

### Overview

Solution architect and engineer for enterprise systems. I have designed and implemented asset management solutions for some of the world's largest public utilities and oil and gas companies.

My solutions:

- ❖ Are consistent with recognized and generally accepted good engineering practices.
- ❖ Combine engineering science with information technology to optimize performance and safety of equipment assets in manufacturing industries.
- ❖ Optimize information quality and interoperability through standard data collection, merging, and assessment processes.

### Profile

- ❖ SAP-certified Plant Maintenance (PM) Consultant and licensed professional chemical engineer with 25 years of international experience in equipment reliability and risk management for petrochemical, oil and gas, and utilities.
- ❖ Leading authority on equipment reliability and failure data collection with ERP systems. Developed an ISO 14224/OREDA compliant "Industry Standard Solution for Plant Maintenance (ISPM)" that has been implemented internationally by major oil and gas companies.
- ❖ Authority on reliability engineering requirements in asset intensive industries, including risk assessment, equipment condition assessment technologies, and failure metrics.
- ❖ Authority on SAP software, with in-depth technical and functional knowledge of the product. Unique ability to integrate engineering requirements with SAP capabilities. Former SAP Principal Consultant, SAP Top Talent Designee, and QVA award winner.
- ❖ Published and presented equipment reliability and risk management subject materials in technical journals and forums including Chemical Engineering Progress, Chemical Engineering Magazine, ASME, NPRA, AIChE/CCPS, IMI, ASUG, and SAP-Centric EAM. Opening keynote speaker for the 2006 ASUG EAM Symposium.

### Technical

- ❖ Leading expert on configuration and design of SAP notifications for failure data collection and risk assessment purposes.
- ❖ Leading expert on equipment taxonomy, having developed and applied taxonomic methods in SAP that are compliant with international industry standards and facilitate equipment reliability data requirements.
- ❖ Expert in all aspects of SAP master data functionality including technical objects, measurement points, class and characteristics, Installed Base Management, and the Document Management System (DMS).
- ❖ Expert on SAP preventive maintenance and inspections functionality, including discrete quantitative and qualitative data for task list operations (PM/QM integration) and fitness-for-service assessments.
- ❖ Expert on data migration, including SAP LSMW conversion program development, programmatic data load preparation, and results validation.
- ❖ Strong technical knowledge of SAP. Expert in relational data theory, database design, and visual basic programming.

# Reliability Dynamics LLC

## Experience/Project Work

Marathon Oil Company, Houston, Texas

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**Industry:** Oil & Gas Exploration and Production

**Project Description/Scope:** Implement a standard global template for SAP Plant Maintenance across the Marathon Upstream Division.

**Role:** Solution Architect

**Duration:** 31 months (ongoing)

### Responsibilities/Deliverables:

Fulfill the role of Solution Architect; specifically provide integrated engineering and software advisory services.

- ❖ Develop and implement the Marathon SAP Plant Maintenance (PM) template.
- ❖ Improve the quality of equipment reliability data through implementation of ISO 14224 compliant methodology for failure data collection, merging, and assessment.
- ❖ Work as an agent of Marathon to ensure that changes and deliverables by other service providers are consistent with the design and vision of the Marathon SAP PM Template.
- ❖ Stay abreast of the different components of the Marathon overall solution. Maintain cohesion between various parts of the design and encourage standardization and simplicity.
- ❖ Review and certify that business processes and preventive maintenance plans follow recognized and generally accepted good engineering practices.
- ❖ Provide expert review of deliverables by other service providers.
- ❖ Develop business process documentation and functional specifications.
- ❖ Oversee execution of development work.
- ❖ Develop test scripts, conduct unit and string testing, and oversee user acceptance testing.
- ❖ Architect and PM lead for an accelerated SAP-to-SAP conversion to the ISPM template for Marathon Upstream's largest producing asset.

### Achievements:

Developed and implemented the Marathon SAP PM Template, an ISO 14224 compliant solution for SAP Plant Maintenance.

- ❖ Prepared and delivered a five-day workshop to an international audience from Marathon Upstream and Downstream divisions. Built a proof-of-concept environment in the customer's landscape to demonstrate the ISPM solution. Demonstrated the solution in hand-on sessions with workshop attendees.
- ❖ Developed a detailed roadmap outlining a phased approach for global implementation of the ISPM solution to all of the Marathon Upstream assets, including functionality, schedule, resource requirements, and timeline.
- ❖ Led a full-cycle SAP-to-SAP conversion for the Marathon Alvheim FPSO facility that leveraged the ISPM solution. Coordinated an international support team to execute this project in an extremely compressed time frame.
- ❖ Prepared comprehensive project documentation, including detailed functional specifications, a configuration change summary, user guides, and knowledge transfer documentation.
- ❖ Conducted a comprehensive assessment of actual versus expected benefits of ISPM at Marathon's Alvheim FPSO facility.
- ❖ Developed and implemented a multi-level failure reporting process (MLFR) that to ensure consistency in failure data reporting across the Marathon enterprise. Key elements of MFLR are standard taxonomy, clear definition of common viewpoints and a common reporting level, and standard failure data collection processes.

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Fortis Alberta, Calgary, Alberta

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**Industry:** Public Utilities/ Distribution

**Project Description/Scope:** Developed and implemented an AMI-specific equipment warranty and failure reporting solution in Plant Maintenance; ECC 6.0 IS-Utilities

**Role:** Solution Architect

**Duration:** 19 months

## **Responsibilities/Deliverables:**

Fulfill the role of Solution Architect; specifically provide integrated engineering and software advisory services.

- ❖ Lead blueprint workshops to ascertain customer requirements.
  - ❖ Visualize, design, and build warranty and failure reporting solution.
  - ❖ Develop business process documentation and functional specifications.
  - ❖ Oversee execution of development work.
  - ❖ Develop test scripts, conduct unit and string testing, and oversee user acceptance testing.
  - ❖ Creating equipment failure dataset from historical data: converting all legacy equipment failure data from various disparate sources into the new data format
  - ❖ Assess effectiveness of the delivered solution via visits to the Fortis Meter Shop.
- Assist with upgrade to SAP Enhancement Pack 5 (EhP5).

## **Achievements:**

- ❖ Implemented a joint customer-vender failure reporting solution, using common terms and definitions to describe AMI smart meter failures. This is a two-level failure reporting process that incorporates Reliability-Centered Maintenance (RCM) functional failure coding in Level 1 and component failure mode and root cause in Level 2. The solution is a derivative of the methodology promulgated by International Standard ISO 14224.
- ❖ Developed a fully-integrated Return Materials Authorization (RMA) process for managing AMI device returns to vendors using Installed Base Management (IBase) functionality.
- ❖ Developed a two-dimensional process for warranty master records that gives Fortis the ability to manage AMI meter and ERT module warranties separately.
- ❖ Integrated failure reporting and warranty claims into one common process.
- ❖ Integrated plant maintenance notifications with the Customer Interaction Center and InService mobile application.
- ❖ Developed a process for meter time-on-test in compliance with Measurement Canada specification S-S-06: "Sampling Plans for the Inspection of Isolated Lots of In-Service Meters." Oversaw development of this functionality.
- ❖ Created end-to-end mass data entry processes, wrote functional specifications, and oversaw technical development.
- ❖ Created Legacy Data Migration Workbench (LSMW) programs for converting legacy data, master record updates, and new record creation. Executing all conversion requirements for the customer, including preparation of timeline/cut-over plan, load sheet preparation, program execution and monitoring, and converted data validations.
- ❖ Prepared comprehensive project documentation, including detailed functional specifications, a configuration change summary, user guides, and knowledge transfer documentation.
- ❖ Conducted usability assessments for the Fortis Meter Shop via hands-on sessions with personnel on the shop floor. Prepared assessment reports with recommendations, oversaw implementation of recommendations, and conducted follow-up reviews to ensure effectiveness of changes.
- ❖ Comprehensive testing associated with EhP5 upgrade. Identified and documented system issues and worked with SAP Customer Service and Support (CSS) to resolve.

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ExxonMobil Corporation, Houston, Texas

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**Industry:** Oil & Gas Exploration and Production

**Project Description/Scope:** Meridium implementation and upgrade to ECC 6.0 for two separate instances; 4.0B and 4.6C.

**Role:** Solution Architect

**Duration:** 11 months

**Responsibilities/Deliverables:**

Review and critique master data infrastructure and equipment reliability and risk management practices and methods. Conducted detailed reviews and evaluated consistency in approach between domestic and international operations for the following:

- ❖ Functional location structural template, hierarchy, and nomenclature.
- ❖ Equipment structuring, numbering, and practices for equipment change-outs.
- ❖ Class taxonomy, nomenclature for class and characteristics, types of classes used, and effectiveness of classification for merging data between different facilities.
- ❖ Catalog review, including equipment subdivision, reliability data coding, and characteristic attributes for inspection points.
- ❖ Equipment boundary definitions, from perspectives of technical object groupings, equipment subdivision, and profile assignments to technical objects.
- ❖ Assessment of compatibility with Meridium product suite including minimum data requirements and data infrastructure.
- ❖ Assessment of data compatibility between domestic and international operations for purposes of reliability data collection, merging, analysis, and benchmarking.

**Achievements:**

- ❖ Completed initial assessment and prepared report with detailed recommendations.
- ❖ Prepared detailed proposal and timeline for harmonizing disparate taxonomies between separate instances for domestic and international operations.

## H&E Equipment Services, LLC, Baton Rouge, Louisiana

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**Industry:** Heavy Equipment Sales and Rentals

**Project Description/Scope:** The H&E Cornerstone Project was a deployment of SAP ECC 6.0 with partner product RentalResults. The integrated solution covers rentals, sales, equipment maintenance, and full product lifecycle management with end-to-end financial and operational controls, including service and asset management.

**Role:** Enterprise Architect

**Duration:** 4 months

**Responsibilities/Deliverables:**

- ❖ Enterprise Architect and Team Lead for Blueprint Phase customer escalation.
- ❖ Address customer issues related to Equipment Lifecycle Management (ELM).
- ❖ Design an integrated MM/AA/FICO/PM solution to meet the customer's requirements.

**Achievements:**

- ❖ Participated in an expert cross-functional SAP SWAT effort to assess problems and make initial recommendations for ECC6.0 and Rental Results landscape.
- ❖ Developed end-to-end ELM business processes, including equipment specification, requisition/ordering, goods receipt, asset accounting, equipment maintenance, COGS, COPA, and SD functions including rentals, rent-to-own, and equipment sales.
- ❖ Coordinated spot consulting resources for validation of the ELM business processes and review of ECC-to-Rental Results interfaces.

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- ❖ Assisted SAP Account Executive in developing a proposal for SAP support during Realization.
- ❖ Coordinated and participated in ELM proof-of-concept exercise in conjunction with Waldorf resources.

## Kraton Polymers, Houston, Texas

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**Industry:** Specialty Chemicals

**Project Description/Scope:** Scoping exercise for upgrade to ECC 6.0 with Chemicals Best Practices Solution

**Role:** PM and QM Consultant

**Duration:** 2 weeks

**Responsibilities/Deliverables:**

- ❖ Tabulation and assessment of customer requirements for Plant Maintenance (PM) and Quality Management (QM) via customer interviews.
- ❖ Comparison of customer PM and QM requirements versus SAP Chemical Best Practices and SAP Baseline Best Practices.
- ❖ Specification of detailed work scope for bid purposes.

**Achievements:**

- ❖ Completed assessment and prepared report with detailed recommendations and scope-of-work.
- ❖ Coordinated BI consulting expertise to develop a strategy for legacy data migration to a BI environment.
- ❖ Developed database-driven SAP Chemicals Best Practices comparison and reporting process.

## Hydro One Networks, Toronto, Ontario

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**Industry:** Public Utilities/Transmission and Distribution

**Project Description/Scope:** The Cornerstone Project is a multi-phase deployment of SAP ECC 6.0 with Compatible Units (CU) functionality, APO, SRM, and integration with partner products including Meridium and Primavera. The project focus is on energy delivery/asset management, supply chain, and customer management.

**Role:** SAP Solution Architect

**Duration:** 12 months

**Responsibilities/Deliverables:**

Application architect, with responsibilities on both the application and technical architecture teams.

- ❖ Advised work management, asset management, and supply chain teams on requirements, content, and practicality of the business process designs, configuration rationale, and position papers.
- ❖ Ramp-up coach for Compatible Units (CU) EhP2 project. Coordinated efforts between IBU developer Kevin Morrow and CU delivery team.
- ❖ Reviewed and signed-off on work management, asset management, and supply chain deliverable documents including business process designs, configuration rationale, interface designs, conversion designs, and training materials.
- ❖ Worked closely with prime contractor Solution Architect to aid process team leads in developing integrated solutions and to identify and rectify cross-team issues.

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- ❖ Coordinated SAP review services efforts between SAP QA review teams and Cornerstone functional and technical teams.

## Achievements:

- ❖ Successfully turned around an SAP problem account. In doing so, received three commendations from Senior Vice Presidents, two Short-Term Achievement Awards, one Peer-to-Peer Recognition, and commendations from colleagues, managers, the partner, and the customer for my work on this account.
- ❖ Reviewed and signed-off 133+ project deliverable documents including business process documents, configuration rationale, functional designs, and detailed configuration design. My reviews were the last check before PMO final approval. Completed all deliverable reviews ahead of schedule.
- ❖ Prepared and presented SAP QA Review Services reports to the customer/PMO.
- ❖ Worked closely with customer engineering personnel to develop utilities-specific standard data structures and reliability data coding. Leveraged standard processes promulgated in oil and gas industry standards ISO 14224 and ISO 15926.
- ❖ Specified configuration for an ISO 14224 compliant notification and worked with Meridium and the customer to ensure minimum data capture requirements were met for interfacing with the Meridium product suite.
- ❖ Engineered an end-to-end process for managing operating spares via Installed Base Management functionality in conjunction with materials serialization. This solution resolved a long-standing project dilemma on how to manage serialized bills-of-materials.
- ❖ Reviewed and advised customer on their cut-over plan.
- ❖ Led multi-partner SWAT team effort in developing a multi-technology (BI, ABAP, and Cognos) strategy to meet customer reporting requirements.

## Pacific Gas and Electric, San Francisco, California

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**Industry:** Public Utilities/Transmission and Distribution

**Project Description/Scope:** The Business Transformation (BT) Project is a multi-phase redeployment of SAP 4.7 with Compatible Units (CU) functionality and integration with partner products including Click Scheduling and LD Pro. The project focus is on energy delivery/asset management, supply chain/corporate real estate/fleet, and customer management.

**Role:** Senior PM Consultant

**Duration:** 7 months

## Responsibilities/Deliverables:

- ❖ Asset Register and Maintenance Planning (ARMP) and Manage Asset and Job Closing (MAJC).
- ❖ SAP Functional Team point person for conversion activities.
- ❖ Technical objects design and configuration including functional locations, equipment, production resources and tools, measurement points and documents, and class and characteristics.
- ❖ Development of catalog codes for reliability data capture and reporting.
- ❖ Planned maintenance configuration including plans, items, task lists, and strategies.
- ❖ Assisted with review of user procedures and development of test scripts.

## Achievements:

- ❖ Proposed ISO 14224 methodology to company directors for capture of equipment reliability data. This proposal was accepted and implementation is in progress.
- ❖ Proposed technical object structuring per ISO 15926 to customer management. This proposal was approved for enhanced release.

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- ❖ Completed build phase configuration for technical objects and maintenance planning, conducted unit testing, and obtained customer sign-off.
- ❖ Completed an in-depth review of equipment conversion objects and presented findings to customer senior management.

## Nexen, Inc., Republic of Yemen

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**Industry:** Oil & Gas Exploration and Production

**Project Description/Scope:** Enterprise asset management for oil production surface facilities. Two SAP projects: Genesis Project, a global SAP 4.6C deployment; and Benefits Realization, a project for rectifying shortcomings with the initial deployment.

**Role:** Contract Reliability Engineer, Superintendent Level

**Duration:** 83 months

**Responsibilities/Deliverables:**

EAM-related engineering services for client, risk assessment, maintenance reliability engineering, EAM software development and improvement, planning and scheduling development and supervision, and maintenance budgeting.

- ❖ Responsible for Identifying where SAP was not meeting the needs of the facility's EAM programs, prototyping proposed solutions/changes in the sandbox system, and configuring and documenting approved new functionality in the development system.
- ❖ Subject Matter Expert for Project Genesis.
- ❖ Led risk assessment and equipment criticality ranking studies.

**Achievements:**

- ❖ Reduced maintenance expenditures for field power generation by 50% via application of benefits-to-cost analyses, saving US \$3.2 Million annually.
- ❖ Project Benefits Realization: developed and applied an international equipment-standards (ISO 14224 and 15926) compliant methodology for configuration of SAP technical objects and object structures and for mapping data and documents to technical objects using a combination of SAP DMS and class and characteristic functionality. Configured SAP notification and order functionality for capturing quantitative and qualitative reliability data in compliance with ISO 14224 and for capturing related documentation in common workspace via DMS. Developed a strategy for lifecycle data flow from engineering design to procurement, installation, operation, and maintenance.
- ❖ Project Genesis: key role in legacy data conversion; assisted with mapping to legacy maintenance data in blueprint phase, extracted, transformed, and cleansed data from legacy systems, and built data load sheets. Facilitated Yemen facilities role-mapping by developing and deploying a custom-built relational database.

## Berwanger, Inc., Houston, Texas

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**Industry:** Engineering Services

**Project Description/Scope:** Process safety management related engineering services for oil, gas, and petrochemical facilities, with specialization in risk assessment follow-up.

**Role:** Senior Staff Engineer

**Duration:** 49 Months

**Responsibilities/Deliverables:**

Managed engineering services for client accounts. Responsibilities included interfacing with client management to determine their needs and requirements, job execution, recruiting, staffing, personnel supervision, development of efficiency methods, and project accounting and cost control.

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- ❖ Supervised the work of 15-20 engineers and support personnel.
- ❖ Typical workload was 50 projects ranging from \$5K to \$500K.

## Achievements:

- ❖ Supervised the resolution of over 10,000 process hazards analysis (PHA) concerns, including engineering analyses, risk ranking, and detailed engineering.
- ❖ Developed a database-driven methodology for classifying and addressing PHA concerns that reduced average time per concern by 50 percent and ensured consistency in concern remediation.
- ❖ Presented engineering recommendations for PHA concern remediation to clients' senior management for approvals. Expedited the approval process by classifying and grouping concerns prior to sign-off meetings, which reduced review and approval time by 80%.
- ❖ Received number one ranking in a major oil company's annual contractor evaluation.

## The Lubrizol Corporation, Deer Park, Texas

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**Industry:** Specialty Chemicals Manufacturing

**Project Description/Scope:** Maintenance and reliability engineering

**Role:** Maintenance Engineer

**Duration:** 30 months

## Responsibilities/Deliverables:

- ❖ Maintenance engineering in utilities and material handling areas.
- ❖ Development and administration of condition assessment and monitoring programs.
- ❖ Resolution of equipment reliability problems by performing root-cause analyses of failures and implementing corrective maintenance actions.
- ❖ Project engineering for new facilities installations and equipment replacements.

## Achievements:

- ❖ Created an equipment criticality ranking methodology that was adopted as a corporate standard for risk ranking.
- ❖ Wrote and implemented mechanical procedures for company certification with the International Organization for Standardization (ISO).
- ❖ Developed and implemented mechanical training, vibration, lubrication, and shaft alignment programs.
- ❖ Resolved numerous equipment reliability issues.

## Aristech Chemicals, Pasadena, Texas

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**Industry:** Intermediate Chemicals

**Project Description/Scope:** Maintenance and reliability engineering

**Role:** Maintenance Engineer

**Duration:** 75 months

## Responsibilities/Deliverables:

- ❖ Planning and supervision of overhauls for all critical rotating equipment items.
- ❖ Development and administration of condition assessment and monitoring programs.
- ❖ Resolution of equipment reliability problems by performing root-cause analyses of failures and implementing corrective maintenance actions.
- ❖ Annual facilities shutdown planning and execution.

## Achievements:

- ❖ Identified and resolved a critical compressor vibration problem without requiring a special outage, saving downtime costs of \$10,000 per hour.

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- ❖ Implemented vibration, lubrication, shaft alignment, and steam trap programs.
- ❖ Resolved numerous equipment reliability issues.

## Professional Details

- ❖ B.S. in Chemical Engineering, Texas A&M University, College Station, Texas, 1987.
- ❖ Licensed Professional Engineer in the State of Texas, Serial No. 89237.
- ❖ SAP-certified Solution Consultant PLM - Maintenance and Repair with SAP ERP 2005

## Publications

- ❖ *Make the Most out of Process Safety and Operability Information*, presented at 2004 The American Institute of Chemical Engineers annual meeting and published in Chemical Engineering Progress, March 2005.
- ❖ *Use Criticality-Based Maintenance for Optimum Equipment Reliability*, presented at the 1997 The American Institute of Chemical Engineers Loss Prevention Symposium and published in Chemical Engineering Progress, July 1998.
- ❖ *Ranking Equipment Criticality*, published in Chemical Engineering, October 1994.

## Other

- ❖ United States Citizen
- ❖ Valid U.S. passport expires 2020