EDITORIAL
AN OVERVIEW OF CONTRIBUTIONS PROMOTING ENGINEERING ASSET MANAGEMENT
UMA VISÃO SOBRE CONTRIBUTOS PARA A PROMOÇÃO DA GESTÃO DE ATIVOS DE ENGENHARIA

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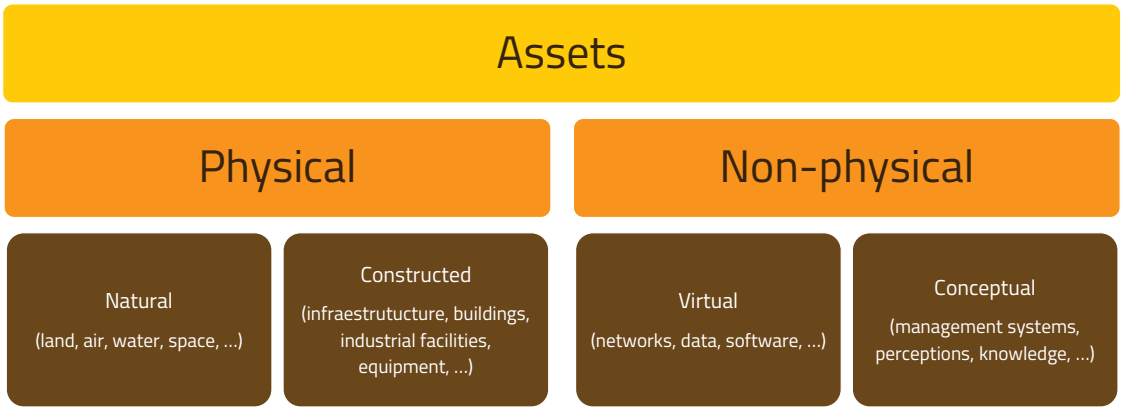
This editorial expounds an outlook for the ecosystem of engineering asset management transdisciplinary scientific research, while mapping the specific contributions published in the three first numbers of the *Journal of Engineering Assets* (*RAE*: *Revista Ativos de Engenharia*). For this purpose, six well-known thematic group areas of engineering asset management are used.

The need for engineering asset management as a broad-band approach is driven by the increasing complexities and challenges arising from engineered assets and asset systems (Figure 1), both physical and non-physical, that consume significant financial resources from public and private budgets, and also other forms of capital (natural, social, manufactured, intellectual, etc).

FIGURE 1: Asset taxonomy (Almeida, 2023; Amadi-Echendu et al., 2010; Dieter, 2020).



Engineering asset management principles and practices, which are of crucial importance to enhance the lifecycle management of engineered assets and asset systems that serve and are critical to the functioning of modern cities and societies, are well-documented elsewhere (Amadi-Echendu et al., 2010; Azevedo C, 2019; Márquez et al., 2009; The IAM, 2022; Too, 2010; WoodhouseJohn, 2019).

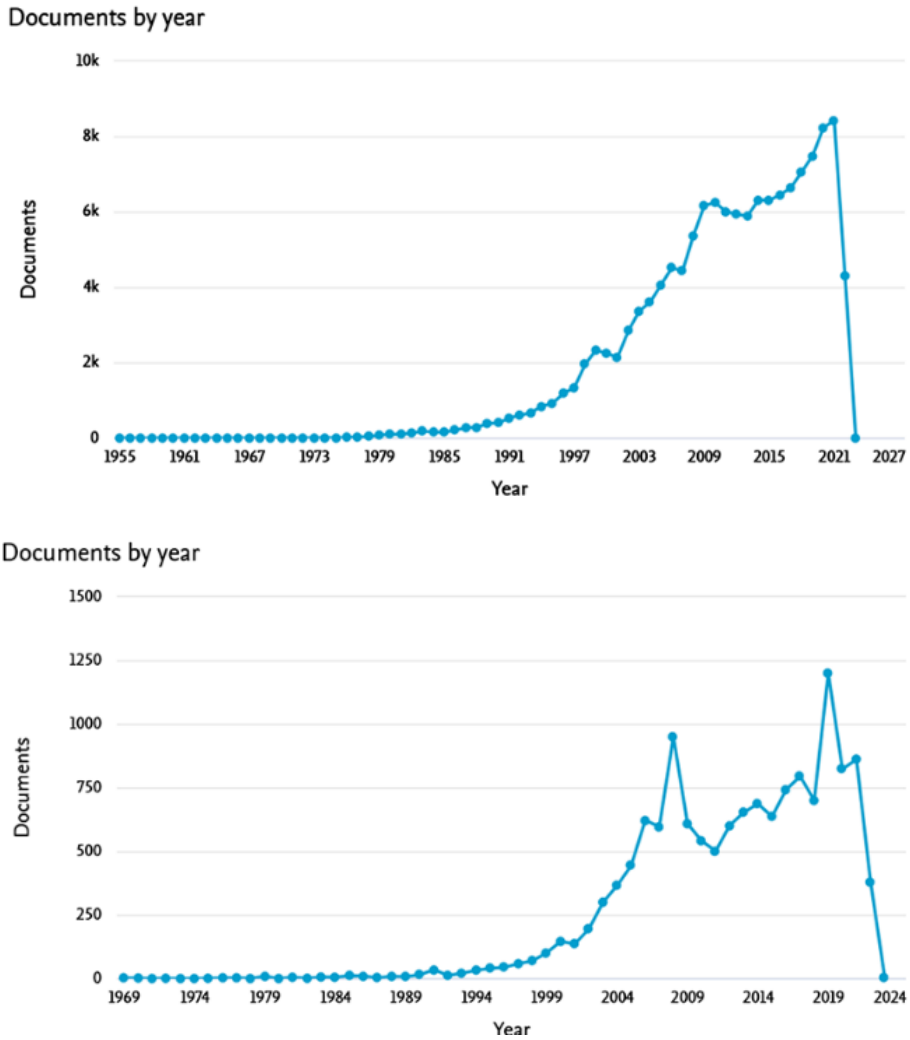
Pushing the boundaries of innovation and sophistication in engineering asset management requires transdisciplinary scientific research, necessarily involving actors from outside academia. This is to ensure that the best available knowledge is used in addressing the multidimensional complexity of real-world problems (Martens et al., 2012). But it is often the case that the main thought leaders and innovators of the engineering asset management community, from outside academia, are invisible to standard academic criteria and its conventional research approaches.

It is thus difficult to give due recognition to highly influential and successful individuals in this space by strictly following standard academic approaches, such as systematic or traditional literature reviews. This is aggravated by the fact that the asset management literature in reputed indexed scientific journals is very dispersed, despite the

asset management concept is becoming more and more mainstream, amongst the scientific community and practitioners alike.

Moreover, scientific literature often deals with narrow subsets of asset management without a sufficient articulation of asset management as a transdisciplinary approach and an integral body of knowledge. The subsets of life-cycle costing, risk management or asset performance are only a few examples of this. This can be apprehended in Figure 2 with regards to asset management and risk management.

FIGURE 2: Number and distribution of publications about "risk management" (above) and "asset management" (below) (Diop et al., 2022).



Asset management scientific literature is highly dispersed due to a lack of international journals specifically dedicated to transdisciplinary asset management research.

A possible way of tracking relevant literature following the principles of transdisciplinary research is through the work of the GFMAM or the Subject Specific Guidelines (SSGs) coordinated by the IAM. This SSGs cover the 39 topics proposed by the GFMAM (2014) and are intended to constitute an asset management knowledge matrix for the asset management landscape.

Another important source of literature dealing with the full breath of engineering asset management derives from the works presented in the World Congress on Engineering Asset Management (WCEAM), held annually since 2006.

The WCEAM is sponsored by the International Society of Engineering Asset Management (ISEAM). The ISEAM is a multidisciplinary professional learned society dedicated to the development and recognition of asset management as an integrated body of knowledge and a field of transdisciplinary research. These international congresses bring together academics, practitioners from many areas, and scientists, and promotes transdisciplinary research towards strengthening the links between these actors and enable the application of EAM in real case situations. The WCEAM is a refereed conference and a selection of peer reviewed contributions by a panel of international experts is frequently published by Springer (indexed by Scopus).

On the other hand, it is perfectly possible to track the contributions of highly influential individuals that inspire asset management practice in all types of organizations, worldwide, e.g., by engaging in the intellectual debates and the ground-breaking work pushing forward the successive development stages of international industry standards (e.g. ISO, BSI, etc.), namely those that are related to the thematic areas addressed in this journal: the ISO 55000 family of standards on asset management, above all, but also the ISO 31000 family of standards on risk management.

After the publication of the first ISO 55000 series of standards in 2014, several major publications in the field were revised in view of aligning with the principles and terminology established in those standards.

The Global Forum on Maintenance & Asset Management (GFMAM) published the second version of the Asset Management Landscape in 2014 (GFMAM, 2014). This became a foundational document for many organizations and businesses implementing the engineering asset management approach, including those external to GFMAM. It provides guidance on the breadth of asset management covering 39 topics in six major areas, namely: (1) strategy & planning, (2) decision making, (3) lifecycle delivery, (4) asset information or knowledge enablers, (5) organization & people, and (6) risk & review.

The *Journal of Engineering Assets* (*RAE*: *Revista de Ativos de Engenharia*) recognizes the transdisciplinary nature of engineering asset management. Table 1 summarizes the set of contributions published so far in *RAE* according to the six major areas described above, plus a category for contributions referring to overarching or innovative themes. Each contribution is allocated to a single given aspect, although other relationships may exist.

It is the aim of *RAE* to continuously monitor and balance the major areas covered by the authors' contributions submitted to this journal.

The forthcoming numbers of this journal are expected to contain selected top-quality research and industry contributions presented in the 1st Ibero-American Congress of Engineering Asset Management (CONGREGA 2024), to be held in Lisbon from 3–5 July 2024.

TABLE 1: Distribution of publications of *RAE* per area of ENGINEERING ASSET MANAGEMENT.

AREAS OF ENGINEERING ASSET MANAGEMENT	*RAE* V1N1	*RAE* V1N2	*RAE* V2N1
Generic/innovation	FOUNDATIONS AND PROSPECTS OF INNOVATION IN THE MANAGEMENT OF ENGINEERING ASSETS	VALUE MANAGEMENT—A STANDARDISATION INSIGHT	PERSPECTIVES OF THE TECHNICAL AND SCIENTIFIC COMMUNITIES OVER THE ASSET MANAGEMENT BODY OF KNOWLEDGE
Strategy and planning	THE IMPACT OF THE PROGRESS OF THE RESILIENCE OF PUBLIC SCHOOL ARCHITECTURE	STRUCTURE AND CONTENTS OF AN ASSET MANAGEMENT PLAN STRATEGIES FOR OPTIMIZING THE EXECUTION OF REAL ESTATE PROJECTS: APPLICATION TO THE REHABILITATION OF BUILDINGS IN UNFORESEEN SCENARIOS	
Decision-making	OPTIMIZATION OF INVESTMENTS IN ASSET MANAGEMENT OF WATER SUPPLY SYSTEMS USING THE INFRASTRUCTURE VALUE INDEX LIFE CYCLE COST ANALYSIS OF A WATER TREATMENT PLANT FOR GYPSUM BOARDS PRODUCTION		
Lifecycle activities		EVALUATION OF THE IMPACT OF A COMPUTER MAINTENANCE MANAGEMENT SYSTEM TO SUPPORT THE IMPLEMENTATION OF ASSET MANAGEMENT SYSTEMS UNDER ISO 55001 STANDARD	IDENTIFICAÇÃO DOS FATORES CRÍTICOS DE SUCESSO NA FASE DE CRIAÇÃO DE ATIVOS CONSTRUÍDOS ANÁLISE COMPARATIVA DE BOMBAS DE CALOR AEROTÉRMICAS E GEOTÉRMICAS PARA A GESTÃO DE ATIVOS NO SISTEMA AVAC DE UM AMBIENTE CRÍTICO
Asset information	STRATEGIC DECISIONS IN THE LIFE CYCLE OF CONSTRUCTED ASSETS BASED ON TECHNICHAL FUNCIONAL AND FINANCIAL INFORMATION	COMPARATIVE STUDY BETWEEN DIFFERENT TYPES OF INTEGRATION OF FACILITY MANAGEMENT AND BUILDING INFORMATION MODELING SYSTEMS	MANAGING PUBLIC INFRASTRUCTURES THROUGH BIM: MODELING RAILWAY TUNNELS FOR INFRAESTRUTURAS DE PORTUGAL STANDARDIZATION OF TECHNICAL INFORMATION ON RAILWAY PROJECTS TO OBTAIN PERFORMANCE INDICATOR
Organization and people	HUMAN RESOURCES IN THE INDUSTRIAL REVOLUTION: SYSTEMATIC REVIEW OF THE LITERATURE ON COMPETENCIES FOR INDUSTRY 4.0	KEY SUCCESS FACTORS IN ASSET MANAGEMENT — JOURNEY AND ISO 55001 CERTIFICATION AT E-REDES DEVELOPMENT AND APPLICATION OF A METHODOLOGY TO RATE ASSET MANAGEMENT MATURITY	
Risk and review	STRATEGIC MODEL OF THE SIGNALING GANTRY MANAGEMENT SYSTEM OF INFRASTRUCTURESOF PORTUGAL, S.A.		THE SIMULATION OF THE RELIABILITY OF ASSETS USING THE MONTE CARLO METHOD: THE SPECIFIC CASE OF COMPLEX AND COHERENT SYSTEMS K-OUT-OF-N, WITH CENSORED DATA

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DECLARAÇÃO ÉTICA

CONFLITO DE INTERESSE: Nada a declarar. **FINANCIAMENTO:** Nada a declarar. **REVISÃO POR PARES:** Dupla revisão anónima por pares.