

**Minding the Gaps in Railway Operators' Safety
Management Systems by effectively utilising the RM³.**

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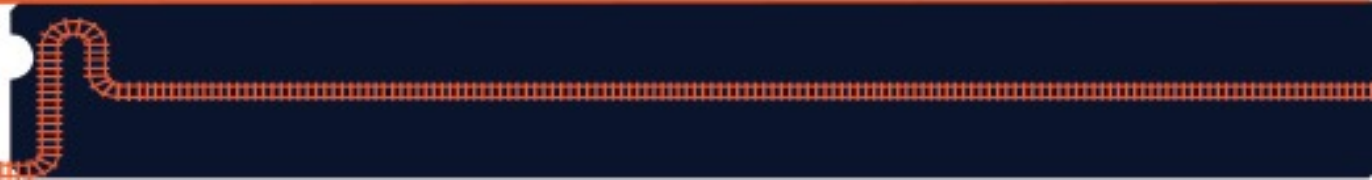
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INTRODUCTION



Figure 1: United Nations Sustainable Development Global goals, United Nations Foundation Website.



LITERATURE REVIEW-WHAT IS THE RM³?

- The Risk Management Maturity Model (RM³) is a tool that was developed and established by the Office of Rail and Road (ORR), Health and Safety Laboratory (HSL) with the collaboration of relevant stakeholders and the rail industry of the United Kingdom (UK).
- The tool was developed with the following objectives in mind to:
 - Assess an organisation's ability to successfully manage health and safety risk.
 - Identify areas of improvement, and as a result which would provide the end-user with a bench-mark for year-to-year comparison.
- The RM³ is designed with **26 defined criteria** that measure the quality of the implementation of governing and or regulatory tools.
- The RM³ can be seen as a tool that evaluates the progress of an Operator's maturity level on a five-point scale namely, **Ad-Hoc, Managed, Standardised, Predictable, and Excellent Level**, respectively.
- It is an **Evidence-based approach**, and the evidence is analysed to provide the applicable scoring according to each criteria that is being assessed.
- The outcome of the Operator's maturity level is presented to the Operator in the form of a report, where identified gaps are highlighted.
- The desired outcome is for the Operators to reach an **Excellent Level** and maintain it.



LITERATURE REVIEW-WHAT IS THE RM³?



Figure 2: Maturity Assessment, Taken from Risk Management Maturity Model (2020).

LITERATURE REVIEW-WHAT IS THE RM³?

Table 1: The five- point maturity scale descriptors, adapted from the Risk Management Maturity (2020).

SCORE	LEVEL	GENERIC MATURITY DESCRIPTOR
5	Excellent	Refers to processes that established and are capable of continual improvement incrementally and through innovative improvements/technology.
4	Predictable	Refers to processes that management can control business using measurable metrics. Management can identify ways to adjust, adapt, without measurable losses to quality or deviations from project specifications. The process capability is established.
3	Standardised	Refers to processes that are set and defined, documented and can be improved over time. The Standards are in place and are used to established consistency across the organisation.
2	Managed	Refers to processes that are repeatable, with a possibility of producing consistent results. The process discipline, however, may not be rigorous, but where it exists, it may assist to ensure that already existing processes are maintained even in stressful times.
1	Ad-Hoc	Refers to processes that are typically undocumented and in a state of dynamic change. Processes are usually driven in an ad-hoc, uncontrolled, and reactive manner by the user or events. The Ad-hoc denotes a chaotic, and unstable environment.



BENEFITS OF EFFECTIVELY UTILISING THE RM³

- The RM³ assesses the Operator's systems with the notion of moving beyond legal compliance.
- It is hypothesised that the RM³ will be able to provide Operators with insights on specific areas for improvement.
- Areas that are improved, minimise risks, reduces chances of rail occurrences, and therefore “protects and creates value”, as it is linked to the financial cost and benefit and the saving of time which would increase the value of the organisation.
- The Operators will therefore be able to compare their current maturity level over time for each criteria assessed.
- It provides a clear indication of the state of the Operators maturity level.
- Collective analysis of the RM³ assessments will provide the state of the South African rail industry's maturity level.



OBJECTIVES

The purpose of this presentation is to provide insights on:

- The maturity level of Ten Class A Operators who have been assessed on the RM³,
- Evaluate and discuss the analysed data and or results,
- Discuss the limitations observed during the analysis of the RM³, and lastly
- To propose solutions for future and effective use of the RM³.



METHODOLOGY

- The RM³ was introduced to the South African rail industry in 2018 and was piloted in 2019 to date for Class A Operators.
- Examination of the RM³ assessment reports was conducted for Ten (10) Class A Operators who were based in Gauteng.
- Of the ten sampled RM³ assessment reports n=3 was small Operators, and n=7 was the big Operators.
- Class A Operators are the Operators who are provided a permit based on one or more of the following criteria:
 1. The Operators are involved with the movement of commuters,
 2. The Operators are involved with the movement of dangerous goods exceeding 50 000 net tonnes per annum,
 3. The Operators are involved with the movement of general freight exceeding 500 000 net tonnes per annum,
- The examination of the RM³ assessment reports investigated the RM³ assessment criteria scores across as well as the General Issues identified across all ten of the Operators.



METHODOLOGY CONTINUED

- RM³ assessment reports examined dated from March 2020 to September 2022.
- Nine out of the ten RM³ assessments were conducted through Online platforms such as Microsoft Teams.
- One out of the ten RM³ assessments were conducted physically at the Operator's Depot.
- All the RM³ assessments are conducted as a Pilot Phase approach.
- Neither of the RM³ assessments were excluded from the analysis.
- RM³ assessments of Class B, and Class C have not yet been conducted.



RM³ CRITERIA ASSESSED

Table 2: The criteria used to assess Operators.

SP1 Leadership	OC7 Record Keeping, document control and knowledge management	MRA3 Incident Investigation
SP2 Health and Safety Policy	OP1 Worker involvement and internal co-operation	MRA4 Management Review
SP4 Written Health and Safety Management System	OP2 Competence Management	MRA5 Corrective action
OC1 Allocation of Responsibilities	PI1 Risk Assessment and management	RCS5 Emergency planning
OC2 Management & Supervisory accountability	PI2 Objective/ target setting	
OC3 Organisational Structure	PI3 Workload planning	
OC4 Internal Communication Arrangements	MRA1 Proactive monitoring arrangements	
OC5 Systems safety and interface arrangements	MRA2 Audit of the SMS	

DATA ANALYSIS RESULTS

Table 3: The Ten Operators Per the Generic Maturity Scores of the RM³.

RM ³ Scores of the Ten Operators				
1	2	3	4	5
Adhoc	Managed	Standardised	Predictable	Excellent
	Big Operator 1 (Passengers)	Small Operator 3 (Dangerous goods)	Big Operator 3 (Passengers)	
	Small Operator 1 (Commodity)	Small Operator 4 (Dangerous goods)	Small Operator 7 (Dangerous goods)	
	Small Operator 2 (Commodity)	Small Operator 5 (Commodity)		
	Big Operator 2 (General Freight and Dangerous Goods)	Small Operator 6 (Commodity)		
0%	40%	40%	20%	0%

- Four out of the ten Operators received a level of **Managed**,
- Four out of the ten Operators received a level of **Standardised**,
- Two out of the ten Operators received a level of **Predictable**,
- Neither of the Class A Operators fell within the **Ad-hoc level**, and
- Neither of the Class A Operators fell within the **Excellent level**.

DATA ANALYSIS RESULTS

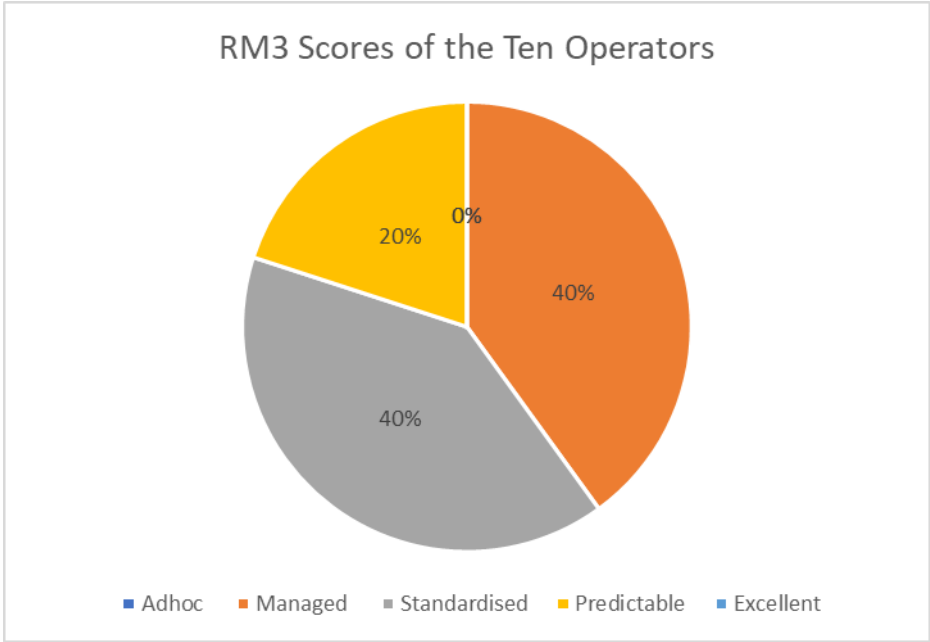


Figure 3: Pie-chart of Maturity Assessment Scores across the Ten Operators.



DATA ANALYSIS RESULTS

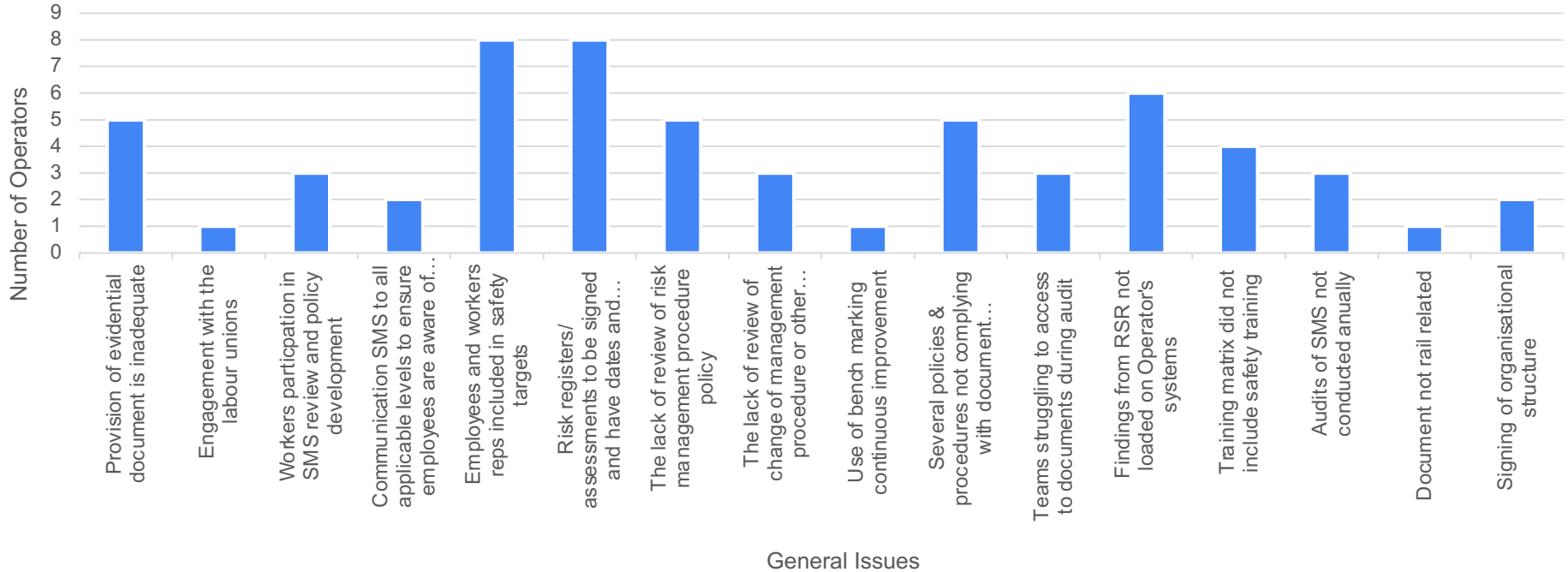


Figure 4: Bar-graph of the General Issues analysed across the Ten Operators.

DISCUSSION OF RESULTS

- As mentioned previously the RM³ has several benefits for the Operators providing an introspective view that Operators can use to better their systems and compare maturity on a year-to-year basis.
- Forty percent (40%) of the Operators are on a **Managed Level**. Of these, two of the Operators are big Operators and are considered big Operators by virtue of number of years operational in the industry, the infrastructure and network owned, the number of rolling stock owned and commuter they transport.
- Forty percent (40%) of the remaining Operators are on a **Standardised Level** which are Small Operators are on the Standardised Level.
- This is important to consider because some of the Operators have interdependent agreements and are therefore sometimes reliant on each other's outputs.
- It is believed majority of Operators should at a minimum be at a **Standardised Level** particularly to withstand external and unpredictable stressors. Take for example, the COVID-19 pandemic, that plummeted some business, while others managed to thrive. The notion is that, rigorous processes should at least be able to improve over time especially when events such as the COVID-19 pandemic, which led to theft and vandalism of the infrastructure are capable of drastically disrupting economic growth and improvement.
- The question then is, should there be any internal or external stressors or risks, will the Operators manage to cope and or thrive within the processes?
- That said from the Regulatory point of view, it is inferred and desired that by 2030 the picture will be different among the Operators, with at least **20% of Operators remaining at Managed Level, while 40% move to a Standardised Level and Predictable Level**.
- With that the RSR would receive comfort that the Operators are very likely to improve each year, and are able to tangibly see results of the improvement financially, increase in number of set targets, reduced occurrences, and increased profitability.



LIMITATIONS

- Small sample size of RM³ assessments conducted.
- Only Class A Operators RM³ assessments reports were analysed.
- It is inferred that a wider sample of the RM³ assessments may present a different picture of the rail industries' maturity level.
- The type of criteria was not measured equally across all Operators.
- The number of criteria were not measured across all Operators.
- Not all of the 26 RM³ criteria were assessed.

RECOMMENDATIONS

- RM³ workshops to be conducted but driven by Operators to learn from each other.
- Many industries publicly celebrate the achievements of their peers.
- It is inferred that after every three years the Department of Transport (DoT) in conjunction with the RSR, could formally recognise Operators who have reached an **Excellent Level** through a recognition of certificates.

CONCLUSION

- This presentation sought to provide an analysis on the RM³ **assessments conducted on ten Class A Operators**.
- It was found that **40%** of the Operators were in the **Managed Level**, the other **40%** of operators were in the **Standardised Level**. Only **20%** of the sample were on the **Predictable Level**.
- The **highest gaps** identified across eight of the ten Operators refers to employees and safety worker representative are being excluded from the safety target setting, and the risk registers and assessments were not dated or signed, either was the corrective action plans actioned by the responsible persons.
- The **limitations** observed during the analysis of the RM³ assessments of the ten Operators was that the same number and same criteria of RM³ criteria was not utilised across all the Class A operators and future assessments should ensure that the same number and same criteria are conducted for Class A, B, C.
- It is inferred that if a platform is developed for Operators to specially discuss the learnings of the RM³, the Operators would be able to address gaps that often lead to compliance issues, but moreover Operators would be able to introspectively assess themselves with the goal of reaching Excellent status so that they gear up to a safer rail in 2030.
- It is inferred that Operators who reach an **Excellent Level** should be recognised for performing excellently and contributing to the economy.
- RM³ should be conducted for other Operators so that the RSR is provided with the maturity level of rail industry in preparation for a safer rail in 2030.



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Thank You

