Reliability Business Intelligence®

Enterprise System Focused on Asset Performance Management

Language: English Revision: 1.0.5

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ReliaSoft®

The Company

- Founded in 1992 (Tucson, Arizona – USA)
- World leader in reliability engineering
- Offering complete solutions for implementing reliability: software, training, consulting and enterprise systems
- Transforming data into information and information into strategic decisions
- Helping our customers to improve the bottom line by applying reliability tools in maintenance, production lines and product development

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Core Competencies

SOFTWARE

Acclaimed for their ease of use, analytical power and unparalleled technical support, ReliaSoft's reliability engineering software tools facilitate a comprehensive set of modeling and analysis techniques. ReliaSoft offers 10 software tools for analysis and 3 enterprise systems for analysis and data management.

TRAINING

ReliaSoft offers a complete array of reliability engineering training courses designed to advance the knowledge and skill set of the practicing engineer. ReliaSoft offers 17 training courses in different methodologies.

CONSULTING

ReliaSoft's expert consulting services team offers a uniquely powerful combination of industry insight, unparalleled subject mastery and, most important of all, direct access to all of ReliaSoft's global resources, expertise and contacts.

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ReliaSoft Consulting

- Consulting
  - Determining the Maintenance Policy
    - Corrective
    - Preventive
    - Inspections
  - Defining the Optimum Time

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ReliaSoft Consulting

- Consulting
  - Determining the Optimum Spare Part Policy

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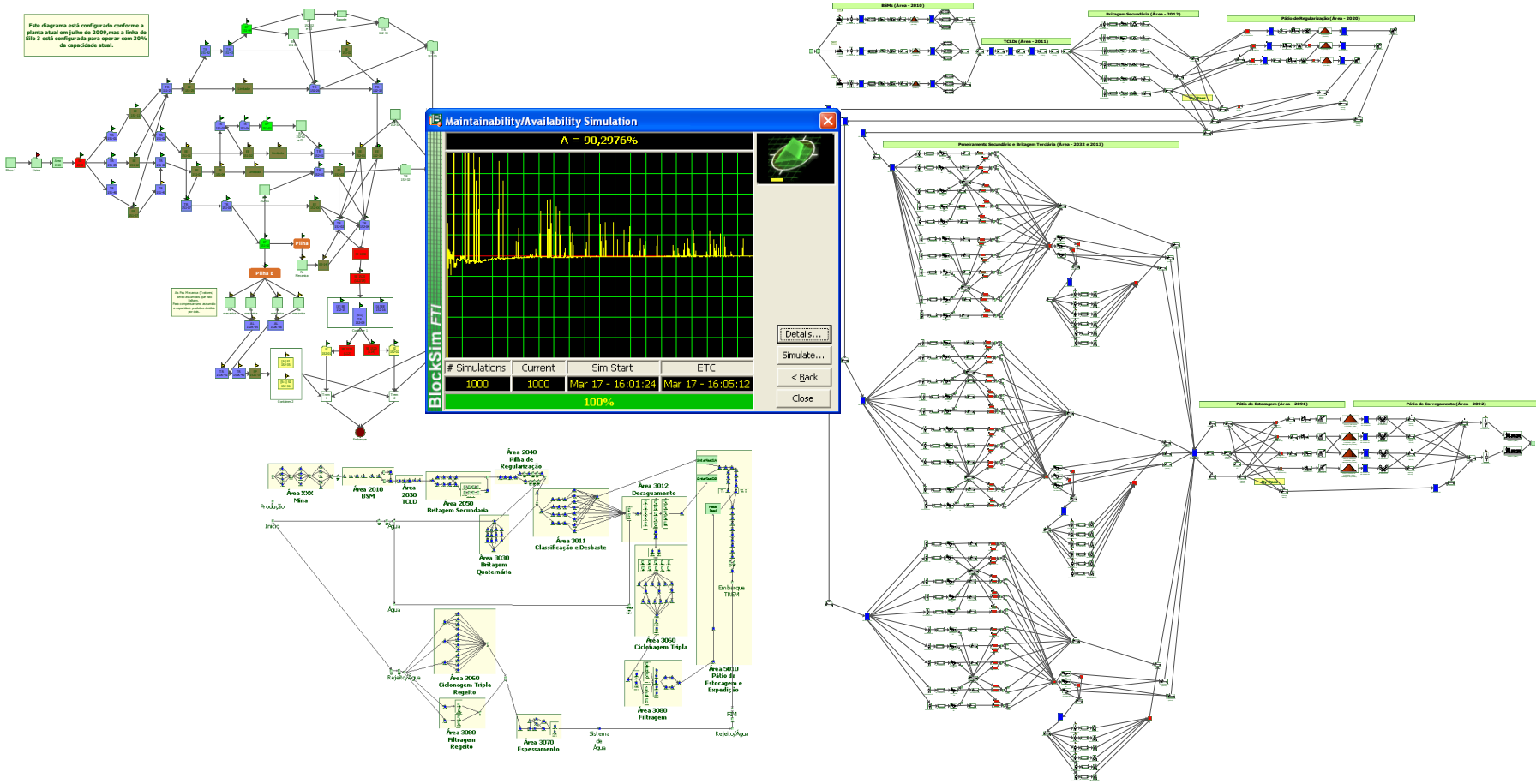
ReliaSoft Consulting

- Consulting
  - RAM Analysis *(Reliability, Availability and Maintainability)*



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ReliaSoft Worldwide

ReliaSoft has offices and independent distributors strategically located throughout the world to address market-specific business needs and assist our customers in their own language.

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ReliaSoft Professionals

ReliaSoft has over 100 skilled professionals working in five offices around the world.

~20%

~10%

~20%

~10%

Certification and Symposia

ReliaSoft has introduced and continues to promote multiple initiatives for advancing the effectiveness and reputation of the reliability discipline, including:

Certified Reliability Professional (CRP) Certification

The Certified Reliability Professional (CRP) initiative is a professional certification program for reliability engineers. It is designed to distinguish professionals who have gained and successfully demonstrated unquestionable expertise in the field of reliability engineering.

Site: **www.ReliabilityProfessional.org**

International Applied Reliability Symposium - ARS

The ARS provides a forum for expert presenters from industry and government to come together with reliability practitioners from all over the world to discuss the application of reliability principles to meet real world challenges. ReliaSoft organizes annual events in: **North America**, **South America**, **Europe**, **Asia Pacific** and **India**.

Site: **www.ARSymposium.org**

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Some of our Customers

Oil & Gas

PETROBRAS
HALLIBURTON
Chevron
Pan American ENERGY
CAMERON
IndianOil
bp
PETRONAS
ExxonMobil
Saudi Aramco
BAKER HUGHES

Mining

VALE
Votorantim Metais
ALCAN
MRN Mineração Rio do Norte
ArcelorMittal
ALUMAR
BELGO
ALCOA

Electronics

gradiente
Whirlpool
Embraco
SAMSUNG
Tyco Electronics
enxuta
NARDELLI
TRANE
GE Appliances
PHILIPS
sense and simplicity

Automotive

Mercedes-Benz
VOLVO
FIAT
TATA
DELPHI
BOSCH
Ford Motor Company
GENERAL MOTORS COMPANY

Telecom

Alcatel·Lucent
at&t
NOKIA
Connecting People
QUALCOMM
COX
RIM

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Some of our Customers

Aerospace

Honeywell

BOEING

BOMBARDIER

Cessna
A Textron Company

GE Aviation

Gulfstream

Rolls-Royce

DASSAULT AVIATION

IT Hardware

Microsoft

hp invent

IBM

cisco

DELL

LEXMARK

intel

Defense

GENERAL DYNAMICS
Strength On Your Side

LOCKHEED MARTIN

NORTHROP GRUMMAN

Raytheon

L3 communications

BAE SYSTEMS

SAIC
From Science to Solutions

ATK

Military

MINDEF SINGAPORE

ROYAL AIR FORCE

National Défense
Defence nationale

Australian Government
Department of Defence

Ministry of Defence

Healthcare

SIEMENS

P&G

Abbott
A Promise for Life

GE Healthcare

Boston Scientific
Delivering what's next.

Medtronic

PHILIPS
sense and simplicity

BECKMAN COULTER

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Some of our Customers

Semiconductors

- Applied Materials
- Corning
- JDSU
- NXP
- Texas Instruments
- ST
- freescale semiconductor
- AMD The future is fusion

Heavy Equip.

- John Deere
- CNH
- Caterpillar
- Komatsu
- Fuso
- Scania
- Volvo Trucks Global
- Claas
- International A Navistar Company

Energy

- Sandia National Laboratories
- Alstom Power
- AECL
- GE Energy
- Mitsubishi Power Systems
- AES

Chemicals

- Dow
- DSM
- DuPont The miracles of science
- Eastman
- Braskem
- Sabic

Transportation

- Alstom Transport
- Canadian Pacific
- GE Transportation
- MTA
- BART
- Union Pacific

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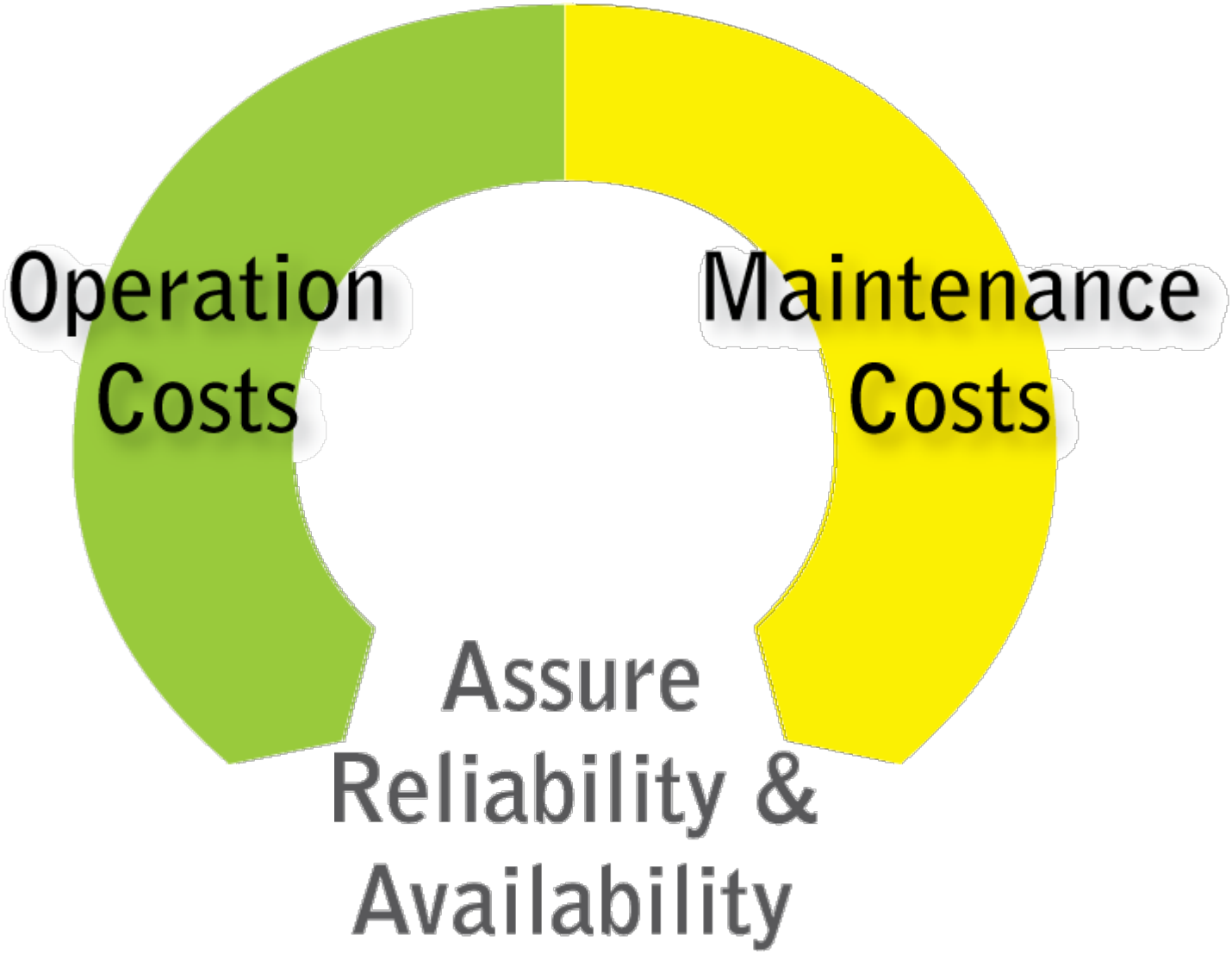
Asset Management

Asset Management



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Asset Management - Overview

- Asset management is the key for companies to reach their business objectives
- To correctly manage costs and maximize availability and throughput, companies need to focus on asset management
- To have effective asset management, companies need to apply a system to generate a good set of key performance indicators (KPIs)
- Effective and accurate asset management does not exist without reliability

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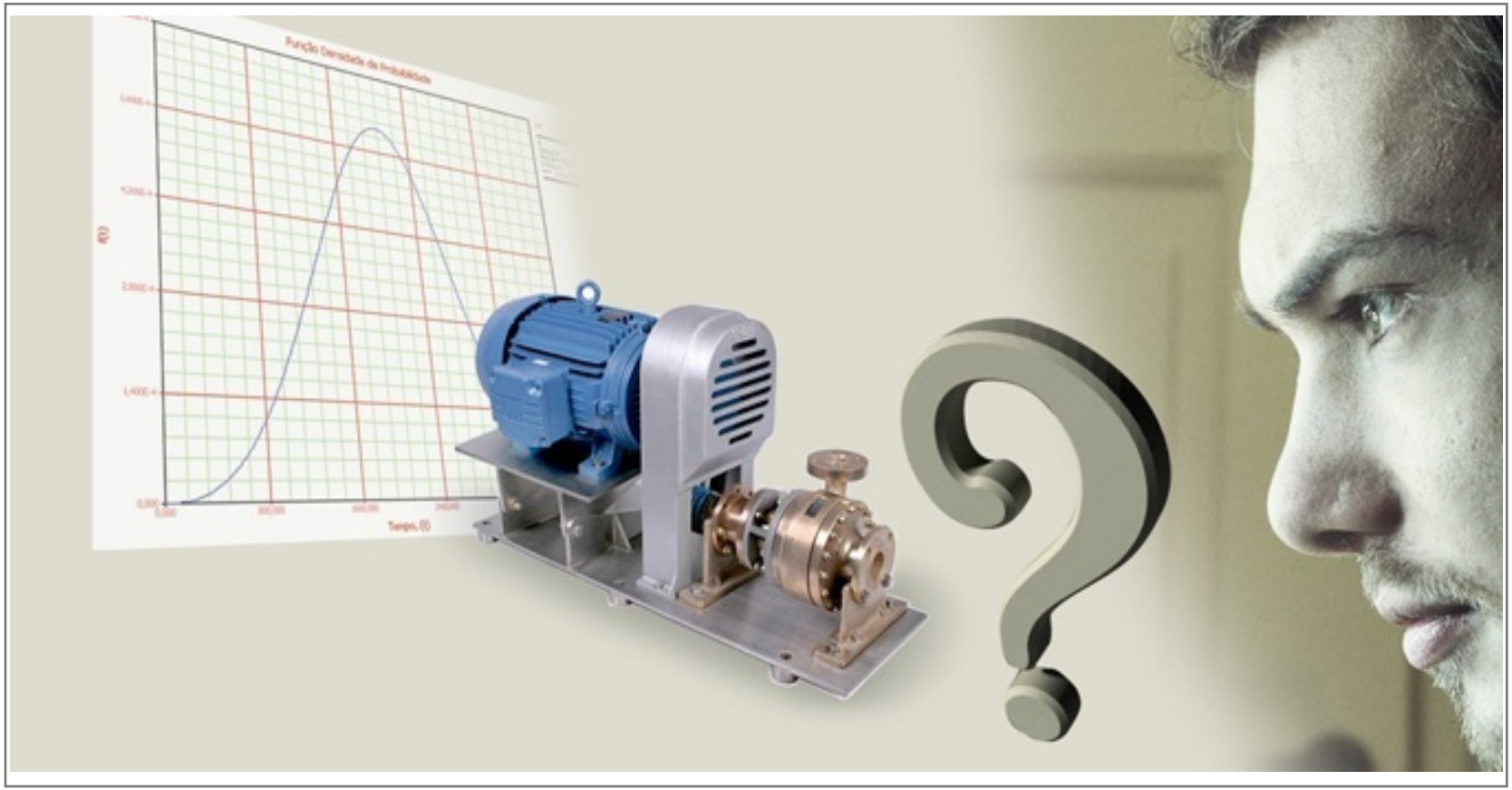
Asset Management Supported by Reliability

- How can you manage your asset if you do not have the ability to know the reliability performance during the operational lifetime?



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Asset Management Supported by Reliability

Reliability is the Key to Successful Asset Management

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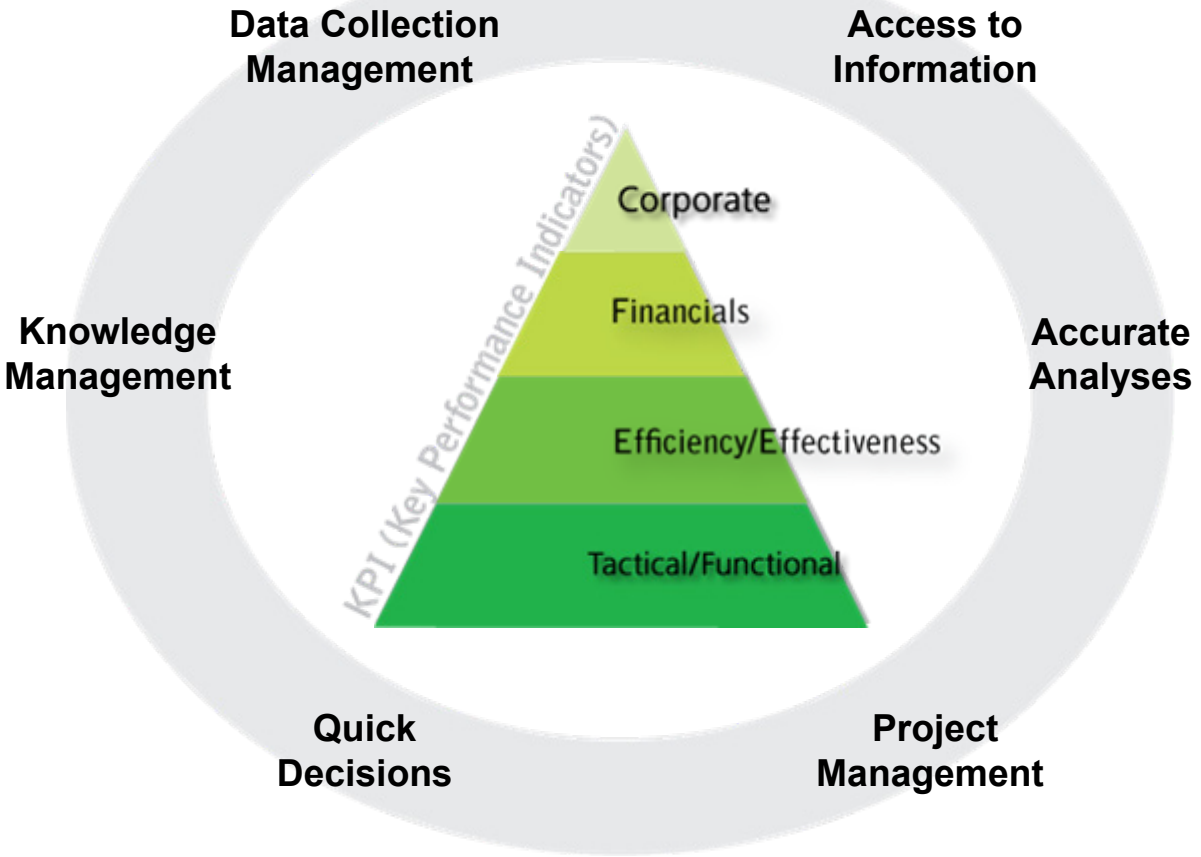
Asset Management

- An effective and accurate asset management process is a set of activities/actions:



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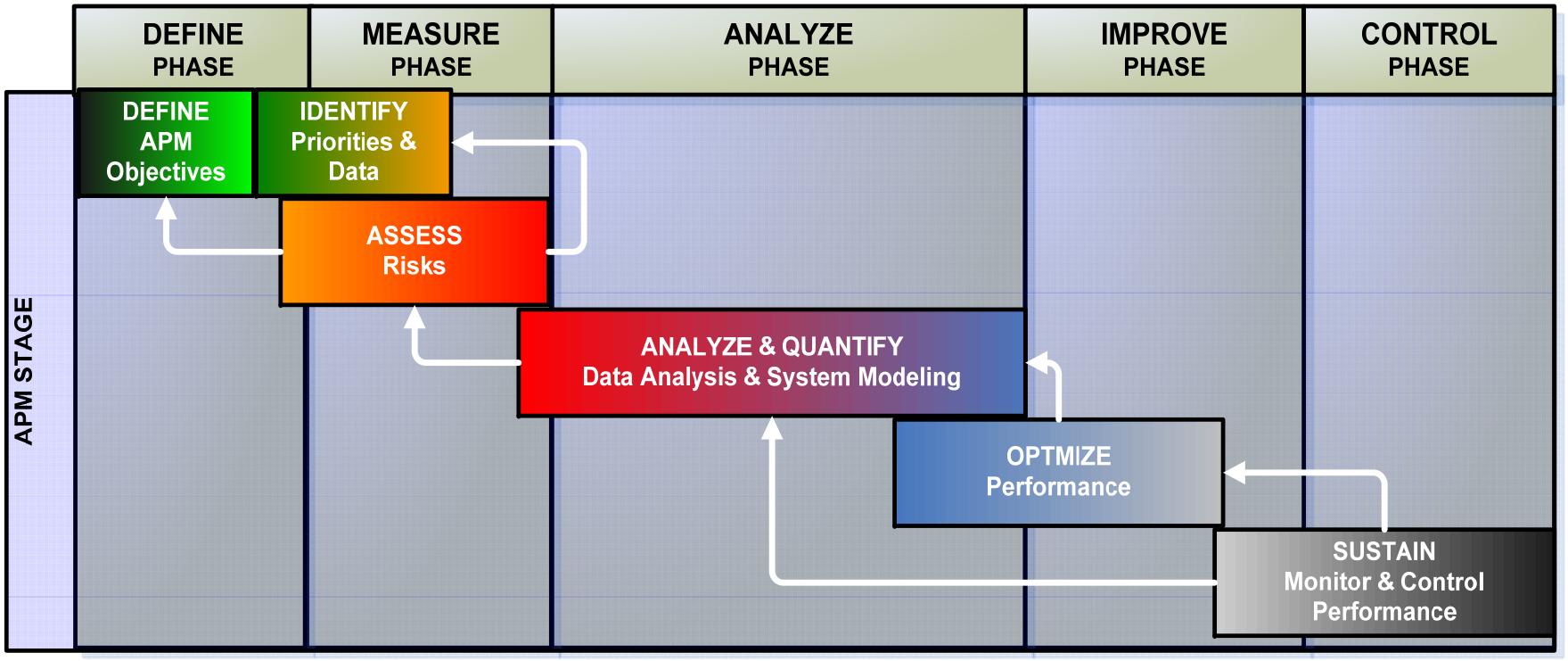
Asset Management Process Phases



"You cannot manage something you cannot control, and you cannot control something you cannot measure."
— a common management adage

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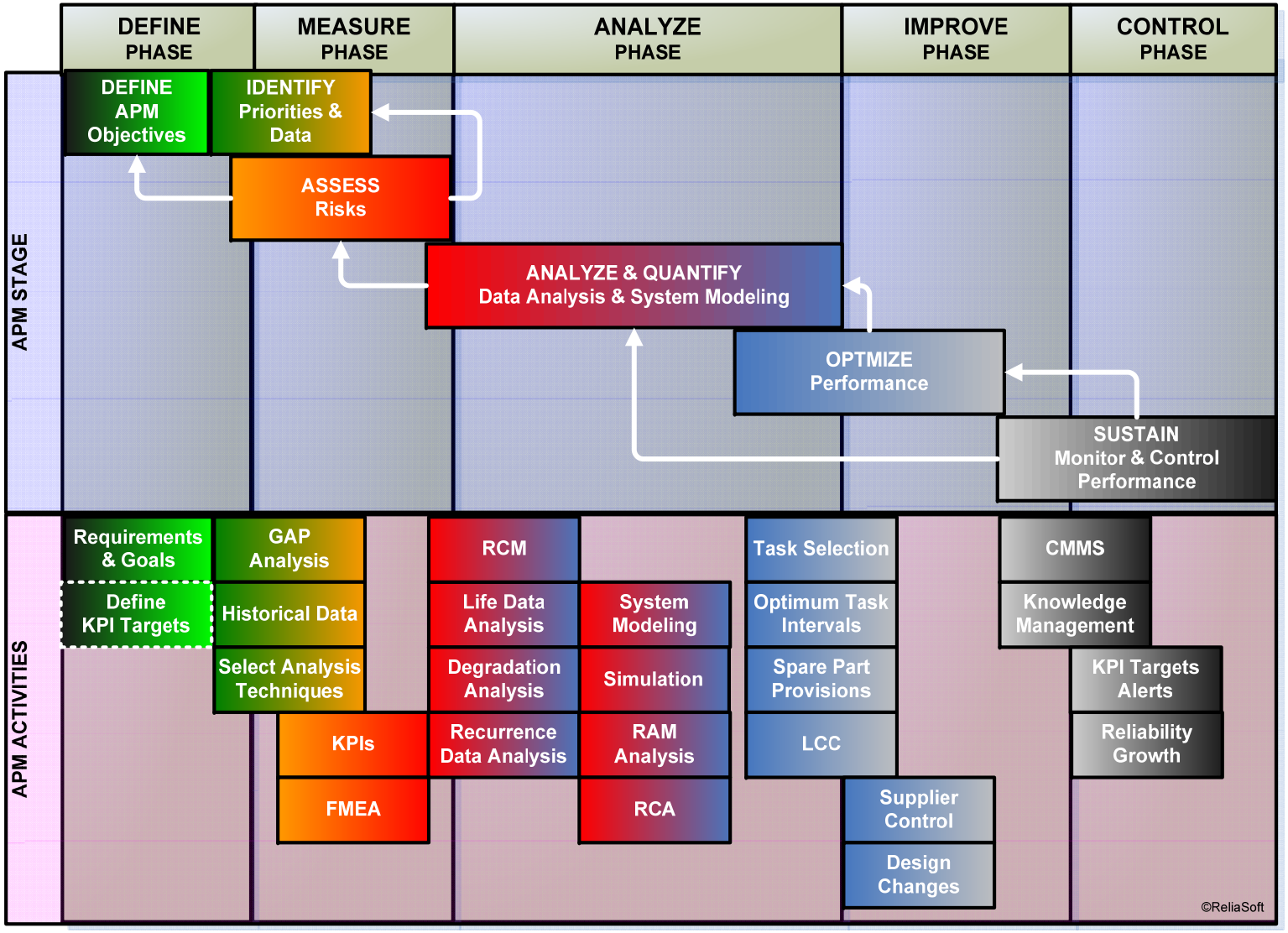
Asset Management Process
Activities



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Presentations and Symposia

ARS - Berlin

SMRP

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Reliability Business Intelligence®

Enterprise System Focused on
Asset Performance Management

What is it?

What is the *Orion eAPI* system?

- Enterprise system focused on Asset Performance Management
- By unifying diverse data currently located in various systems and databases throughout the company, the Orion eAPI system will be a powerful tool for consolidation and analysis, which will transform your data into information that can support strategic decisions for your organization
- Total mobility
  - Completely Web-based
  - Access by intranet and/or the Internet

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Reliability Business Intelligence®

- **Flexible**
  - Many types of analyses and predefined reports
  - User-defined queries and reports

- **Integration with all of ReliaSoft's software tools**
  - Store and manage all files you have created in ReliaSoft's tools
  - Access ReliaSoft's software tools through the Orion system

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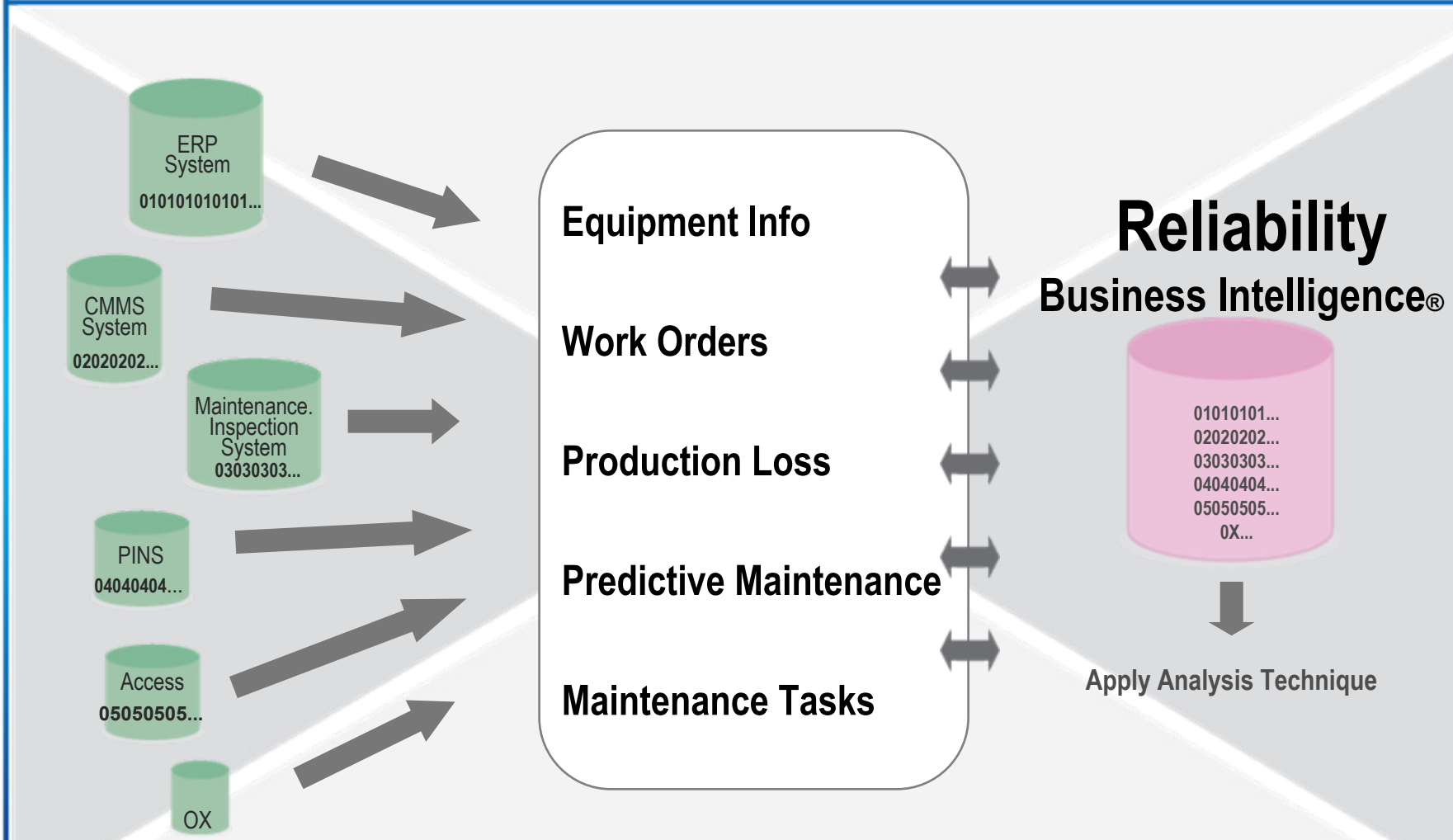
Data Sources



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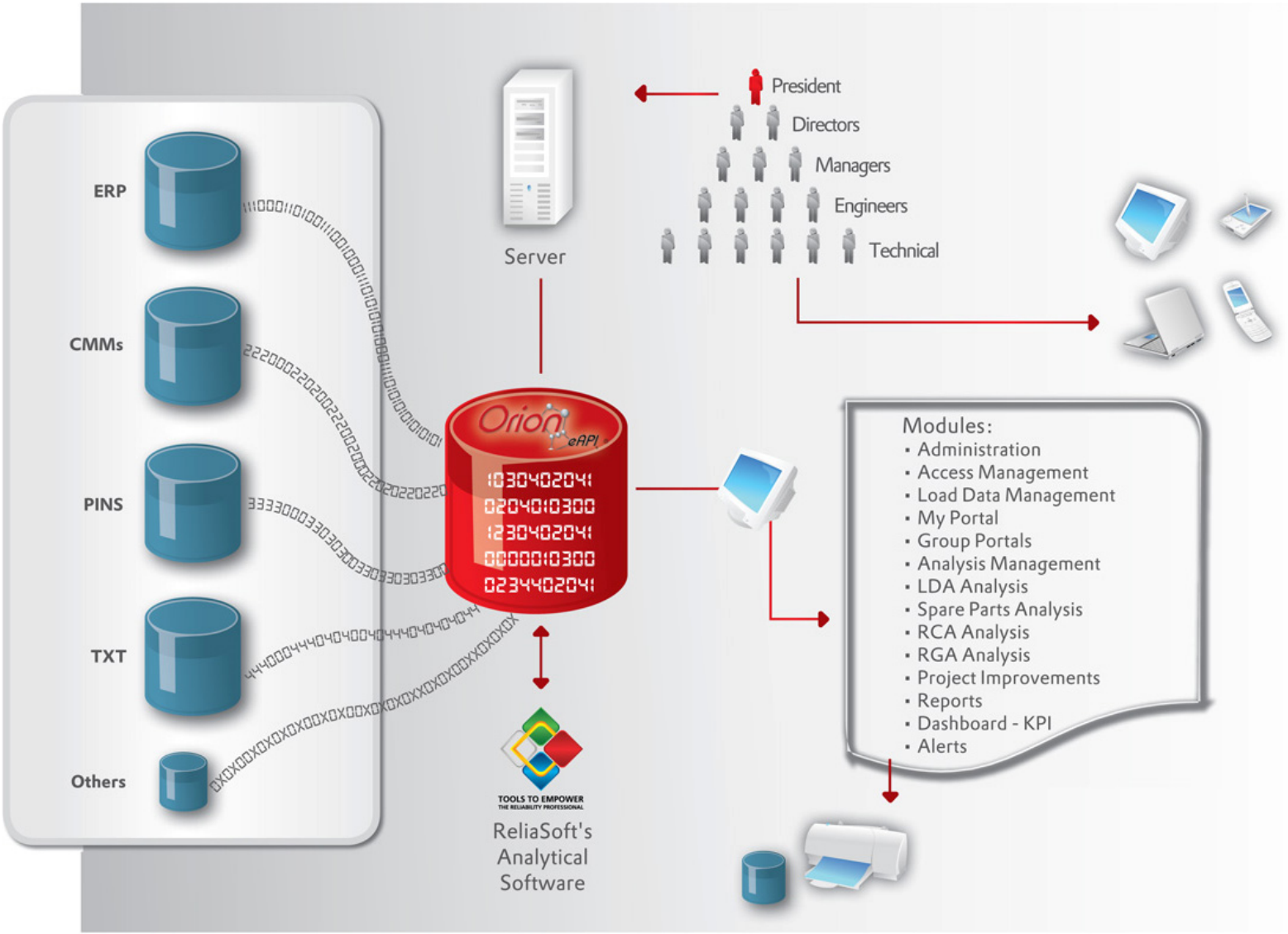
System Overview

ASSET PERFORMANCE MANAGEMENT



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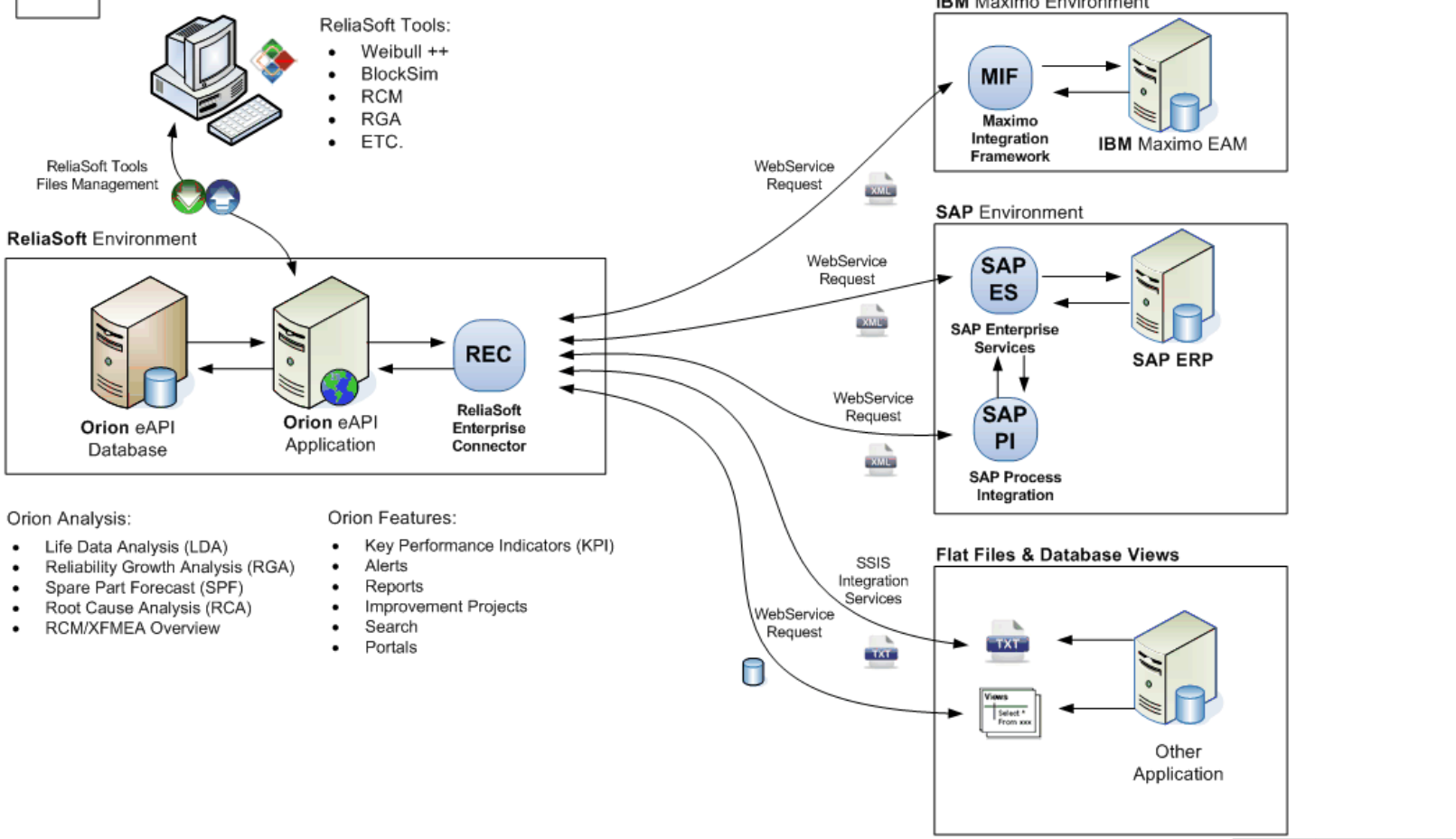
Connection with Customer's Database

Orion eAPI Installation

ReliaSoft



Orion Analysis:

- Life Data Analysis (LDA)
- Reliability Growth Analysis (RGA)
- Spare Part Forecast (SPF)
- Root Cause Analysis (RCA)
- RCM/XFMEA Overview

Orion Features:

- Key Performance Indicators (KPI)
- Alerts
- Reports
- Improvement Projects
- Search
- Portals

Orion eAPI Features

Orion eAPI System Features:

- **Analysis Module**
  - Reliability and Maintainability view
  - Automated update of RBDs in BlockSim
  - Reliability Growth view
  - Spare Parts Forecast view
  - Root Cause Analysis – RCA view
  - Show RCM and FMEA analyses created in RCM++ and Xfmea software view
- **Total Integration with ReliaSoft's Software** view
  - Store and manage files from ReliaSoft's software
  - Attach the analysis to any part of the structure (*i.e.* TAG)
- **Reports** view
  - Number of Failures
  - MTBF & MTTR
  - Maintenance Costs
  - Availability
  - Production Loss

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Orion eAPI Features

Orion eAPI System Features:

- **Key Performance Indicators** view
  - Many KPIs available to manage your assets:
    - Maintenance
    - Production
    - Financial
    - Etc.
  - KPI Dashboard
    - Users choose their KPIs
  - Alerts Setup view
    - Benchmark

- **Improvement Projects** view
  - Create and manage improvement projects and action plans
  - Calculate ROI (Return on Investment)
  - Prioritize improvements
  - Send automatic e-mails to the professionals involved in the action plan, including those who are:
    - Assigned to complete the task
    - In need of progress reports

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Orion eAPI Features

Orion eAPI System Features:

- **Portals** view
  - My Portal
  - Portal Groups
    - Able to create Groups (*e.g.* Electrical, Mechanical, Instrumentation, etc.)

  All Portals have:
    - KPI Alerts
    - News
    - Improvement Management
    - Analysis
    - Actions
- **Analysis Management** view
  - LDA / RGA / SPF / RCA
  - Analysis Files (from RS tools)
  - Improvement Projects
- **Search** view
  - Search analyses
  - Search improvement projects
  - Search action plans
  - Search information in the consolidated database
  - Save and reuse your searches

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Why choose Orion eAPI?

Powerful
Analysis Tool

Quick Database
Consolidation

Knowledge
Management

Asset Performance
Management

Quick and
Accurate Decisions

ROI

Cost Reduction

Loss Reduction

Increased Reliability

Increased Availability

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Questions

ReliaSoft

ReliaSoft Corporation
Phone: +1.520.886.0410
Sales@ReliaSoft.com

Reliability Business Intelligence®

Enterprise System Focused on Asset Performance Management

Analysis Module

Reliability & Maintainability

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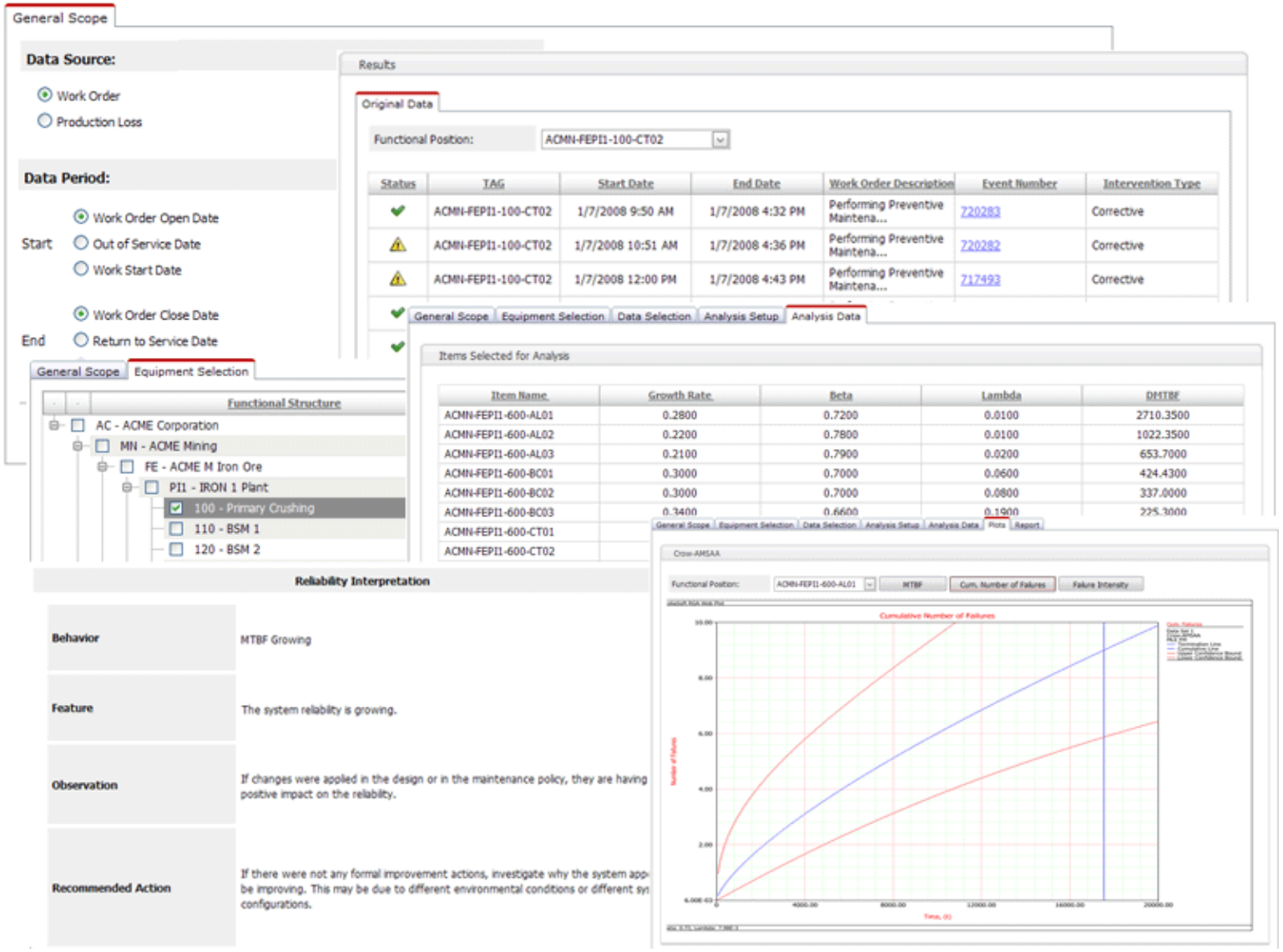
Analysis Module

Reliability Growth – *Crow AMSAA*



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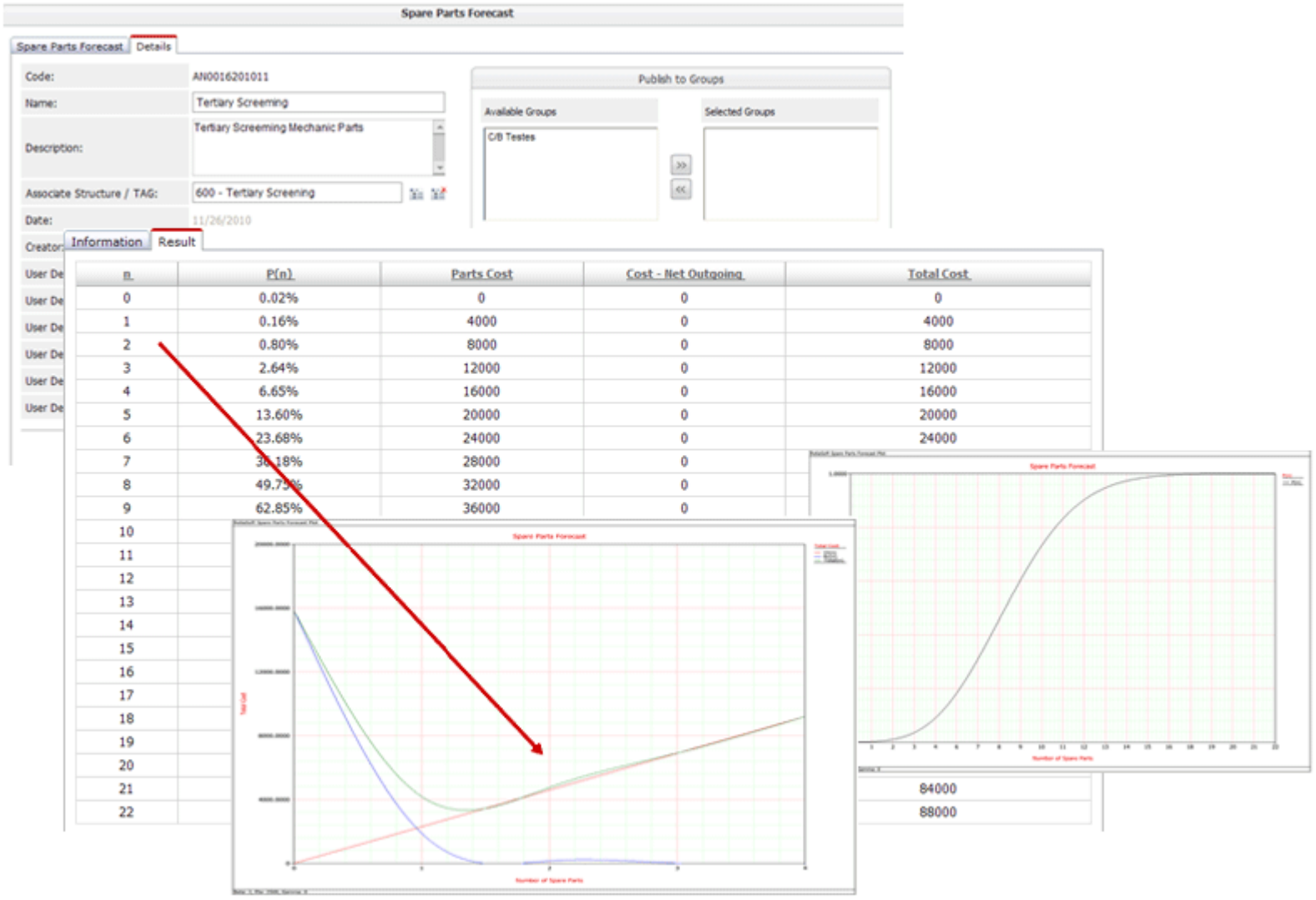
Analysis Module

Spare Part Forecast



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Analysis Module

Root Cause Analysis – RCA

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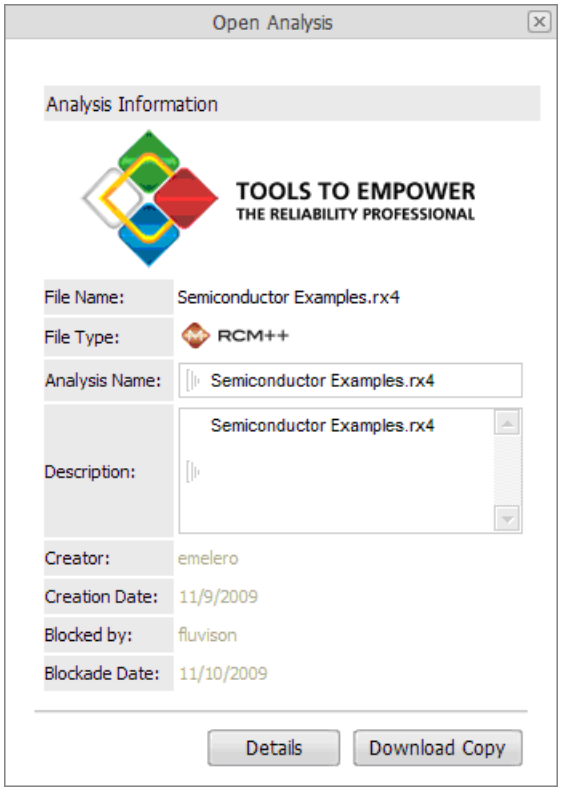
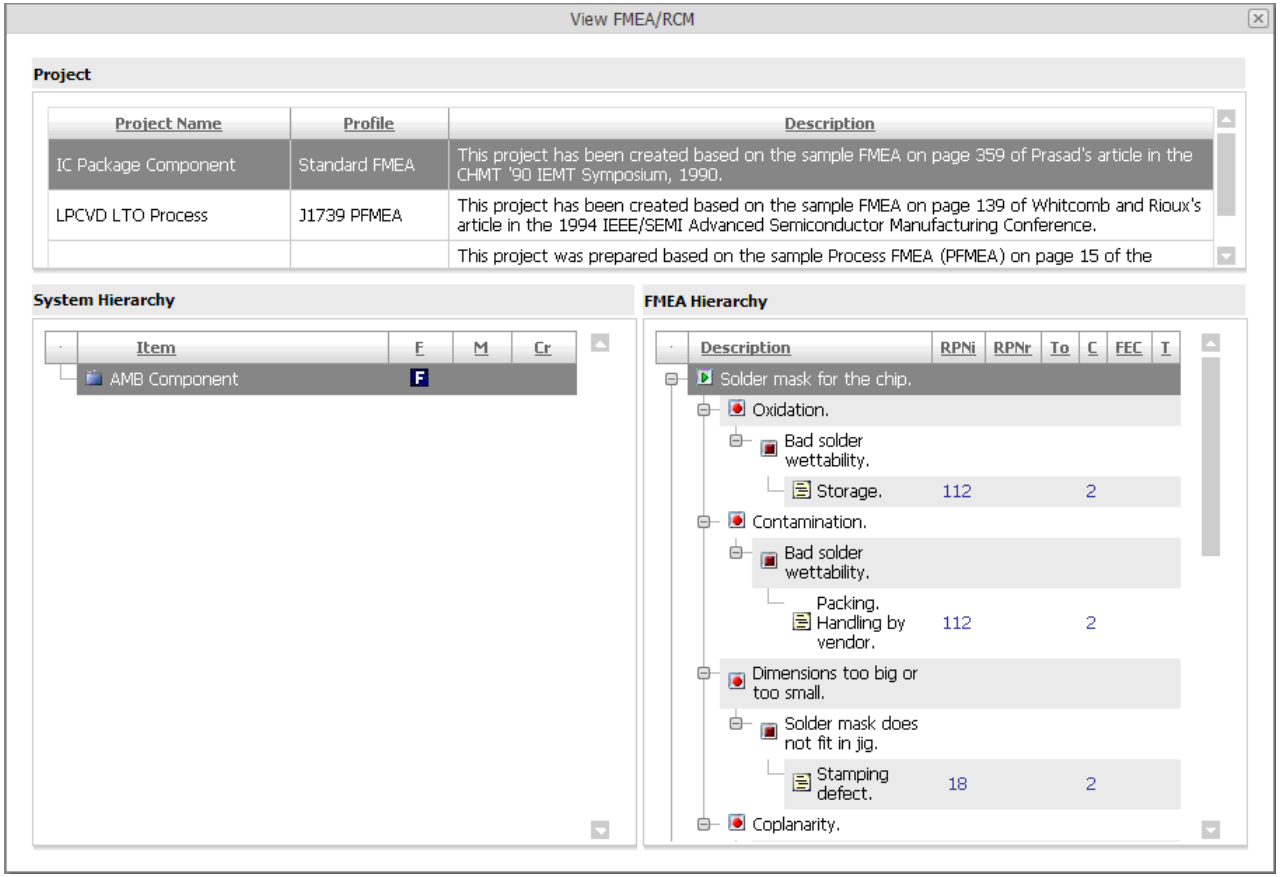
Analysis Module

RCM++ and Xfmea Overview





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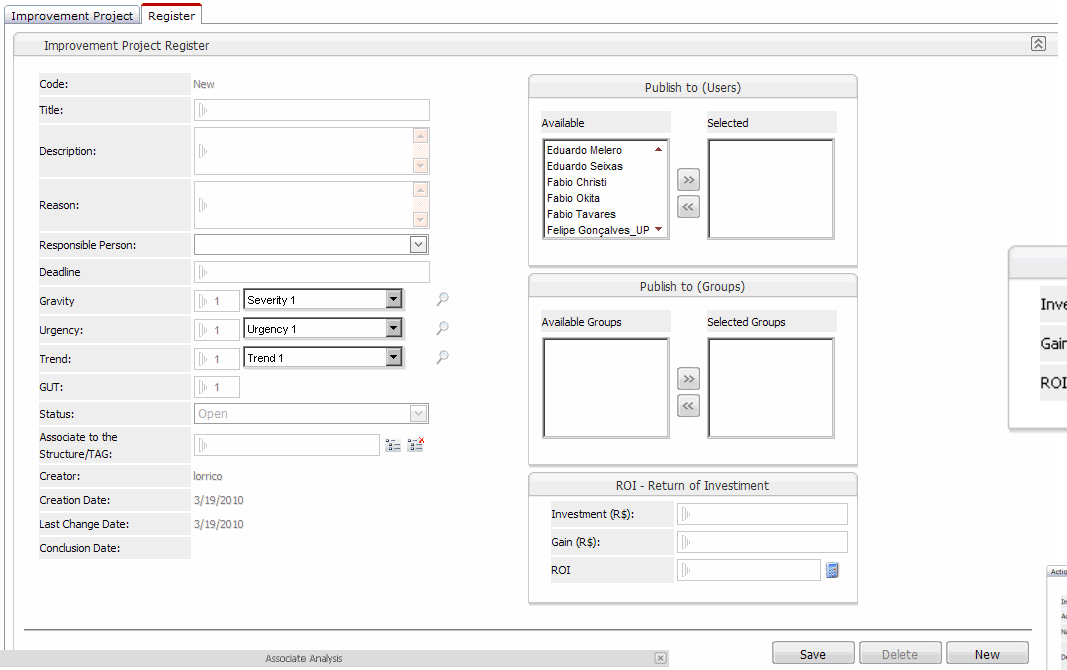
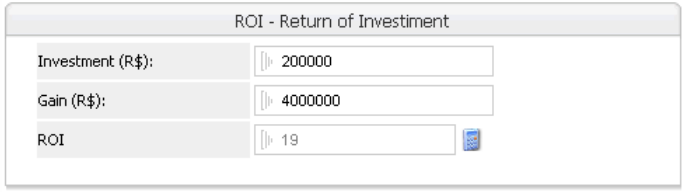
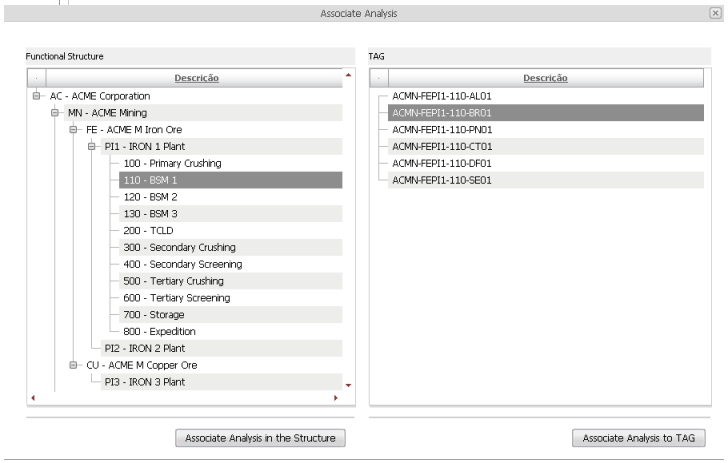
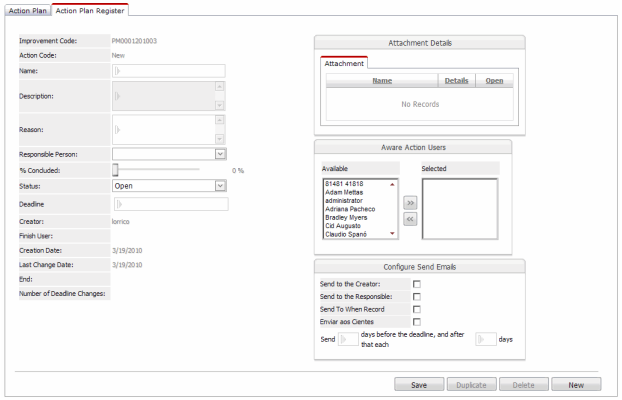
Improvement Projects Module

Create and Manage Action Plans

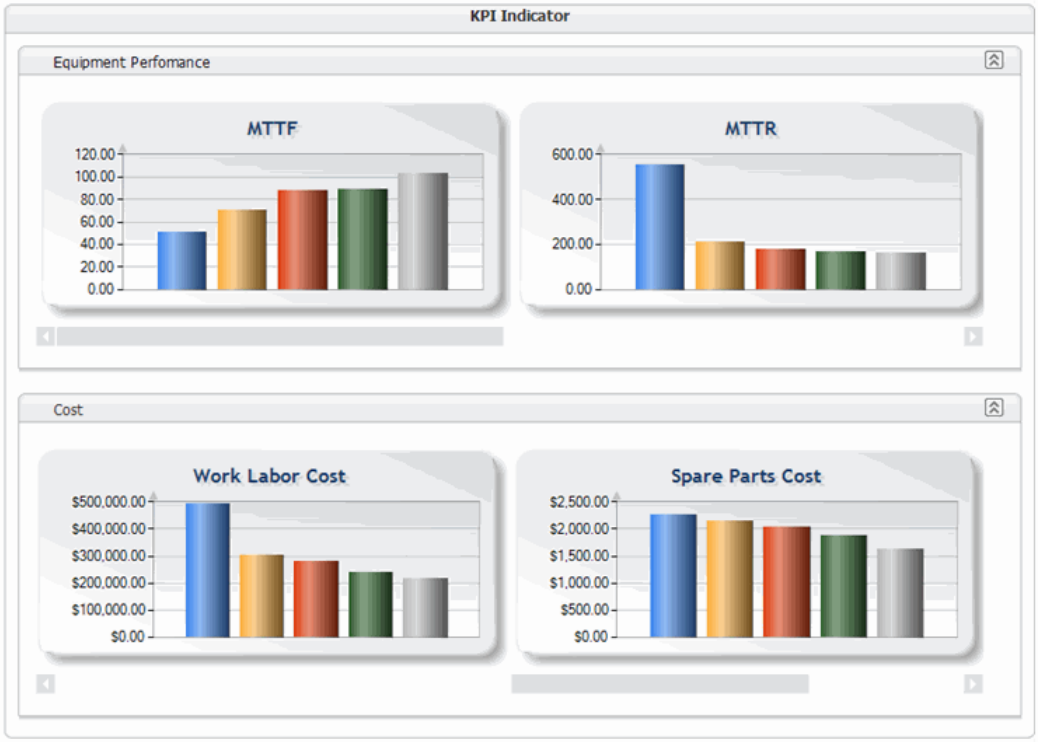


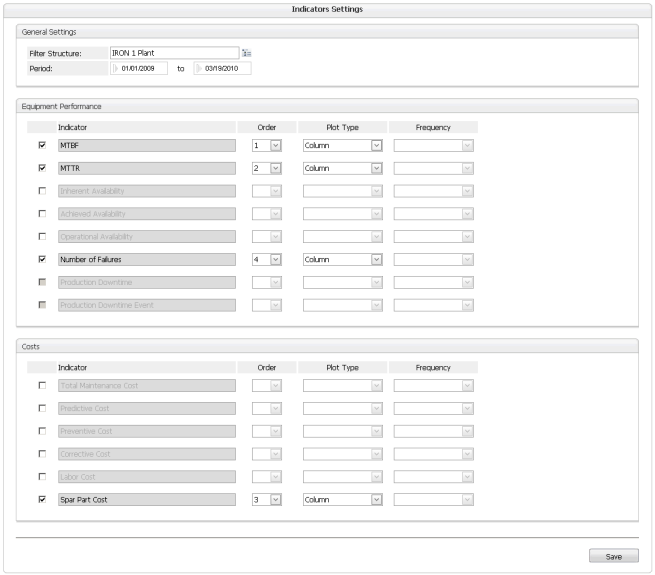


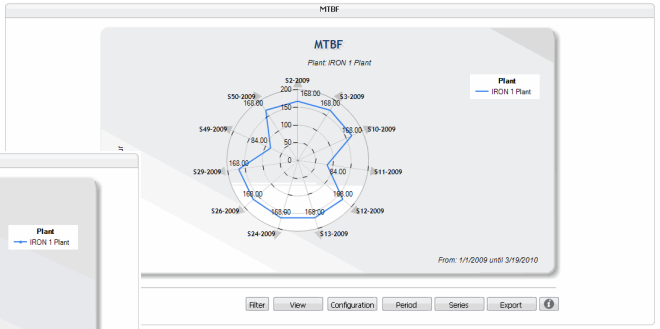




KPI Dashboard







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KPI Dashboard

drill-down

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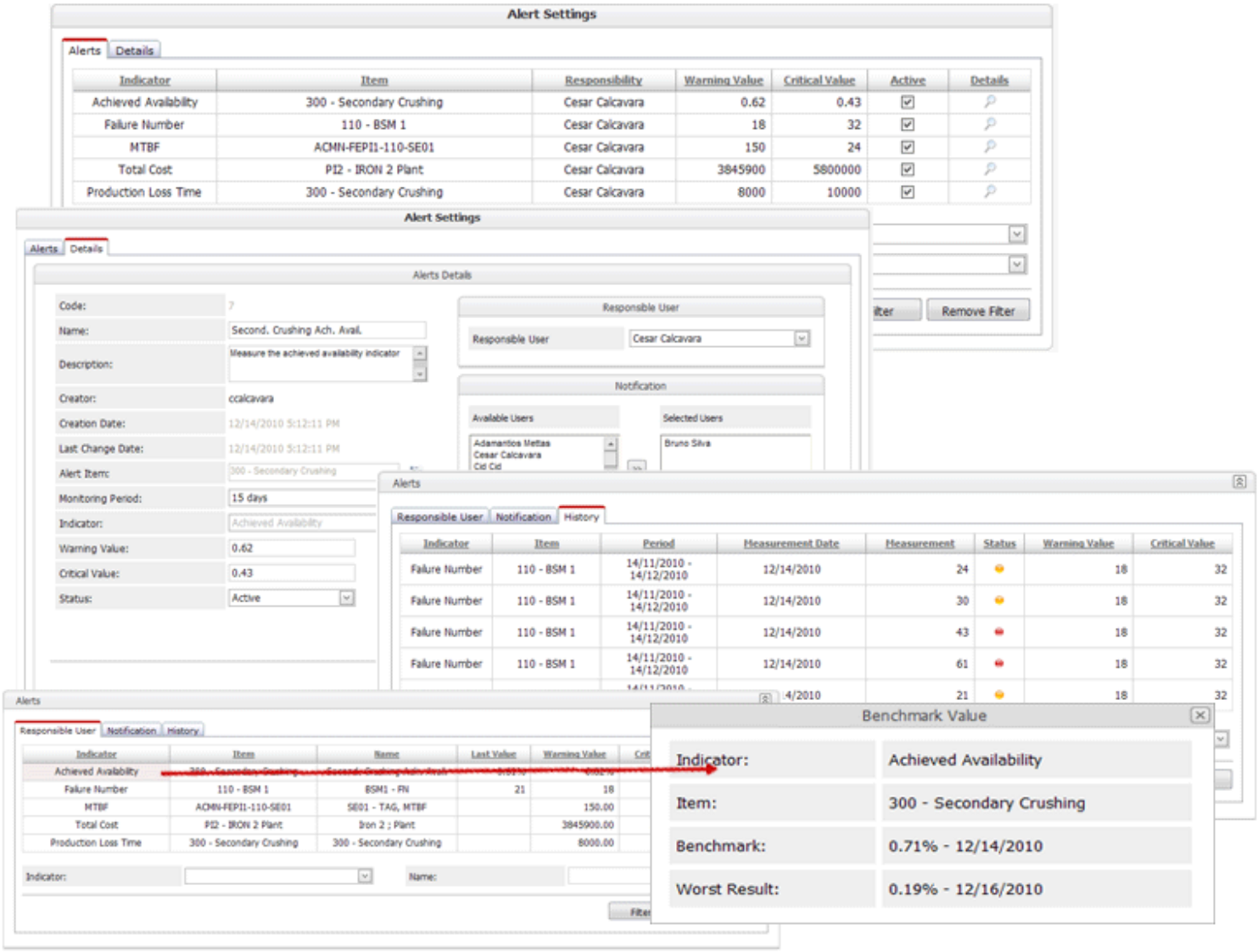
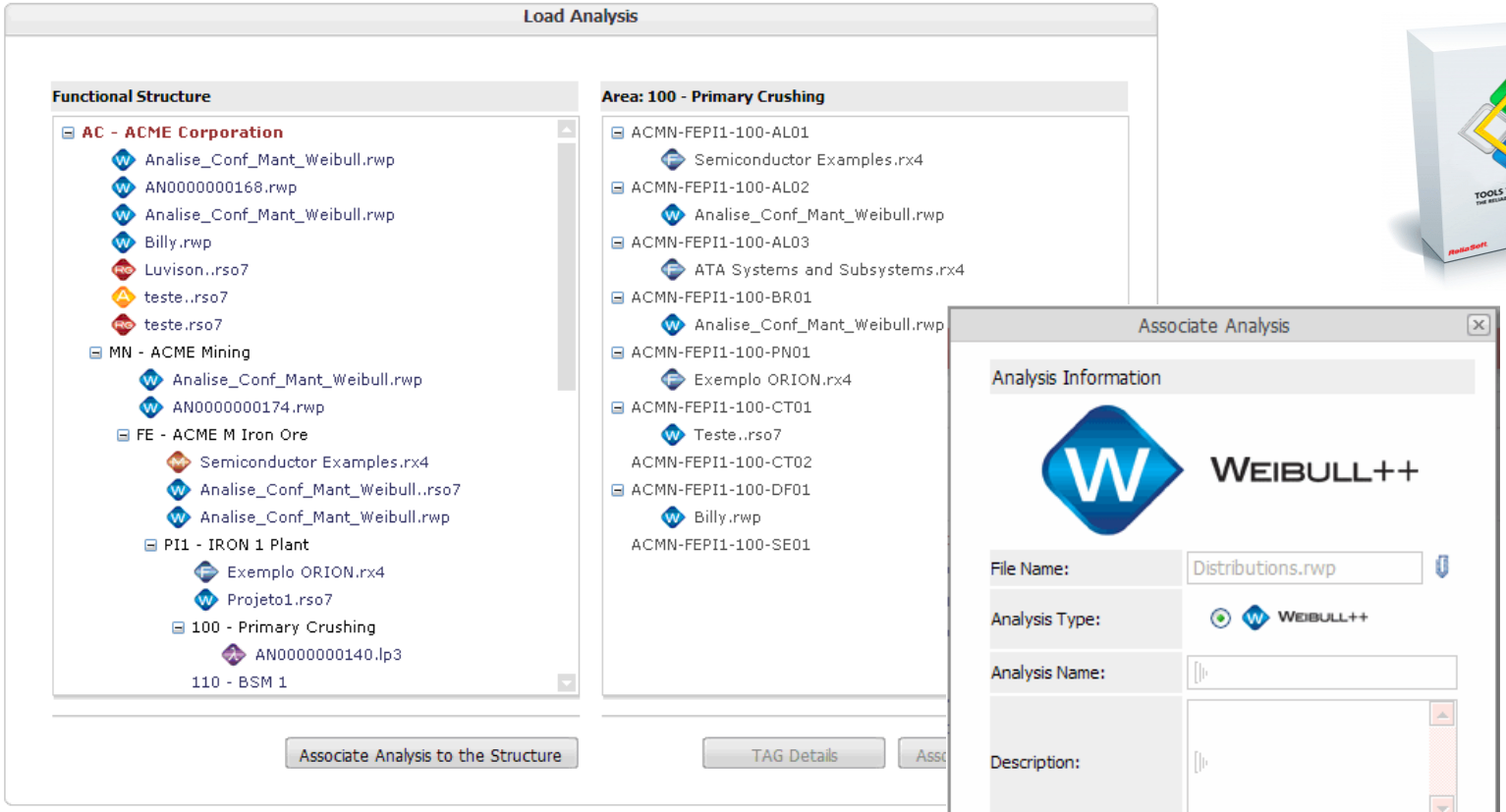
KPIs

Alerts & Benchmark



Analysis Management

ReliaSoft Tools – Advanced Analysis



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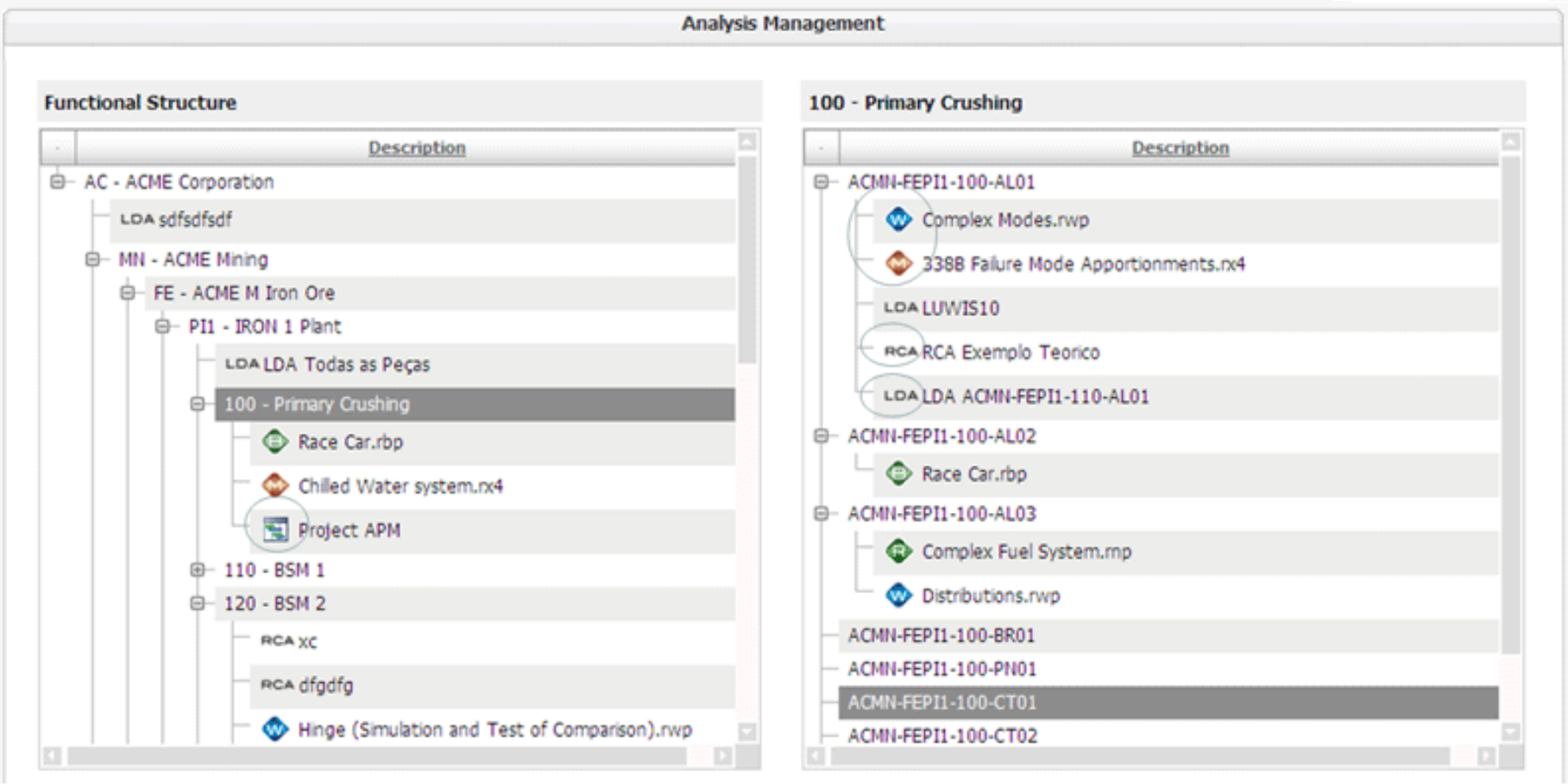
Analysis Management
Knowledge Management



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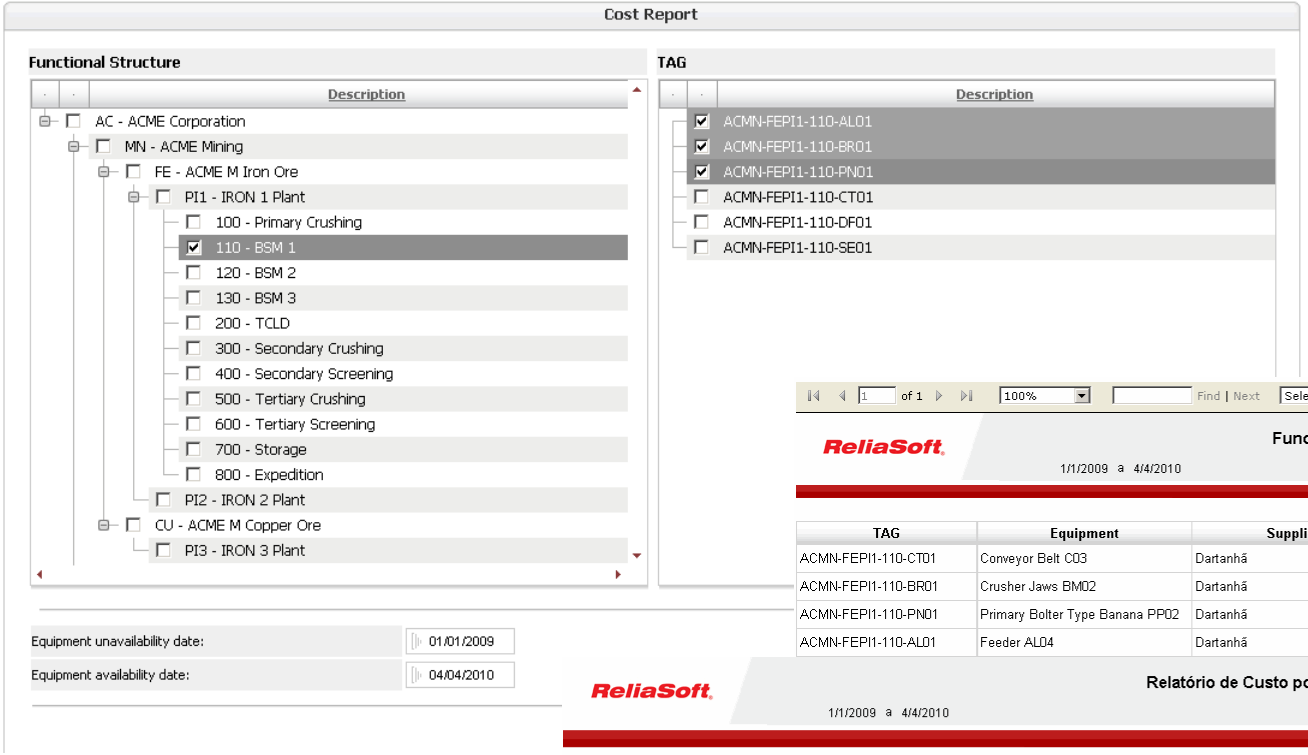
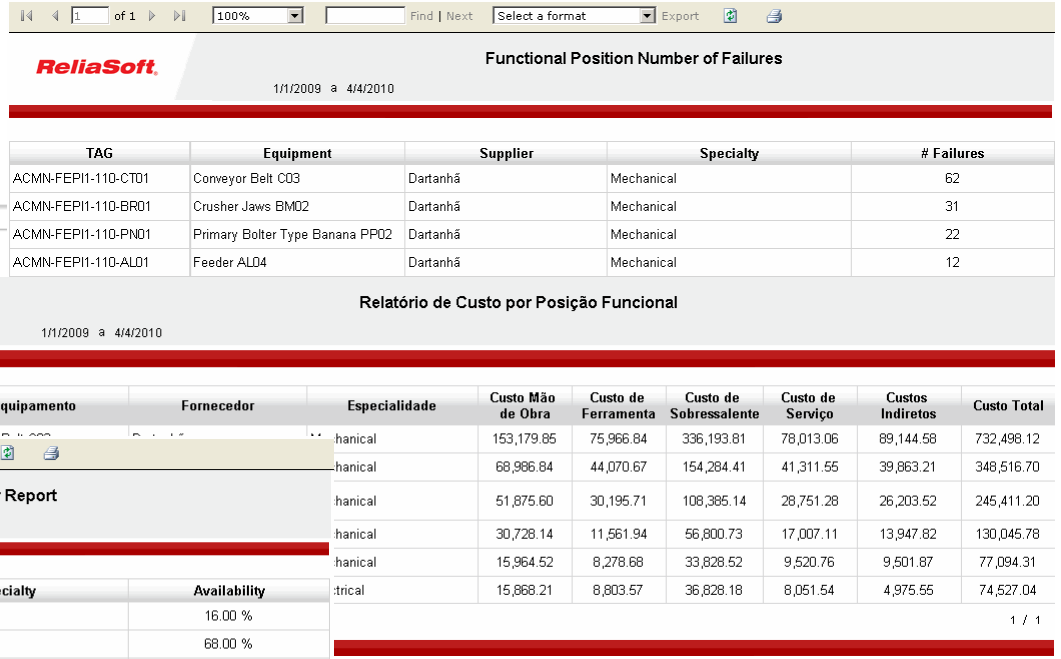
Reports





TAG	Equipment	Supplier	Specialty	# Failures
ACMN-FEPI1-110-CT01	Conveyor Belt C03	Dartanhã	Mechanical	62
ACMN-FEPI1-110-BR01	Crusher Jaws BM02	Dartanhã	Mechanical	31
ACMN-FEPI1-110-PN01	Primary Bolter Type Banana PP02	Dartanhã	Mechanical	22
ACMN-FEPI1-110-AL01	Feeder AL04	Dartanhã	Mechanical	12

TAG	Equipamento	Fornecedor	Especialidade	Custo Mão de Obra	Custo de Ferramenta	Custo de Sobressalente	Custo de Serviço	Custos Indiretos	Custo Total
			hanical	153,179.85	75,966.84	336,193.81	78,013.06	89,144.58	732,498.12
			hanical	68,986.84	44,070.67	154,284.41	41,311.55	39,863.21	348,516.70
			hanical	51,875.60	30,195.71	108,385.14	28,751.28	26,203.52	245,411.20
			hanical	30,728.14	11,561.94	56,800.73	17,007.11	13,947.82	130,045.78
			hanical	15,964.52	8,278.68	33,828.52	9,520.76	9,501.87	77,094.31
			trical	15,868.21	8,803.57	36,828.18	8,051.54	4,975.55	74,527.04

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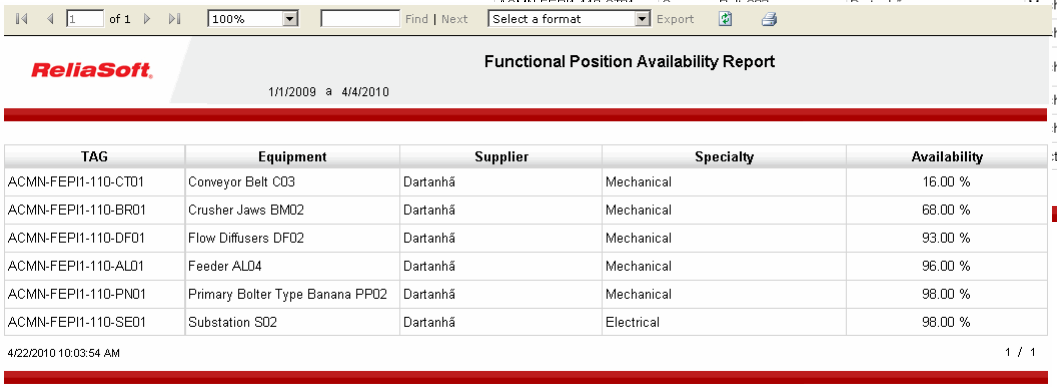

TAG	Equipment	Supplier	Specialty	Availability
ACMN-FEPI1-110-CT01	Conveyor Belt C03	Dartanhã	Mechanical	16.00 %
ACMN-FEPI1-110-BR01	Crusher Jaws BM02	Dartanhã	Mechanical	68.00 %
ACMN-FEPI1-110-DF01	Flow Diffusers DF02	Dartanhã	Mechanical	93.00 %
ACMN-FEPI1-110-AL01	Feeder AL04	Dartanhã	Mechanical	96.00 %
ACMN-FEPI1-110-PN01	Primary Bolter Type Banana PP02	Dartanhã	Mechanical	98.00 %
ACMN-FEPI1-110-SE01	Substation S02	Dartanhã	Electrical	98.00 %

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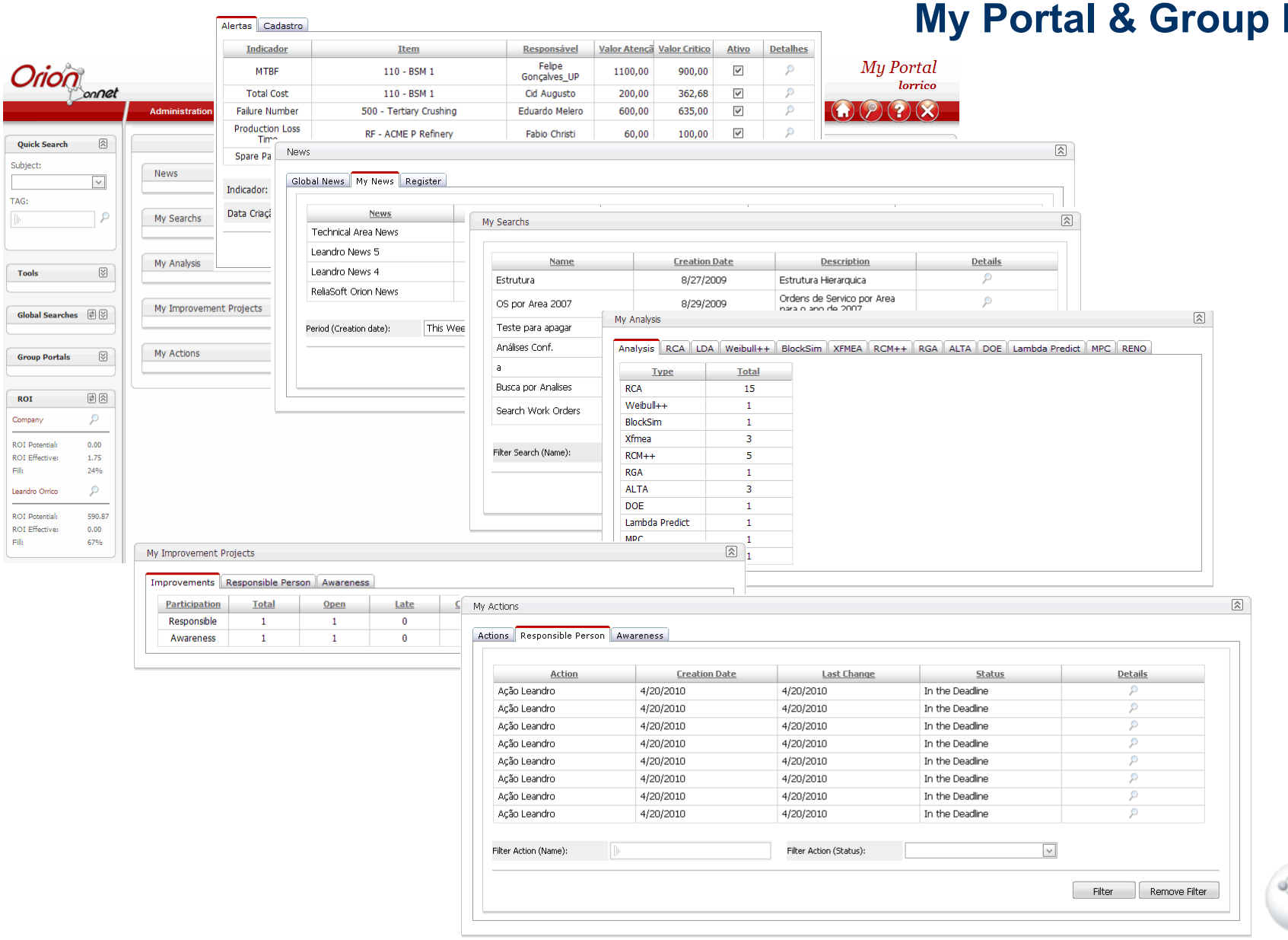
Portals

My Portal & Group Portals



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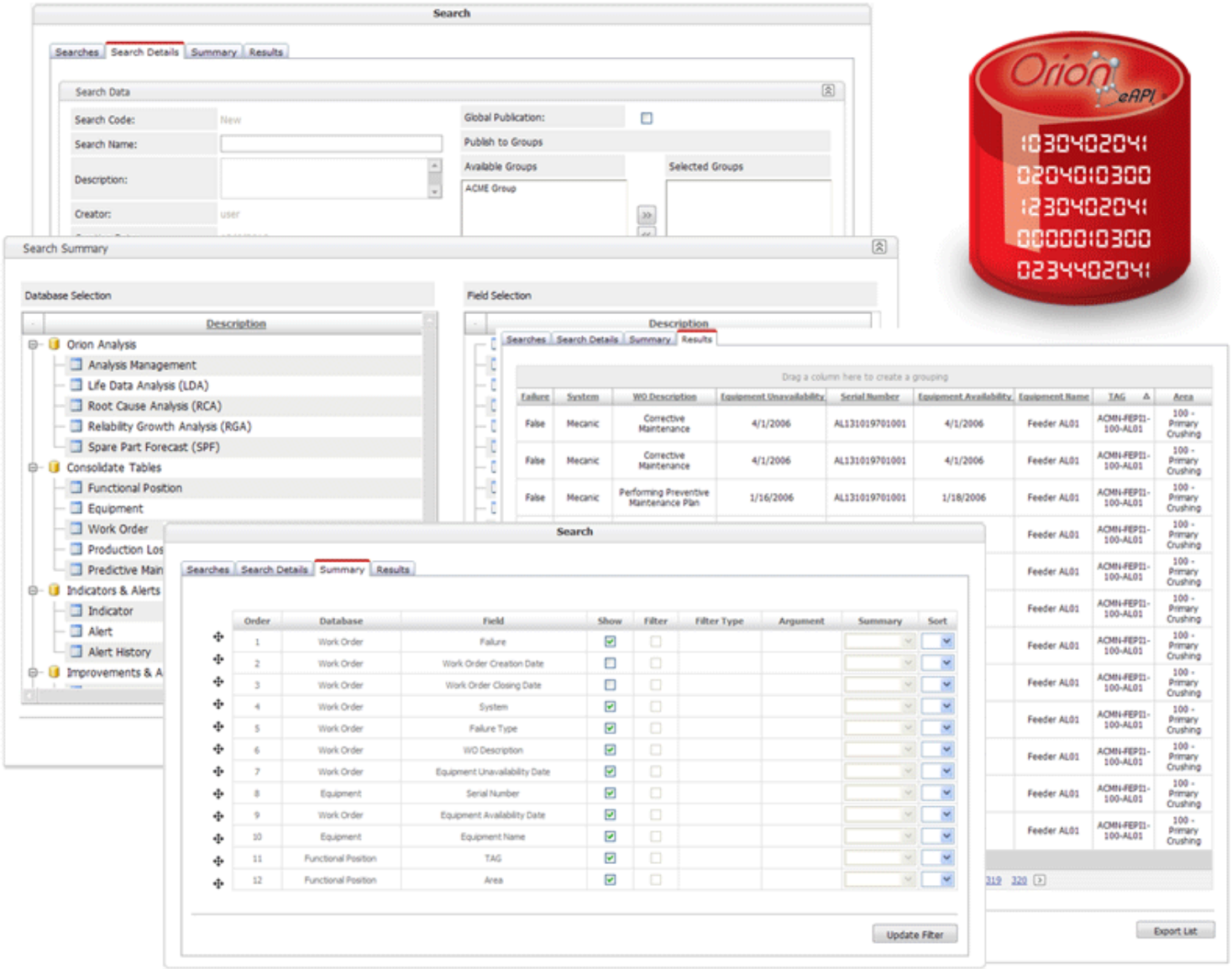
Search Module



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