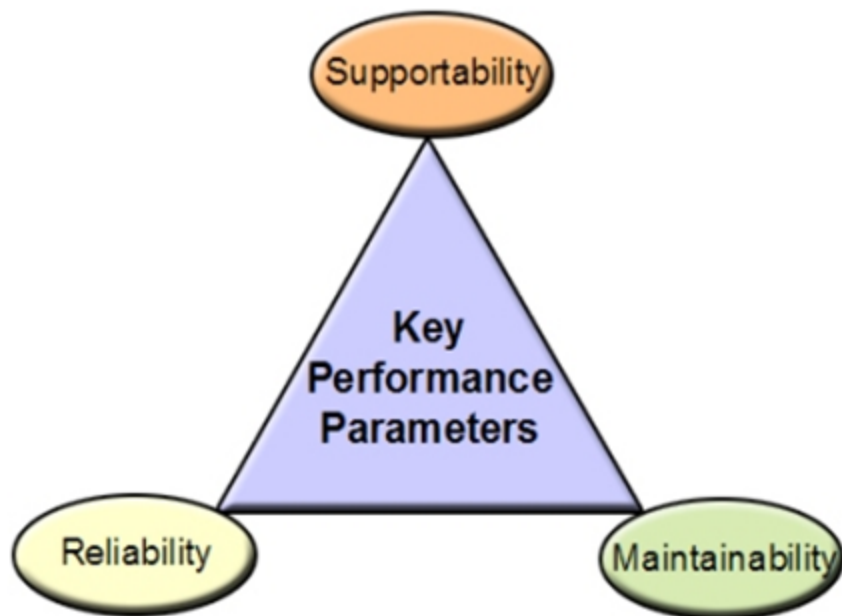


## Welcome to Metrics

A metric is a measurable performance indicator that can be used to track progress towards achieving program objectives. When selecting program supportability metrics, the goal is to achieve a balance across the three categories: reliability, maintainability, and supportability. These metrics are important because RMS cannot effectively be "added on" later. These characteristics must be "designed in." This topic addresses why the RMS components of system availability are considered at an early stage in the acquisition life cycle.



[D](#)

**Long Description**

Key Performance Parameter triangle showing the metrics categories of reliability, maintainability, and supportability at the angles.

## Objectives

Upon finishing this lesson, you will:

- Identify the types of metric categories used to define support objectives.
- Identify the JROC-established mandatory Key Performance Parameter (KPP) and two Key System Attributes (KSAs) relating to Life Cycle Sustainment.
- Define Availability, Materiel Reliability, Ownership Cost and Mean Downtime
- Identify the appropriate mathematical formulas for Availability, Materiel Reliability, Ownership Cost and Mean Downtime
- Identify the characteristics of metrics that effect the definition of supportability objectives

## Metrics Categories

There are three major metric categories that the LCL will use when incorporating metrics into a program's supportability objectives. The LCL should understand the mandatory Sustainment [Key Performance Parameter](#) (KPP) as it applies to a weapon system. The Sustainment KPP is a function of:

### Supportability

In the DoD publication, "[Performance Based Logistics: A Program Manager's Product Support Guide](#)", supportability is defined as "the quality of a system - including design, technical support data, and maintenance procedures - to facilitate detection, isolation, and timely repair/ replacement of system anomalies." Supportability at this early stage in the life cycle considers how system design relates to the time and cost of providing logistics support later in the life cycle.

### Reliability

According to the Product Support Guide, reliability is "the ability of a system to perform as designed in an operational environment over time without failure." Reliability at this early stage in the life cycle considers the mission and the operational environment, recognizing that there are trade offs between "time to failure," performance, and cost.

### Maintainability

Maintainability describes the ability of specified personnel to repair or restore a system to service using documented procedures and allocated resources. There are a number of design factors, including modularity, accessibility, and testability, that contribute to maintainability. Maintainability at this stage of the life cycle considers how system design can influence the cost and time of preventive and corrective repairs.

## Popup Text

### Key Performance Parameter

[KPP](#) encompasses those attributes or characteristics of a system that are considered critical or essential to the development of an effective military capability.

## Life Cycle Sustainment Outcome Metrics

A successful acquisition logistics measurement strategy ultimately comes from taking a life cycle view rather than looking at the individual stages or specific individual metrics. Assessing the suitability of a total system design and the proposed support approach (including cost constraints) for the full range of anticipated operational requirements is critical. Therefore, the LCL considers all individual support elements to provide a comprehensive, balanced assessment of the total system's operational status. Other constraints that should be considered when determining a proposed support approach include: affordability constraints, scheduling constraints, technology availability, and human resource constraints.

In July 2006, the Joint Requirements Oversight Council (JROC) established a mandatory warfighter Materiel Readiness/Sustainment Key Performance Parameter (KPP) named Materiel Availability. Subsequently, this term was revised to '[Availability](#)' only. This was done to acknowledge there are two components of this KPP - Materiel Availability and Operational Availability.

## Life Cycle Sustainment Outcome Metrics, Cont.

The JROC also:

- Identified Material Reliability and Ownership Cost as related [Key System Attributes](#) (KSAs) for new acquisitions.
- Provided a definition of Mean Down Time (MDT) to measure how long a system is unavailable – for either scheduled or unscheduled maintenance including the wait time for other elements of logistics support. This is a key piece in the maintenance/logistics planning process.

Reporting and use of these metrics is required for all [ACAT](#) I Acquisition Programs as well as all major legacy systems.

You may read more information about [Life Cycle Sustainment Outcome Metrics](#) in a memorandum from the DoD.

















## Knowledge Review

Which of the below is the inherent quality of a system – including design, technical support data, and maintenance procedures – to facilitate detection, isolation, and timely repair/ replacement of system anomalies?

- Reliability
- Supportability
- Maintainability

Check Answer



**Supportability** is the inherent quality of a system – including design, technical support data, and maintenance procedures – to facilitate detection, isolation, and timely repair/replacement of system anomalies.

## Metrics Summary

You have completed Metrics and should now be able to:

- Identify the types of metric categories used to define support objectives.
- Identify the JROC-established mandatory Key Performance Parameter (KPP) and two Key System Attributes (KSAs) relating to Life Cycle Sustainment.
- Define Availability, Materiel Reliability, Ownership Cost and Mean Downtime
- Identify the appropriate mathematical formulas for Availability, Materiel Reliability, Ownership Cost and Mean Downtime
- Identify the characteristics of metrics that effect the definition of supportability objectives



## Lesson Completion

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