

EAM Master Data Integrity

a foundational opportunity to improve operational performance

DC Maximo User Group

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EAM Master Data Integrity - AGENDA

The Problem

EAM Master Data

Issues

Drivers

Impacts

Opportunity

Plan

Case Studies

Conclusion



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EAM Master Data Integrity - The Problem

- Companies spend 10's of millions of dollars to implement Enterprise Asset Management (EAM) Systems typically with the objectives of being able to:
 - Enhance fleet/enterprise wide asset performance
 - Standardize and improve maintenance and reliability practices
 - Develop integrated technical maintenance strategies
 - Enable fleet/enterprise reporting and management of common assets
 - Reduce maintenance and material management costs
- However, many of these companies are not able to achieve their objectives and are not able to get the information they truly want from their EAM systems
- We have found that the majority of the time this is due to the poor quality of their “Master EAM Data”. In most cases, they simply populated the new system with old data without focusing on the proper development of Master Data. Since Master Data is the foundation for all reporting and transactions...poor data leads to poor system capabilities



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EAM Master Data Integrity – EAM Master Data

- Master Equipment List (MEL)
 - Hierarchies
 - Class/ subclass / system / subsystem
 - Accounting structure
 - Spec attributes
 - Assigned failure hierarchy
 - Drawings & images
- Item/Parts Master (MRO)
 - One Item # across enterprise
 - Short & long descriptions and key fields
 - Class / subclass
 - Coding
 - Spec attributes
- Bill of Materials (BOM)
- Vendor & Manufacturer Master
- PM Standards



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EAM Master Data Integrity - Universal Issue

“Failure to address the completeness and quality of master data during a work and asset management system implementation is guaranteed to result in a failed business case for implementing the new or upgrading the existing work and asset management package.”

- Terry G. Tyler, Executive Vice President, Strategic Initiatives and Chief Information Officer, ENMAX Corporation

“Data is the most critical element to enable business processes. Improved processes drive business transformation. A data quality improvement and sustainability plan is essential to reap the full benefits of any business transformation initiative.”

- Blake Geoghagan, Principal, Deloitte Consulting, LLP, EAM Lead



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EAM Master Data Integrity – Issues

Too much information exists in too many places with too little organization, application and management.

Poor Data Integrity

- No common technology platform
- No standardized process for Enterprise Asset Management (EAM)
- Data integrity issues – Quality, quantity, integration, accessibility

Hidden Data

- Hidden databases
- Static text field use versus dynamic fields
- Improper completion of required fields
- Erroneous and duplicate information

Limited Data Access

- Accurate and timely decisions compromised
- Limited data management and application
- Limited understanding of existing or meaningful data
- Unfulfilled performance measurements

Possible Integration Results

- Less effective CMMS usage and less complete and efficient integration of EAM systems – Marketing, Supply Chain Management, Work Management
- Lowered end user confidence in their ability to find quality data



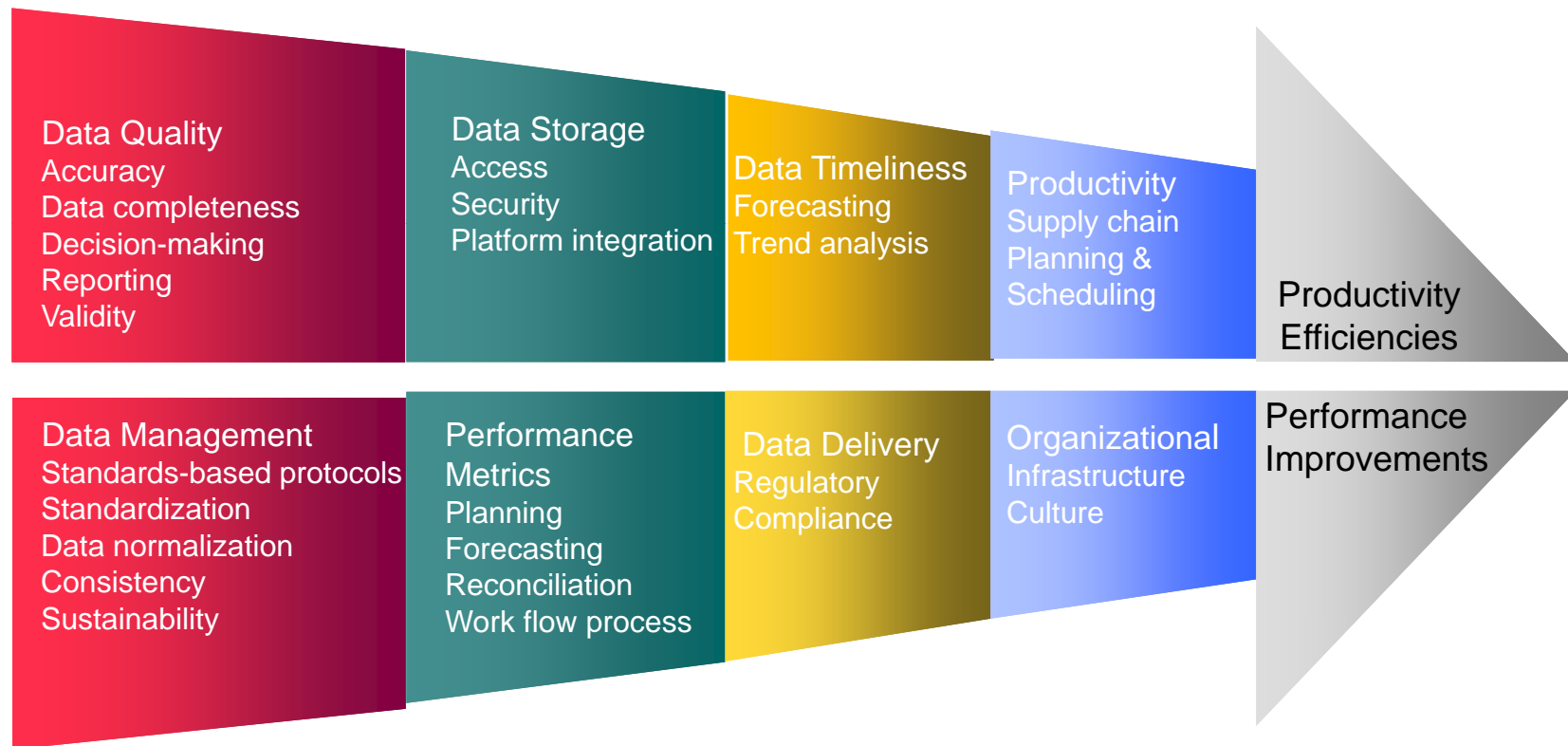
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EAM Master Data Integrity – Drivers

All data drivers powering business performance rely on sound data integrity to boost productivity and performance.



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EAM Master Data Integrity – Impacts

- System Conversion
 - Go-Live performance
 - Data loading error rates
 - Number of test loads required
 - System downtime required for conversion
 - Risk management
- Legacy Systems
 - Ongoing productivity
 - Searching for Data
 - Incorrect data
 - System functionality
 - Management reporting



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EAM Master Data Integrity – Impacts

Productivity Scenario:

- Average maintenance employee spends 1-1/2 hrs/day searching for needed data or using inaccurate data.
- The plant has 30 maintenance craftsmen
- Average wage of \$35/hour
- Potential losses
 - 225 hrs/week or 11,700 hrs/year
 - \$7,875/week or \$409,500/year
- If the company has a portfolio of 10 plants then labor losses would be:
 - \$78,750/week or \$4,095,000/year
- This does not count the impact on production, performance or downtime!



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EAM Master Data Integrity - Impacts

Plant Level Impacts

- Increased through-put
- Decreased O&M costs
- Reduced number of DB to maintain
- Increased conversion of data into managerial information
- Improved asset reliability
- Decreased inventory levels
- Increased work force productivity
- Improved supply chain management
- Improved regulatory reporting
- Improved plant profitability

Portfolio Level Impacts

- Optimized plant capacity
- Released funds for company growth
- Improved leverage of IT shared svc
- Improved report consolidation with respect to speed and accuracy
- Optimized sales demand planning
- Released funds for company growth
- Increased work force fungibility
- Improved leverage of SC shared svc
- Improved consistency among plants
- Improved corporate ROA, EPS.....shareholder value!

Data integrity improvements are magnified when applied at the portfolio level



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EAM Master Data Integrity – Opportunity

- Data conversion seen as byproduct of investment in technology platform
 - Why isn't data and information managed as stand alone asset?
 - Investment should not stop at system level
 - Investment required with data
 - Conversion moves data from legacy to target
 - Investment provides users with information and allows effective processing

Data that doesn't support required business information is not valuable



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EAM Master Data Integrity - Opportunity

- Investing the time upfront to develop an approach based on the business requirements is essential to success
- Requirements must be developed for tomorrow's needs, not today's
 - Today's data may not be sufficient in quantity or type to support tomorrow's processes or system functionality
- The do nothing case is equivalent to moving backwards
 - If you don't take action, just remember - your competition is!

Data doesn't get better without a planned approach



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EAM Master Data Integrity - Plan

- One time investment is not enough – sustainability is key
 - Must deploy rigorous change control process
 - Must have management support
 - Must have the business own the data...they will need help
- Effort must be driven from an Enterprise Level
 - Can't assume individual business units will build information on their own
 - Years of neglect, people can't do it along with their daily functions.
 - Low Priority

Data quality is a business issue, not a technical one



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EAM Master Data Integrity - Plan

- As with all transformational programs, data quality improvement and sustainability requires executive buy-in
 - Provide education
 - Demonstrate ROI
 - Provide baseline of current situation
 - Fill rates
 - Processing times
 - Number of “hidden” databases
 - Impact of “brain drain”
 - Etc...
 - Funding
 - “Sins of the Past”
 - Up to “several “ \$million per \$100 million of Assets



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EAM Master Data Integrity - Plan

When developing a Master Data Management plan there are several critical components to consider.

- Master Data Management Rules and Responsibilities
 - Enterprise and Site level
- Data standardization
 - Description Hierarchy Coding Field Population
 - Spec Template Class/Sub Class Naming Convention
- Clean up plan for existing data
- Standardization across instances or system
- Review and approval process
- Metrics
- Maintenance Processes
- Addition of data for new assets
- Removal of obsolete data



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EAM Master Data Integrity - Plan

Areas for Integration

- Master Equipment list (MEL)
 - Detailed Specifications
 - Organizational Hierarchy
- Bill of Materials (BOM)
 - All assets associated with a BOM
- Parts inventory (MRO)
 - All non consumable parts associated with an asset
 - Detailed Specifications
- Preventive Maintenance Standards (PMs')
- Vendor / Manufacturer Master
 - Consolidation



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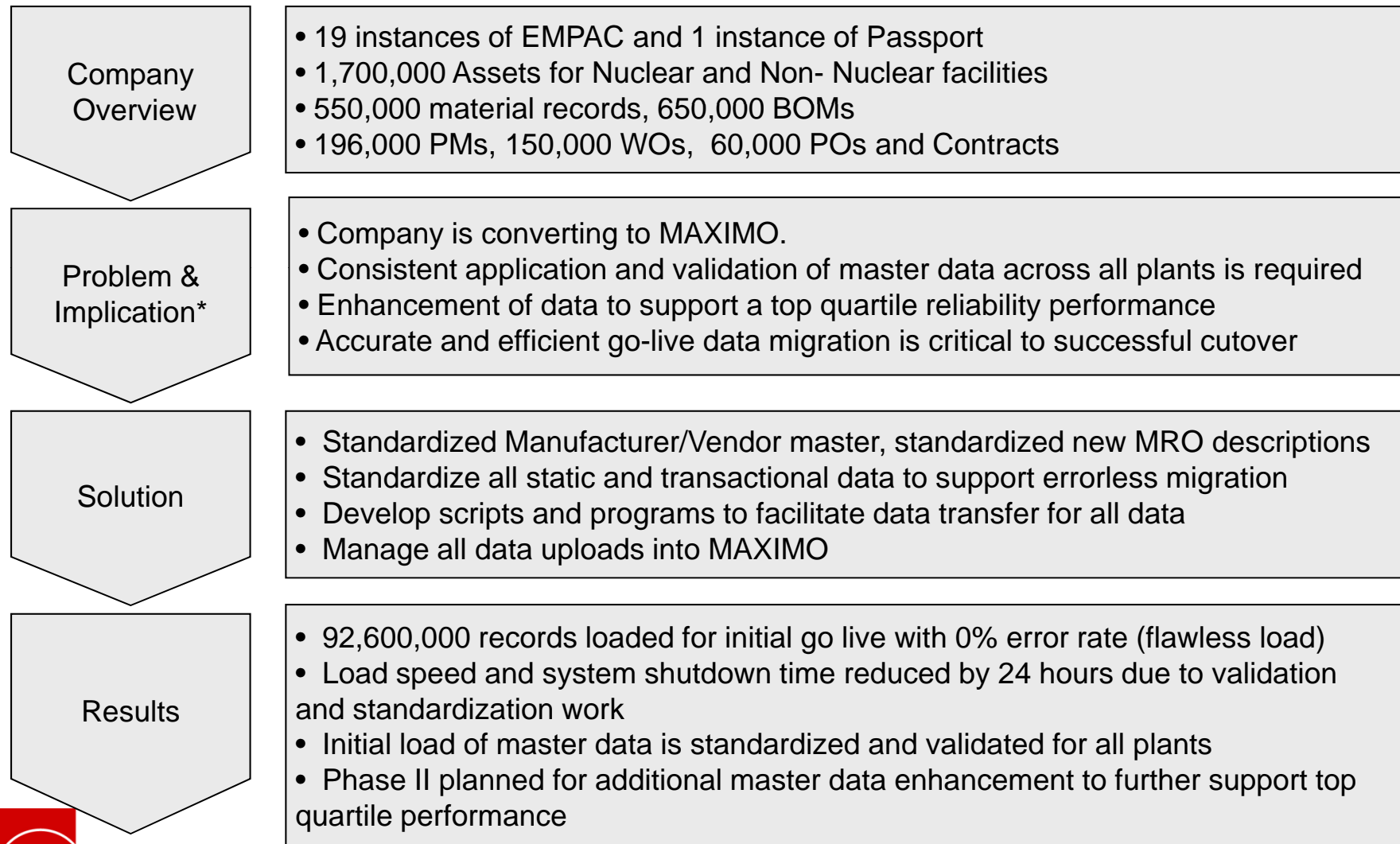


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EAM Master Data Integrity – Case Study

Master data enhancement and validation eliminates data loading errors

A multi-fuel and technology energy company faced the following:



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EAM Master Data Integrity – Case Study

Data integrity contributes to increased net income and decreased inventory.

In 2005, a multi-fuel and technology energy company faced the following:

Company Overview

- 19 facilities
- 5 legacy CMMS
- 21 databases

Problem & Implication*

- No common technology platform
- Limited common processes
- No standardized inventory
- * Less efficient EAM utilization affecting asset/inventory performance
- * Data integrity questions, marketing, supply chain management, work processes

Solution

- Standardized Manufacturer/Vendor master, standardized new MRO descriptions
- Enterprise adoption of MRO dictionary and taxonomy
- Researched specification data to provide complete record descriptions
- Upload of cleansed material master to EAM

Results

- 6.4% reduction on \$197M inventory
- \$1.6M net income increase
- Increased overall equipment efficiency
- Standardized, complete MRO part records across all 19 facilities
- Leveraged procurement opportunities
- Increased Maintenance employee productivity (reduced time for parts search)



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EAM Master Data Integrity - Conclusions

- Data is a valuable enterprise asset
- Data is the lifeblood of an enterprise
- Data is not static and must be managed
- Data integrity is required for decision-makers to operate in a high-performance environment
- Data integrity issue is compounded by impending “brain drain”
- Data integrity is foundational to business performance
- Data integrity is the key enabler and a critical success factor across a wide range of corporate initiatives



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EAM Master Data Integrity – Discussion

1. Has your company attempted to address the issue of Master Data Integrity?
 - a. What worked?
 - b. What were the challenges?

2. How has the current economy effected your company's approach to managing it's physical assets?



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