up to design/build the assets (“engineering”), exploit them (“operations” or “production”), or to care for them (“maintenance”). Only the managing director has the self-interest in optimising the combination – unless “Asset-based Management” has been adopted properly. Organising ourselves by ‘activity type’ may be administratively convenient, but it loses sight of the whole.

The origins of modern Asset Management

The oil & gas sector has had longest to prove what is possible, starting with the wake-up calls of the late 1980’s: the Piper Alpha disaster, oil price crash, Cullen recommendations on risk/safety management, market globalisation and so on. These forced a fundamental reappraisal of the business models – and the recognition that big companies, while holding

Optimised, integrated Asset Management

The last definition above constitutes the basis for the significant performance improvement opportunity available to almost every company in every industrial sector. If we broaden the scope to describe not just physical assets, but any core, owned elements of significant value to the company (such as good reputation, licenses, workforce capabilities, experience and knowledge, data, intellectual property etc), then the *optimised, integrated* Asset Management represents the sustained best mix of **Asset care** (i.e. maintenance & risk management) and **Asset exploitation** (i.e. use of the asset to achieve some corporate objective or performance benefit). This combination of *exploitation* and *care* must also consider time horizons – and be optimised over the *whole life cycle* – so it includes original investments and ultimate disposals, renewals or modifications as well.

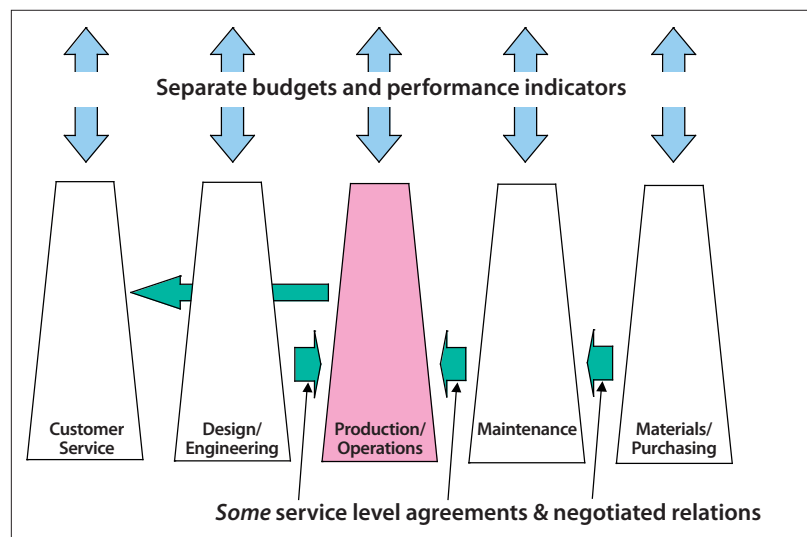


Figure 1. Traditional functional and activity-centred organisation

a number of strategic advantages and economies of scale, were losing the 'joined-up thinking' and operational efficiency and agility that smaller organisations naturally enjoy (or need, to survive). So the asset-centred organisation units emerged, employing multi-disciplined teams to find the best way forward in exploitation and care for each part of the portfolio. The results have been spectacular up to c.90% improvements in productivity.

The common and vital feature, of these transformations was the recognition that

- > Performance (output) *accountability* and
- > Investment/expenditure (inputs) *responsibility*

needed to be much more closely linked (lie in one pair of hands: the 'Asset Manager'). So the person/team that had to deliver the output also had full relevant budget decision-making: what is worth spending, when, to achieve/improve/sustain the performance. Any *shared* services or resources had to compete with the open market for the attention and funding of the (asset) budget holders. This applies to any 'level' of asset management – from individual equipment up to whole organisations (see Figure 2).

PAS 55 Requirements Specification

The new British Standards specification, PAS 55, highlights the need for performance-accountable asset/business focus, with enabler activities closely mapped onto the asset needs (depending upon criticality etc). The Asset Management system is how a company delivers its business goals – and a visible 'cascade' of clear logic is expected (Figure 3) to show why and how business intentions are converted into on-the-ground reality of what is done, where and when.

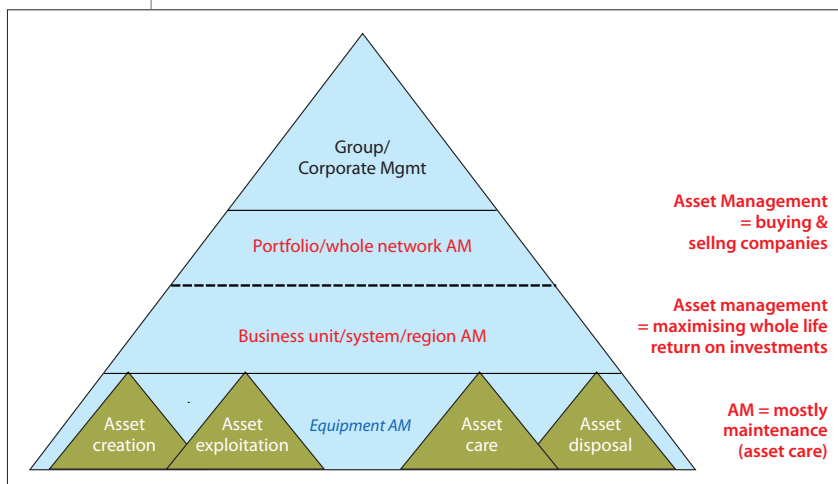


Figure 2. Different levels of 'Asset' – which each need to be managed & optimized

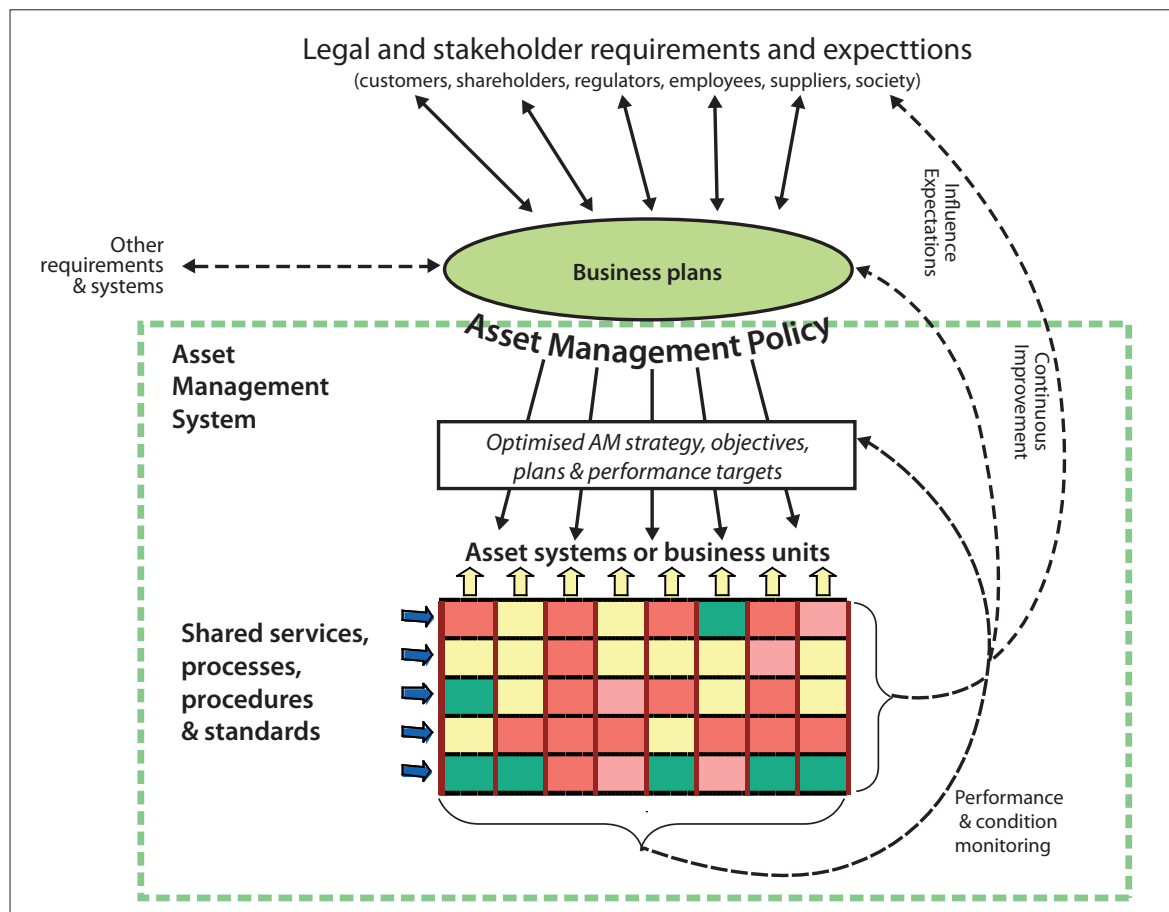


Figure 3. PAS 55 Asset Management System boundaries

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PAS 55 defines Asset Management as

“Systematic & coordinated activities and practices through which an organization optimally manages its physical assets and their associated performance, risks and expenditures over their lifecycles for the purpose of achieving its organizational strategic plan.”

This sets the goal, but how does a company get there? How do we know, and demonstrate, what is 'optimal'? How do we coordinate component activities to this goal? How can such a joined-up, whole-life performance responsibility be established? How do we develop the skills, tools and processes to establish and sustain such an environment in the first place?

The human factors

Even a quick comparison between the skills needed to deliver true asset management, and the typical training or education background of most staff will reveal a major misalignment. How many engineers have sufficient business, financial and communication awareness? Why do we continue to see/treat operators & technicians as just (skilled) hands, rather than also having brains and creativity? Ask any experienced Asset Manager where most of their improvements have come from and a very clear answer comes back – from the workforce! That is where asset problems and opportunities are observed and, provided we have the supportive contributions of experts to determine what to do about them, and a clear understanding of purpose and priorities (see Figure 4), this provides the engine for sustained, continuous improvement. Yet we often hear the phrase that “people are our greatest asset”, but often see evidence of treatment as just a cost, or source of trouble instead. The disillusionment and scepticism resulting from past, temporary initiatives, ‘spin’ and fickle management fashions means that there is much credibility to be

rebuilt. That is why the IAM has put so much effort into understanding what competencies are needed for the future, publishing a 44-point requirements framework in June 2006.

A preliminary AM checklist

Getting the whole jigsaw puzzle sorted out is a major challenge, therefore. We certainly cannot solve all the problems simultaneously. However there are some valuable pointers to the establishment of the right environment, and foundation stones that help to build a robust total structure. The following is a set of observations gained over the last 20 years of working with successful Asset Managers and seeing what seem to be the critical characteristics for sustained success:

- ▶ A clear choice of primary unit size for defining the asset being managed (not ‘the whole company’ and not ‘the individual pump/motor/transformer’): a level of composite, functional system whose performance and business impact is measurable boundary; big enough to justify a dedicated, full time Asset Manager and his/her multi-disciplined team, covering relevant, adequate asset exploitation (operation) and asset care (investments & maintenance) skills. Yet small enough (typically max.400 persons) to retain a tightly cohesive team culture and ‘my baby’ sense of personal responsibility and pride.
- ▶ ALL other services and occasional resource requirements are organised as central or shared service providers (e.g. project designers, IT, finance, HR, HSE, technology specialists), are funded by their client ‘assets’ and competing with external alternatives.
- ▶ The ‘umbrella’ image and language (e.g. ‘Asset Management’) is prominent and consistent in Company, Departmental & Personal objectives,

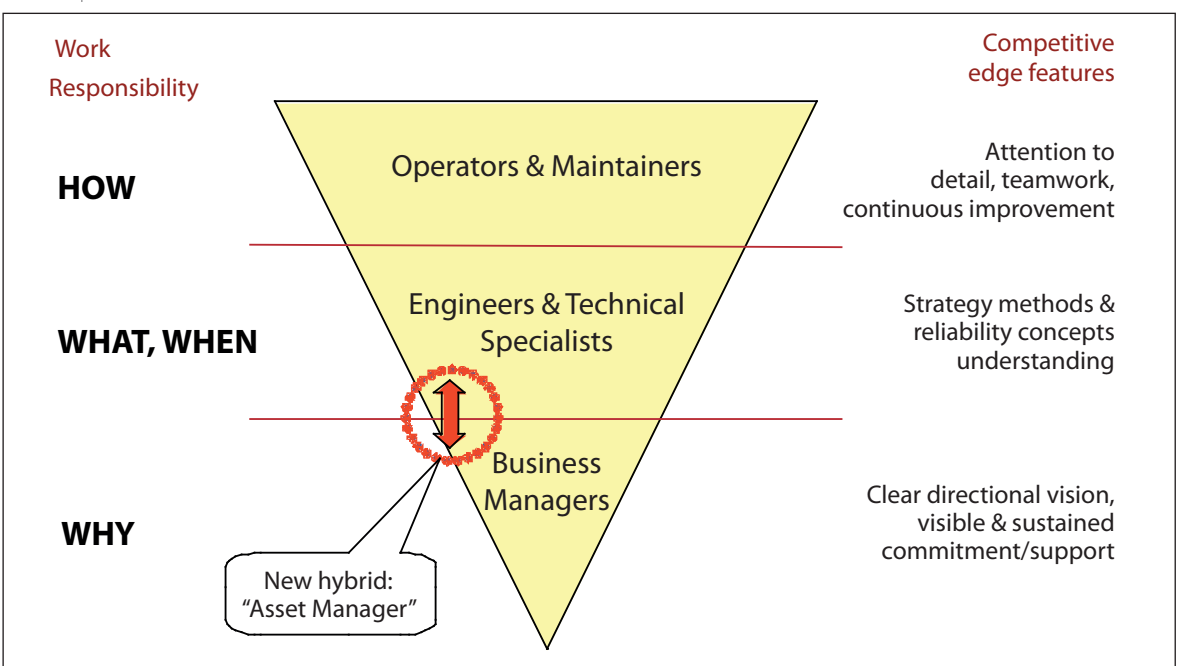


Figure 4. Inverting the pyramid and harnessing all the contributions

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house literature, training plans, stakeholder relationships etc.

- ▶ Lost Opportunity/downtime events are monitored and *costed* – this is where most of the big improvements will come from (rather than further opex cost cutting). Unless and until a price is put on asset *non*-performance, it is impossible to justify or optimise what is worth spending to improve it.
- ▶ Problem/opportunity identification, investigation & solving processes all linked together and part of normal, daily life – *closing the loop* and *realising the benefits!*
- ▶ Natural *cross-functional team-based working style* (including geographic co-location where possible) e.g. engineering, operations & maintenance.
- ▶ Full-time *facilitator(s)* to make innovation ideas happen – this requires multi-skilled communicators and enthusiasts to help corporate ‘dinosaurs’ to evolve, and to work around or convert the ‘saboteurs’ (whose power base is being changed/removed).
- ▶ *Education*: urgently addressing the big gaps and backlog at management, technical and workforce levels; business skills for technical people, root cause analysis, life cycle planning & costing plus, plus.
- ▶ *Twin track* corporate planning: an ambitious but realistic goal, on a timescale (typically 3-5 years) sufficient to achieve fundamental behavioural change, with clearly-connected “quick wins” priorities used to pay for the sustained commitment to end goal. This self-adaptive, cumulative improvement path contrasts greatly with typical short-termism and use of benchmarking or ‘gap analysis’ (which tend to generate an intimidating wish-list, without business-case prioritisation of improvement actions, their interdependencies and necessary flexibilities).

Top-down alignment of objectives

To sort out the picture, greater understanding of the Asset Management business model is certainly needed at board level and in regulatory circles. Separation into ‘Asset Owner’, ‘Asset Manager’ and ‘Service Provider’ roles is not enough – a good start, but not enough. Greater risk awareness and the better targeting of capital investment are also not enough. Top-down clarity for the weighting of conflicting business drivers (i.e. their significance or criticality), and clear articulation of the strategic business goals (in language that the workforce relates-to) are needed.

Bottom-up delivery

There is real excitement and evidence of change in the hands-on levels of Asset Management. The weapons, understanding, methodologies and clarity of purpose are all evolving fast. LCC, RCM, TPM, Root Cause Analysis, Condition Based Maintenance, CMMS/EAM information and work management systems etc. are all part of the basic toolkit now. In particular there is an awakening to the need for business focus in place of technical or operational jargon, and the bottom-up cost/risk/ performance evaluation of individual activities (not just the top-down budget setting of the past). Significant education is involved – helping engineers to converse in business language, understanding the life cycle planning and decision-making processes, and how to structure and devolve appropriate degrees of asset management freedoms.

Decision-support tools are emerging as a vital catalyst too. The MACRO project, for example, rated as one of the most successful DTI-backed collaboration programmes in the last 20 years, yielded spectacular results in Asset Management decision-making (and the APT decision-support tools). One manufacturing company has just reduced their annual downtime by 50%, another (international valve stockist) has reduced inventory by 60% (with *improved* service levels) and the average reductions in maintenance costs have been 25-45%, usually accompanied by 5-20% increases in system performance/availability.

Meeting in the middle

The real test of integrated, optimised Asset Management is when the top-down managerial expectations, budget-setting and performance targets, and the bottom-up capabilities, opportunities and prioritisation are lined up and transparently linked (Figure 5). This is where the ‘lubrication’ and human issues become so important (every company that has really established a successful asset-centred performance leap says that this turned out to be the critical bit). The tools and techniques, reorganisations and performance measures all *help to make things possible*, but ultimately it is *people that make them happen*. So, in conclusion, the hearts, minds and collaborations are where good Asset Management lies: don’t stint on **education, communication** and **cross-functional teamwork!** ✨

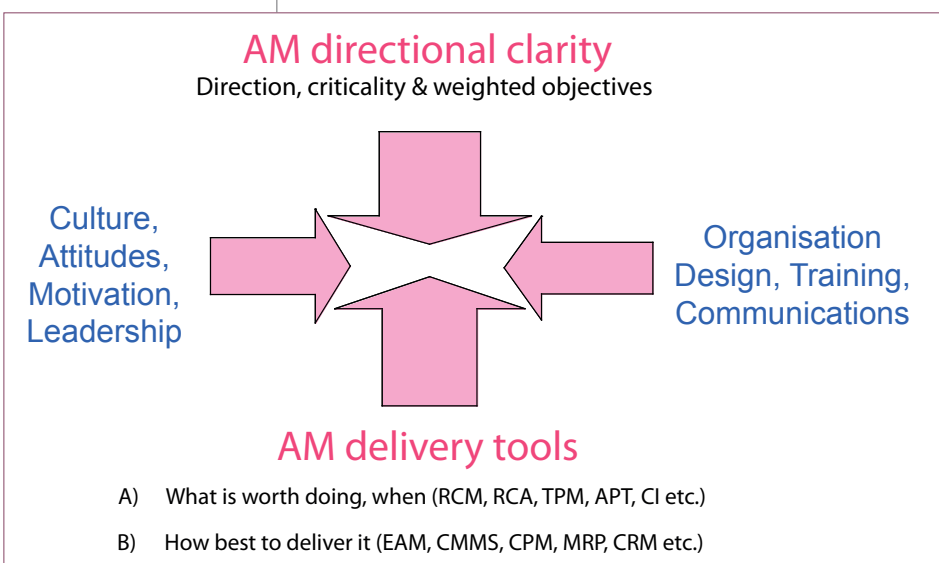


Figure 5. Top-down, bottom-up & middle-lubricated.