STAKEHOLDERS

Full Paper

RAISING THE PERFORMANCE BAR: GAUGING ASSET MANAGEMENT IMPROVEMENT IN A GOVERNMENT CONTEXT

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ABSTRACT

To achieve a better alignment of assets with service delivery requirements, thereby enabling more efficient delivery of government services, the South Australian Government developed a strategic asset management (SAM) framework supported by an information system (SAMIS) and training programs.

An asset management improvement framework was also developed to gauge the uptake of these processes by government agencies. Using this framework, a 2002 self-assessment by agencies revealed a weakness in their understanding and application of performance management principles. Against this background, a more intensive survey of selected agencies was undertaken in 2004, enabling comparisons to be drawn with the findings of the previous self-assessment. In addition to providing further qualitative information about stakeholders' understanding of SAM after two years of participating in the development of SAMIS, this helped gauge the effectiveness of various piloting and training programs focussed upon performance management.

Whilst it was recognised that the performance management approach could provide a powerful decision tool, there were barriers - including the costs of implementation and failure to acknowledge the benefits - to acceptance and implementation of such principles. For agencies to become committed to improving their asset management performance, it was critical that they first embraced strategic thinking and *business* performance excellence principles. The key to motivating agencies to improve their asset management knowledge and practices may be them to view the performance of their assets as critical to improving their service delivery performance.

Keywords: strategic asset management, performance assessment, continuous improvement frameworks

1. INTRODUCTION

Over the last decade, there has been a growing recognition that buildings and other facilities should be considered against the requirements of business and end users - that they should be 'a useful means to a business end' (Prior and Szigeti, 2003). In a government context, achieving a closer match of assets with user requirements, stemming from improved asset management practices, may be expected to support better service delivery in a more cost effective manner.

The South Australian Government therefore developed a strategic asset management (SAM) framework, consistent with that promulgated by the Australian Procurement and Construction Council (APCC). Performance assessment is an important component of this framework; it helps gauge the degree of mismatch between service demands and asset capability, leading to the development of asset strategies to achieve a better alignment. The paper describes the development and introduction of SAM and a performance assessment model, supported by a strategic asset management information system (SAMIS).

This process has been overseen by an Asset Management Task Force, which has sought to measure the propensity for government agencies to take-up SAM practices. An asset management improvement framework was created in 2002, with a self-assessment by agencies clearly revealing a low level of understanding and application of performance management principles. Since that time, an effort has been made to improve SAM practices through seminars and training programs, coupled with the piloting of SAMIS.

Against this background, a selected number of government agencies were again surveyed in 2004 to ascertain – in more depth - their level of understanding of asset performance management, its degree of acceptance, the barriers to its adoption and how these might be overcome. This process, using a questionnaire and interviews, was conducted by students of a Masters Program in Facilities and Asset Management at the University of South Australia.

2. BACKGROUND

2.1 FROM ASSET DEVELOPMENT TO ASSET MANAGEMENT CULTURE

The growth periods of the 1970s and 1980s were characterised by an asset development culture. To meet the education, health and other needs of the 'baby-boomer' generation, the construction of new assets was seen as the primary strategy. New assets were equated with better service, whilst short-term solutions were pursued without proper regard to the long-term consequences.

We are now left with the legacy of assets built for the needs at that time, assets which require substantial resources for their maintenance and upkeep. The SA Public Accounts Committee (1987) forecast that by 2010 the funds required to maintain and replace the existing asset base would be so great

that no funds would be available to fund new assets. In addition, the ageing assets are often inappropriate for contemporary service delivery requirements; the needs of the ageing population are quite different from those of the previous generation requiring new schools.

2.2 STRATEGIC ASSET MANAGEMENT (SAM)

SAM is essentially about aligning assets with service delivery requirements – matching the supply of assets to the demand.

The SAM process is important not only for the management of existing assets but should also from the context for the procurement of new assets. Through the Australian Procurement and Construction Council (APCC), a number of State and Territory Governments are advocating this process as an important component of establishing business cases for investment in new projects. Within the APCC framework, the strategic planning process begins with consideration of service demand and resources to meet this demand. These resources may include not only assets such as buildings, equipment and vehicles, but also human resources, information technology and the like. This leads to asset planning, which encompasses plans for procurement of new assets and management/maintenance of existing assets, including plans for refurbishment, redevelopment, and asset disposal.

Asset performance assessment or measurement is at the core of SAM. Daniel Saul Goldin of the North American Space Agency once said, 'if you can't measure it, you can't manage it' (see Lambright, 2001). As will be discussed later in this paper, this philosophy applies equally (and perhaps more importantly) to measuring the success of an organisation in meeting its service delivery performance goals.

2.3 ASSET PERFORMANCE MEASUREMENT

The SA Government embarked on the development of a process and supporting system to measure and improve the performance of its assets in supporting service delivery requirements.

Against the background of a performance based building approach developed in Europe and Australia (PeBBu), this was assisted by advice from the Ottawa based International Centre for Facilities (ICF) and by liaison with the developers of the 'Logometrix' performance assessment system (Brackertz and Kenley, 2001).

The asset performance management process can not only assist performance assessment of existing assets but can also lead to better design briefs for new projects. According to Prior and Szigeti (2003), this is about 'using performance requirements to define a building, or a building's fitness for purpose, right from the outset'. It begins with the selection of key performance criteria or measures, coupled with the definition of service delivery requirements and corresponding asset requirements or targets. These should be at a level appropriate to the service demands that may not necessarily be the highest level (Davis and Szigeti, 2001).

The performance of facilities can then be assessed against the required performance levels, in terms of their capacity (whether they are in the right place and of the right size), their suitability (whether they support service delivery in terms of functionality and environment), and whether they are in the required condition and meet legislative standards. The gaps between actual and required performance can then be analysed and prioritised, options to bridge these gaps considered, and a staged asset management plan including refurbishment and other works can be put in place.

The SA Government has developed the SAMIS decision-support tool to support this process. In addition to a preliminary test involving a government owned office building, the system is being piloted on selected health and education facilities. It was recognised that a lack of knowledge and understanding of performance management principles could prejudice the successful implementation of SAMIS and the realisation of its potential benefits. Hence, a basic training program in SAM and performance management has accompanied the introduction of the new system.

2.4 IMPROVEMENT FRAMEWORKS

ISO 9004: 2000 'Quality Management Systems – Guidelines for Performance Improvements' gives guidance on the continual improvement of an organisation's overall performance and efficiency, as well as its effectiveness. It includes guidelines for self-assessment in Annex A, with 'performance maturity levels' ranging from no formal approach (level 1) to best-in-class performance (level 5) characterised by 'strongly integrated improvement process; best-in-class benchmarked results demonstrated'. Annex B of the standard describes two fundamental ways of making improvement: breakthrough projects and the more common small-step ongoing improvement.

Similar to their application to individual assets, gap audits may be applied across organisations. As Byrne, Edwards and Wilson (2002) have outlined, such audits 'provide a powerful tool for measuring the confidence level embedded in an organisation's asset management decision-making environment'. Their 'quality element gap analysis' maps progressive levels of practice – from 'innocence' upward through 'awareness' and 'competence' to excellence. Another example of this process being used in asset management is the version of the EFQM Business Excellence Model customised by Woodhouse (2001).

2.5 ASSET MANAGEMENT PERFORMANCE OF AGENCIES: SURVEY 2002

In 2001 the SA Government established an Asset Management Task Force to drive improvements in asset management practices across government and facilitate consistency in approaches. These practices reflect those in the APCC model and involve planning to meet service demands in terms of resources and physical assets - including asset planning with its acquisition, refurbishment, disposal and maintenance plans.

In 2002 the Task Force developed an asset management continuous improvement matrix (Appendix A) to gauge the level of understanding and application of various asset management practices. This mapped the level of

competency (from reactive to best practice) against the range of asset management practices. Although rudimentary, the framework is broadly consistent with continuous improvement under ISO 9004: 2000 and with other approaches - such as the 'Quality Element Gap Analysis' developed by Byrne, Edwards and Wilson (2002). The consolidated results of the self-assessment by portfolio agencies are shown in Appendix B.

According to ISO 9004: 2000 (Annex A), 'the self-assessment approach…is intended to provide a simple, easy-to-use approach to determine the relative degree of maturity of an organisation's quality management system and to identify the main areas for improvement'.

In this instance, the self-assessment revealed that levels of asset management awareness across government agencies had significant room for improvement particularly in the areas of asset performance measurement and audit/review - with the smaller agencies scoring considerably lower levels in relation to all aspects of asset management.

The overall results of a subsequent student survey, discussed in the following section, are overlaid on the matrix in Appendix B for comparative purposes.

3. RESEARCH METHODOLOGY (2004)

As part of its asset management improvement program, the SA Government assisted the University of South Australia in establishing a Masters Program in Facilities and Asset Management, which commenced in 2004. The coordinator of the course on Facilities and Asset Performance arranged for a group of seven post-graduate students to survey the status of SA Government agencies in asset performance management. This was intended to serve the dual purpose of, firstly, undertaking the empirical research upon which this paper is based and, secondly, of providing a unique educational opportunity for the students (constituting a group assignment). The possibility of being published in an international arena was expected to provide an added incentive for the students.

A sample of 10 asset managers drawn from 7 key organisations (including health, education, justice and arts) was selected to participate in the survey. Although mainly directed at government, one interviewee was chosen from the University sector for comparison. Interviews were selected as the most appropriate method as face-to-face contact enabled exploration of culture and motivation, as well as aiding the educational experience. These interviews were based upon a standard questionnaire and addressed the main elements of asset performance management, namely performance assessment and strategy development.

To enable some comparison with the results of the 2002 self-assessment conducted by the Asset Management Task Force, the levels of understanding and application were gauged using a similar improvement matrix, with the levels ranging from reactive (lowest) to best practice (highest).

The survey aimed to ascertain the acceptance of asset performance management, its culture and methodology within the SA Government. It was intended to explore these matters in more depth than had been possible

using the broad self-assessment conducted in 2002. Using a similar matrix, interviewees were asked about their current status and the targets to which they aspired. Importantly, their views were sought on the benefits they perceived in working towards the targets, the costs or barriers in terms of time, resources and the like, and the ways in which such barriers might be surmounted.

4. FINDINGS

4.1 PERFORMANCE ASSESSMENT

The survey indicated there are various degrees of use of performance measurement tools across Government agencies. For example, two organisations noted no current use whilst two others had quite detailed and defined measurement tools in place. Generally, the type of tools utilised were varied and based on the information the agencies sought to acquire.

Key performance categories currently implemented included capacity, suitability, condition and compliance.

The following matrix (Figure 1) highlights the current and ideal position of agencies in regard to knowledge and utilisation of performance assessment tools. The matrix shows that, relative to the target of 3-5, agencies' current use is generally low.

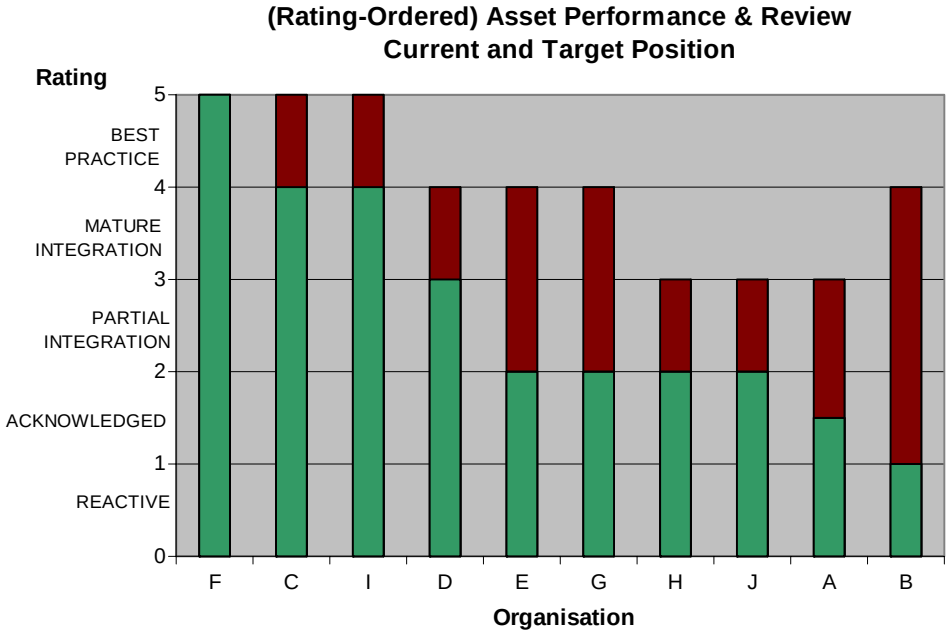

Figure 1. Asset Performance Review (Current and Target Position)

Agencies across the spectrum noted varying degrees of resistance to implementing performance-measuring tools within their organisations. However, all agencies acknowledged that such resistance must be overcome for ongoing asset management systems to be successful and continually improve. The main areas of resistance included:

a) Lack of knowledge by the whole asset team;
b) Lack of knowledge within higher level management;
c) Obsolete information provided by old systems;
d) Lack of both human and financial resources;
e) Community pressures.

As one agency commented, the 'human factor' (general understanding) was a major barrier. Another admitted: 'the organisation does not acknowledge the importance of implementing the tools'.

Common strategies to overcome the resistance included:

a) Improve employee involvement;
b) Provide relevant training;
c) Organisation to endorse procedures;
d) Implement new government system (SAMIS);
e) Engage suitable personnel.

Agencies that currently utilised performance measurement tools claimed they assessed gaps in the context of all assessments completed, rather than on an individual basis. The gaps were also managed differently according to the agencies' key strategic issues and directions, which ranged from occupational health, safety and welfare (OHS&W) compliance through to service delivery and corporate strategy.

Most agencies recognised the usefulness of developing reports from information gathered during performance assessments. Reports allowed some agencies to aggregate information, forecast essential and preferred works and projects and, in most instances, led to clear and accurate funding bids. However, other agencies had no formal reporting structure and (alarmingly) management of one agency 'had no perceived requirement for reports'.

Whilst current use of performance assessment tools varied from low to high across agencies, all acknowledged the importance of working towards implementation of performance management and continued improvement. All agencies believed that performance measures and assessments oriented to service delivery could have a substantial influence on asset management decisions (e.g. refurbishment, replacement, disposal) within organisations. They were powerful tools for asset management, management and strategic direction. Typical comments were: 'supports managers' position in recommending the allocation of scarce resources'; 'powerful / influential based data generated provides for a well-informed view'; and 'ability to provide clear cases for funding proposals'.

4.2 ASSET MANAGEMENT PLANNING

Figure 2 highlights the current and ideal position of agencies in regard to knowledge and utilisation of asset management planning.

The ratings recorded by respondents indicated that intermediate levels of asset management planning (average 2.5) were currently implemented by organisations. A distinctive finding was the importance associated with further integration of asset planning in the organisations' futures, shown in the average target of 4.2. This indicates that the majority of agencies aspired to significantly higher standards of planning of built assets, compared with current practices.

Generally, performance assessments were becoming more important to organisations in *all* areas of decision-making and planning. The resulting

data was considered critical when developing business cases, making decisions affecting an asset's life cycle and preparing long-term plans. However, consistent with the findings concerning performance assessment, such planning tended to be closely associated with *operational* matters, related to continued maintenance of existing assets. The availability of operational level data and lack of strategic information tended to impede higher level strategic planning.

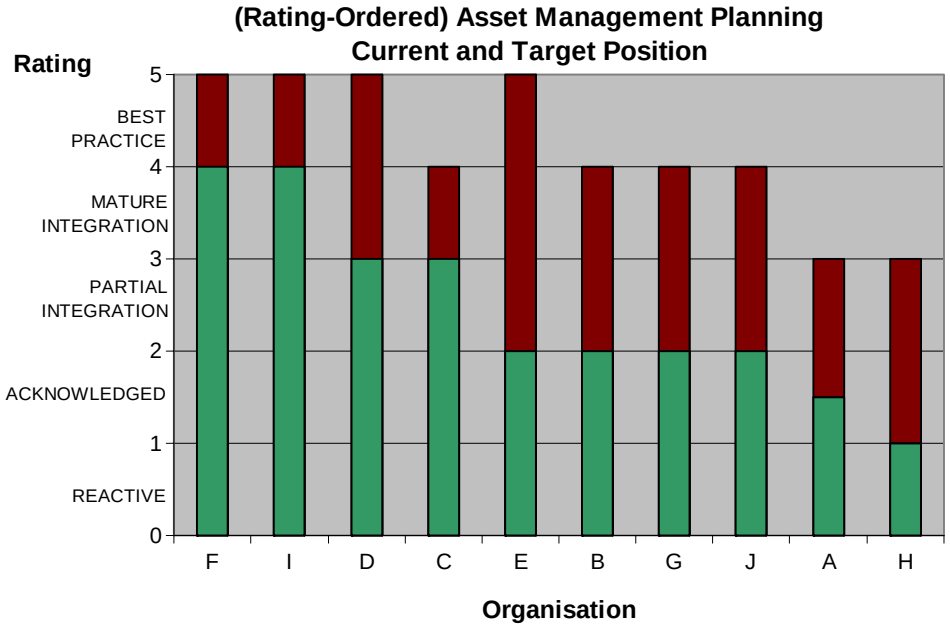

Figure 2. Asset Management Planning (Current and Target Position)

Inconsistencies existed in the degree of implementation and integration adopted throughout organisations, due to divisions in different management levels. Generally, asset management planning was integrated into annual budget cycles, reviewed annually, with a more comprehensive review being conducted tri-annually. It provided a useful tool to support the role of asset and facility managers in planning and making recommendations, especially at an asset or site level, with the ability to accurately forecast future expenditure being critical in securing finance. One organisation admitted it 'does not currently benefit from asset management, as it has not been implemented apart from in a reactive state'.

Factors such as technological developments, strategic directions of governments, changes to legislative requirements, political pressures and financial constraints could have a substantial effect on particular agencies and on their built assets used to support service delivery. Other influences included changing public demand and expectations concerning the provision and delivery of fundamental services. There were potentially serious consequences and emotive issues associated with poor performance. A major challenge was that of managing the tension between what is required (by the public and consumers) and what is provided (by the existing asset base) within limited resources. The structure and logic of performance management procedures and decision processes could be undermined by

'irrational' factors, such as politically motivated and unplanned human intervention.

Respondents recognised that rigorous, defined performance management processes (based on ensuring service provision) improved the ability of an organisation to allocate scarce resources to areas of highest risk and priority to the service or business. They offered flexibility to adjust or adapt to changing business environments and assist in coping with tight constraints on resources. One responded commented: 'formalised assessments providing empirical evidence (based on conventional / recognised standards) allow comparison of conflicting issues in relation to business objectives'.

An important finding, though, was that asset management tended to be practised at a site level rather than strategically at a portfolio level where, potentially, most benefits could be gained. In one case, it was not practised at all. There appeared to be little strategic effort to align an organisation's assets with the kinds of new service demands described earlier in this paper.

4.3 IS THERE COMMITMENT TO IMPROVING ASSET MANAGEMENT?

As shown in Appendix B, some minor improvement was evident when the levels of understanding and application of performance management were compared with those ascertained through the 2002 self-assessment.

An important aim of the 2004 survey was to examine performance management 'culture' - to ascertain what would motivate agencies and their asset managers to make the effort to improve their knowledge and application of performance management. Did they possess the will, desire and commitment to 'raise the performance bar' from their current status (often operational, tactical and reactive) to the higher strategic level? Or was a fundamental change in culture required?

In this regard, one agency perceived 'there is an awareness and desire within the organisation to implement the tools, although no action had been instigated to make it occur as yet. It was difficult to draw any general conclusions as to whether they had any real commitment to performance improvement.

Whilst the respondents acknowledged the importance of gaining the commitment of the corporate and executive management levels of an organisation, perhaps the answer lies in the pertinent comment that 'assets exist because of people'. The requirement for essential services such as health and education was seen to drive the asset or facilities management solution – not the other way around. As Strategic Facility Services (2004) asked, 'Should we link and compare the performance of the assets to the performance of the organisation?' This may be the key to motivating agencies to improve their asset management knowledge and practices.

5. DISCUSSION

The challenge faced by Building Management and its other state government counterparts is to raise the level of understanding of strategic asset management and performance approaches – including business drivers such

as improved service delivery – among government agencies. An important mission of Building Management is to 'work with agencies to achieve measurable asset management improvement across government'.

Without an improved understanding of asset management, the introduction of the strategic asset management information system (SAMIS) may be jeopardised. Agencies may not perceive the value of committing resources and time to introduce improved asset management practices accompanied by a new system, in a climate of funding restraints for some core services. As they are primarily concerned with maintaining these core businesses, the connection needs to be made between this and their assets – to show how better alignment can support service delivery. Furthermore, the uptake of asset performance approaches may be increased if performance management cultures and processes are applied to achievement of business outcomes. To date, asset performance has been viewed largely in isolation.

The survey revealed that asset management is applied largely at an *operational* level and the benefits of applying this at a wider *strategic* level have yet to be realised. One example of what can be achieved is the work of state health departments in delineating service requirements for various health services, with some early attempts to develop related 'statements of asset requirements' (DHS and DAIS, 2002). These can then be used as a basis for differentiating the requirements for various health assets that, taken together, may deliver more effective health services.

The basic improvement and reporting frameworks developed by Building Management and the students have already shown the potential for gaining a snapshot of asset management performance across government, for identifying the gaps, for planning actions towards achievement of targets, and for reporting on progress. However, to date, agencies have not made the link between these initiatives and recognised best practice standards and frameworks including ISO 9004: 2000 and the Australian Business Excellence Framework. Similar to its European counterpart, the latter includes key criteria for business success, including: leadership and innovation; people development and involvement; customer focus; continuous learning, innovation and improvement; and systems.

There is considerable scope for developing more sophisticated frameworks, along the lines suggested by Byrne, Edwards and Wilson (2002) and Woodhouse (2001), and incorporating the principles of ISO 9004: 2000. Stedman has developed a stepped pathway to improvement, with attainment at each level of an 'Organisation Improvement Framework' being related to relevant standards and accreditation (Stedman, 2004). A similar framework could be developed for asset management improvement, with training requirements, competencies and the like being linked to each level of attainment.

Importantly, such frameworks can provide a useful basis for discussion with agencies on how to 'raise the bar' – including the nature of any barriers, how these may be overcome, and how this may be worth the effort in terms of improved business outcomes. The guidance provided in Annex B of ISO 9004: 2000, hitherto untapped, could provide valuable assistance. This states that continual improvement by either the breakthrough or small-step,

gradual methods involves identifying the reason for improvement, problems with the current situation, and possible solutions.

Similar improvement frameworks using 'scorecards' and the above principles of gap analysis may be applied at the level of assets. Thus, a performance management culture may permeate government agencies, starting with their business outcomes, then extending to the assets that support these and to the systems (eg SAMIS) that underpin sound asset management and reporting.

From an educational perspective, the students appreciated the opportunity to meet asset managers face-to-face and gain an understanding of the application of asset management principles. Feedback from the group, though, indicated that the learning outcomes of the survey could have been clearer and the short time frame of only one month for the whole exercise inhibited a more thorough survey and in depth learning. Despite such difficulties, the findings have provided a useful platform for further surveys by the SA Government.

6. CONCLUSIONS

Although the 2004 survey was conducted using a sample of only ten organisations, these represented some key agencies such as health, education, police and arts. The findings are therefore considered to provide a good indication of the status of asset performance management across government. An attempt was also made to compare the levels of understanding and application with those that had been ascertained through the 2002 self-assessment, and some minor improvement was evident.

However, the main value of the 2004 survey by means of interview was that it provided greater insight into the barriers to implementing performance management within agencies and how these might be overcome. Whilst performance approaches may undoubtedly have benefits in improved asset management and better allocation of funds to areas of most need, this is offset to some extent by costs in terms of increased resources (time, financial, human) to improve systems, the need to improve general understanding and knowledge, and to demonstrate that there are business benefits. To achieve a change in culture, it was critical to focus on the deficiencies of current practices, the reasons for improvement, and the benefits of the new approaches. For agencies to become committed to practising asset performance management, it was critical that they first embraced *business* performance management. In other words, it was necessary to have business drivers in place.

Whilst the performance improvement matrix developed in 2002 - later adapted for the 2004 survey - is rudimentary in nature, the results to date have indicated that it would be worthwhile to develop a more refined version which is more aligned with ISO 9004: 2000.

Whilst this paper is focussed on government agencies, the philosophies of performance management and improvement are seen as applicable to the private sector, although profit may loom larger than service delivery as a driver for improvement.

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APPENDIX A: ASSET MANAGEMENT CONTINUOUS IMPROVEMENT MATRIX

	SERVICE DEMAND PLANNING	ASSET DATA & INFORMATION SYSTEMS	RESOURCE	ASSET PERFORMANCE REVIEW	AUDIT AND REVIEW	ASSET MANAGEMENT PLANNING	ACQUISITION & DISPOSAL	OPERATION & MAINTENANCE
5 BEST PRACTICE A.M.	Proactive asset management anticipating future requirements influencing demand	Common data bases exist; Data information is correct & timely; Data/ information accessible to all levels of management/ ops	Flexible partnership relationships across agency, other agencies, central govt; Partnership arrangements with private sector as benefits.	Exemplary review process; Generates economic value & advancement.	Able to achieve benchmark efficiency/ effectiveness; Independent audit encouraged.	Continuous improvement activities are fully integrated with planning life cycle; SAM incorporated into corporate strategies.	Portfolio plan/ corporate plan outcome driven.	Individual asset ops. & mtce. strategy based on performance & evaluated against returns on assets; Preventative mtce. primary focus.
4 A.M. FULLY INTEGRATED INTO MANAGE'T	Asset management linked to service demand & building service delivery strategy	There is no duplication of info; Integrated info systems.	External partnership relationships; Packaging of work; Accountabilities set at asset level; People proficient in measurement, aggreg'n & analysis of data.	Strategic review based on importance/ criticality; Analyse trends/ cause/ effect; Full lifecycle benefits measured and optimised	Systemised & integrated audit process.	KPIs linked to strategic & business plans; Long term asset plans in place; Risk plans; Portfolio asset planning integrated with business plans.	Acquisition strategy set by existing long term asset plans; Processes ensure value for money, transparency of process.	Based on business & performance objectives; Effort for assets based on strategic ranking; Risk management.
3 PARTIAL INTEGRATION OF A.M. INTO MANAGE'T	Development of service demand strategy & implementation of asset performance requirements/ measurements.	Focus on, quality, completeness & timeliness of information; Recognise need to link asset related information systems; Identification & collection of strategic asset performance data	Well defined roles & responsibilities; Internal resources for strategic planning; Site level personnel trained in SAM; Outsourcing packages.	Level of service vs. cost of service reviewed regularly; Strategic asset performance measures described Applied asset valuation methodology; Operational performance measures applied	Business/ market oriented; Unnecessary risks avoided; Close monitoring; Continuous review of supplier performance; Post occupancy evaluation	Business oriented Performance based Consistent project evaluation process in place Use gap analysis techniques including risk assessment Planning & partial implementation of portfolio asset plans.	Implementation of procurement processes; Application of analytical tools & techniques; Project risk management.	Integrated financial / ops & mtce. Plans well documented; Ability to contract out aggregated packages; Asset condition & backlog maintenance identified.

2 A.M. NEED ACKNOW-LEDGED	Identified need to define service demand & asset performance requirements.	Asset register exists & is maintained; Need for asset management info system recognised, together with more proficiency in use of information.	Corporate facilities manager with well documented relationship with site managers; Skills/ training needs Identified; Relationship with key public sector service providers.	KPIs identified & communicated: capacity, suitability, condition; Process responsibilities established.	Well documented/ prioritised processes & practices; Formal audit plans.	Need for SAM recognised; LCC for major capital investments; Site asset plans being developed; Some risk analysis.	Planned asset replacement not linked to service demand; Decisions based on business case; Formal delegations.	*Maintenance strategy for major assets only;* Some consideration of condition, risk, cost benefit.
1 REACTIVE A.M.	Ad-hoc service demand & asset requirements information.	Asset register does not exist; No centralised data base; Data collection ad-hoc.	Corporate facilities manager.	Corporate focused; Performance/ cost management for major assets only.	Reactive/ unplanned.	Based historical trends; No strategic asset planning process; Technical aspects, ad-hoc data only	Ad-hoc; Informal; Price sensitive; Decision at line level	Based on historical trends; Reactive maintenance; No performance monitoring.

APPENDIX B: ASSET MANAGEMENT PRACTICE (ALL PORTFOLIOS)