



Populating MAXIMO with RCM Results

Automating the RCM - MAXIMO
Interface

LARRY JOHNSON
FRACTAL SOLUTIONS
(770) 886-6955
FRACTALSOLUTIONS.COM



Today's Topics

- What is RCM?
- Why perform RCM?
- Are you ready for it?
- Why interface with MAXIMO?
- RCM – MAXIMO analysis cycle
- Interface overview
- Interface details



What is RCM?

- Methodology used to identify undesired equipment failure consequences
 - Economic
 - Safety
 - Environmental
- Develops a cost-effective PM strategy to prevent those failures
- Continues to improve reliability over life of plant



What is RCM?

- Organized common sense
 - No need for detailed failure/operating data
 - Plant personnel have the best (and most revealing) knowledge
- Based on equipment or system function
- Shifts PM program away from time-based and towards condition-based activities

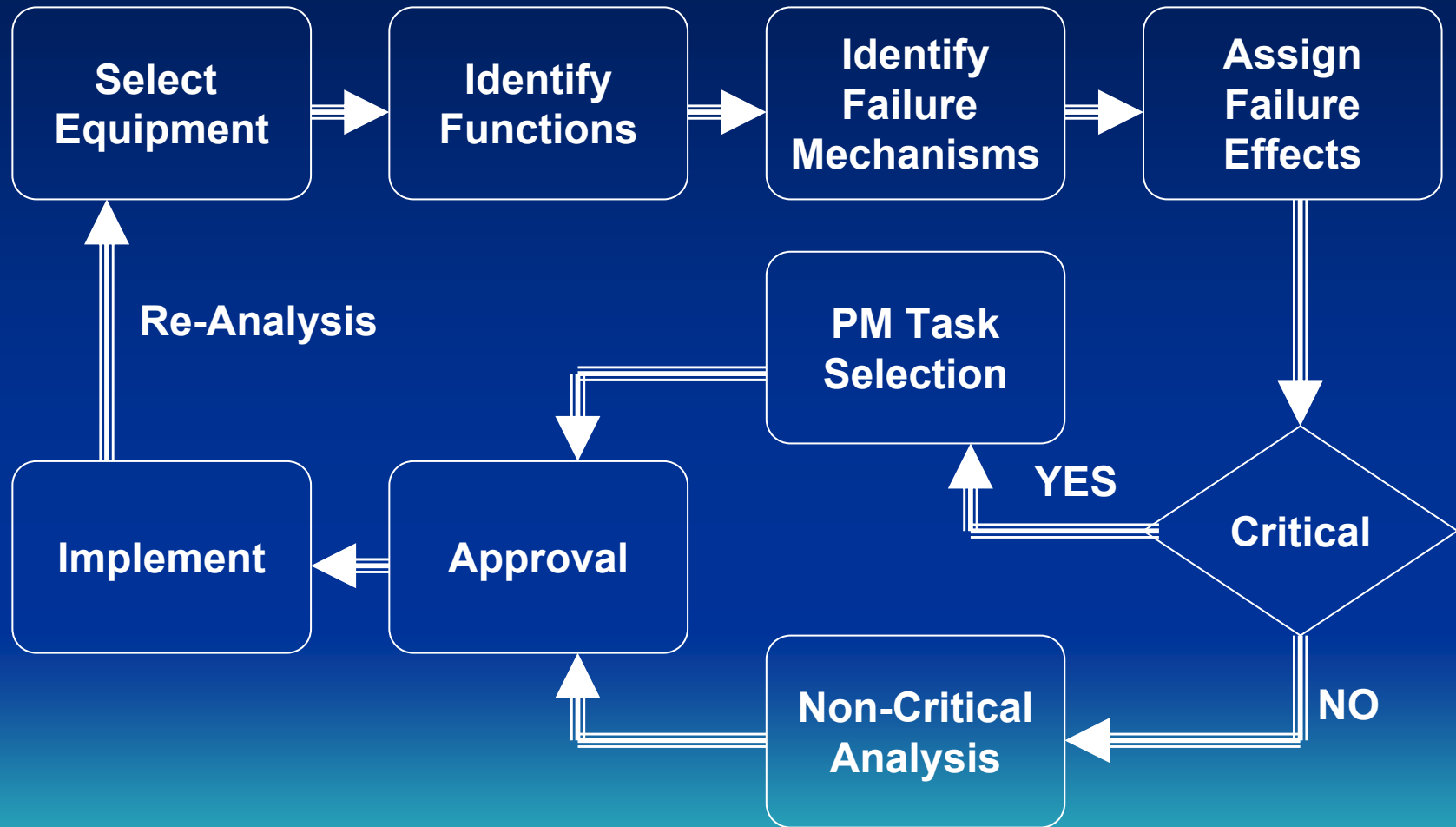


What is RCM?

- Many methods are available
 - Classical
 - Streamlined
 - PM Optimization (not a true RCM method)
 - Risk-Based Analysis
- Most methods deliver the same results
- Usually Streamlined in the electrical industry



RCM Process Flow





Why Perform RCM?

- Non-optimized PM programs
 - Mostly time-based
 - Based on vendor recommendations
 - Handed down over the years
 - Do not integrate predictive technologies
 - Frequently canceled rather than performed as scheduled



Why Perform RCM?

- Time-based PMs may cause more problems than fix
- Urban legend: failures follow the 'Bathtub' curve
 - High infant mortality
 - Random, and few, failures in middle age
 - Rapid increase in failures towards end of life

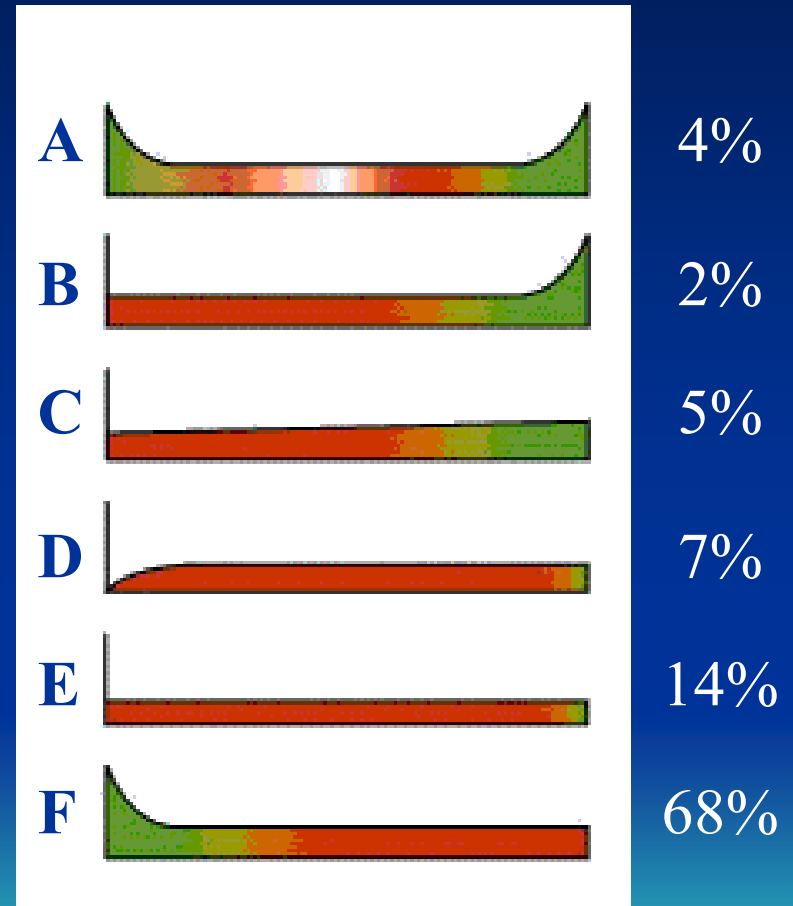


Why Perform RCM?

The Truth About Failure

Information from civil aircraft studies indicate the Bathtub curve shown in the 'A' curve occurs infrequently.

Majority of failures (68%) occur after installation or overhaul as shown in 'F' curve.





Why Perform RCM?

- Optimize use of maintenance resources
 - Better planning
 - Right work on right equipment
- Documented basis for PM program
- Improved plant availability
 - Shift to condition monitoring means PMs done without shutting down equipment

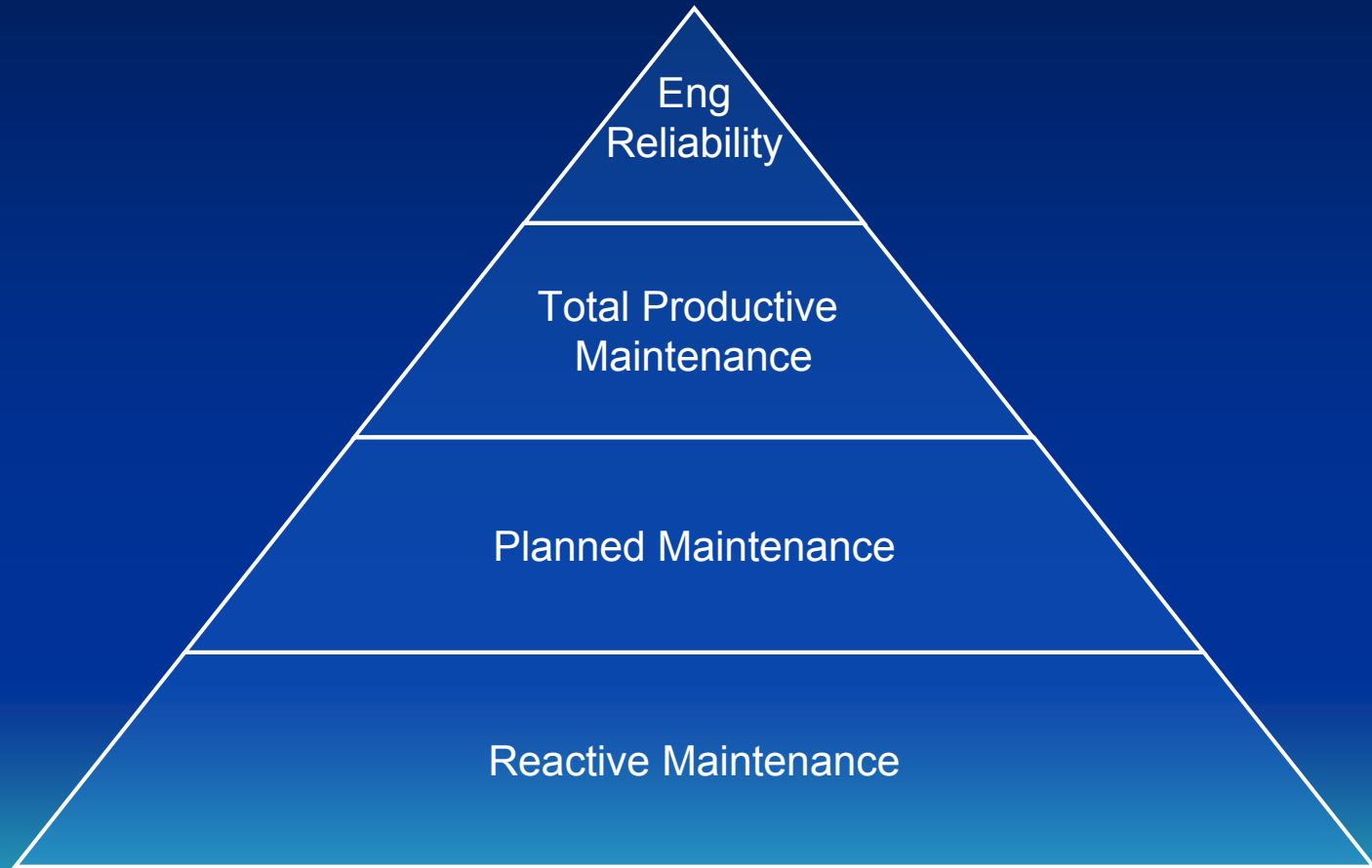


Why Perform RCM?

- Spin-off benefits
 - Validates equipment list to drawings to as-built
 - Optimizes spare parts inventory
 - Assures regulatory compliance
 - Cleans house if migrating to new CMMS or version
 - Budget plans are more accurate



Are You Ready for It?





Are You Ready for It?

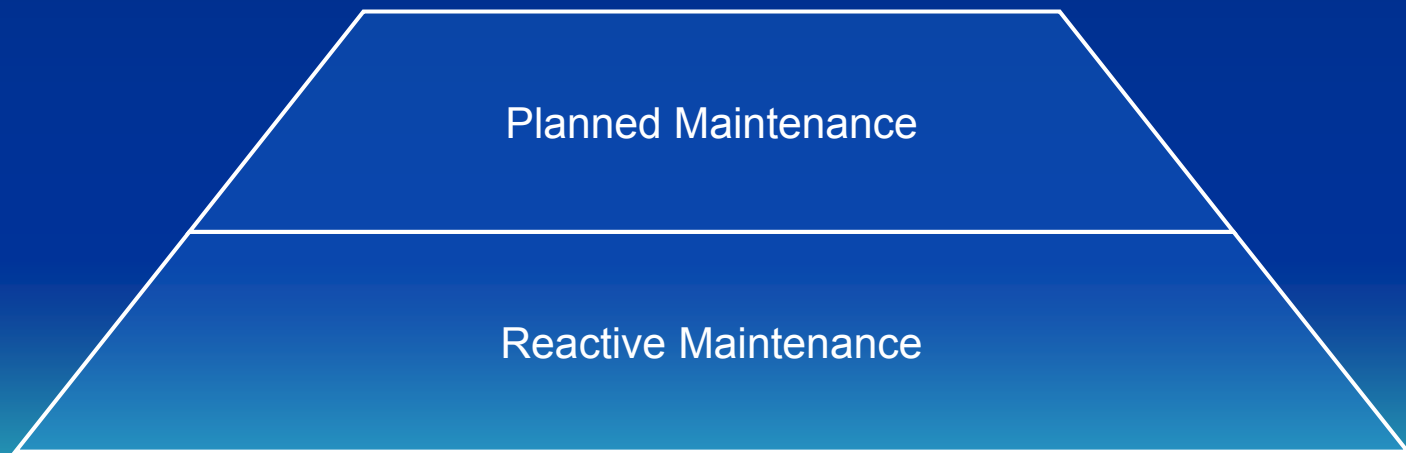
- No if:
 - Fire fighting is rewarded
 - No work orders, plans, or controls
 - Poor maintenance / operations relationship





Are You Ready for It?

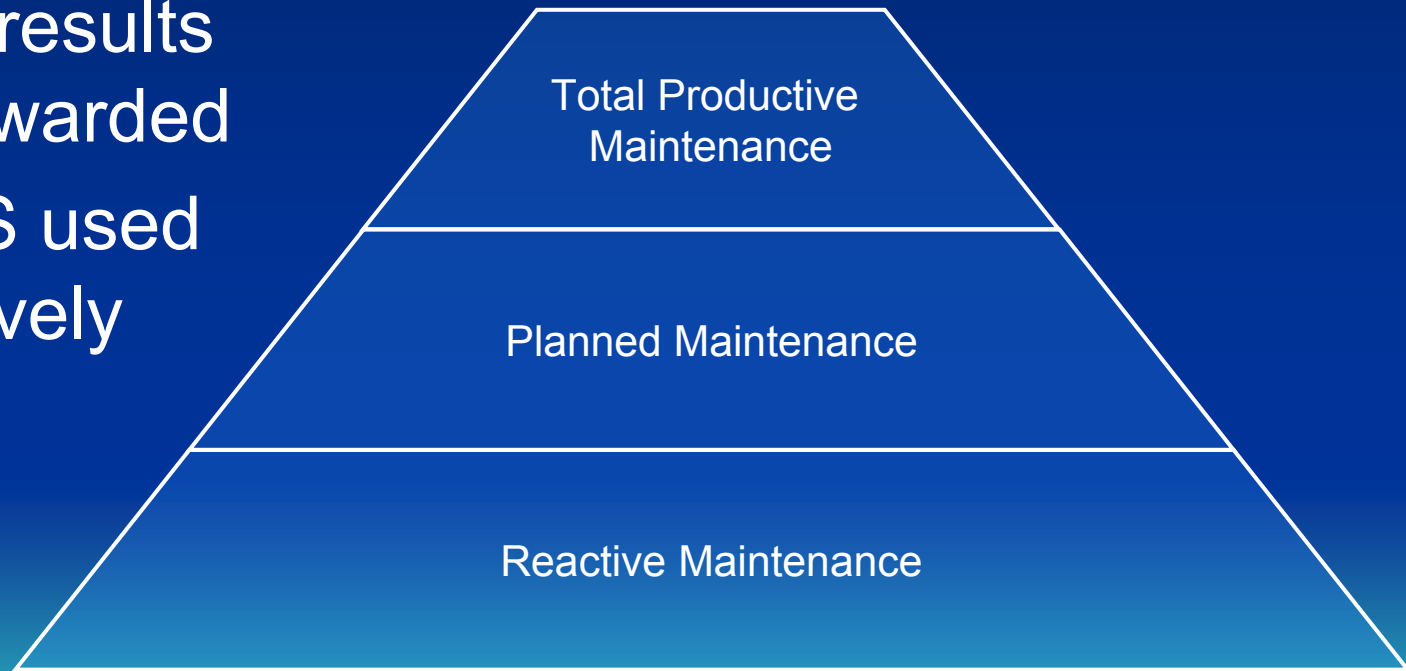
- Maybe if:
 - Predictive equipment purchased and in place
 - Work is prioritized
 - Operations preps for work





Are You Ready for It?

- Yes if:
 - Maintenance & Ops work in alignment
 - Good results are rewarded
 - CMMS used effectively





Why interface with MAXIMO?

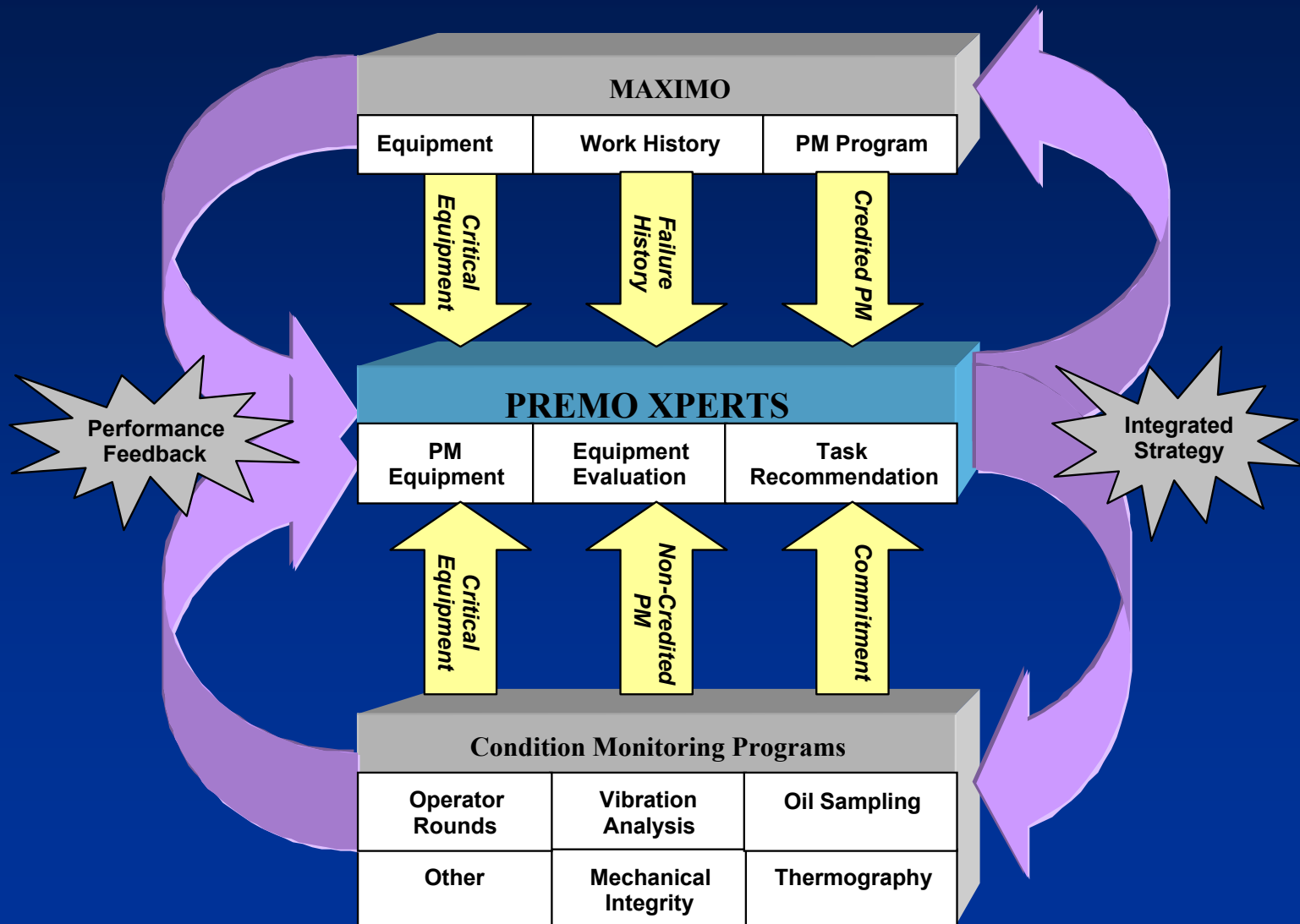
- Largest obstacle to a successful RCM program is not the analysis, but the implementation
 - Insufficient number of planners/schedulers
 - RCM output not in a recognized format
 - Confusing or inadequate instructions
 - From RCM software to hard copy to MAXIMO



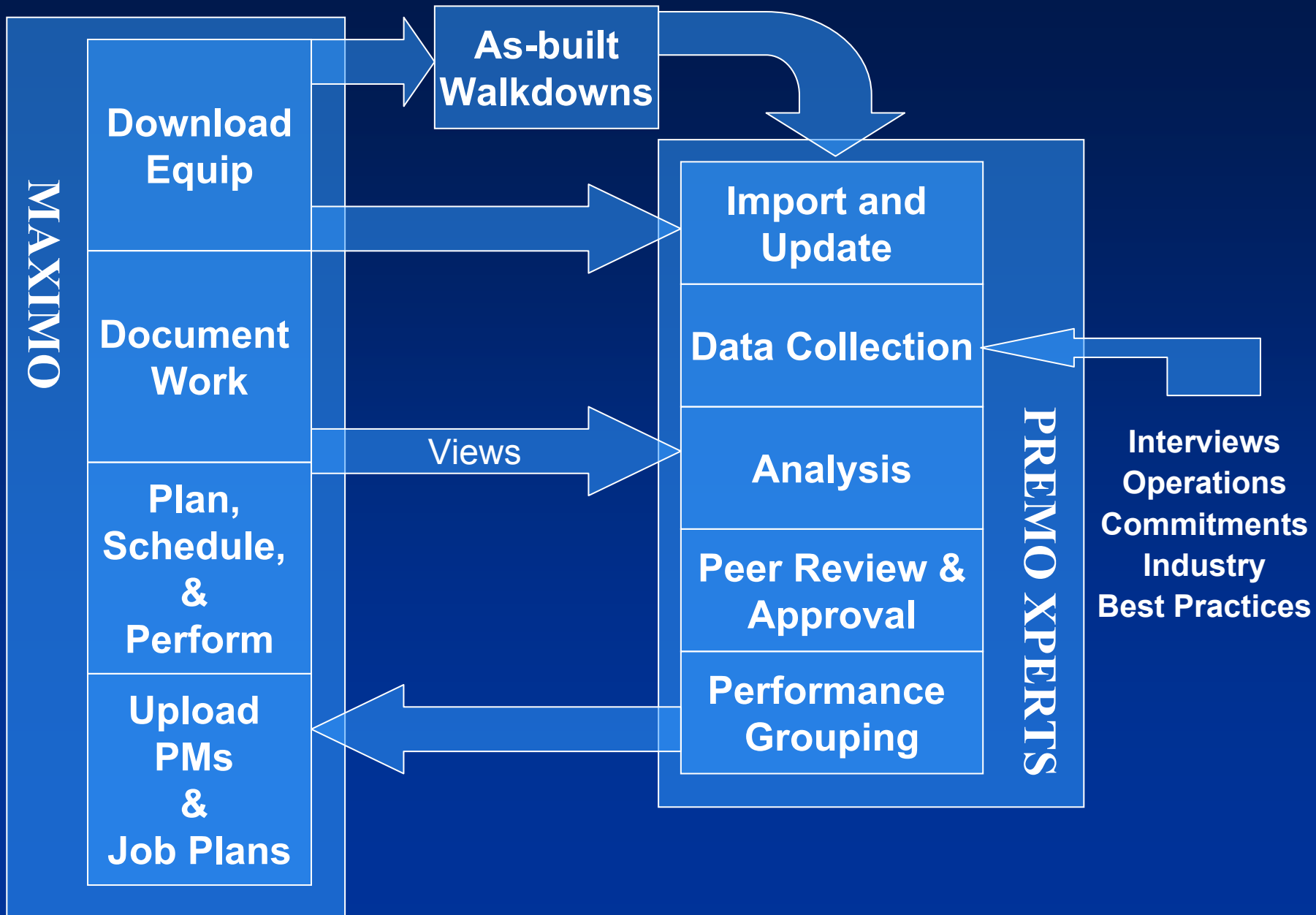
Why interface with MAXIMO?

- Reduces resource requirement
- Eliminates misinterpreted instructions
- Creates a continuous improvement cycle
- Shares failure codes
- Dynamic performance feedback during analysis and reanalysis

RCM – MAXIMO Analysis Cycle



Interface Overview





Interface Overview

- Downloads from MAXIMO
 - Locations
 - Equipment
 - PMs
 - Job Plans
 - Failure Codes / Lists
 - Long Description
 - Value List



Interface Overview

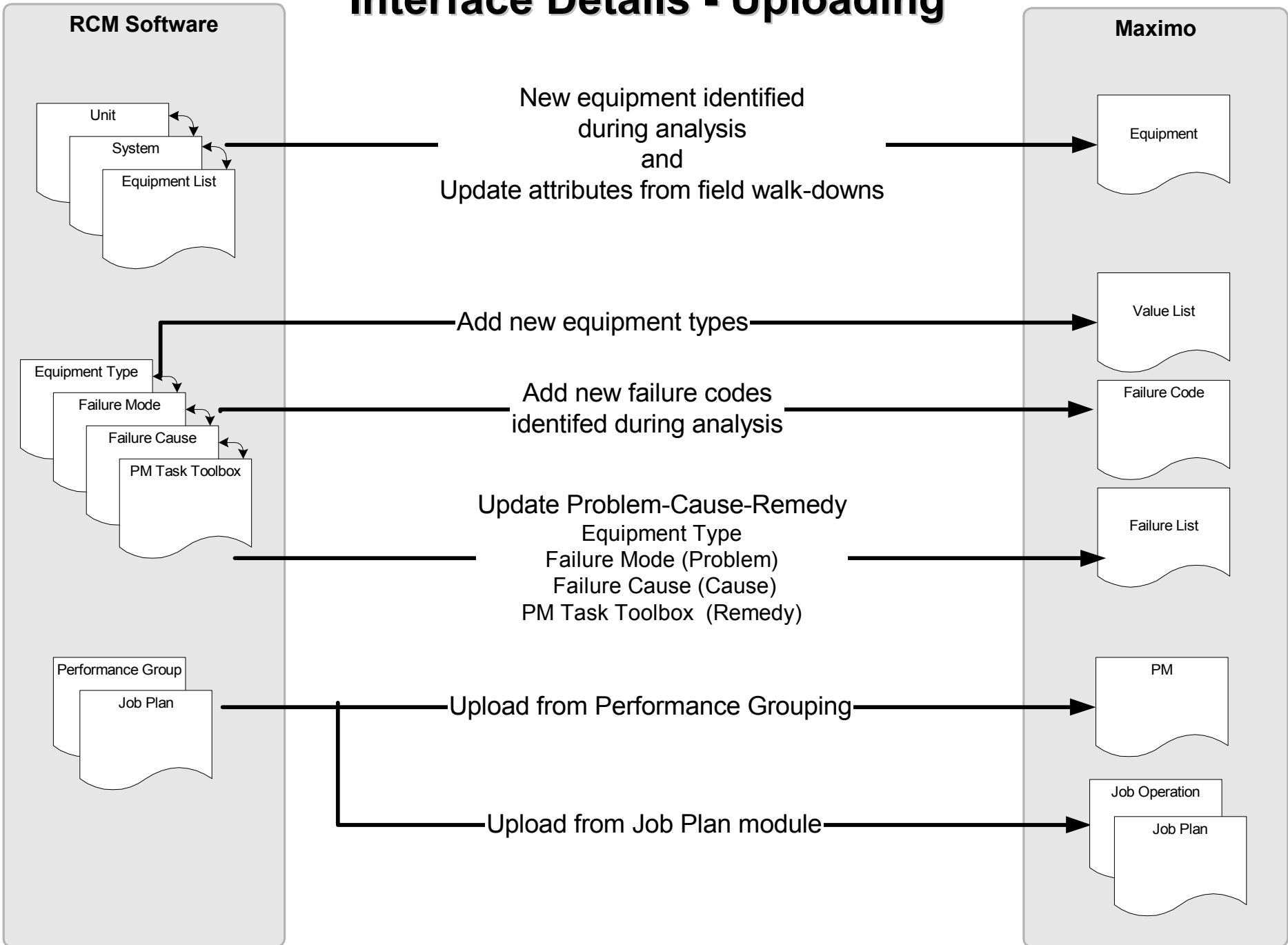
- Uploads to MAXIMO
 - Optimized PMs and Job Plans
 - New equipment
 - Problem – Cause – Remedies



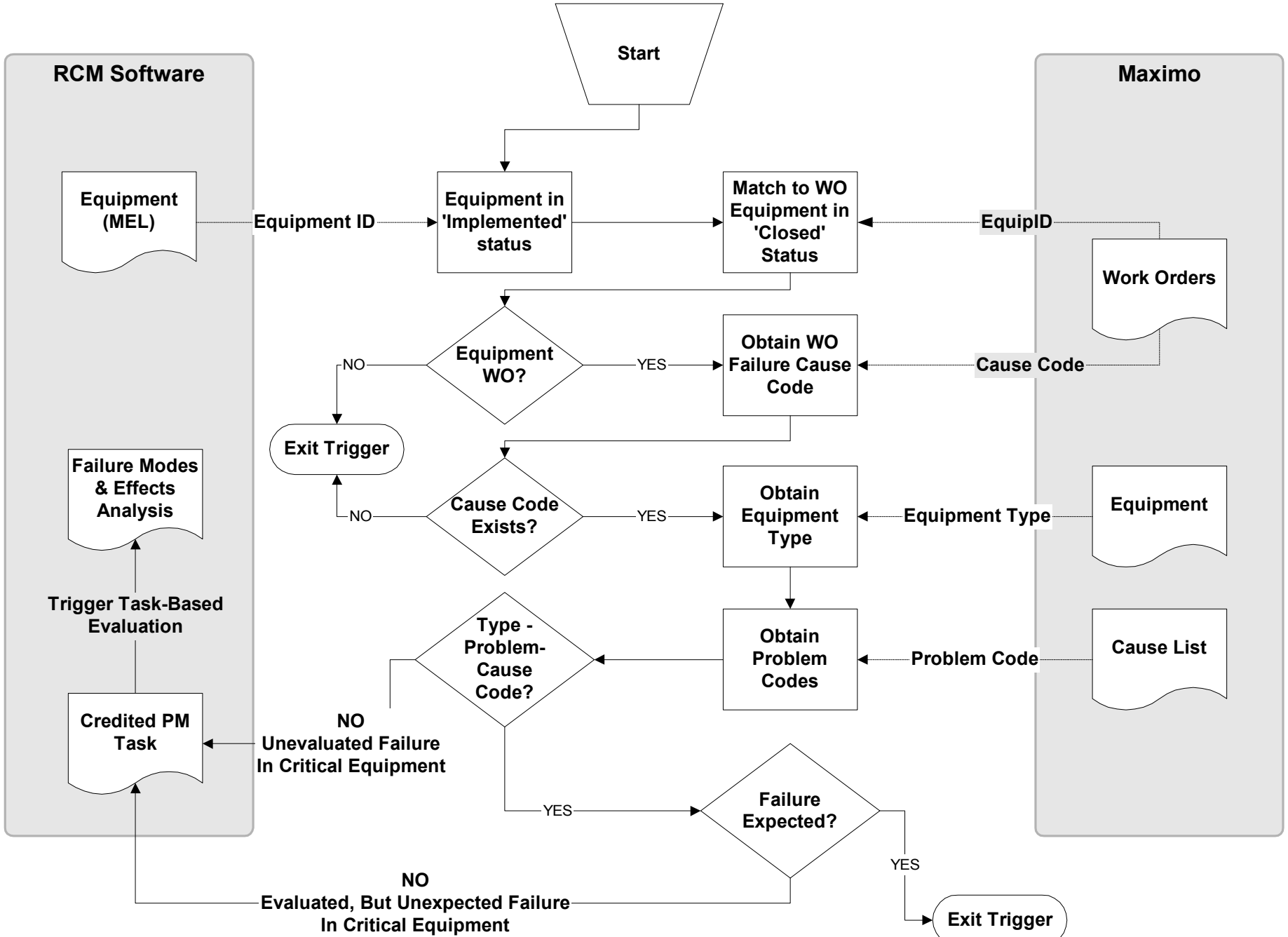
Interface Overview

- Views of MAXIMO from RCM software
 - PM Work Orders
 - Corrective Work Orders

Interface Details - Uploading



Interface Details - Reanalysis





Summary

- RCM is a proven method to optimize PM programs
- Ensure that you can support a RCM program
- Integrating RCM software and MAXIMO reduces resource requirements during implementation