

Chapter 3

Asset Management Personnel

Suffer fools gladly—they may be right.

Abstract To describe the matrix nature of asset management, the need for liaison with many groups, and the need to understand the context of the organization and its stakeholders. To indicate the competencies needed by people who work in asset management. To describe how the asset management system should plan for competency in asset management roles. *Outcomes* After reading this chapter you will know about:

- Matrix management nature of asset management and areas with which liaison is needed
- The definition of competence
- Competencies needed in asset management
- Filling competency gaps
- Key activities where competence is needed
- Personnel roles in asset management and related engineering and maintenance roles
- Personnel development
- Competency assessment
- Leadership
- Communication

3.1 Asset Management—A Matrix Activity

Asset management is a matrix activity which links with many areas of the business. Asset management involves ongoing liaison with diverse areas and Fig. 3.1 illustrates this. Asset managers need a range of knowledge and communication skills which enable them to deal with these interfaces. They need to combine a significant degree of technical equipment knowledge with the ability to communicate

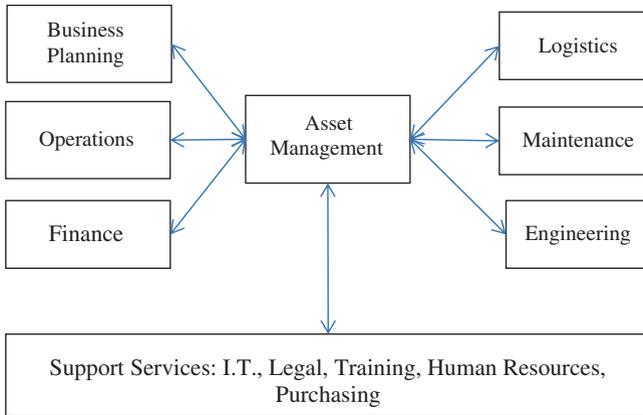


Fig. 3.1 Asset management—a matrix activity

with personnel in other business areas. Important characteristics of good asset managers are a willingness to learn the thought processes of other areas such as finance, information technology and human resource management, and skills in communication, conflict resolution, and dealing with differing cultures and with varying planning horizons. However, operations, finance, engineering design, and the building or installation of plant and equipment are generally not part of the asset management role. The normal running of maintenance and logistics operations are also not part of the asset management role, although responsibility for these departments may come under a Chief Asset Manager.

3.1.1 Understanding Needs and Expectations of Stakeholders

A *stakeholder*¹ is someone with an interest in something. If you have bacon and eggs for breakfast, the chicken is a stakeholder but the pig is committed. In an organization, internal stakeholders are the employees and functional groups such as those indicated in Fig. 3.1. Shareholders and owners are also stakeholders. In the public arena taxpayers are stakeholders, although their influence is indirect. External stakeholders include customers, users, suppliers, contractors, and regulatory authorities.²

¹ ISO 55000 Clause 3.1.22 gives a definition.

² ISO 55001/2 Clause 4.2 gives more detail of stakeholders.

3.1.2 Understanding the Organization and Its Context

Asset managers require broad knowledge of the external and internal working context of the organization.³

3.2 Competence

Competence is the ability to apply knowledge and skills to achieve intended results.⁴ The asset management system should specify competency requirements for personnel involved in asset management.^{5,6} The competency requirements will impact on the recruitment, training, and promotion of persons in the asset management field.

Asset management needs competencies⁷ suited to the requirements for knowledge, skills, experience, behavior, attitudes, and attributes related to asset management. The range of required knowledge will involve an understanding of technical areas of the business, the commercial needs of the business, the relevant suite of asset management techniques, skills in bringing together plans and projects, and in presenting a balanced view of all aspects of an issue as a basis for business case development and decision making. The ability to work in a team and to share, mold, and integrate opinions with logic and objective data are important.

Members of asset management groups will generally be drawn from technical, operational, and service areas and will be people with substantial experience and competence in their earlier roles. Members in specialist roles such as finance, legal, and engineering will combine their specialist knowledge with a thorough grounding in the technical and operational environment of the organization.

Asset managers will be selected for their combination of equipment knowledge and awareness of business requirements and processes. Equipment knowledge will assist them in identifying developments in their technical field, and assessing their practicality and business value. It is important to recognize and to provide sound responses to both customer pull and technology push.

³ ISO 55001/2 Clause 4.1.2.

⁴ ISO 55000 Clause 3.1.3.

⁵ *Competency Requirements for the management of physical assets and infrastructure*. The Institute of Asset Management. www.iam-uk.org.

⁶ ISO 55000 at Clause 2.5.3.5.

⁷ ISO 55001 Clause 7.2 Competence: “The organization shall determine the necessary competence... ensure...persons are competent...”.

3.3 Required Areas of Competence

Areas of competence required in an asset management group are as follows:

- Business awareness
- Demand forecasting
- Asset requirements planning
- Financial analysis
- Business case development
- General technical knowledge
- Technical knowledge of the specific industry
- Awareness of developments in the relevant asset types
- Acquisitions management
- Life cycle planning
- Logistics
- Risk management
- Change management
- Configuration management
- Reliability analysis
- Maintenance management
- Project management
- Communication
- Negotiation
- Team work
- Personnel development.

Figure 3.2 shows in graphical form the overlapping areas of competence needed by personnel in the asset management field.

3.3.1 *Filling the Gaps*

Guidelines for the development of an asset management-related competency management system are given in ISO 55002 at Clause 7.2.⁸ Unlike many other areas of business, there is not an obvious direct educational feed-in to the asset management area. Entrants to asset management cannot normally be expected to have strong competencies across all areas at the outset, and training and education are required to assist development over a period.

The most common route is for asset managers to be recruited from persons with the basic technical knowledge of the industry, either from an engineering or maintenance source. The need for people skills, means that those who naturally are good communicators will be likely to succeed as asset managers.

⁸ ISO 55002 at Clause 7.2.

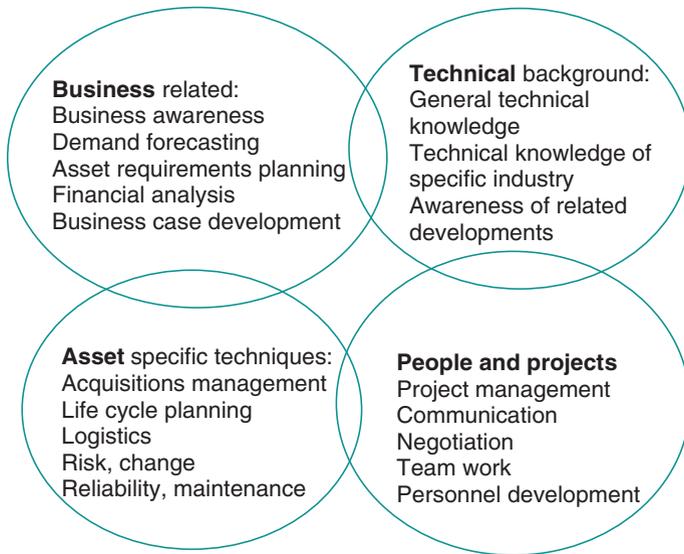


Fig. 3.2 Areas of competence in asset management

This then means that education and training are required in the areas of business finance, in business case development and budgeting, and in asset management specific techniques such as acquisition project development, change management, life cycle asset planning, logistics of asset support and in risk, contingency, reliability, and maintenance systems.

3.4 Key Activities Where Competence Is Needed

Specific tasks where particular competence is needed include the following:

- Development of asset management plans and interface with business plans
- Business case development for improvements and problem solving
- Preparing CAPEX and OPEX proposals—avoiding the asset death spiral
- Management of acquisitions and related change
- Stakeholder liaison
- Managing the maintenance interface, including resource provision, asset condition assessment, and repair/replace decisions
- Reliability and root cause analysis
- Risk identification and mitigation/contingency planning
- Supplier relationships.

3.5 Roles, Responsibilities and Authorities⁹

The following are key personnel roles in asset management. The assignment of persons to these roles will depend on the size and structure of the organization, and the existence of a role does not necessarily imply that that role constitutes a full time job.

Chief Asset Manager

The Chief Asset Manager plays a key role in asset-related decisions and activities. This includes:

- Participation in business development planning to ensure that the asset implications of the organization's business objectives and plans are understood by senior management and that the corresponding asset requirements are incorporated into all business plans.
- Developing plans and financial proposals for asset-related capital and operating expenditure, both for new assets and for the sustainment of existing assets.
- Taking responsibility for the many activities that assets require in an asset intensive organization—as represented in the Strategic Asset Management Plan (SAMP).

This role requires a combination of technical, financial, and personal communication abilities.

Asset Manager

Below the level of the Chief Asset Manager there will be asset managers involved with particular ranges of assets. For example, in an electricity transmission organization there are asset managers for Switchgear, Transformers, and Secondary Systems within the substation asset group. Asset Managers require knowledge of relevant technologies and their operational context. They provide management and leadership for the group, and also provide input into business development in relation to their technical area. This includes replacement planning, budgeting, and analysis related to equipment utilization, reliability, maintenance, and support policy.

Asset managers are likely to come from engineering or logistic backgrounds, but they need to be familiar with the business in its broader context, and with general accounting and financial concepts. While the ultimate detail of accounting and finance will remain the province of specialists in those areas, most business decisions are based on estimates or forecasts made from the basis of combined technical and business knowledge. Here, asset managers have a key role to play in providing timely and sound input into business decisions. A company with a

⁹ ISO 55001 Clause 7. Support, 7.1 Resources: “The organization shall determine and provide the resources needed for... the asset management system.”

strong asset management presence is likely to outperform one where asset management is weak or nonexistent, and it is particularly important that asset managers can provide a working link between the technical and the financial elements of the organization.

Project Manager

Project Managers—Acquisitions

Project managers—Sustainment

Acquisition and development projects constitute a major activity of the asset management function.

Project managers are typically trained and certified in relation to the requirements of professional organizations such as the Project Management Institute and the Project Management Body of Knowledge (PMBOK).

Finance, accounting and costing

Personnel in these fields play an important role in assessing costs, assessing the financial viability of projects, and in managing the finances of projects in progress.

Engineers

Engineers are required to provide detailed technical knowledge essential to decisions relating to the organization's assets. This includes knowledge of design and operation, and engineering and data analysis skills in reliability, maintenance, and through life support and replacement decisions. Engineers may take "subject matter expert" roles which run across an organization. For example, an expert on draglines may advise on technical and asset-related decisions across a range of sites.

Logisticians

Asset management is a mainstream area for the logistics specialist. The work involves applying such techniques as logistic support analysis and level of repair analysis. This activity area extends into configuration management, cataloging of spares, identification and coding of maintainable items of equipment, setting inventory control parameters, and ensuring that the distribution system for assets, consumables, and spare parts is appropriate to needs. A mining company once purchased a vehicle to work underground but then found that it was too big to be taken down the shaft. Roles are summarized in Fig. 3.3.

Technical Support Specialists

Lawyers Contracting and contract managers.

Procurement managers and officers

General staff are also required covering clerical and administrative functions.

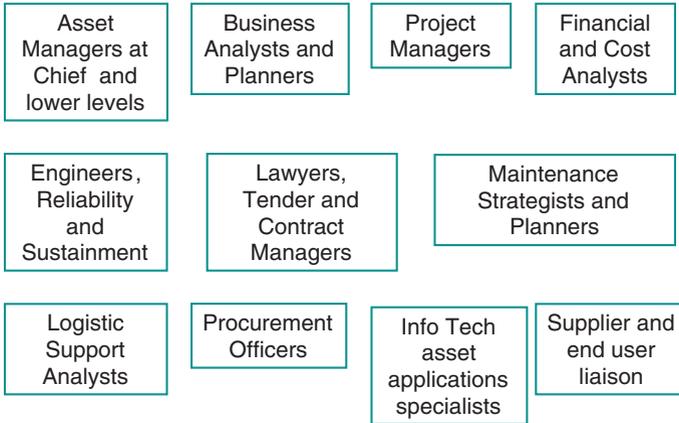


Fig. 3.3 Personnel roles in asset management

3.6 Engineering and Maintenance Roles

3.6.1 Engineering Leaders

Engineering Leaders may be Project Engineers, Engineering Managers, or Project Managers. It is the responsibility of the Engineering Leader to ensure that technical provisions are implemented and complied with. Engineering leaders have a responsibility to approve the appointment of Technical Authorities.

3.6.2 Technical Authorities

A person in a position of technical authority is required to ensure the technical integrity of assets by:

- Participating in the development, monitoring, and review of asset management plans.
- Reviewing inspection reports, failure reports, and technical data and making follow-up reports and recommendations.
- Providing technical support and recommendations to other personnel as necessary.

3.6.3 Maintenance Manager

Responsible for the overall activities and performance of the maintenance department. Budgeting and budgetary control.

3.6.4 Maintenance Superintendent

In a large organization, there may be maintenance superintendents for various areas and also for various trades, e.g., mechanical, electrical. It is the responsibility of the Maintenance Superintendent to:

- Direct, manage, and review maintenance activities including facility shutdowns and turnarounds.
- Manage and direct suppliers contracted to engage in maintenance activities.

3.6.5 Maintenance Team Leader

It is the responsibility of the Maintenance Team Leader to ensure that:

- Maintenance activities are supervised, controlled, and carried out in accordance with the maintenance policies, systems, plans, procedures, and work schedules as determined by management.
- All such activities are performed to the required work standard.

3.6.6 Maintenance Planner

It is the responsibility of the Maintenance Planner to:

- Produce planned maintenance programs, shutdown/turnaround and long term, work scopes, and associated documentation to the required work standard.
- Provide ongoing planning support to the Maintenance Schedulers and Team Leaders.
- Initiate, review, and update maintenance plans and documentation as appropriate.

3.6.7 Maintenance Scheduler

It is the responsibility of the Maintenance Scheduler to:

- Produce and deliver regular and timely maintenance work schedules in liaison with operations personnel.
- Produce supporting documentation and in conjunction with the maintenance supervisor, assign suitable resources that will enable such activities to be carried out to the required work standard.

3.6.8 Document Controller

It is the responsibility of the Document Controller to ensure that all related documents are controlled, are correctly filed, and readily accessible for reference, research, review, or audit purposes.

3.7 Personnel Development System

A competency development and recording system¹⁰ is needed in order to manage the competency of personnel. Topics to be covered include the following:

- Identification of required competencies.
- Development or identification of training and educational courses.
- Delivery of the required training and educational programs.
- Competency assessment.
- Documentation of training received and competency achieved.
- Personal development programs.
- Succession planning.
- Hiring of competent people.
- Evaluation and feedback in competency assessment.
- Linking of the asset management competency program with general personnel training and development processes.
- Linking of asset management system roles with business/financial/planning roles and people.

The competency of contractors and outsources must also be addressed.

3.8 Competency Assessment

Competency assessment is based upon:

- Qualifications;
- Demonstrated understanding; and
- Demonstrated experience;

Getting the right people into the right positions in asset management involves recognizing the competencies that are needed and recruiting, selecting, and developing people to deliver these competencies. For any particular appointment it is useful to identify the main competencies needed and then assess individuals against this. A simple rating system for any competency is:

¹⁰ ISO 55002 Clause 7.2.

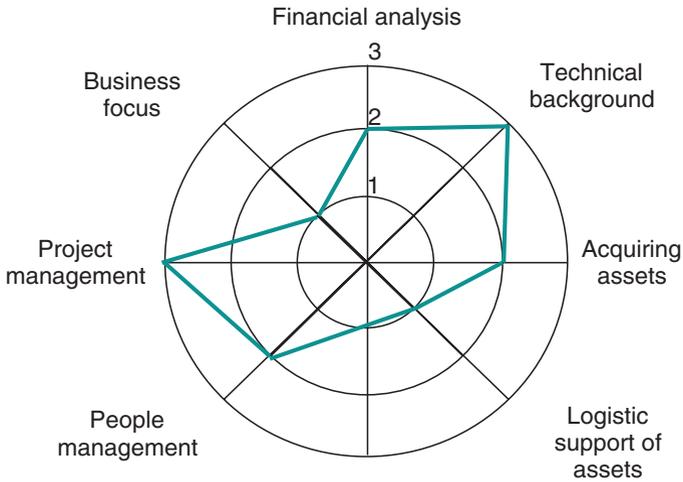


Fig. 3.4 Spider diagram for competency analysis

- 0 = None,
- 1 = Low,
- 2 = Medium,
- 3 = High.

A spider diagram helps in visualizing and presenting the competencies required for a particular post, and the competency status which has been assessed for a particular candidate. This approach is illustrated in Fig. 3.4 which is a spider diagram relating to the position of Asset Manager. This can assist with decisions on appointments, and also identify where individuals would benefit from additional training and experience.

Grandier terms for the level of competency are: 1 = Foundation, 2 = Professional, and 3 = Mastery.

3.9 Leadership¹¹

Leadership is an important factor in effective asset management. The asset management function must be represented at a sufficiently senior level in the organization if adequate leadership in the asset management field is to be achieved. Without this leadership, business plans can fail due to inadequate or inappropriate asset provision or support. The existence of a Chief Asset Manager, or equivalent representation at Chief or Vice-President level, is important in this regard.

¹¹ ISO 55001 Clause 5.1 ‘Leadership and commitment’: “Top management shall demonstrate leadership and commitment to the asset management system.”

A primary element in leadership in asset management is the ability to combine an understanding of the business objectives with an understanding of the role of physical assets in meeting those objectives. This is the starting point for ensuring that the business objectives and the asset management plans are aligned. This must then be followed up by appropriate asset provision, asset support, and resources for the sustainment of an effective asset management system.

Leadership also plays a key role in establishing a positive workplace culture. This means extending from a sound practical system of asset provision and support, into encouraging active participation of all levels of staff in establishing a culture which respects safety, reliability, and cost effective operation.¹²

More generally, though, leadership is not necessarily the same as good direction, so do not get led astray.

3.9.1 Communication and Response¹³

Ongoing systems should be established for communication between management, employees, customers, suppliers, and stakeholders in regard to asset management issues and developments. In this way, asset knowledge will be developed, disseminated, and retained.

Communication must be two-way. It is highly important that good communications are established with employees in regard to feedback from operating and maintenance levels, as this is where the first indications of asset-related problems often come to light. Problems must not be swept under the carpet due to laziness or fear of retribution. Staff should be given time and encouragement to refer problems upward so that they may be acted upon. This includes respect for minority opinions and giving priority to bad news. If senior staff are ignorant of, or choose to ignore significant problems, respect will be lost and the workplace culture will deteriorate.

One day I saw a loose nut lying on the floor of my garage. No one else was going to do anything about it, so I checked to see where it had come from. I found that it was from the motor that drove the automatic door and that the motor was loose on its bearers. I replaced the nut and checked and tightened the other ones. In a working situation I might have ignored the nut, or even kicked it under a pile of wood—a reaction known jokingly as “industrial blindness,” which occurs where actual and potential failings are routinely ignored because no one seems to care.

Specific techniques which form a basis for good communication about assets are Failure Recording and Corrective Action Systems (FRACAS) and the use of regular tool box meetings involving operations and maintenance staff and

¹² J.R. Laffraia and J. Hardwick, *Living Asset Management*. ISBN 978 1 922107 25 1.

¹³ ISO 55001/2 Clause 7.4 Communication: “The organization shall determine the need for... communications ...what...when...with whom...how.”

supervisors. It is important that feedback from the workplace penetrates to higher levels of management where there is sufficient financial authority to address problems. Managers should understand the effect on business operations of shortcomings in asset performance and condition. It is important that any adverse findings are acted upon and not merely shelved.

The film, “The Caine Mutiny” dramatizes the difference between two ships’ captains. The first had good communication and rapport with his crew. He took note of suggestions and delivered a positive response or explanation. As a result the crew responded with good performance. His successor was a martinet whose reaction was to punish mistakes or delays, but not to listen to reasons why. The eventual result was a mutiny when conditions became tough.

3.10 Exercises

3.10.1 Self-Assessment Quiz 3.1

1. Identify four areas of an organization with which asset management has major interfaces.
2. What is the definition of competence?
3. Identify six asset management activities where competence is needed.
4. Identify six personnel roles in, or closely related to, asset management.
5. Identify six points to be covered in a system for the development of asset management personnel.
6. Why is leadership in asset management important in assisting an organization to meet its business aims?
7. Why are good communications between asset management and operations and maintenance important?

3.10.2 Pacific Earth Moving Part 1

Pacific Earth Moving is a medium sized company which sells, maintains, and hires out excavators, bulldozers, graders, trucks, and other earth moving equipment. Increased demand for the company’s services has led to the approval of a proposal to implement a major expansion plan. Several senior managers who grew up with the business have recently retired and a new organizational approach is needed to implement developments.

You have been assigned to advise Pacific Earth Moving on establishing an organizational structure for asset acquisition and asset management for the future, and indicating what personnel should be recruited. Provide an outline of the proposed organization in the form of an organization chart and an indication of the personnel roles and competencies required by the company.

3.10.3 Self-Assessment Quiz 3.1 Solution

1. *Identify four areas of an organization with which asset management has major interfaces.*
Any four of Business planning, Operations, Finance, Logistics, Maintenance, Engineering.
2. *What is the definition of competence?*
Competence is the ability to apply knowledge and skills to achieve intended results.
3. *Identify six asset management activities where competence is needed.*
Any of the areas shown in the dot points of Sect. 3.4.
4. *Identify six personnel roles in, or closely related to, asset management.* Any of the dot points shown in Sects. 3.5 and 3.6.
5. *Identify six points to be covered in a system for the development of asset management personnel.*
Any six of the dot points shown in Sect. 3.7.
6. *Why is leadership in asset management important in assisting an organization to meet its business aims?*
Without this leadership, business plans can fail due to inadequate or inappropriate asset provision or support.
7. *Why are good communications between asset management and operations and maintenance important?*
Because feedback from operations and maintenance gives the first indications of asset-related problems.

3.10.4 Pacific Earth Moving Part 1

The answer to this exercise is based on Sect. 2.5 of Chap. 2 and Sects. 3.3–3.5 of this chapter.

3.11 Asset Management—Who Needs It?

Every few weeks Jock would call in on his Pop at his old weatherboard house near the Yarra river at Warrandyte. Pop barracked for Richmond, unlike Jock who was a Brisbane Lions supporter. Pop also went along to the local oval every week to watch his youngest great-grandchild play for the Warrandyte Bloods in the local under 12 s league. After the usual football banter, Jock told Pop about his new job.

“What do you mean asset management?” asked Pop. Jock explained.

“We could have done with some of that in the early days of the war,” said Pop. Jock liked to hear Pop’s stories and waited for him to go on.

“Norway was a disaster,” said Pop. “We were supposed to block the German advance but we were landed without any of our stuff. We were sitting on a hillside with just our packs and rifles when an officer told us to start digging in. He didn’t stick around so we just took a couple of casual kicks at the rocks and sat down again.

Then my mate Happy Kershaw noticed a plane in the distance, and said that it was coming our way. Happy stood up and said, ‘It’s dropping something.’

We watched idly as the something fell to the ground, and then jumped a mile as it gave an almighty bang. Realization dawned, as the plane veered away and we could see black crosses on its wings. After that we lay flat, and dug furiously with our bayonets and bare hands.

Later that night we were pulled back and shipped out on a destroyer, but all our gear was lost. Someone must have learnt a lot about logistics from that little episode,” said Pop.