



Q. Why Use MAAP?

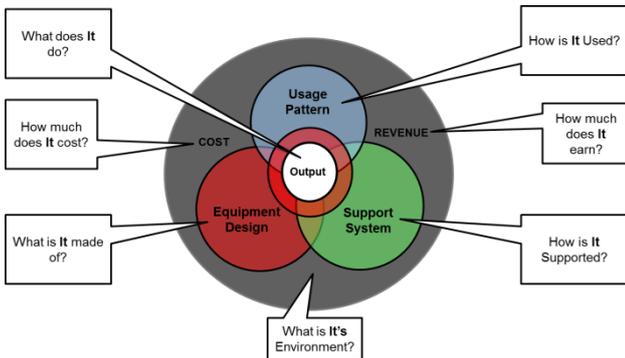
A. To Identify and Optimise the Support Cost Drivers to Derive System Through Life Cost

You should you use **MAAP** when you:

- Need a Through-Life Cost (TLC) Estimate
- Need to optimise all the support resources, not just spares, to deliver system availability
- Need to identify the drivers of support cost and performance
- Need to evaluate the benefits of support improvements before committing to them
- Need to evaluate how to cut costs while minimising the loss of capability

MAAP – The answer to multi-resource planning, optimisation and continuous improvement

The cost and output of a Capability are defined by the interaction of its Usage Pattern, its Equipment Design (as described by the system structure and the related attributes, such as reliability and maintainability), and the Support System.

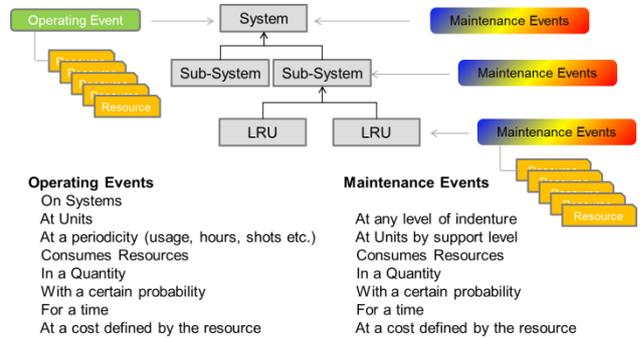


In use, the Capability undergoes various series of Operating Events (OEs), such as flights, miles, days, landings, cycles, shots and their combinations. These happen on specific systems or platforms, at nominated Units, at a frequency, and consume resources in quantity, with a certain probability, for a time and at a cost defined by the resource.

OEs have differing impacts on different parts of the Equipment Design, depending upon the duty cycle and component reliability, to generate Maintenance Events (MEs), which may be Preventative, Corrective or Condition-based Monitoring.

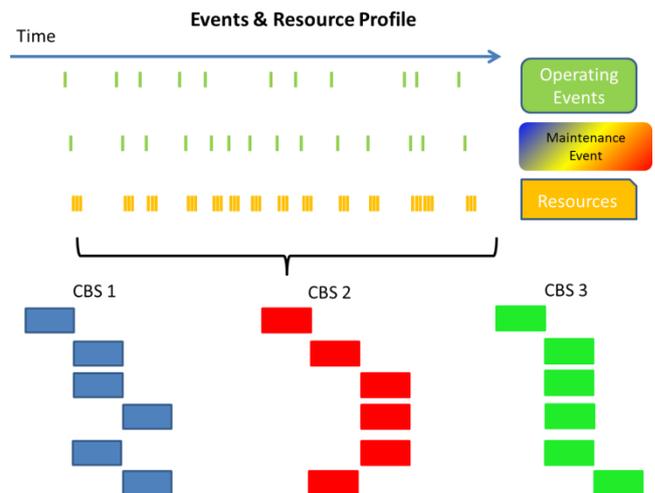
Depending upon the maintenance policy, MEs can occur at any level of equipment indenture, at Units by support echelon, and consume resources in a quantity with a certain probability for a time and at a cost defined by the resource.

Other Events can occur, such as Upgrade Events on the platforms, and Training Events to ensure that sufficient skilled manpower is available.



The resources include: skilled labour, parts, tools, workshops and facilities, technical data, software, energy and the cost of transportation. Non-recurring events (such as R&D) and recurring events (such as manufacturing) can also be captured. The Events define both where and when each resource will be required and, since probably only limited resources will be available in practice, have associated delay times.

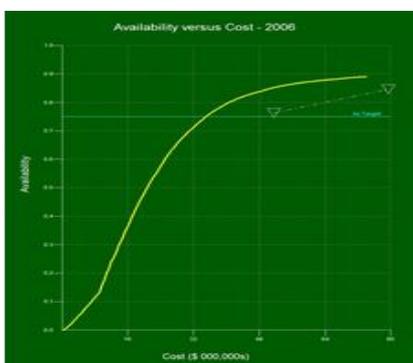
MAAP is a unique, activity-based cost analysis tool which aggregates the cost of each of the resources used in the Usage Pattern to summate a TLC for the Capability, as illustrated below.



Because **MAAP** is built granularly bottom-up, at an appropriate level of detail, the 'cost atoms' can be assembled in various ways within a Chart of Accounts of Cost Breakdown Structure to match budgetary categories, such as capital and running costs or management responsibilities.

Support Package Optimisation

In basic use, **MAAP** assumes the immediately available use of any resource that is needed to meet the Usage Pattern. This can be considered as 'logistics free', whereas affordability constraints will inevitably apply. Therefore, the support package must be optimised to achieve the best possible support performance for the minimum cost. This is achieved using **mBOSS** (**MAAP** Budget Optimised Support Solution) from the associated **mPOWER** utility. **mBOSS** uses marginal analysis techniques to optimise across and between different support resources; parts are traded for people, tools etc while maintaining a coherent engineering and logistic package. The locus of individual resources that deliver the maximum achievable availability against cost is illustrated in the picture below.



Budget Reductions

In-service budget reductions are inevitable at some stage. Simplistically, savings could be achieved by reversing back down the locus of optimum solutions illustrated above, but some specific resources will be sunk fixed costs; a hangar cannot be 'unbuilt'. Thus, a different optimised solution must be found that adopts some endowment stock, while offering choices of what resources could be dispensed with.

This analysis is performed by **mBRACE** (**MAAP** Budget Reductions Avoiding Capability Erosion) from the associated **mPOWER** utility. **mBRACE** will suggest how to maximise the cost reduction while minimising availability within the constraints.

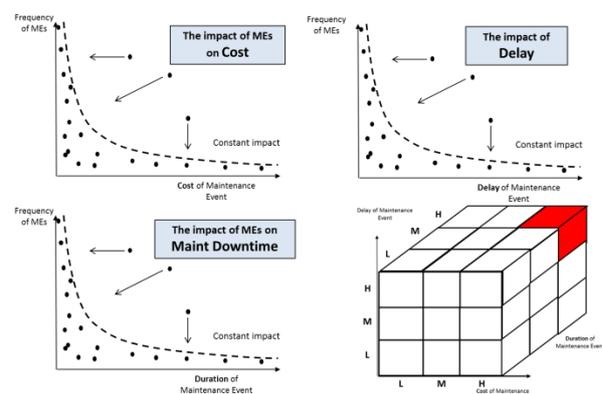
Supportability Audit

The Support Manager should always seek continuous improvement in the performance and cost of his system, but faced with other pressures, time is rarely available. The process should be automated, which TFD call Supportability Audit.

While **MAAP** is the ideal vehicle to aggregate up a TLC estimate, its 'cost atoms' are also invaluable in driving down to identify the support cost and performance drivers in a support solution. By querying the core **MAAP** data, the cost drivers can be identified as the 'problem children' - the specific MEs (which are related to parts of the design) which are the main constituents of the basic availability equation and have:

- The worst combination of low reliability and long maintenance repair times?
- The longest maintenance downtime?
- The greatest administrative and logistic delay time (ALDT) because of under-resourcing?
- The greatest cost because of all the resources required?

The concept is illustrated below. By adjusting the data within **MAAP** to reflect a better solution (as suggested by the arrow in the picture below), the benefit that would accrue to the proposed measure can be deduced from the revised aggregate TLC. In this way, the effort can be focussed on the small proportion of MEs that most affect support cost and performance.



MAAP and **mPOWER** are extremely powerful tools to identify and optimise the support performance and cost drivers of a system. They provide:

- TLC Estimates
- Optimise all the support resources for system availability
- Identify support cost and performance drivers
- Evaluate the benefits of support improvements
- Maximise cost savings while minimising capability loss

MAAP and **mPOWER** the answer to multi-resource planning, optimisation & continuous improvement

