Assessment of Asset Management Maturity and the Role of Maintenance

David Barros[1]

INTRODUCTION

Given the growing importance attributed to asset management and the subsequent implementation of structured management systems in companies, it is crucial to understand how organizations can assess the implemented systems and manage their key assets more effectively, utilizing appropriate tools. Similarly, the increasing focus that organizations have placed on managing their key assets has been accompanied by a greater role for maintenance professionals as key drivers and facilitators of improved asset management.

Thus, just as there has been significant development in normative documents supporting the creation and maturation of asset management systems, such as the PAS 55:2008 and the ISO 55000 family of standards, it becomes relevant and necessary to develop models that assist organizations in evaluating their management processes against set objectives. These models provide essential tools for organizations to continually enhance their processes.

Having established the relevance of this topic, this article will address the key points required for the accurate assessment of the maturity of asset management systems and how maintenance impacts these systems.

EVALUATION OF MATURITY

The assessment of an organization's maturity level should be viewed as the initial task in defining processes for effective asset management (IBM, 2013). Measuring management maturity allows an understanding of the current state of the company in comparison to best practices in asset management. This assessment is conducted using models that identify the strengths and weaknesses of organizations, enabling the definition of procedures for efficient prioritization of actions. [4]

In 2008, the Institute of Asset Management (IAM) introduced the first methodology for assessing the maturity of asset management systems, known as PAM (PAS 55 Assessment Methodology), driven by the development of the PAS 55 standard. Later, the need arose to update this methodology due to the publication of the ISO 55000 family of standards, which introduced new and different requirements for asset management. To address this need, the SAM (Self-Assessment Methodology) was developed to allow organizations to assess their processes against the ISO 55001 standard's requirements. This new methodology is applicable across various sectors. These methodologies were designed as the foundation for organizations' self-assessment, allowing the identification of strengths and weaknesses in accordance with normative document requirements. The PAM methodology, for instance, presents 5 maturity levels in line with PAS 55 requirements, while the SAM methodology features 4 maturity levels based on conformity with the ISO 55001 standard. Each level indicates the degree of integration between both methods. [4]

Similarly, the Capability Maturity Model Integration (CMMI) institute developed and updated the Capability Maturity Model (CMM), now known as CMMI, as a process evaluation model. Like the previously mentioned methodologies, this model is defined in 5 maturity levels, focused on defining and maturing the processes necessary for effective management models. As a generic evaluation model, its applicability depends heavily on defining the organization's strategic objectives for establishing the processes necessary for effective asset management. [3]

The assessment of the maturity state of asset management systems is fundamental, initially for prioritizing actions during the implementation of these systems. Throughout their implementation and maturation, it is crucial to ensure the evolution of objectives and their execution. It can serve as a starting point for analyzing the steps to correct difficulties inherent in system execution.

STRATEGIC OBJECTIVES

Emphasizing the importance of maturity assessment in the integration and continuous improvement of asset management in organizations, it is

[1] **David Antunes Barros**, Navaltik Management, Lda. (email: dbarros@manwinwin.com)

February 2024

crucial to understand how the evaluation of strategic objectives takes on special significance and is fundamental to the maturity of these systems.

Given that, during the implementation phase of an asset management system, one of the first steps is defining the company's strategic objectives that will guide management, their importance in ensuring the sustainability of the implemented system is evident. These objectives should serve as the basis for the process definition.

Thus, it is essential that strategic objectives are built on four pillars, identified by the ISO 55000 standard [1]:

- The organization's purpose;
- Operational context;
- Financial constraints and regulatory requirements;
- The organization's needs and expectations, as well as those of other stakeholders.

With the management system planning based on these four factors, assessing its maturity should align not only with the criteria defined by the standards on which the systems are established but fundamentally with the alignment of the application of various processes with the organization's strategic orientation.

In this way, the existence of processes supported by strategic objectives will be one of the main points of assessment for an asset management system since these processes will form the foundation for its execution. However, not only the existence of processes is crucial for system evaluation, but also the effectiveness of their execution. It is necessary to assess both their compliance and their impact on the organization.

Therefore, creating documentation that supports the execution of defined processes is essential to ensure compliance with the management system and to achieve better and more consistent results.

THE ROLE OF MAINTENANCE

Throughout this article, the importance of the processes defined in the asset management system for its maturation has been emphasized. Consequently, maintenance plays a significant role in achieving the strategic objectives associated with the organization's other assets. This is evidenced by the fact that the effectiveness of maintenance activities significantly influences the results of asset management. Focusing on the main benefits derived from effective maintenance, the direct impacts on management are reflected.

- Improved Efficiency and Effectiveness: Regular execution of maintenance activities increases the reliability and availability of assets, leading to improvements in their efficiency and effectiveness. Increased availability is crucial for achieving strategic objectives by ensuring that critical assets remain available and in optimal operational conditions for an extended period.
- Risk Management: Tasks carried out by organizational maintenance departments play a fundamental role in ensuring compliance with regulatory requirements and reducing operational risks. Maintenance is responsible for implementing necessary and appropriate safety measures, thereby reducing accidents and non-compliance.
- Enhanced Financial Performance: As mentioned in the benefits above, efficient maintenance strategies contribute to reducing asset downtimes, leading to increased profitability. Maintenance tasks also result in a decrease in unplanned shutdowns, reducing unforeseen costs and, above all, lowering long-term asset costs.

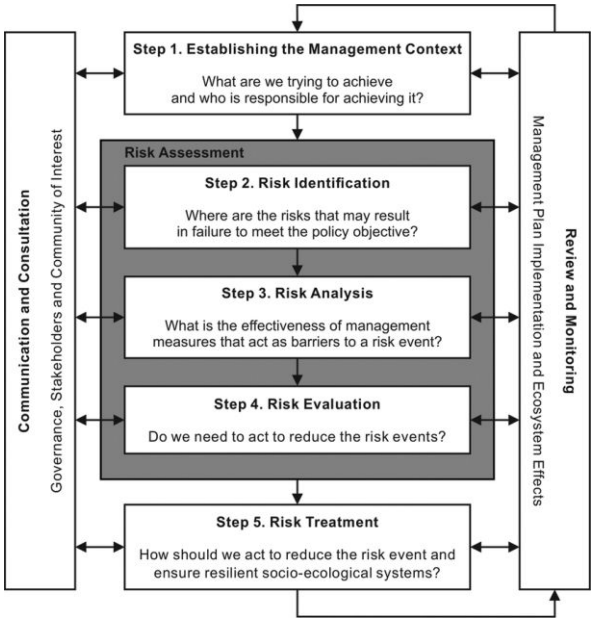
Therefore, considering the main benefits that arise from prioritizing maintenance, it is crucial to recognize maintenance as a key component for the growing maturity of organizations' asset management systems. This recognition allows organizations to achieve higher levels of operational efficiency and overall performance.

RISK MANEGEMENT AND THE ROLE OF MAINTENANCE

One of the main roles of an asset management system, and a point that demonstrates its robustness, is the management of risks associated with asset performance and availability.

Thus, the risk management process should provide a method to identify, assess, and address risks, always with the goal of evaluating those that may affect the achievement of objectives and the effectiveness of implemented processes. The risk

management process, as described in the NP EN 3100 standard (2009) demonstrated in the figure below, should provide a comprehensive framework allowing identification and thorough evaluation of risks. The treatment of these risks should serve as the basis for monitoring and continuous improvement of processes. [6]



It is at this stage that maintenance once again plays a fundamental role in identifying and evaluating risks, as well as in resolving them. Documentation and concrete analysis are crucial for their long-term monitoring and analysis.

Consequently, maintenance is primarily responsible for addressing and mitigating risks associated with asset performance. It is also responsible for conducting a comprehensive risk analysis to minimize the likelihood of their occurrence by introducing improvement opportunities to the existing processes and, above all, in response to risks identified during the risk management process.

Therefore, risk management involves minimizing risks that may affect the objectives of asset management while identifying and implementing improvement opportunities to reduce these risks.

DATA MANAGEMENT

In this sense, and as outlined throughout this brief overview of the topic, the evaluation of asset management systems involves a thorough examination of the various inherent processes, with the crucial need to extract concrete and, above all, reliable data about the state of goal execution. Therefore, the reliability of the data serves as the foundation for making informed decisions, enabling the development of sustainable long-term strategies.

It is, therefore, crucial to extract data that ensures, first and foremost, reliability in the analysis of the obtained evaluation, providing a clear picture of the state and performance of asset management.

Additionally, these data will facilitate leveraging risk management strategies, as their analysis will reveal historical trends in the organization's assets, allowing proactive action on inherent risks.

Lastly, the data will serve not only for process analysis but fundamentally for evaluating the system's performance, serving as a metric for the development to be carried out. It is reliable data that will enable organizations to conduct an internal assessment of their current state, serving as a starting point for defining the desired outcome, ensured by goals and objectives supported by unequivocal data.

FINAL CONSIDERATIONS

With the aim of achieving sustainable growth for organizations, their sustainability relying on positive outcomes, the implementation of asset management systems is the first step in making this a reality. However, the implementation, and consequently, the maintenance and maturation of asset management systems are only possible with the assessment of the maturity level of asset management within companies.

Therefore, as highlighted throughout this analysis of the topic, the evaluation of the maturity of asset management systems is a crucial factor in unlocking the entire process. In the initial phase, it is responsible for assessing the current state of maturity in asset management within organizations, providing insight into the starting point of implementing these systems and forming the basis for defining goals for sustainable management.

Subsequently, based on the objectives set for the implementation of these systems, it becomes the foundational tool in maturing and continuously developing them. This involves assessing the state of achieving defined objectives and verifying the existence of robust processes conducive to achieving the set goals.

Similarly, the maturity assessment helps understand that various areas of the company play a

crucial role in realizing the defined processes, with maintenance being one of the highlighted areas. Positioned at the core of asset management, maintenance carries out the necessary tasks for optimal functioning and ensures, to the best of its capabilities, the availability of equipment. This is crucial to ensure that the key assets of organizations achieve and maintain their best performance, with a focus on achieving objectives.

BIBLIOGRAPHICAL REFERENCES

[1] ISO 55000 (2014). Asset management — Overview, principles and terminology

[2] The Institute of Asset Management. (2023). Self Assessment Methodology+ SAM +.

[3] ISACA CMMI Performance Solutions (2019). CMMI Levels of Capability and Performance.

[4] Filipa Vaz Pereira Tancredo. (2018). Modelo para determinação da Maturidade de uma organização na Gestão de Ativos Físicos. Instituto Superior de Engenharia de Lisboa.

[5] IBM. (2013). Gestão de activos: edifícios inteligentes e sustentáveis. Executive Report, 3-11.

[6] NP EN 3100 (2009). Gestão do Risco.