



AssetWise APM Strategy Development

Develop Proactive Inspection and Maintenance Programs for New or Existing Assets

The roadmap to operational excellence starts with strategy development – determining the proactive actions to be taken for the sustainable, reliable, and safe operation of production assets. Strategy development uses formal methods to determine the activities required to meet asset performance goals within the asset’s current operating context.

The Foundation of an Asset Performance Management Process

Strategy development is the ideal starting point to launch a roadmap to operational excellence. It is the foundation to Bentley’s renowned process for managing asset performance, integrity, safety and reliability. Use strategy development to build a technically validated reliability/maintenance body of knowledge then execute the program on a daily basis using AssetWise APM Asset Health Monitoring. Benefits include:

- Eliminate unexpected downtime
- Meet safety, quality, and operational targets
- Support regulatory compliance
- Capture knowledge and experience of operators, maintainers, and engineers

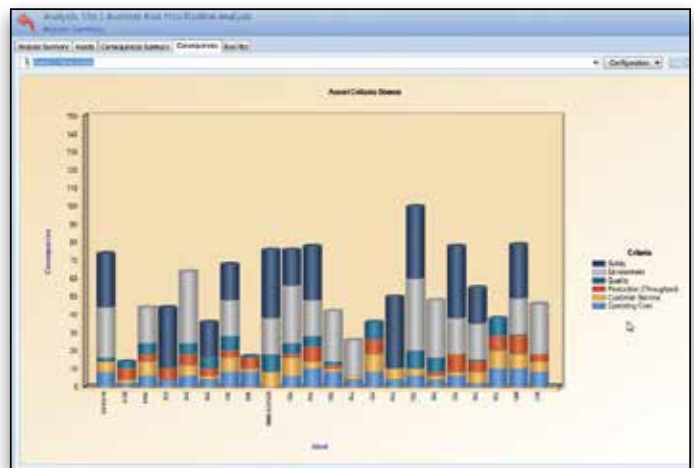
Asset Hierarchy Development – Incorporate multiple sites in one database and into one hierarchy allowing you to roll out a consistent strategy to your locations around the world.

Asset Prioritization – Ensure your reliability improvement focus is on the assets posing the greatest risk to your business. Rank assets by failure consequence and relative risk at the system level.

Strategy Selector – Deliver fastest results with the right mix of reliability strategy development practices. Objectively determine the right methodology to use for an asset.

Strategy Development Analysis (SDA) Study – Studies formally track the document/record and approval status for MTA, RCM, RBI, and SIF analyses.

Safety Analysis and Management - safety instrumented systems and functions to identify and assess risks and supporting processes to ensure assets are safely inspected and maintained to reduce or eliminate risk.



Asset Prioritization considers both the likelihood and consequence of failure.

Reliability-centered Maintenance (Aladon RCM2) – The leading RCM methodology used to determine what must be done to ensure that assets continue to meet performance requirements in their present operating context. JA-1011 and JA-1012 compliant.

Maintenance Task Analysis (MTA2) – Bentley’s FMEA methodology to identify failure modes and reliability action plans based on existing operations and maintenance knowledge. Use of templates and smart copy resulting in faster time to implement and realize benefits.

Current Practices Review (CPR) – A baseline review practice to quickly automate existing inspection programs forming the basis for consistent, qualitative, and quantitative mobile inspection routes for immediate gains.

Risk-based Inspections (RBI) – Specialized methodology to maintain mechanical integrity of pressurized equipment and minimize the risk of loss of containment due to deterioration. Develop a risk prioritized inspection process enabled by AssetWise APM inspection data management system.

APM Cloud – Online content community to develop high quality asset reliability programs quickly. Built from a combination of APM Reliability Practitioner expertise, expert third-party libraries and users sharing their content.

System Requirements

Deployment Options

- Smart client three tier (LAN or WAN)
- Stand alone
- Client-server (LAN)
- Citrix/Terminal Services (WAN)

Databases Supported

- Microsoft SQL Server and Oracle

Technical Architecture

- Microsoft.Net
- Winforms user interface components
- Load balancing, application server management, hosted under IIS
- Unified deployment and migration tools
- Source code: C++ (business objects), C# (user interface)
- Open database connectivity using Microsoft ODBC and ADO.net
- Standard certified integrations to SAP, Maximo, and Oracle.eAM, Isograph Availability Workbench

Find out about Bentley at: www.bentley.com

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AssetWise APM Strategy Development At-A-Glance

Asset Hierarchy

- Manage high volumes of assets from multiple sites
- Unlimited hierarchy levels
- Track to level required to monitor condition
- Basis for consistent strategy to be applied across the enterprise
- Track equipment/component installation in functional locations
- Easily remove/move to other functional locations retaining accurate historical information
- Quickly identify poor performers out of very large asset populations
- Analyze and report on data by hierarchy

Smart Copy/Asset Templating

- Copy components and assemblies, systems, and entire site hierarchies including condition indicators and maintenance plans
- Reduce implementation time and effort
- Ensure consistency across multiple sites in your enterprise

Asset Prioritization

- Assess potential impact of asset failure based on safety, environmental integrity, output, quality, costs, customer service, or other factors
- Considers likelihood and consequence of failure
- Objective determination of the relative risk (to identify reliability improvement projects) and criticality (to prioritize maintenance)

Reliability Strategy Selector

- Objectively and systematically determine which of your assets require RCM2 and which are suitable for MTA or CPR
- Tailorable, risk-based approach
- Auditable reference for regulators

Strategy Development Analysis (SDA) study

- Studies act as an envelope for an analysis to version control, draft, current and archive records
- Formally track the approval of strategy development analyses
- Used for RBI, SIF, RCM and MTA analyses and/or templates

Safety Analysis and Management

- Analysis of loss of containment scenarios
- Identify and assess risks at system level as well as for related assets
- Support process to meet safety requirements and compliance
- Ensure assets are safely inspected and maintained to reduce or eliminate risk
- Includes safety instrumented systems (SIS) and functions (SIF), safety integrity level (SIL), HAZOP, risk matrix, Layer of Protection Analysis (LOPA)
- Supports multiple safety standards including ISA 84, IEC 61511, IEC 61508, IEC 61882, etc.

Feasibility Evaluation for MTA, RCM, and RBI Failure Modes

- Determine if proposed maintenance strategies are worth doing

- Consider costs, evaluate if savings achieved by avoiding failure cost less than maintenance tasks

Risk-based Inspections (RBI)

- Specialized practice to identify best inspection and maintenance strategy for pressure systems, tanks and other containers based on risk tolerance and criticality
- Documents the threats, failure mechanisms, failure modes, and barriers to maintain asset integrity
- Guides you through evaluation of the risk and development of the risk mitigation strategy

Reliability-centered Maintenance (RCM2)

- Process used to determine what must be done to ensure that any physical asset continues to do what its users want it to do in its present operating context
- Comprehensive practice, most effective strategy for high-risk assets (where relative risk exceeds the tolerance level set by management)
- Use in design stage and for new assets
- Use for assets with highly developed maintenance programs that still deliver poor performance
- Addresses hidden failures
- JA1011/1012 compliant

Maintenance Task Analysis (MTA2)

- Intermediate practice to rapidly identify reliability programs based on existing operations and maintenance knowledge (capture knowledge of retiring workforce)
- Supported by templates and online content
- Includes standard jobs and tasks for scheduled restoration or discard, condition monitoring activities and asset health indicators, corrective actions

Current Practices Review (CPR)

- Baseline review practice automate existing valid paperbased inspections and rounds, preventive maintenance (PM) tasks, predictive maintenance (PdM) routes, operating and setup procedures
- Use when quick results are required to initiate change from a highly reactive environment to a more proactive culture
- Validates existing practices
- Implements a mobile approach to inspection and work management

APM Cloud

- Share reliability program templates
- Largest template library in the world
- Compilation of failure modes, failure effects, action plans, tasks, indicators and indicators states
- Share across authorized internal databases, making implementation faster across multiple like sites
- Download libraries developed by other expert AssetWise APM users
- Purchase libraries from APT Asset Strategy Library (ASL) and Management Resources Group