MESH LRCM (Living Reliability Centered Maintenance)

MESH LRCM is the missing link to achieving reliability from data

Managers and maintenance engineers have a responsibility to ensure the acquisition and proper analysis of the correct and relevant information. Business reality drives the necessity to increase the effectiveness of maintenance. Today, the greatest challenge faced by Maintenance and Reliability Engineers face is able to acquire and extract for analysis the "right" information. The degree to which they succeed is measured by their ability to perform reliability analysis. Analysis is the necessary precursor to optimal maintenance decision making based on verified decision models.

MESH software is based on the LRCM (Living RCM) process and provides maintenance engineers with the tools to manage information and knowledge effectively in order to perform reliability analysis and thereby increase the availability and profitability of your business.

MESH LRCM (Basic solution)

The MESH LRCM basic solution consists of 7 modules:

- Downtime Administrator System (DAS) module
- Knowledge Builder (KB) module
- LRCM User Interface module
- Feedback Manager - RCM knowledge suggestion module
- Knowledge Trail module
- Reporting and analysis module
- Synchronization module
Downtime administration system (DAS)

This DAS module provides precise management of downtime (downtime) during maintenance. It is a dynamic list synchronized continuously with the EAM and is the gateway to LRCM work order documentation functions in MESH.

The DAS may be integrated with an automated work order creation system. Once an event requiring a maintenance service is triggered (automatically or manually) a work order is created. This work order passes through different stages until the maintenance service is completed.

Main features of the module:

- Opening and / or close work order from this module
- Manage status changes of the Order, Skills and respective labor times
- Manage parts and labor resources
- Geographically locate the equipment unit
- Check for and incorporate opportune PM tasks into the downtime repair

---

**INTEGRATED SOLUTION**

The LRCM process integrate seamlessly with the environment of the maintenance management technological platform in use.

MESH LRCM software is designed to complement the functionalities of the EAM and existing APM system, not to replace them.

**CONTINUOUS IMPROVEMENT**

LRCM is a process of continuous improvement. It provides a simple and understandable approach to the management of maintenance information.

Improving the RCM knowledge base dynamically and incrementally in response to active work order experience is the key to increased maintenance effectiveness.

---

**Module**

This MESH module identifies and records the changing states of the OT (awaiting parts, tools, repair time, delays etc) where precise measurement and analyze of downtime is required. Dashboards report time bottlenecks impeding the effectiveness and productivity of maintenance.

---

**Contact Information**

C: (57)3182527551
Info@livingreliability.com
www.livingreliability.com
MESH LRCM (Living Reliability Centered Maintenance)

**LRCM User Interface Module**

The LRCM module provides maintenance personnel with two primary functions:

1. Accurate and consistent work order selection of the failure mode and its life ending event type.
2. The ability to provide suggestion related to each RCM knowledge element, including text changes to nodes, the deletion or creation of an RCM knowledge element. These knowledge contributions are vital to the dynamic evolution of the knowledge base so that it is in sync with reality.

Continuous improvement in the effectiveness of maintenance depends on the quality of observational information returned by the technician on the work order. Unlike conventional work order interfaces, this module infuses precise RCM thinking into the work order data entry process. LRCM makes it almost impossible to select an incorrect EAM catalog values. At the same time LRCM eliminates the usual frustration and lost time lost associated with conventional drop down lists of ambiguous failure codes. The result is the ability for the Reliability Engineer to conduct reliability analysis and build and monitor the performance of optimal maintenance decision models.

**Knowledge Builder Module**

This module enables you to construct and maintain the RCM knowledge base

- Supports the development of RCM
- Tree view designed for speed and simplicity
- Tool Tips to assist in the use of Mesh extended options
- Image gallery associated with each failure mode for accurate communication of failure, potential failure and suspension standards
- User configurable criticality analysis
- Excel exports..
Feedback Manager Module - Management of knowledge suggestions

Your organization’s maintenance knowledge is dynamic, ever changing, and growing. Therefore it should be updated as a build in continuous process. This module allows you to manage the suggestions by technicians, evaluate the and update the knowledge base accordingly as new experiences and observations accrue. This creative approach to maintenance knowledge management results in the PM plan to respond immediately with an optimal set of consequence mitigating tasks.

This module capitalizes on an important human component. It is the motivational factor that recognizes maintenance personnel contributions to the knowledge base in relation to management’s objectives visibility and key performance indicators (KPIs).

Knowledge Trail

This module keeps track of (audits) the changing state of RCM knowledge including changes to the Knowledge Base (creators, rejected changes and accepted). Reliability engineers and managers can see the evolution of the knowledge base in its entirety. The history of knowledge associated with failure mode from its inception to the present may be investigated following safety and other major incidents.

Synchronization module

This module ensures that RCM knowledge base are in perfect synchronization with the EAM catalog (failure code). This functionality is currently lacking in all maintenance EAM organizations which are therefore unable to ensure perfect representation on the work order of failure modes observed by the technician.
MESH LRCM (Living Reliability Centered Maintenance)

Reporting module

Flexible configurable dashboards for viewing initial and evolving RCM knowledge progress, failure mode detail, mitigation task detail, criticality analysis. These dashboards are unique in that they are based on analytical grade data in the EAM resulting from Mesh procedures. Effective daily maintenance management. The module provides high level (hard) and low level (soft) performance indicators.

KPIs low level: Relate directly to team performance. They measure everyday activities that impact high level performance.
- Number of suggestions made to the Knowledge Base
- Number of reliability analyses performed and decision models implemented.
- Number of potential versus functional failures
- Information Quality on the work order

Lagging (high level) KPIs: Employees have no direct influence on these.
Los empleados no tienen una influencia directa.
- Availability
- Reliability MTBF
- Maintainability MTTR
- Costs

How to set up and make effective use of low-level (leading) KPIs that support high-level (lagging) performance?

Requirements

Mesh is recommended as a convenient and affordable Cloud service, in which case there are no hardware or software requirements.

If desired, Mesh can reside on your company intranet in which case
The MESH hardware requirements are:
- 2 GB min. RAM available.
- 2 to 4 processors / cores available.
- 20 GB of disk space for storing files in the application and the application server.
- 50 GB of disk space for MESH database

- For intranet deployment, the MESH software requirements are:
  - Application Server Java Enterprise Edition v6 - 3.1.2.2 Oracle Glassfish, community version.
  - Java Development Kit 7, preferably the latest update recommended by Oracle.
  - Oracle Database 11g - Standard Edition.
MESH LRCM (Living Reliability Centered Maintenance)

Benefits

MESH LRCM procedures contribute directly to the reduction of maintenance costs and increased asset availability. The most important benefit is derived from a methodology that supports continuous improvement of maintenance knowledge and the resulting maintenance plan.

How much improvement will MESH LRCM bring to maintenance?

The source of all improvement is a dynamic high quality RCM knowledge base

MESH LRCM ensures high quality maintenance information, resulting in:

- Optimize maintenance costs resulting in 10% to 20% reduction *
- Reduce RCM analysis time *
- 100% accurate work order identification of failure modes EAM

- Improve quality of maintenance historical information by 40% to 60%
- Reduce the number of chronically recurring failures by 20% to 50% *
- Increase asset reliability by 5% to 25% *
- Identify bad actors and inadequate maintenance automatically within the work

- Capture, retain, and continuously grow company maintenance expertise in the RCM knowledge base (aging workforce)
- Encourage knowledge contribution by personnel

- Increase maintenance productivity 15% to 25%
- Increase technicians’ skills
- Increase reliability analysts' productivity (eliminate time wasted in data cleaning) 50% to 60%

Cost effective solution

- Generate payback of from 10 to 100 times the value of the investment by predicting and preventing failure.
- LRCM investment returns are evident within 4-8 weeks, in terms of business performance at ground level.