

# CRITERIA FOR EVALUATING ASSET MANAGEMENT INDICATORS

English Version



## GFMAM

Global Forum on Maintenance  
& Asset Management

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## **The Global Forum on Maintenance and Asset Management**

The Global Forum on Maintenance and Asset Management (GFMAM) has been established with the aim of sharing collaboratively advancements, knowledge and standards in Maintenance and Asset Management.

The members of GFMAM (at the time of issue of this document) are:

- Asset Management Council (AM Council), Australia;
- Brazilian Asset Management and Maintenance Association (ABRAMAN), Brazil;
- Belgian Maintenance Association (BEMAS), Belgium
- European Federation of National Maintenance Societies (EFNMS), Europe;
- Gulf Society for Maintenance and Reliability (GSMR), Arabian Gulf Region;
- Institut Français d'Asset Management Industriel et Infrastructures (IFRAMI); France
- Institute of Asset Management (IAM), UK
- Japan Institute of Plant Maintenance (JIPM), Japan
- Japan Association of Asset Management (JAAM), Japan
- PEMAC Asset Management Association of Canada (PEMAC), Canada
- The Society for Maintenance and Reliability Professionals (SMRP), USA.
- The Southern African Asset Management Association (SAAMA), South Africa

The enduring objectives of the GFMAM are:

- 1) To bring together, promote and strengthen the maintenance and asset management community worldwide
- 2) To support the establishment and development of associations or institutions whose aims are maintenance and asset management focused
- 3) To facilitate the exchange and alignment of maintenance and asset management knowledge and practices
- 4) To raise the credibility of member organizations by raising the profile of the Global Forum

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## 1. INTRODUCTION

Indicators are valued highly by managers, to measure the progress and completion of any action plan in any discipline. Organizations and business schools insist on the need to use dashboards, based on the old adage that says, 'you cannot manage what you cannot measure'. In addition, with the digitization of information, monitoring tools and systems have demanded ever more metrics and indicators.

However, these developments are not without their problems. Many managers and professionals interested in a new discipline, such as Asset Management, naturally tend to reuse the indicators with which they are familiar to show improvements in Asset Management. However, Asset Management is a systematic approach to focus on the value we can extract from assets over their life cycle; and not on the care we put into assets daily. Such 'inputs' are maintenance or other activities throughout the life cycle. In fact, if Asset Management gave the same result as the sum of the individual disciplines aimed at each segment of the life cycle; it would not have been necessary to define this new discipline. Neither would ISO have created an international Management System Standard.

This document reports how we identified a methodology capable of producing objective criteria for validating (or not) metrics and indicators relevant and specific to Asset Management. This methodology considers the 39 Subjects of Asset Management (reference: The Asset Management Landscape - Second Edition, GFMAM) as well as the 9 Benefits of Asset Management (highlighted in ISO55000 (ISO 55000: 2014 Asset management - Overview, principles and terminology, pages 1-2).

The outcome of this work is a validation model, based on strict relevance criteria, to assess the performance of indicators proposed to measure Asset Management actions and projects.

### 1.1. Background

The idea for this work arose from the need for greater rigour in the use of indicators for Asset Management. The model uses objective criteria to assess the relevance of indicators and substantiates this rating.

This project complements the guidance released relative to Asset Management by setting the foundation of objective criteria and methodology to allow relevant measures and indicators in Asset Management.

It is clear that this comparison should rely on a more sophisticated methodology than just the comparison of numbers.

However, the simple comparison of numbers between different organizations has become an important activity. In numerous cases it has been shown that this exercise was, at the least, very approximate and, even worse, sometimes led to erroneous conclusions – because the indicators were not valid.

In order to allow proper benchmarking, we need meaningful indicators; and, to choose meaningful indicators, we must define specific criteria.

## **1.2. Purpose**

Benchmarking has become common, but so have mistaken analyses and conclusions because numeric comparisons have sometimes been too simplistic. By means of multi-criteria assessment of indicators, it becomes clear which ones are relevant to Asset Management and provide meaningful comparisons.

Our project has produced a validation model that offers a scale of 'Relevance to Asset Management' for candidate indicators; and we are pleased to make it available to the community.

Our proposed evaluation does not assume a binary result (Bad / Good), but rather, a scale with minimum and maximum values. This allows the applicant to consider how to improve the indicator for its intended use, if the relevance score is not high enough.

Using this evaluation model offers an elegant way to avoid emotional decisions, based on momentary enthusiasm, by comparing data or information that is not meaningful.

## **2. METHODOLOGY: INDICATOR, BENCHMARKING & ASSET MANAGEMENT**

The initial methodological approach guided the work of this project in the search for correlations between the 39 subjects of Asset Management and the 9 benefits of Asset management described in the ISO 55000 standard. Indeed, it was assumed that if the objective of the indicators is to mark the path of an initiative or journey in Asset Management once its objectives are fixed, it makes sense to correlate the attributes of each subject of Asset Management with the benefits sought by its uses in favour of better results in Asset Management.

In other words, if an Asset Management initiative or actions are supported by methodological and conceptual attributes proper to the 39 subjects, it is normal for the results to correspond to one or more benefits of the ISO 55000 standard.

From this assumption, it is deduced in our work that indicators aligned with such attributes, whether they are linked to subjects and benefits, will be characterized as pertinent to measure performance in Asset Management.

Recalling that the 39 subjects are regrouped in 6 topics;

- Asset management strategy & planning
- Asset management decision-making
- Life-cycle delivery activities
- Asset knowledge enablers
- Organization & people enablers
- Risk, review & continual improvement

The figure below indicates the degree of correlation between Subjects and Benefits as described above:

6 TOPICS / 5 ORGANIZATIONS BIG SYNTHESIS						
	T O P I C S					
	TOPIC 1 ASSET MANAGEMENT STRATEGY & PLANNING	TOPIC 2 ASSET MANAGEMENT DECISION-MAKING	TOPIC 3 LIFE CYCLE DELIVERY ACTIVITIES	TOPIC 4 ASSET KNOWLEDGE ENABLERS	TOPIC 5 ORGANISATION & PEOPLE ENABLERS	TOPIC 6 RISK, REVIEW & CONTINUAL IMPROVEMENT
Improved financial performance	10	19	27	4	5	14
Informed asset investment decisions	11	13	8	10	7	14
Managed risk	17	17	47	10	8	33
Improved services and outputs	8	10	18	9	13	9
Demonstrated social responsibility	2	3	10	0	7	11
Demonstrated compliance	6	2	16	5	2	19
Enhanced reputation	1	2	12	1	4	11
Improved organizational sustainability	14	5	8	3	17	24
Improved efficiency and effectiveness	14	15	32	20	17	23

The Blue Column<sup>1</sup> includes the 9 Benefits developed by the ISO TC 251 Committee in the ISO 55000, Chapter 2.2. and the White Column includes the 39 Subjects regrouped in 6 Topics developed in Landscape GFMAM Publication.

<sup>1</sup> Note from ISO 55000, chapter 2.2.: *Asset management can help realize value from assets in the achievement of organizational objectives. What constitutes value will depend on these objectives as well as the nature and purpose of the organization and the needs and expectations of its stakeholders. Value can be related to economic, environmental, social or other appropriate outcomes. The benefits of asset management can include, but are not limited to: Improved financial performance, Informed Asset investment decisions, Managed Risk, Improved services and outputs, Demonstrated social responsibility, Demonstrated Compliance, Enhanced reputation, Improved organizational sustainability, Improved efficiency and effectiveness.*



We chose the criteria for the validation model by comparing and contrasting the findings in the table above.

These criteria are used to compose the basic elements in the list of statements in the validation model, which is presented in the next chapter.

### 3. THE VALIDATION MODEL FOR ASSET MANAGEMENT INDICATORS

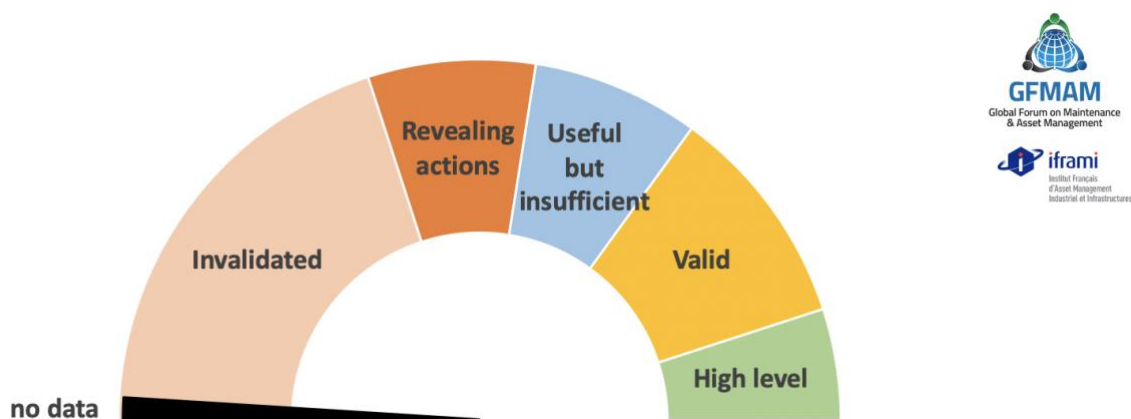
#### 3.1. Overview of the validation model

Each organization has internal indicators that track the internal performance of its services.

*Have you ever wondered if your indicators are relevant to Asset Management? Indeed, it may be attractive to assume that these same indicators can be used also as AM indicators. This shortcut can be very tempting, based on an intuitive justification that may seem logical: “My indicators are already set up, well-known, widely used and proven inside my organization for performance measurement, so I will use it as a KPI for Asset Management, too”.*

That intuitive conclusion may be right, or also wrong. The only way to be sure is to assess the indicator. Hence the ambition of our validation model, which is to offer a means to measure the relevance of organization indicators, in relation to the objectives of Asset Management.

The idea is to be able to define a measure of this relevance in 5 levels, from a set of targeted but simple questions:



The benefit of the model lies in its ability to collect these responses, recombine them and synthesise an indication of the relevance of the indicator.

This model is a new, innovative approach, which we propose to offer as a new and easy-to-use tool for all types of companies.

### 3.2. The validation processes

The model we offer includes the following features:

- Opportunity to create new questionnaires: the possibility to define a maximum of 60 statements, categorized in the following 6 Topics, with a maximum of 10 statements per topics.

<b>TOPIC 1</b>	<b>ASSET MANAGEMENT STRATEGY and PLANNING</b>
<b>TOPIC 2</b>	<b>ASSET MANAGEMENT DECISION-MAKING</b>
<b>TOPIC 3</b>	<b>LIFE CYCLE DELIVERY ACTIVITIES</b>
<b>TOPIC 4</b>	<b>ASSET KNOWLEDGE ENABLERS</b>
<b>TOPIC 5</b>	<b>ORGANISATION and PEOPLE ENABLERS</b>
<b>TOPIC 6</b>	<b>RISK, REVIEW and CONTINUAL IMPROVEMENT</b>

- Possibility to define the metrics of each statement (by default 1-5, positive or negative)

	S C O R E S				
	SCORE 1	SCORE 2	SCORE 3	SCORE 4	SCORE 5
	TOTALLY AGREE	PARTIALLY AGREE	NEUTRAL (NOR AGREE OF DISAGREE)	PARTIALLY DISAGREE	TOTALLY DISAGREE
NEGATIVE (1 ----> 5)	1	2	3	4	5
POSITIVE (5 ----> 1)	5	4	3	2	1

- Opportunity to adapt to your context. Select which relevant statements are to be included: each questionnaire can be adapted to take into account only topics/statements that are relevant to the indicator you want to measure.



- Automatic randomization of statements: in order to hide its association with Topics and avoid any bias of, or interpretation by, the participant.
- Creating a statement list: randomized statements are extracted from the model in a separate document, to be given to the participant.
- Compiling the results: The participant's answers are collected; the randomized statements are reclassified in its specific Topic.
- Measuring and presenting results: results are calculated based on the metrics defined and presented as either:
  - **synthesis by statement,**
  - **synthesis by Topic,**
  - **global synthesis**

## APPENDIX A – EXAMPLE OF RESULTS

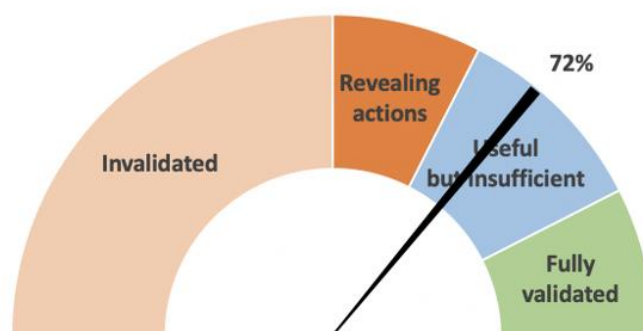
### A1. Indicator: ROA – Return on Asset

#### GLOBAL RESULTS

NAME	ROA (1-5 SCALE)
COMPANY	TEST USER
DATE	22/06/2020

GLOBAL SCORE	
143/200	<b>72%</b>

TOPIC	ASSET MANAGEMENT STRATEGY & PLANNING	29/40	73%	
TOPIC 2	ASSET MANAGEMENT DECISION-MAKING	29/35	83%	
TOPIC 3	LIFE CYCLE DELIVERY ACTIVITIES	29/35	83%	
TOPIC 4	ASSET KNOWLEDGE ENABLERS	27/35	77%	
TOPIC 5	ORGANISATION & PEOPLE ENABLERS	10/20	50%	
TOPIC 6	RISK, REVIEW & CONTINUAL IMPROVEMENT	19/35	54%	



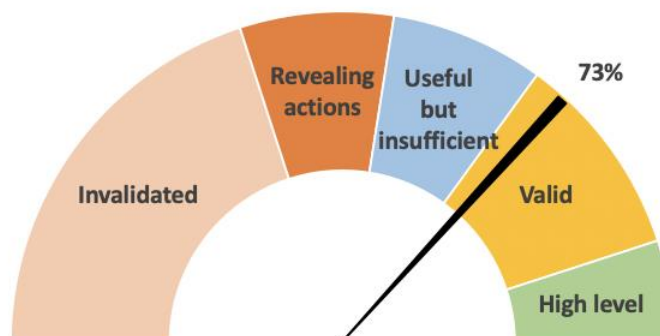
## A2. Indicator: RISK/COST TRADE OFF

### GLOBAL RESULTS

NAME	ISP
COMPANY	TEST USER
DATE	22/06/2020

GLOBAL SCORE	
146/200	<b>73%</b>

TOPIC	ASSET MANAGEMENT STRATEGY & PLANNING	25/40	63%	
TOPIC 1	ASSET MANAGEMENT STRATEGY & PLANNING	25/40	63%	
TOPIC 2	ASSET MANAGEMENT DECISION-MAKING	30/35	86%	
TOPIC 3	LIFE CYCLE DELIVERY ACTIVITIES	25/35	71%	
TOPIC 4	ASSET KNOWLEDGE ENABLERS	30/35	86%	
TOPIC 5	ORGANISATION & PEOPLE ENABLERS	13/20	65%	
TOPIC 6	RISK, REVIEW & CONTINUAL IMPROVEMENT	23/35	66%	



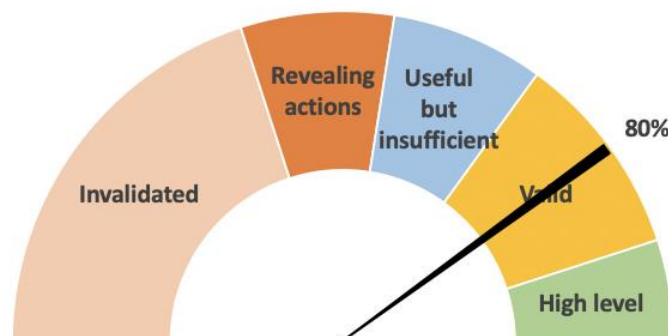
### A3. Indicator: LIFE-CYCLE VALUE LEVERAGE

## GLOBAL RESULTS

NAME	TFV_LVA (1-5 SCALE)
COMPANY	TEST USER
DATE	22/06/2020

GLOBAL SCORE	
159/200	<b>80%</b>

TOPIC	ASSET MANAGEMENT STRATEGY & PLANNING	26/40	65%	
TOPIC 2	ASSET MANAGEMENT DECISION-MAKING	33/35	94%	
TOPIC 3	LIFE CYCLE DELIVERY ACTIVITIES	34/35	97%	
TOPIC 4	ASSET KNOWLEDGE ENABLERS	29/35	83%	
TOPIC 5	ORGANISATION & PEOPLE ENABLERS	13/20	65%	
TOPIC 6	RISK, REVIEW & CONTINUAL IMPROVEMENT	24/35	69%	



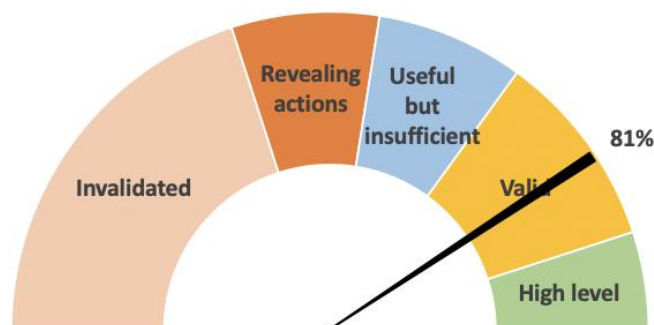
## A4. Indicator: CAPEX SUSTAINING PENALTY RATE

### GLOBAL RESULTS

NAME	PREMIUM (1-5 SCALE)
COMPANY	TEST USER
DATE	22/06/2020

GLOBAL SCORE	
162/200	<b>81%</b>

TOPIC	ASSET MANAGEMENT STRATEGY & PLANNING	27/40	68%	
TOPIC 2	ASSET MANAGEMENT DECISION-MAKING	35/35	100%	
TOPIC 3	LIFE CYCLE DELIVERY ACTIVITIES	31/35	89%	
TOPIC 4	ASSET KNOWLEDGE ENABLERS	28/35	80%	
TOPIC 5	ORGANISATION & PEOPLE ENABLERS	12/20	60%	
TOPIC 6	RISK, REVIEW & CONTINUAL IMPROVEMENT	29/35	83%	



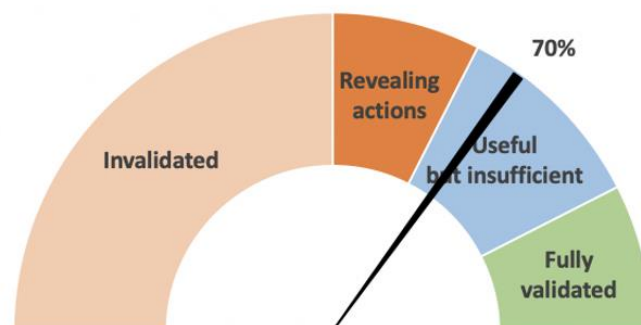
## A5. Indicator: SPARE WORKING CAPITAL

### GLOBAL RESULTS

NAME	SPARES BFR (1-5 SCALE)
COMPANY	TEST USER
DATE	22/06/2020

GLOBAL SCORE	
139/200	<b>70%</b>

TOPIC	ASSET MANAGEMENT STRATEGY & PLANNING	25/40	63%	
TOPIC 2	ASSET MANAGEMENT DECISION-MAKING	28/35	80%	
TOPIC 3	LIFE CYCLE DELIVERY ACTIVITIES	28/35	80%	
TOPIC 4	ASSET KNOWLEDGE ENABLERS	17/35	49%	
TOPIC 5	ORGANISATION & PEOPLE ENABLERS	15/20	75%	
TOPIC 6	RISK, REVIEW & CONTINUAL IMPROVEMENT	26/35	74%	





## APPENDIX B – REFERENCES

The following documents, in whole or in part, are provided as relevant References. They may be considered to be 'normative' references in that the reader needs to be familiar with their content in order to understand this Specification.

- A. ISO 55000, *Asset management – Overview, principles and terminology*
- B. *GFMAM Landscape – ISBN 978-0-9871799-2-0 March 2014*