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For Practitioners, Policy Makers and Planners in Public Infrastructure

Thoughts on **ASSET MANAGEMENT COMPETENCIES**

In this issue:

What do we mean by “Competencies”?

Why are they important?

How can we measure - *and then manage* - them?

Individual or Agency Competency?

Can we teach Competency?

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Editorial: Competencies

Oh the problem of choice! While I was in Canada meeting with so many keen and interesting asset managers there, I missed the opportunity to attend ICOMS (the International Conference of Maintenance Societies) in Melbourne. Fortunately Danny Azavedo (see his work on 'intuition' in SAM 212) was my eyes and ears at this event. He sent me his highlights, amongst them a few papers on developing asset management competencies, and suggested that SAM address this issue - so here we are. We draw on the work of the following

Stephen Morris

Stephen, a Chartered Engineer, is the Practice Manager (Enterprise Asset Management) for LogicaCMG in Australia covering all industry sectors. He is also Vice President of the Institute of Asset Management in the UK and was a member of the Review Panel for the first national standard on Asset Management (BSI PAS-55). Stephen's paper to the ICOMS conference was entitled "Developing Competency in Asset Management - the IAM Competency Requirements Framework" He can be contacted at stephen.j.morris@logicacmg.com

Dr Melinda R. Hodkiewicz

Melinda is the facilitator and web manager for WAAMI, the West Australian Asset Management Initiative. You can see their website at <http://www.mech.uwa.edu.au/~mhodki/waami/index.html> Her paper to the ICOMS conference was entitled "Education in Engineering Asset Management". She can be contacted at mhodki@mech.uwa.edu.au

Nick Hastings

Nick is Principal Consultant at Albany Interactive Pty Ltd and formerly Professor of Maintenance Engineering at Queensland University of Technology. His paper to ICOMS was entitled "A Competency Framework for Asset Management with PAS-55."

ICOMS

You can access these papers and over 60 other excellent quality, refereed, papers on maintenance and asset management from the 2007 ICOMS on a CD Rom for just \$110 (Aust) And postage, even overseas is only \$3 more! What a bargain! To get your copy, simply send an email to info@amcouncil.com.au and tell them you would like an order form sent for the 2007 ICOMS Presentations.

**Consider and Enjoy!
Penny**

Competencies

Competency is not the same thing as knowledge. We can *Know* something without being able to *Do* it. Competency is applied knowledge. It is *knowing how* rather than *knowing what*. It is the learning that we get 'on the job'.

Competencies are what we lose when we outsource and downsize and

when experienced workers retire or when senior people are 'let go';

Stephen Morris defines them as *"the behaviours that employees must acquire, to input into a levels of performance"*

What does it mean to be competent?

competencies as 'behaviours' that employees must have, or situation in order to achieve high

Behaviours are about attitude. In order to achieve high levels of performance in asset management, it is not enough to do what has always been done, mindlessly, employees must have an attitude of inquiry, they must be *willing to do things that they have not done before*.

competency, but they are also willing to do things that they have not done before.

So here are the challenges:

What competencies are required?
How are they learnt?
Can they be taught in traditional classrooms?
And how do you learn an 'attitude'?

Now need to be addressed

What Competencies are Required?

Much of the work to date in assessing needed competencies has come from the engineering profession. It has been driven by two things:

(1) a recognition of industry and community need, expressed by Stephen Morris as -

"The prospect of a real shortage of qualified staff to design and operate socio-critical infrastructures, such as water, electricity and roads, should be of critical concern to both industry and government. With the lead times for recruitment, training and experience-building being so long, action is already urgent."

and **(2) a desire to establish asset management as a recognised and accredited discipline in its own right.**

In this issue of SAM - we look at both of these drivers of the interest in competencies as. drawing on the presentations of Stephen Morris, Trevor Hastings and Melinda Hodkiewicz to the recent ICOMS Conference in Melbourne, we see what the British are doing and what Western Australia is doing.

Competencies - What the British are doing

Stephen Morris, who is Vice President of the British Institute of Asset Management (IAM) spoke about the work that they are doing in the development of a competency framework.

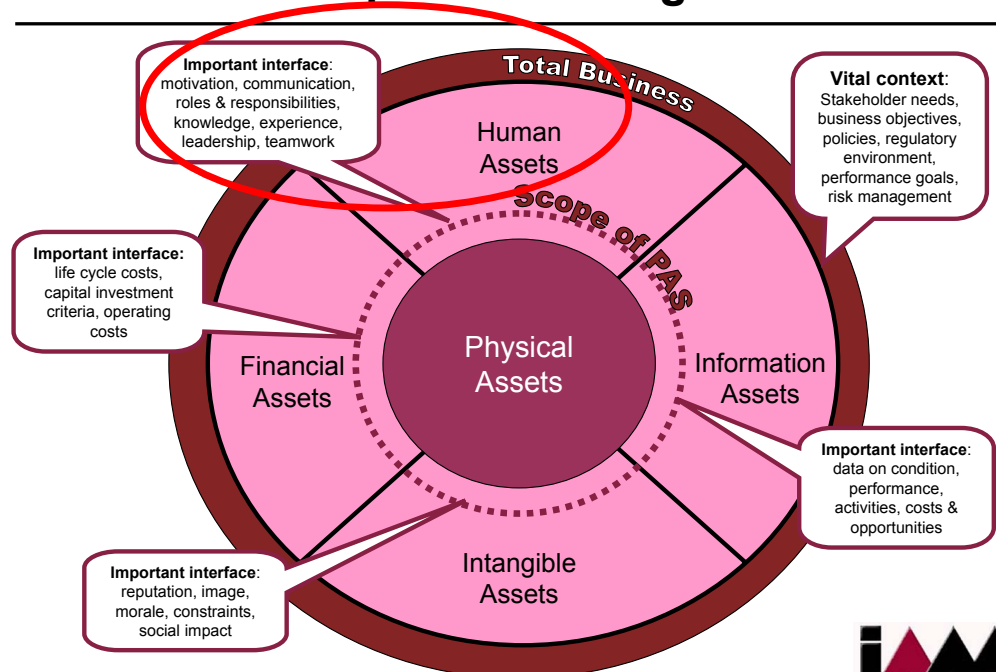
Agency Competency In 2004, IAM launched PAS 55, a British Standard Specification for the optimised management of physical infrastructure assets, based on the familiar ISO continual improvement standards. Lloyd's Register have used the standard as the basis for accreditation of utility companies such as the UK National Grid.

Individual Competency In 2006 they launched the IAM Competencies Project, which took the work for PAS 55 to a more detailed level. The focus is on the needs of **heavy engineering utilities** and the aims of the project were to

- Define the skills and competencies required to manage complex assets/infrastructure effectively.
- Provide guidance on the scales/steps of such competency to support career development, recruitment and similar personnel planning.
- Form the basis for a future accreditation and certification scheme.
- To be aligned with the standards set by the Engineering Council (UKSPEC) to enable future Chartered Asset Manager status.
- Survey and collate info on existing relevant courses and education providers.

Conflicts. It is inevitable that in any extensive list of objectives there will be conflicts. And IAM realised a major one in the development of their Competencies Project: companies and individuals who desired to customise the weightings and career mix to better suit their company objectives wanted requirements pre-specified only at a high level. For assessment and accreditation consistency, however, there was pressure to pre-specify down to the component level.

BSI PAS 55 scope: interacting assets



An Invitation!

The IAM Competency Requirements are currently being 'road tested' and Stephen Morris has issued an invitation to all to take part in this road test. Go to www.iam-uk.org and order the Competency Framework (costs only about \$25 Aust) and try it out in your organisation. Then feed your comments back for further improvement.

Some of the things you might test for include:

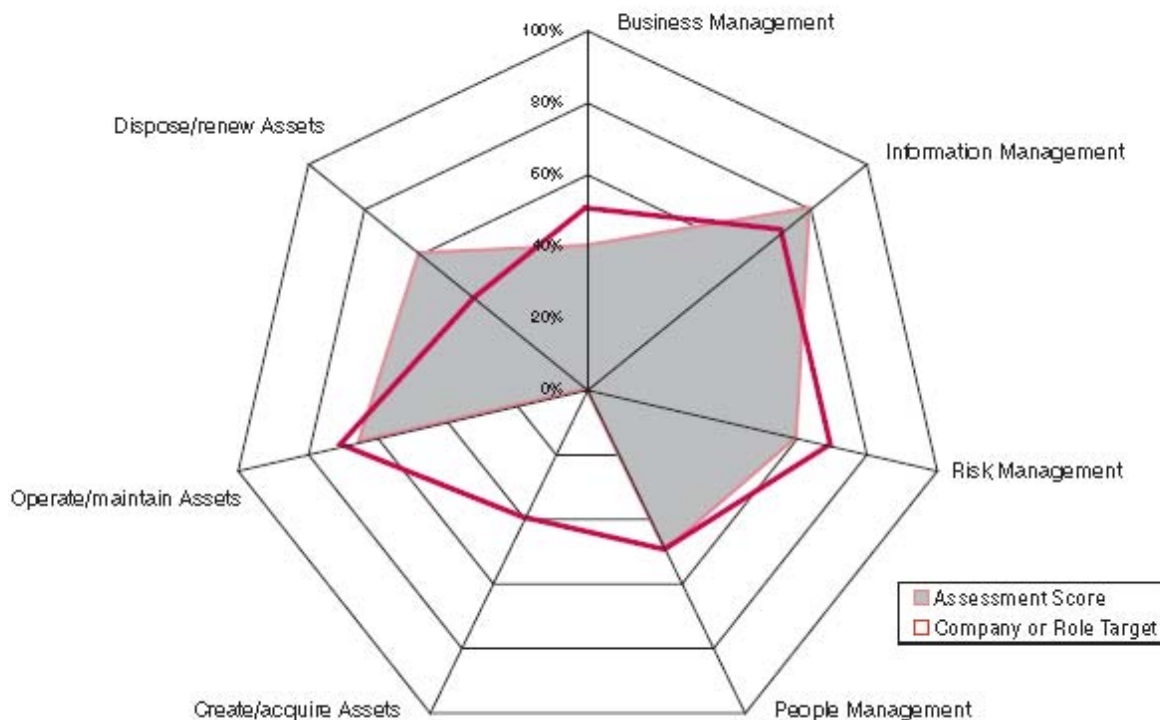
Ability to tailor the requirements to suit your own organisation.

IAM provides examples such as the Business Management example below, but makes no recommendations or endorsements of weightings.

Competency Topic	IAM Essential or Desirable	Local Weighting (company or role significance) %	Attained (1 / 0) ?	Local Target	Evidence
Business Management					
Development of AM strategies from business goals	E	Must Have	1	1	Showed their contribution to writing corporate AM strategy in last 2 years
Facilitation of integrated processes	E	Must have	1	<i>The</i>	Facilitator training course 3 years ago, ongoing role in facilitating investment review groups
Business Excellence methodologies	D	10	1		Described BE model and participated in a structured self - assessment
Continuous improvement processes	D	10	0		No evidence available
Organisational change management	D	25	0		Showed ownership of documents proposing business change but unable to demonstrate their involvement in implementation
Stakeholder interface management (inc Regulators)	D	25	0		Not adequate awareness of stakeholder expectations
Business economics / market awareness	D	10	1		Member of commercial opportunities & planning team
Financial management incl. budgeting & controls	D	20	1		Responsible for capital budget for last 3 years
Benefits tracking	D	0	0		Could only demonstrate involvement in preparing monthly performance report
Totals:		100%	40%	50%	

Measuring Competency Gaps

Using the scores derived from tables such as the one on the previous page you can then, using the familiar spider diagram, calculate the match between your Company or Role Target and the Assessment Score.



You may also wish to examine how well the framework allows you to

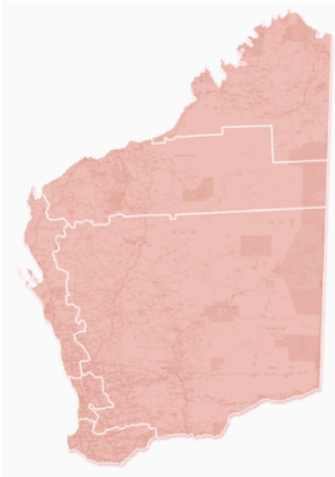
Measure your overall company asset management For example you may want to see what your 'batting strength' is like in critical areas by overlaying transparencies of employees diagrams. In our transient society, an organisation can go from competency to lack of competency pretty quickly with a few career moves. Moreover the career moves do not have to be out of the organisation! Even a sideways move or promotion to another area could remove a needed level of competence.

Think through new Role Positions. With the demand for engineers becoming greater than the likely future supply, you may wish to rescript Roles to make more intense use of your engineers in engineering functions and develop non-engineers to tackle more of the non-technical functions.

In both of these, the paper presented by N Hastings "A Competency Framework for Asset Management with PAS-55" could be of considerable interest. Hastings paper presents tables which 'relate the elements of PAS-55 to existing techniques in the Asset Management and Maintenance body of knowledge, such as reliability centred maintenance, condition monitoring, logistic support analysis, root cause analysis, life cycle costing and so on'. Whilst not arguing for any particular level of competence, it does indicate the wide scope of asset management.

problem with scope however is that it needs to be narrowed to be applied! Which leads me to the topic of Education in Competencies - and Certification.

Competencies - what Western Australia is doing



WAAMI is the West Australian Asset Management Initiative. WAAMI's activities are guided by an Industry Panel that includes representatives from a variety of business sectors, including defence, power, chemical, water, mining, oil and gas. So, like the IAM work in the UK it has a focus on heavy engineering (rather than, say, local government). During 2004-2006, WAAMI conducted a series of surveys and workshops to decide what was needed - by industry and individuals - by way of asset management education. Melinda Hodkiewicz presented a detailed paper to ICOMS on the activities of WAAMI (from which the quotes below are drawn). Similar to the UK PAS-55 Approach, the focus is on extending engineering competency to cover a wider range of managerial competencies.

Certification

Certification was a particular interest and the subject of their first workshop, not surprisingly since WAAMI is an academic institution. But was their interest in Certification matched by a similar interest in the market? Apparently not. Here is what they found.

“Survey participants found the CRE (Certified Reliability Engineer) and CMRP (Certified Maintenance and Reliability Professional) were not well-known in Australia in 2005. The prevailing attitude of the respondents was that the ability to pass a multiple-choice test was neither necessary for hiring new EAM staff or useful for subsequently demonstrating job competence. This can be illustrated by the comment *“I’d be more interested in examples of what problems people have solved, and how they applied their knowledge to solve them, that what certification they have”* indicating the strong pragmatic focus of asset management.

The following comment was considered ‘forward thinking’ *“Reliability engineering benefits are becoming more widely recognised by the industry and I believe it is a growth sector of the engineering market. As industry continues to demand and suitably remunerate for these skills, they will mature their requirements and start listing formal qualifications (and or) certification as a requirement”* But will they?

Some observations:

- ◆ Certification might be attractive if many engineers were seeking few positions. But market forecasts suggest the opposite - greater demand, not enough people to fill the slots.
- ◆ Would the requirement for certification reduce the market supply still further? Would increased quality compensate for reduced quantity? How much more would need to be paid?
- ◆ Where certification occurs, legal liability and increasingly high professional indemnity insurance premiums, seem to follow close behind. Would certification make asset management a more litigious arena?

Asset Management is Multi-Disciplinary

But ‘multi-disciplinary’ obviously means different things to different people! Consider this: “Another feature of the program [the UWA Masters of Engineering Program, to commence in 2008] is *the multi-disciplinary focus*. Academics and professionals *from all the major engineering disciplines* are involved through a Curriculum Development Group, to ensure relevant case studies and related teaching tools for each of their discipline areas are presented.” This is, of course, an Engineering Degree and such a focus is appropriate there, but the asset management industry needs to go further.

Competencies - the two big challenges

1. Is truly multi-disciplinary asset management possible within an academic institution based on disciplines? This, I think, is one of the really big challenges for asset management today.

All of the interest in developing asset management competencies is currently coming from the engineering professional associations and engineering departments of universities.

How can we expand the field of asset management competencies, not by overloading the engineering profession with extra management tasks, but by ***bringing more of the management profession to the asset management table?*** How can we attract the interest of the accountants, the architects, the economists, the finance specialists, planners, public administrators and others? For unless we do this, organisations will suffer. And asset management will suffer, too.

2. How can Competency be taught/learnt?

“Courses will utilise a variety of adult learning methodologies including formal seminars, lectures and workshops, action-based and group-based learning projects, case studies as discussed, and presentations from subject-matter experts both national and international. In the Masters course there will be project components to enable students to develop or refine their research and presentation skills as well as furthering their knowledge in a specific area of interest.”

We are still left with the need, however, to get from *head knowledge* (no matter how well understood) to *competency or behaviour*. UWA recognises this need but, as yet, does not seem to have solved the problem.

“In the conceptual design of the course, the UWA Asset Management team is considering various options to address the issue of competence. It is recognised that while a student will learn new skills in an educational environment, they are only of value to the organisation (and student) if/when used in a relevant, useful and productive manner within the organisational environment.” **But how do we do this?**

In the next issue: some ideas on how we may develop competencies.