



## Revising The Value Models For The Marine Forces Reserve Supply And Maintenance (SMAT) Inspection Program

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### Objectives

This thesis examines the inspection system that the MARFORRES G-4 (Logistics) has developed to support the MARFORRES mission with the following objectives:

1. Review the existing value models to reflect the true value of the inspection program.
2. Validate the value models to articulate the contributions of the SMAT inspection program
3. Describe the utility of value models for resourcing decisions

### Methodology

An objectives hierarchy using the Systems Decision Process (SDP) framework was developed to account for the key objectives and metrics that are important to the stakeholder (Figure 1). The value derived from the performance of each metrics are represented through quantitative value modeling. The inspection findings of the metrics of each units are converted into raw value scores (RVS) using the value curves developed. The RVS are subsequently transformed into weighted value score (WVS) using the measure weights that represent the stakeholder's inputs. This WVS is then computed for the total value score of each units and compare against a performance metric (Table 1).

### Research Results

The total value score represents the value that the unit would gain from the inspection and thereby the value that MARFORRES would gain from the unit being inspected (Table 2).

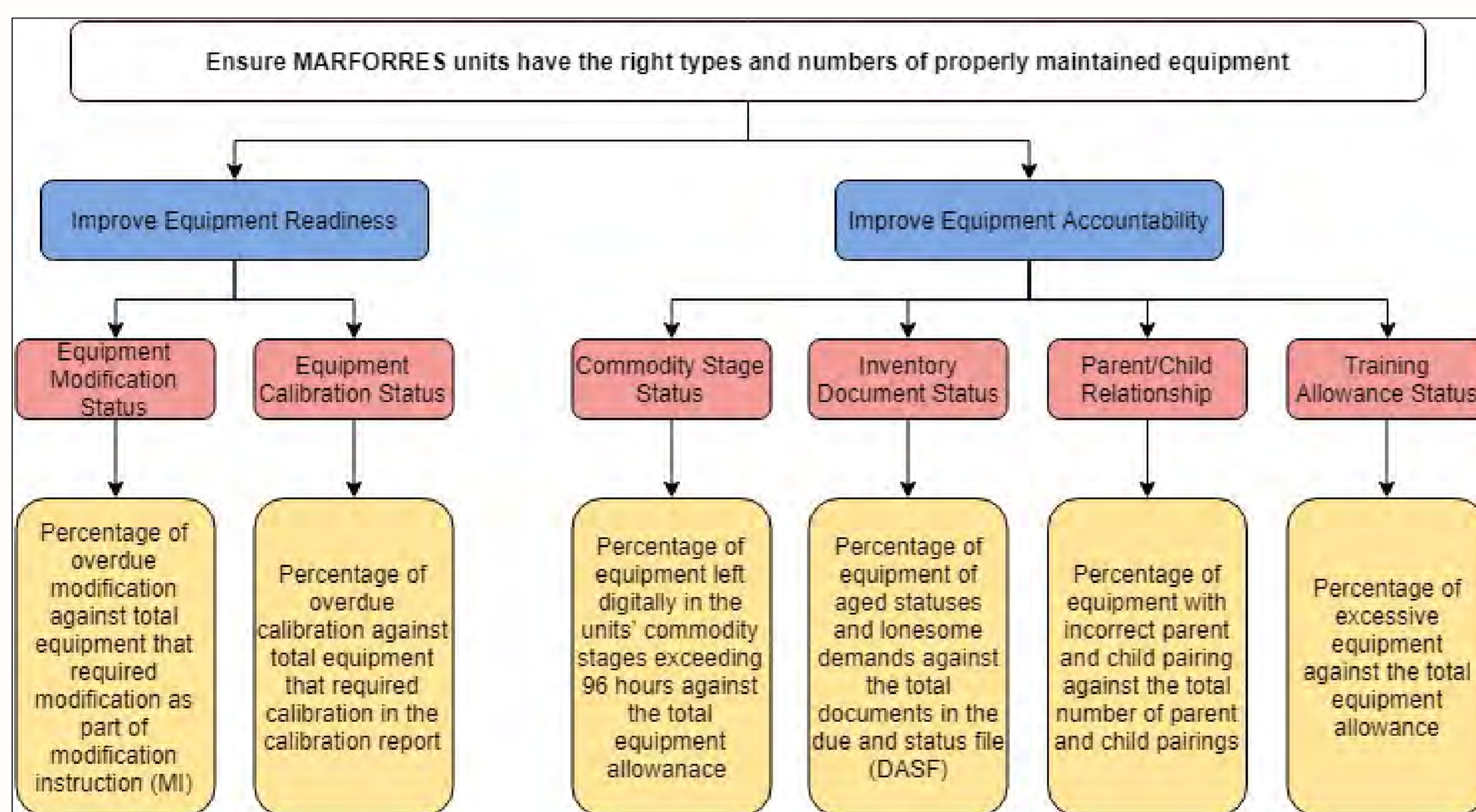


Figure 1. Objective Hierarchy of SMAT inspection program

### Application

The utilisation of value models in conjunction with an optimisation program was demonstration in scheduling SMAT inspections of MARFORRES units. It have shown that the logisticians can use the resources more efficiently to select units for inspections that will have the greatest contribution to the MARFORRES mission.'

Table 1. Performance matrix of inspection program

Value Score	Color Code	Definition
10 to >8 points	Blue	Has significant impact towards supporting the MARFORRES mission.
8 to >6 points	Green	Has considerable impact towards supporting the MARFORRES mission.
6 to >5 points	Yellow	Has limited impact towards supporting the MARFORRES mission.
5 points and below	Red	Has negligible impact towards supporting the MARFORRES mission.

Table 2. Overall value scores for MARFORRES units

Unit	Overall Value Score	Value to Unit Mission
A	5.0	4
B	5.2	3
C	4.2	4
D	4.9	4
E	5.4	3
F	5.7	3
G	6.9	2
H	5.9	3
I	5.7	3
J	7.3	2
K	5.2	3
L	6.9	2
M	6.2	2
N	6.4	2
O	6.5	2
P	7.4	2