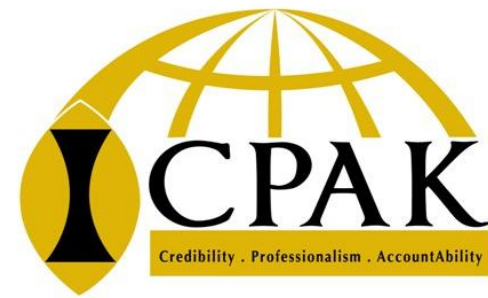




INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS OF KENYA

ASSET MANAGEMENT SEMINAR SEPTEMBER 9TH -11TH, 2015 Asset Information

Asset Information



1. Stakeholders
2. Information needed - data information
3. Static & dynamic, transactional & non-transaction information
4. Gathering information
5. Analysis and use of information
6. Data uncertainty
7. Key Performance Indicators
8. Use of information management systems

Introduction



Asset intensive organisations rely on asset data, information, knowledge and wisdom as key enablers in undertaking both strategic Asset Management activities and operational activities

Introduction



In general, data and information can be improved through a specific management approach that is set out in an overall **Asset Information Strategy**.

Introduction



Information Strategy defines the activities an organization will undertake to ensure that its asset information meets current and future requirements.

1. Stakeholders

Key stakeholders are:

1. Investors
2. Customers
3. Government and regulators
4. Society/operating environment



2. Information



1. Records of the existence of a physical asset, collectively known as an asset inventory or asset register.
2. Attributes about these assets e.g. make, model, serial number, age, rated capacity, etc.

2. Information



3. Attributes of the asset systems, e.g. capability, capability.
4. Location, spatial information, dependencies, and connectivity information – especially in Geographical Information Systems (GIS).

2. Information



5. Logical groupings e.g. systems, equipment types, zones, etc.

6. Access requirements e.g. permits, right of way requests, safety related information.

2. Information



7. Performance information about the asset. This can be subjective (from experience & knowledge) or objective (from measurements and data). It covers information such as asset reliability, condition and serviceability assessments.

2. Information



8. Historical records of past events and work carried out on the asset; either during short, medium, or long term planned activities or as the consequence of unplanned tasks (e.g. breakdown repairs).

2. Information



9. Asset types: an understanding of the types of asset within the asset management system and how they are represented in data is critical, for example, Linear assets like roads and railway lines.

2. Information



10. Meta data – This is data that describes data including its structures, data types, business rules, data locations and data qualities.

2. Information



11. Data Attributes – a quality or feature as a characteristic or inherent part of an asset. Types of attributes can be further broken down to; Function, Condition, Topography – spatial, photogrammetry

2. Information



Topology – e.g. component,
command & control,
Telemetry, energy, functional and
operational relationships,
Capability, Utilisation, Cost, Risk
And Failure modes

2. Information

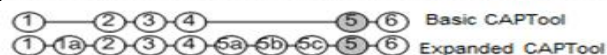


12. Intervention data

Work bank – maintenance,
renewal, enhancements & failures,

13. Unstructured data – user
manuals and drawings.

2. Information



Select Candidate Countermeasures

Instructions
The following is a list of countermeasure opportunities for each critical asset — orange indicates medium effectiveness and red indicates high effectiveness.

To analyze an asset more closely, click on the name of the asset in row 15, and then click "Analyze Asset." A new sheet will pop up that details the effectiveness of the countermeasure against every relevant threat and hazard. The sheet will also tell you how many units of countermeasure you have selected so far for the asset, and the estimated cost.

To add units of countermeasure, enter the desired number of units into any cell. Alternatively, the "Analyze Asset" sheet also has a field for adding units of countermeasure. When you are satisfied with your CM allocation, click "Continue."

Analyze Asset

Filter Countermeasures

Clear All Countermeasure Quantities

Next

Color Key Medium Effectiveness High Effectiveness

		Quantity of Named Asset																
Physical Security Countermeasures	5	State Street Bridge	Interstate Highway bridge	Central Northbound bridge	Local highway connector	Interstate highway tunnel	Airport tunnel	Central station	Commuter hub	Amtrak Station	Subway Station	Underground Subway Station	Passenger Bridge over River	Passenger Bridge over highway	Operations Center	Maintenance facility		
		1	1	1	1	2	1	1	5	1	15	5	2	1				
Access Control Countermeasures	5	Lighting	2	1		1	1		5									
		Barriers & Berms																
		Fences			2		1						1					
		CCTV									1	1						
		Intrusion Detection Devices																
		Physical Inspection of asset	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		ID Cards								1					1	1		
		Biometrics																
		Background Checks																
		Metal Detectors						1										
Asset Design/Engr	5	Restricted Parking						1	1	1	1							
		Random Inspections																
		Visible Badges																
		Limited Access Points			1	1							1	1	1	1		
		Visitor Control & Escort									1	1	1	1				
		Locks						1	1	1	1							
		Explosive Detection	1	1	1	1	1						1	1				
		Establish Clear Zones																
		Visible Signs																
		Seismic Retrofitting			1	1		1					1	1				
Operational Countermeasures	5	Fire Detection & Suppression						1		1		1	1	1	1	1		
		Encasement, Wrapping, Jacketing	1	1	1	1							1	1				
		Patrols					1	1	1	1	1	1						
		WX/Seismic Information																
		Intelligence Networking																
		HAZMAT Mitigation						1	1	1	1							
		Security Awareness Training																
		Emergency Response Training		1	1		1	1	1	1	1	1	1	1	1			
		Emergency Evacuation Planning																
		Planned Redundancy (e.g., Public Information and			1										1			

2. Information



Some of the data and information can be described as

- (i) Static & dynamic,
- (ii) transactional & non-transaction information

3. Gathering information



Generally to gather information on assets we use various tools and techniques ranging from questionnaires, Interviews, observations, filling of forms and use of information systems and requesting reports from relevant....

4. Analysis and Use of Information



The quality of **Data & Information** should be assessed, understood and managed in order to ensure that it provides effective support to business decision making and processes and that these processes include suitable controls based

4. Analysis and Use of Information



Typically, asset intensive organisations do not have all the asset information they would ideally require, and the information they have may not be to the required quality.

4. Analysis and Use of Information



Therefore, organizations will need to assess and priorities data gathering and data cleansing activities to focus on areas that will be beneficial.

4. Analysis and Use of Information



Asset information is a combination of data about assets used to inform decisions about how they are managed.

4. Analysis and Use of Information



Good asset information enables better decisions to be made, such as determining the optimal asset maintenance or renewal frequency for an asset.

4. Analysis and Use of Information



The decision may be based on information regarding the asset's location, condition, probability and consequence of failure, work option specifications and costs, constraints such as resource availability, and other business priorities, such as compliance with regulatory requirements.

5. Data Uncertainty



Basically data uncertainty is a pointer to poor data quality. Under ISO 9000 :

“Quality data is data that meets stated requirements”.

5. Data Uncertainty



Specific data quality measures, include:-

1. Accuracy – the data is a true reflection of the physical entity it represents.
2. Completeness - a complete set of data is available for each data record.
3. Consistency - data is consistent in its definition, rules, format & value.

5. Data Uncertainty



4. Validity - all data held complies with data storage rules.
5. Timeliness - Data reflects the current state of an asset and complies with organizational standards for data update timescales.
6. Uniqueness – Codes and keys should be unique.

5. Data Uncertainty



According to ISO 8000:

1. Document your business language (Processes, reports, findings and feedback)
2. Document your requirements for data
3. Measure the quality of your data

6. Key Performance Indicators



1. Process KPIs: Efficiency of a business process e.g. how long it takes to repair an asset.
2. Input KPIs: How long or fast it takes to procure an asset
3. Output KPIs: Process of asset disposal, efficiency and time...

6. Key Performance Indicators



4. Qualitative KPIs: Such as the quality and functionality of assets, their state, repairs and maintenance.

5. Others: Quality of documentation, physical controls and other controls on the use of assets and quality of information on assets.

6. Information Management Systems



Asset Information Systems are the applications, software systems and other systems that collect, store, process and analyze the asset information that an organization requires to manage its assets over their Life Cycle.

6. Information Management Systems



These systems ideally store, or are integrated with, a register of all of the company assets. This allows integrated planning and operational activities to be effectively undertaken.

6. Information Management Systems



Typical Asset Information Systems include: -

1. An asset register to detail the assets of interest to an organization.
2. A Geographical Information System (GIS) and / or topological systems to record the location and spatial details of assets.

6. Information Management Systems



3. Work management systems to plan and record work activities related to an asset.
4. Logistics systems are required to manage the storage, issuing and use of materials and spares.

6. Information Management Systems



5. Possession management systems are used to plan access to assets for work activities.

6. Demand management systems will forecast how demand on assets will change over time.

6. Information Management Systems



7. Decision Support Tools such as investment modelling systems are used in strategic planning activities.

8. Process, telemetry and SCADA systems provide a record of how well assets have performed and are meeting their service requirements.

6. Information Management Systems



9. Condition monitoring systems monitor key condition indicators of assets, such as temperature and vibration, to help predict possible future failures.

10. Mobile working devices

7. Value Realization from Assets



Assets are things that have actual or potential *value*, and Asset Management achieves the realization of that value.

However, what constitutes ‘value’ will obviously depend on one’s viewpoint.

7. Value Realization from Assets



An investor seeks good profit or capital growth, a customer wants high standards of performance at low cost, a regulator looks for assurance, efficiency and long-term sustainability.

7. Value Realization from Assets



Value will often involve a mix of tangible and intangible benefits or risks – in which case quantification or scaling methods will be needed for the intangible elements (such as reputation, customer satisfaction, employee morale or environmental responsibility).

7. Value Realization from Assets



To maximize value (various aspects of performance in relation to expenditure, risks etc) it is essential that we understand both the inputs, costs and risks at discrete intervention and asset unit levels (at various stages in their individual asset Life Cycles

7. Value Realization from Assets



and the higher, systems integration levels of benefits or performance realization, again considering different timescales and horizons.

7. Value Realization from Assets



This is why organizations should define their ‘assets’ at higher levels (such as whole networks, infrastructure systems or productive units) – it enables a full value-for-money picture of the Life Cycle activities (inputs) and total performance benefits.

7. Value Realization from Assets



Typical priorities & 'values'

Keeping stakeholders happy

Corporate/
Organization
Management

**Portfolio return on investment
compliance & sustainability**

Manage Asset Portfolio

**Systems performance,
cost & risk optimization**

Manage Asset Systems

**Life Cycle
Activities:
efficiency &
effectiveness**

Manage individual Assets over their Life Cycles

VALUE
OPTIMISATION

LIFE CYCLE
COSTING

References



Institute of Asset Managers : Anatomy
of Asset Management

www.theIAM.org/AMA

ISO 9000

ISO 8000