CREATING AND MAINTAINING AN ACCURATE ASSET REGISTER

Simone Theron
Research and Development, Pragma

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1 Executive summary

An organisation's asset register forms the foundation of its asset management activities. The asset register needs to be accurate and integrated into the organisation's other asset management and financial systems. Accurate, reliable asset data enables effective asset decision-making, yet many companies are thwarted by having complex or impractical asset data structures resulting in inaccurate asset data.

Once the asset data has been collected and the asset register has been created, the challenge faced by asset owners is one of keeping the asset register up to date. Without a structured process and the correct tools, this can become an almost insurmountable task.

This white paper aims to emphasise some Pragma best practices around the establishment and maintenance of an accurate asset register.

- **What assets do I own** and where are they located?
- **What are the characteristics** of my assets?
- Is my **asset register up to date**?
- Is my **asset register verified** to my auditor's satisfaction?
- Does my asset register **enable effective maintenance** record-keeping?
- Is my **asset data dependable** and in support of effective decision - making?

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2 Assets and asset registers

According to ISO 55000 an asset is an item, thing or entity which has potential or actual value to an organisation. ISO 55000 stipulates that an organisation should determine the information needs related to its assets and consider the technical and physical asset properties.

Asset data can include, but is not limited to an asset number, asset description, location, attributes (eg make, model and capacity), specifications, OEM manuals, parts lists, drawings, purchase and warranty information and maintenance tasks.

Asset Information Standards, Subject 23 in the Asset Management Landscape document specifies that an organisation should define a consistent structure and format for collecting and storing asset information and for reporting on its quality and accuracy. This involves defining and formalising common methods for the asset hierarchy, asset attributes, the geographical position of assets and grades for assessing the condition of assets.

The **asset register** is the repository for the asset data and provides the structure within which asset history is recorded. The history provides us with a record of all previous transactions pertaining to the asset, which include maintenance, modifications, upgrades, breakdowns, spares replacements as well as performance information. Examples of asset performance information include asset utilisation,

Ideally an organisation's asset register should be fully integrated into its asset management and financial systems. This ensures that asset transactions are updated on a real-time basis and that data integrity is maintained between the asset register and the other systems. Accessing asset-related information across several loosely grouped systems makes this difficult and often inaccurate for analysing data for review and decision-making purposes.

2.2 Asset data

Asset number | Asset description | Location | Attributes | Specifications | OEM manuals | Parts lists | Drawings | Component serial numbers | Warranty information | Maintenance tasks

2.3 Asset data

- Maintenance information
- Modifications / upgrades
- Breakdowns
- Spares replacement
- Asset performance:
  - utilisation
  - availability
  - performance rate
  - quality rate

3 What does a good asset register look like?

Poor asset data can have a debilitating effect on asset decision-making. It can result in an inability to record asset cost and maintenance history and assign events and build history. Without accurate asset data, root cause analysis cannot be effectively triggered and prioritised. Incorrect asset condition data results in an inaccurate risk profile and poor replacement decisions being based on assumptions.

Unnecessarily complex or impractical asset data structures can be the single biggest frustration in maintaining an asset tree and extracting information.

Effective asset management can only take place when an appropriate system is used to distinguish each asset as a separate item within the asset register. Each asset should be assigned a simple and unique asset code. **Maintenance significant items** (MSIs) are the equipment items in the asset tree against which maintenance tasks are scheduled, maintenance history is recorded and that require failure analysis. It is essential to record maintenance information on the correct level in the asset tree. Having MSIs at too low a level makes the asset history fragmented and difficult to use. An asset tree with MSIs on too high a level lacks detail.
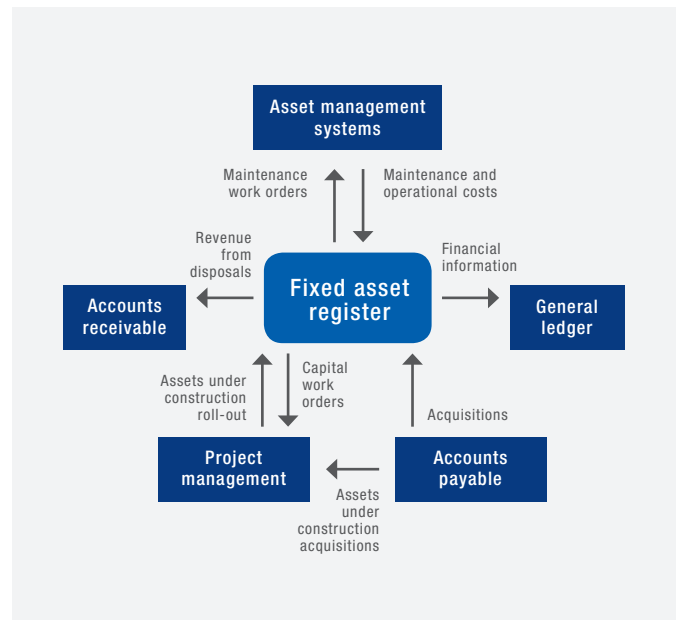
Keep it simple and practical.

Fig. 1. Typical information flows between the asset register and other related systems

Source: Better Practice Guide on the Strategic and Operational Management of Assets. Figure published on www.anao.gov.au – September 2010.

3 What does a good asset register look like?

Taking cognisance of the fact than an asset's **asset code** should never be changed once it has been assigned, caution should be taken when considering the use of intelligent asset codes. Intelligent asset codes include characters representing specific information, for example asset locations (eg FL01 for the first floor) or responsible departments (eg ELEC for the electrical maintenance department). These intelligent asset codes could become a problem when the items that they are referencing are changed. For example, if an air conditioner's asset code is AC01-FL01-ELEC and the asset is moved to the second floor, the asset code will cause confusion.

To prevent confusion, Pragma further recommends avoiding the use of alpha characters entirely if possible and recommends that only numbers are used in the asset codes. Numbers are easy to read and relay and a mix of alpha character and numbers adds unnecessary complexity. If however a decision is made to use alpha characters avoid using, O, Q, I and L as these letter can be easily confused.

Asset descriptions should be consistent for assets of the same asset type and should ideally exclude unnecessary specific information. Specific information should be stored in the designated fields, for example store location details in the 'Location' field and serial numbers in the 'Serial Number' field.

A good asset register is therefore simple and practical, with maintenance significant items on the correct level to enable effective maintenance history recording, root cause analysis and asset decision-making.
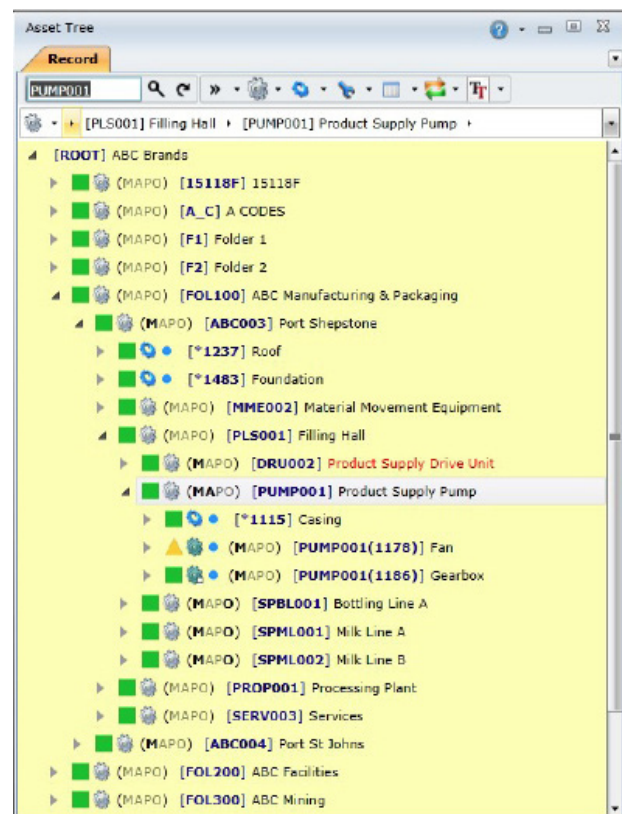

Fig. 2. Asset Tree

4 Collecting the asset data

There are various methods for collecting asset data. These range from the modest clipboard and pen, to spreadsheets and sophisticated data collection software.

The **quality** of the collected asset data should remain one of the main focus areas during the data collection process. Manually collecting and capturing large volumes of data is time consuming and can be susceptible to human error.

Pragma employs a well-designed mobile data collection solution. Using mobile devices and a central mobile application database streamlines and speeds up the data collection process and improves the accuracy of the collected data. Mobile devices communicate with the database via a wireless network to synchronise the asset data.

The benefits of a mobile data collection solution depend upon using a mobile computing platform which is well-designed and reliable. The data collection environment and conditions should dictate the type of mobile device which is used. While consumer smartphones and tablets are adequate for some applications, rugged mobile devices are required in more harsh industrial environments. Rugged mobile device features include tempered glass screens, electronics mounted on shock absorbers and impact-resistant and waterproof cases.

Pre-populated dropdown lists should be used where possible to specify the allowed values per data field and eliminate the possibility of errors occurring with data input. The quality should be evaluated daily and immediate corrective action should be taken to prevent additional work to correct reoccurring errors. It is important to recognise that not all inconsistencies can be identified using a spell checker or other automated quality testing. Where pre-populated dropdown lists cannot be used, special care should be taken to identify inconsistencies in spelling and format.

4.1 Data quality

- Mobile devices
- Pre-populated dropdown lists
- Daily quality management
- Staging database

Using mobile devices and a central mobile application database streamlines and speeds up the data collection process and improves the accuracy of the collected data.

4 Collecting the asset data

Pragma does not recommended updating the EAMS (Enterprise Asset Management System) directly as the asset data is collected. The use of a mobile application staging database enables effective data clean-up before updating the asset register in the EAMS.

As discussed above manual intervention tests are vital and are usually coordintated by a data quality manager. This ensures that the collected asset data is complete, consistent and accurate. Completeness refers to ensuring that all the required data has been collected as agreed. Consistency tests ensure that the data values have been recorded in a consistent manner. Accuracy needs to be tested by revisiting a sample of the assets and physically verifying the collected data.

A data quality manager ensures that the collected asset data is complete, consistent and accurate.
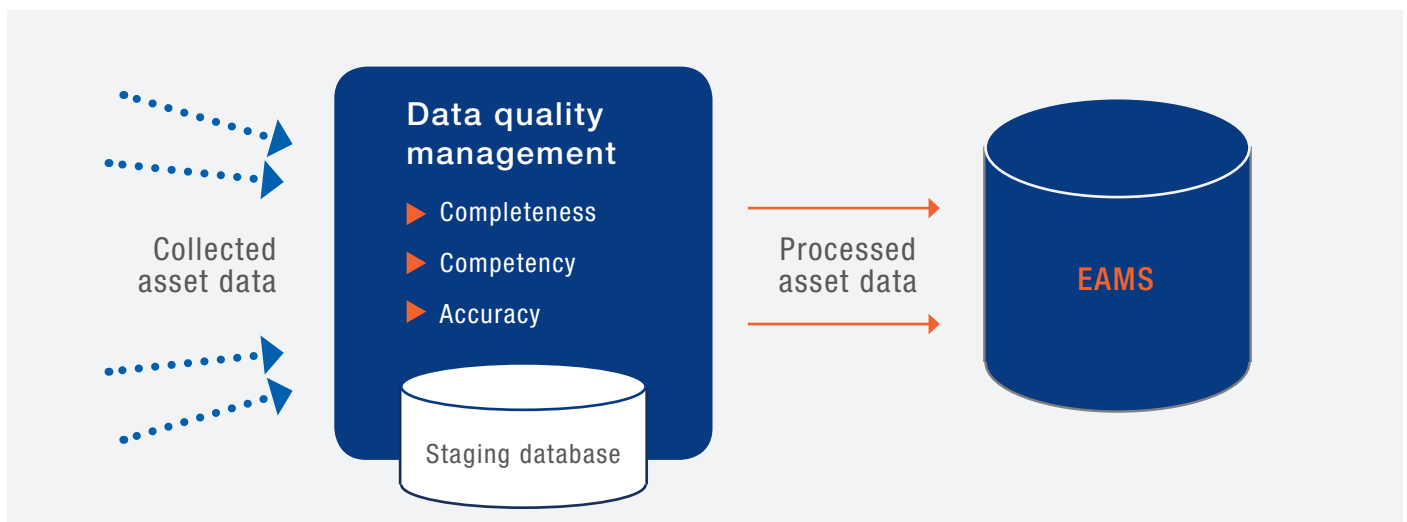

Fig. 3. Data quality management

5 Maintaining an accurate asset register

Formal processes and procedures are required to ensure the ongoing accuracy of the organisation's asset register. When new assets are acquired, modifications are implemented or old assets are decommissioned, a fail-safe process needs to be in place to ensure that the asset register is updated.

Conducting an annual **asset verification** exercise is critical to ensure that the asset register stays up to date. Asset verification involves revisiting the assets to confirm the recorded asset data and update it where required. Pragma uses its **mobile data collection solution** to execute this verification process effectively.

6 Concluding summary

In concept the creation of an asset register sounds simple, but without the correct processes and tools it can be a complex and challenging task. Maintaining an existing asset register can be even more overwhelming without a sound process in place.

Pragma has the process and tools in place to elegantly execute this potentially challenging task for our clients. Together with our project management expertise and asset management experience we are able to manage our clients' asset registers in line with industry best practices and regulatory requirements.

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