

White Paper
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Tivoli software

Enabling the benefits of PAS 55: The new standard for asset management in the industry

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PAS 55 is becoming internationally accepted as the industry standard for quality asset management, acting as a valuable guideline for asset lifecycle management, quality control, and compliance.

Introduction

Significant amounts of money and time are spent managing business-critical assets each year. Yet there is still confusion over terminology, and a wide variety of management approaches in use. In many cases these approaches serve well, but often they do not, sometimes resulting in high-profile failures. It was clear to the Institute of Asset Management (United Kingdom) that there was a crucial need to provide a consistent framework for asset management systems.

The Institute of Asset Management and the British Standards Institute (BSI) worked together to develop strategies to help reduce risks to business-critical assets. This project resulted in the Publicly Available Specification (PAS) 55-1: 2008: Asset Management standard, first published in 2004. This new standard is the culmination of the latest thinking in terms of best practices in asset management systems.¹

PAS 55 is becoming internationally accepted as the industry standard for quality asset management. The standard acts as a valuable guideline for asset lifecycle management, quality control, and compliance.

The purpose of this document is to describe the background and objectives of the PAS 55 standard and how currently available enterprise asset management (EAM) systems, specifically IBM Maximo® Asset Management, enable and leverage the implementation of this standard.

The PAS 55 asset management standard

The PAS 55 asset management standard gives guidance and best practices on asset management and is typically relevant for all asset-intensive industries. PAS 55 defines asset management as “systematic and coordinated activities and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their lifecycles for the purpose of achieving its organizational strategic plan.”

There are different levels at which asset units can be identified and managed—ranging from discrete assets to more complex functional asset systems, networks, sites, or diverse portfolios. Figure 1 shows examples of priorities that might be evident at the different levels of asset integration and management.

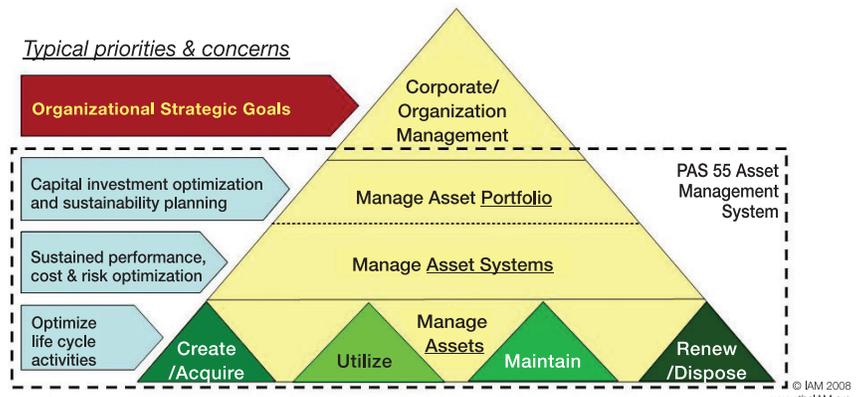


Figure 1: The typical priorities and concerns evident when integrating and managing assets and asset systems.

The standard is focused on all types of assets, varying from critical or strategic **physical assets to human assets**. The physical assets are positioned in the following four classes:

- *Plant and production (oil, gas, chemicals, pharmaceuticals, food, electronics, power generation)*
- *Infrastructure (railways, highways, telecommunications, water and wastewater, electric and gas distribution)*
- *Mobile assets (military, airlines, trucking, shipping, rail)*
- *Real estate and facilities (offices, schools, hospitals)*

PAS 55 states that the definition of asset management represents a significantly greater scope than just the maintenance or care of physical assets.

Highlights

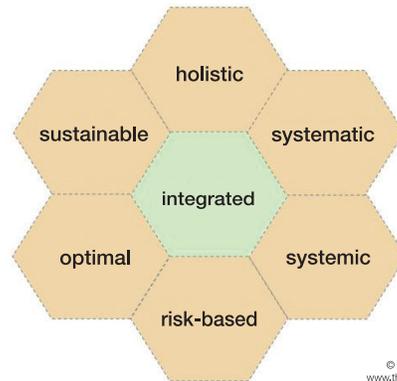


Figure 2: The key principles of successful asset management are grouped around an integrated, coordinated approach.

In order to be successful, it is vital that this standard be implemented as an integral part of the overall business environment of an organization.

The scope of PAS 55

In order to be successful, it is vital that this standard be implemented as an integral part of the overall business environment of an organization. Data that should already be available on condition, performance, activities, costs, and opportunities is needed for the foundation of a successful implementation. It is also important that intangible assets are taken into account regarding reputation, image, and social impact. From a financial perspective, information about lifecycle costs, capital investment criteria, and operating cost is essential.

The human-asset perspective is necessary to get a good view of motivation, expertise, and roles and responsibilities of the people and leadership teams involved within the organization.

PAS 55 and compliance

PAS 55 is designed to help organizations display full asset management competence by meeting a particular set of requirements. Requirements address “good practices” rather than “best practices” in each area.

Highlights

PAS 55 standard is an ideal complement to certified management systems that may already be in place.

The PAS 55 standard can benefit companies not only from the regulatory point of view, but also to help them gain competitive advantage by ensuring that they are effectively managing their assets.

All applied processes must be effective and must require evidence of what is being done and why. The standard is non-prescriptive—as in standards like the International Organization for Standardization (ISO) 9001, ISO 14001, or Occupational Health and Safety Assessment Series (OHSAS) 18001. All elements of the standard framework need to be covered in the process.

The PAS 55 standard is independent of an asset distribution or asset ownership structure and is based on the concept of the PDCA cycle (Plan-Do-Check-Act), meaning that measurable continual improvement is an integral part of the approach. This makes the PAS 55 standard an ideal complement to certified management systems that may already be in place. Using the standard provides assurance to the organization and to its external stakeholders that physical infrastructure assets are managed in an optimal way as a result of an independent third-party audit.

The benefits of PAS 55

In today's economy, factors that drive the need for good asset management are becoming more apparent. Asset risks are appearing more often on the boardroom agenda and there is more of a focus on regulatory compliance from governmental and industry institutions. Organizations are placing a clear emphasis on cost containment, price management, return on investment, and increased overall asset value. The bar is being raised by a worldwide interest in lean principles, asset management, and asset performance. Many sectors are seeing increased expectations from consumers about quality and service delivery as well as green initiatives. On top of this, there is an increased complexity of assets, tools, and equipment as assets become more interconnected, instrumented, and intelligent.

The PAS 55 standard can benefit companies not only from the regulatory point of view, but also to help them gain competitive advantage by ensuring that they are effectively managing their assets. Using this standard methodology for comprehensive asset management can drive cost savings and service improvement.

Overall, using the PAS 55 standard encourages companies to:

- *Achieve asset management good practices.*
- *Start processes to map the entire asset base and create the information strategy in accordance with the company's overall strategy.*
- *Organize around true lifecycle asset management processes.*
- *Challenge and reduce current time-based work and replace with a "risk-based" management approach.*
- *Position asset management-specific accountability from the "shop floor to the top floor" and create motivational performance management.*
- *Focus on building the asset management knowledge base.*
- *Understand and target the tools, and engage the entire organization.*
- *Adopt a truly holistic approach by continuously challenging good or best practices.*

PAS 55: Future challenges and directions

More companies are realizing the benefits of the PAS 55 asset lifecycle approach. The drivers for adaptation include the increasing requirements of different regulators, the influence of financial and insurance companies, and the desire to improve the overall image of the organization to the market.

Sector-specific application guideline projects are being launched, including guidelines for property asset management. Additionally, EAM vendors are preparing for alignment with the PAS 55 standard.

Specific challenges for asset management include:

- *Integrating asset management into companies' long-term strategies by creating a Chief Asset Officer (CAO) role on the board.*
- *Connecting and integrating asset management with financial and asset management strategies and processes.*
- *Developing a competency-building framework of asset management educational tools.*
- *Assuring environmental, regulatory, and legal compliance to meet sustainable manufacturing requirements.*

Highlights

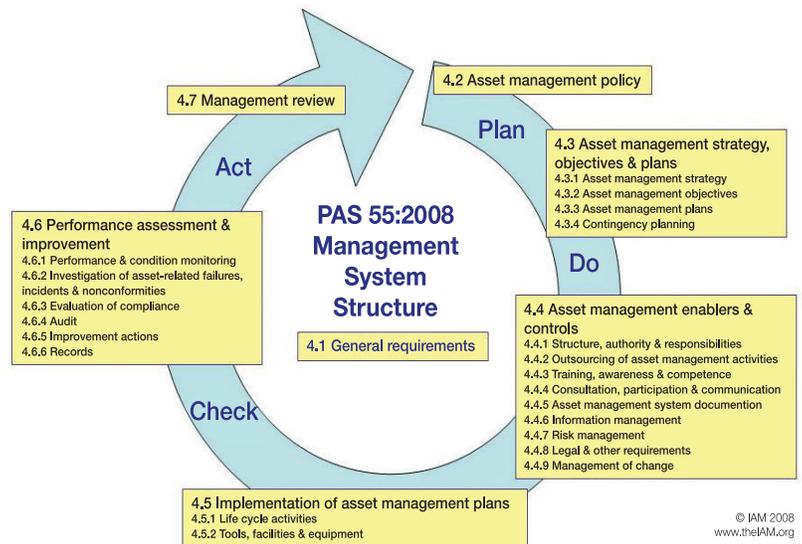


Figure 3: PAS 55 defines the elements of asset management as a continual cycle of activity.

IBM Maximo Asset Management provides capabilities that support the benefits of PAS 55, providing a communication mechanism for the user community and a secure data repository for all asset-related information.

How IBM Maximo Asset Management supports the benefits of PAS 55

As a leading EAM solution, IBM Maximo Asset Management provides the following capabilities:

- *A single version of the truth for all asset-related information*
- *A place to define performance criteria and associated key performance indicator (KPI) measures*
- *The identification of performance failure*
- *Tracking and management of incidents, problems and change*
- *Support for corrective and preventive action(s)*

The ability of the Maximo Asset Management workflow engine to model and monitor processes and procedures provides a communication mechanism for the user community and a secure data repository for all asset-related information.

Highlights

IBM Maximo Asset Management is able to integrate efficiently with a range of other external systems.

PAS 55 4.3: Asset management strategy, objectives, and plans

This section of the standard refers to examples of the components that are typically an integrated part of an asset information system. PAS 55 states: “where separate asset management information systems exist, the organization shall ensure that the information provided by these systems is consistent.”

One of the key requirements of an EAM system such as IBM Maximo Asset Management is to be able to integrate efficiently with a range of other systems, so that at any one time there is only “one version of the truth” in relation to asset information. In this respect, the capability to integrate with other external systems—such as IBM Maximo Enterprise Adapter, IBM WebSphere® software, and IBM service-oriented architecture (IBM SMART SOA™) components—provides a standards-based approach to systems integration.

PAS 55 4.4: Asset management enablers and controls

This section of PAS 55 deals with structure, authority, and responsibilities for asset management. Maximo Asset Management provides full support to many of the functions noted in this section of the standard, including procedures for:

- *Tactical planning, development, management of schedules, and resource allocation.*
- *Asset configuration, calibration, and maintenance.*
- *Management of spare parts.*
- *Maintenance, inspection, and testing of systems and equipment.*
- *Management of change and risk mitigation.*

PAS 55 4.4.7: Risk management

Maximo Asset Management manages the day-to-day activity of maintenance work and has a specific role to play in supporting the identification and management of asset-related risks. Maximo Asset Management has a built-in

Highlights

Maximo Asset Management ensures that information about regulatory and statutory requirements is associated with assets and work procedures.

formal structure for reporting on asset failures by individual asset and by asset type. This in turn supports the mean time between failure (MTBF) and mean time to failure (MTTF) types of analysis, and feeds key data into failure mode and effects analysis (FMEA), which is a key part of Reliability-Centered Maintenance (RCM).

Risk assessment reviews and authorization processes can be modeled using the Maximo Asset Management workflow engine, and notifications and escalations can be used to communicate and monitor status as well as individual or team activities.

PAS 55 4.4.8: Legal and other requirements

Maximo Asset Management ensures that information about regulatory and statutory requirements is associated with assets and work procedures, by making workers aware of the procedures and subsequently able to take the appropriate actions. Maximo Asset Management also makes it possible to generate the appropriate reports to monitor legal and statutory compliance.

PAS 55 4.5: Implementation of asset management plans

The organization should establish and maintain arrangements to ensure the effective control of all activities required to fulfill the asset management policy, strategy, objectives, and plans. It is in this context that IBM as the developer and marketer of the Maximo Asset Management software has also developed an implementation methodology to ensure support of all objectives for a successful implementation of PAS 55, based on industry and subject matter experience in this domain.

PAS 55 4.6: Performance assessment and improvement

The two main activities of this section of PAS 55 are:

- *Performance and condition monitoring (4.6.1).*
- *Investigation of asset-related failures, incidents, and nonconformities (4.6.2).*

Highlights

Maximo Asset Management provides all data necessary to track, monitor, and manage asset condition and performance.

Maximo Asset Management provides full support for these activities by providing all data necessary to track, monitor, and manage asset condition and performance. Maximo Asset Management also supports Corrective and Preventive Action (CAPA) in life sciences environments and Corrective Action Programs in nuclear environments.

PAS 55 4.6.1: Performance and condition monitoring

Not all asset performance and condition targets are necessarily monitored through day-to-day work management activities. However, Maximo Asset Management provides the ideal vehicle to bring together performance measures from a range of sources.

The role of Maximo Asset Management is to provide a structured data environment where the results of all the various monitoring activities can be brought together and reviewed against established structures, policies, and targets. Maximo Asset Management supports both the concepts of “leading” indicators—where potential problems can be identified before they occur—and “lagging” indicators, where, for example, the analysis of past failures can indicate a decreasing performance trend.

Investigation and follow-up of incidents and nonconformities are key to asset performance improvements. Maximo Asset Management has a linked set of incident, problem, and change management applications which support the identification of incidents, the allocation of problems for investigation, and the management of changes to assets or procedures. Maximo Asset Management uses the principles of the Information Technology Infrastructure Library® (ITIL®) standard commonly used in IT environments, allowing the connection between the changes being carried out and the incidents that caused them to be seen at any time.

Highlights

IBM Maximo Asset Management enables a natural alignment with PAS 55, providing capabilities and functionalities which allow capital asset-intensive industries to leverage the implementation of this standard.

Summary

Today's economy is driving the need for good asset management with increased expectations from companies, regulators, and shareholders at a time when assets are becoming much more interconnected, instrumented, and intelligent. The standard is ensuring consistency across the growing asset management requirements and is aligned with other key processes within the organization.

IBM Maximo Asset Management enables a natural alignment with PAS 55. The software provides capabilities and functionalities which allow capital asset-intensive industries to leverage the implementation of this standard. Using IBM Maximo Asset Management software to support the PAS 55 standard can improve customer service, increase return on assets, enable greater compliance, improve asset performance, and reduce risk—all in a shorter time period.

Industry experts from IBM Global Business Services can assist organizations in realizing these benefits through developing appropriate strategies and ensuring successful implementation of IBM Maximo Asset Management leveraging the PAS 55:2008 asset management standard.



For more information

To learn more about how IBM solutions can help you manage business-critical assets and facilitate compliance with PAS 55 standards, contact your IBM sales representative, consultant at IBM Global Business Services, or IBM Business Partner, or visit ibm.com/tivoli.

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¹ For more information, visit: www.bsigroup.com or www.theiam.org

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