Attributes of a Highly Effective CMMS

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Questions for the Participants
"Text in your answers"

1. How easy is to write a work order in your CMMS/EAM and assign it to a specific asset number?
   a. Easy
   b. Difficult
   c. We do not charge a work order to a specific asset number
   d. We do not write work orders
   e. We do not use a CMMS

2. How difficult is it to retrieve equipment history on a specific asset?
   a. Simple
   b. Cannot retrieve history on a specific asset
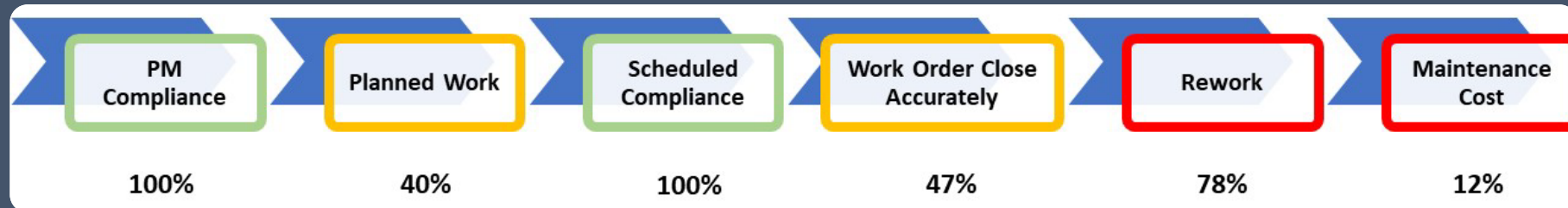   c. A little cumbersome however it can be retrieved

3. Do you use Hand-held PDAs or Cell Phones to manage (ie. write work orders) or find information?
   a. Yes
   b. No

4. Does your organization use a "Maintenance Dashboard" which provides everyone with the information "How effective are the current Maintenance Functions"
   a. Yes
   b. No

Maintenance Scorecard	Best practice	10/12/2020	YTD
Maintenance Schedule Performance	>70%	62%	67%
Maintenance Break In Work	<15%	38%	33%
PM/PDM Work Scheduled	> 30%	18%	35%
PM/PDM Compliance	>80%	36%	67%
Notification Entered from PM/PdM find	1 for every 6 inspections	2	3
Equipment Not Available	Weekly	0	1.45
P1 Notifications	Weekly	12	11.43
Core Shift Mechanic	Weekly	4	3.95
Polymer Shift Mechanic	Weekly	9	6.22
No Information P1's (Still open)	Weekly	0	1.55
		Shift & Core worked on 1 P1 together	

PM Compliance	Planned Work	Scheduled Compliance	Work Order Close Accurately	Rework	Maintenance Cost
100%	40%	100%	47%	78%	12%

"Attribute"

Webster's Dictionary: "a specification, or characteristic ascribed to something"

If you had a Magic Wand, what would you want from a "Your CMMS"

Maintenance Magic Wand

Example:

- **User Friendly? (using the KISS Method)**
- **Accurate Maintenance Dashboards/Scorecards?**
- **Required data field entry**

    Examples:

    - Automated Failure Reporting based on Maintenance Rework, MTBF of Critical Assets, etc.

    - Maintenance Technicians, Reliability Engineers, Maintenance Supervisors use of PDAs or Cell Phones with Barcoding ability to review equipment history on specific assets real time

    - Actual Maintenance Labor Hours posted for on Work Orders before Closure

    - Work Order Close Out Requirements

    - Algorithm to assist Maintenance Scheduling based on Asset Criticality and Defect Severity

What is a CMMS Attribute?

Webster's Dictionary: Attribute is "a specification, or characteristic ascribed to something"

Computerized Maintenance Management System (CMMS), also known as computerized maintenance management information system is:
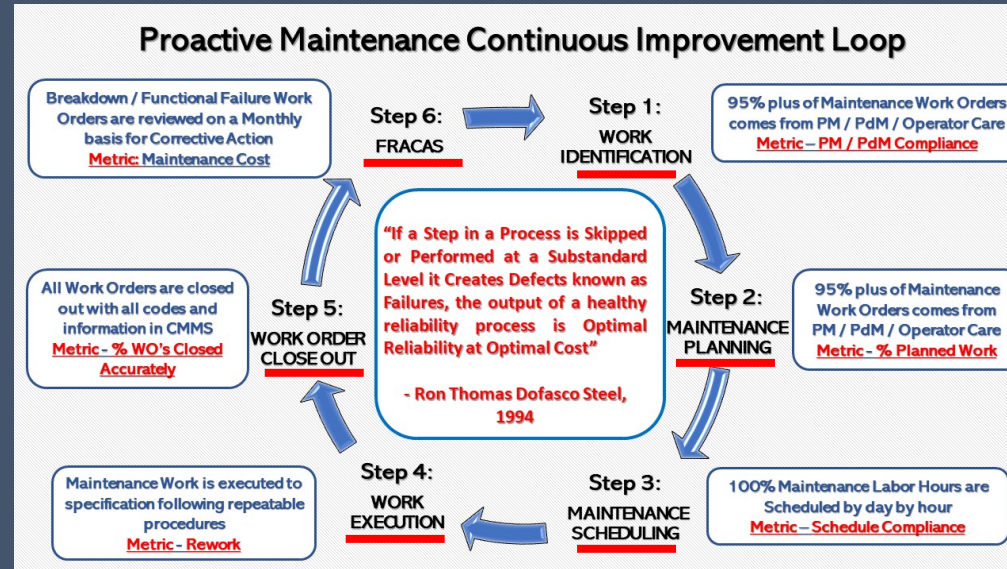
> ... <u>a software program that maintains a computer database of asset reliability information used to manage a maintenance organization successfully</u>

<u>**A few attributes of an effective CMMS:**</u>

1. Equipment Hierarchy is set up with a parent, child, grandchild, etc. (ISO 14224)
2. Equipment Hierarchy is set up so "like equipment" (ie. Electric Motors) across a facility can be managed effectively
3. All parts are charge to specific CMMS
4. All Maintenance Work is charge to a work order which is assigned to a specific asset to ensure equipment history is accurate resulting in the right decisions made at the right time

BLUFF: What is Expected from the Investment of a CMMS

- Cost are managed through a Proactive Continuous Approach to Managing Maintenance

- Stockholder / Owners expect a Return on Investment

What is Not a CMMS Attribute?

1. A software package used to identify whether maintenance techs are working or not

2. A software package used to write work orders which are not charged to a specific asset Ex: Blanket Work Orders – Mgt = all work is covered by a WO

3. A software package used by Technicians to enter their time to a cost center (98% plus of all work must be charged to a specific asset number)

4. A software package where Bad Maintenance Data is input

5. Maintenance WO Closeout Data input is not controlled through a RACI Chart to identify roles and responsibilities

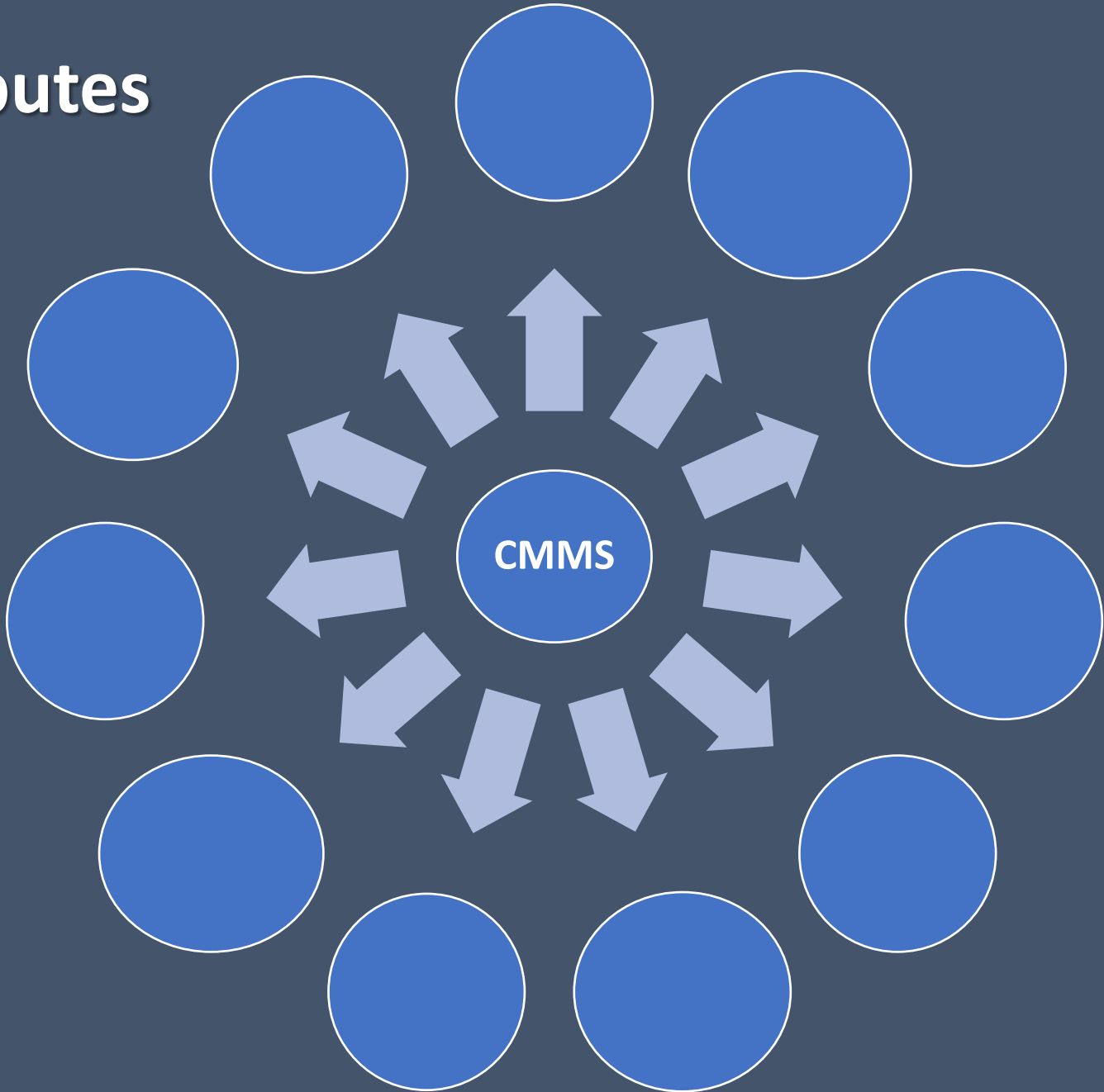## CMMS
"Roles and Responsibilities"

Task Position	Prod Mgt.	Maint Mgr.	Maint Super	Stores	Maint Tech	Maint Planner	Oper.
Write a Work Request	I	A	R		R	R	R
Convert to Work Order	I	A	R	C	I	R	I
WO Charged to an Asset		A	R		C	R	C
Maintenance Planning	C	A	C		C	R	
Maintenance Scheduling	C	A	C	C		R	
Work Execution	I	A	R		R		
Work Order Data Input		A	C		R	R	
Work Order Close Out	C	A	C	I	C	R	I
Maintenance KPIs	I	A	C			R	

Responsibility   "the Doer"   (could be more than one)
Accountable   "the Buck stops here"   (One person only)
Consulted   "two-way communication"   (in the Loop)
Informed   "one-way communication"   (kept in the picture)

TRUE OR FALSE?
Is bad data input happening at your site?

CMMS Attributes

Why a CMMS May Not Be Effective?

1. No one understands the True Value of the CMMS …
   - Lack of Accurate Data results in bad decision making (Work Order Data is not captured)
   - Inconsistency in management of all assets results in high maintenance cost (lack of accurate data can result in ineffective decision making by management)
2. Implementation was not effective because
   - Customer is the expert (CMMS Company must share knowledge with customer critical for first step)
   - Customer did not ask about the Value Proposition
      - Difference between current state and future state Managing with accurate data (an organization cannot manage what they cannot measure effectively and efficiently)

# Why a Fully Functional CMMS is Not an Option

Accurate Data is the ONLY method to manage assets effectively and efficiently in order to optimize cost and asset reliability.

	Mt. HOLLY	TYPICAL
Planned / Scheduled	91.5%	30-50%
Breakdowns	1.8%	15-50%
Overtime	0.9%	10-25%
Inventory Level	1/2 Normal	Normal
Call-Ins	1/Month	Routine
Off-Shift Work	5 People	Full Crew
Backlog	5.5 Weeks	Unknown
Budget Performance	Var. 1-3%	High Var.
Capital Replacement	Low	High
Stock outs	Minor	Routine

What do you really need from a CMMS?

- **User Friendly? (using the KISS Method)**
- **Manage Maintenance with Process Maps which are aligned with your CMMS**
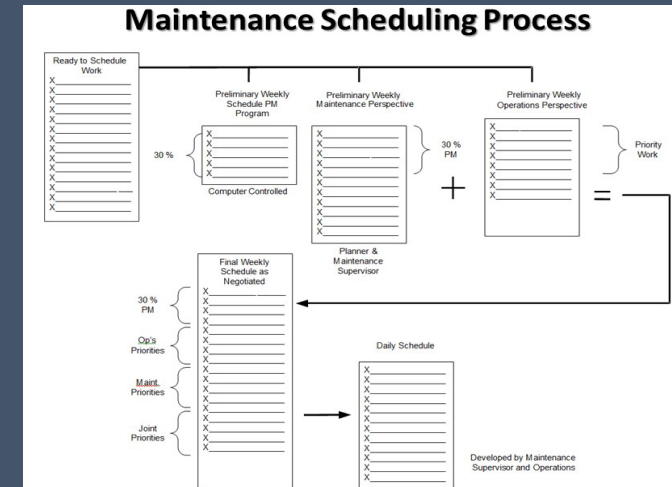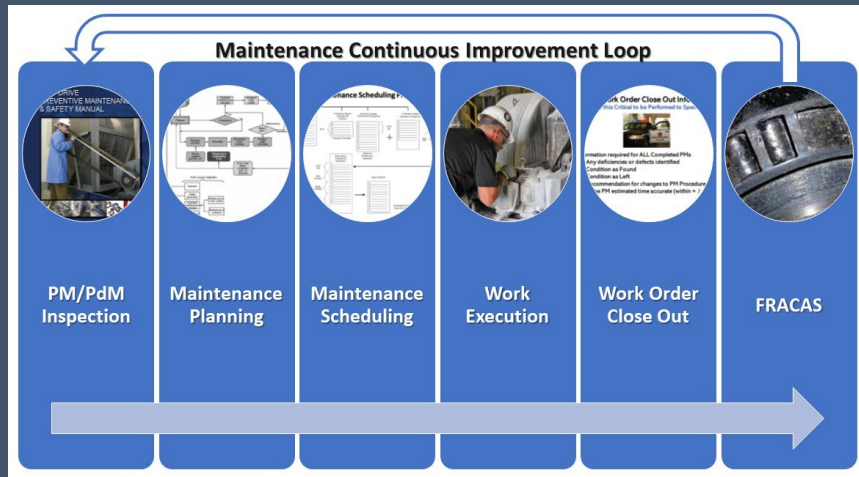
- **Maintenance Dashboards/Scorecards are used to manage asset reliability**

- **Provide discipline to a chaotic Maintenance Organization**
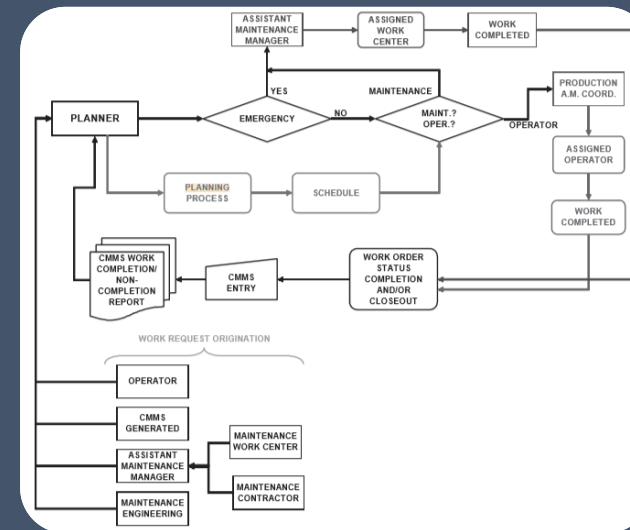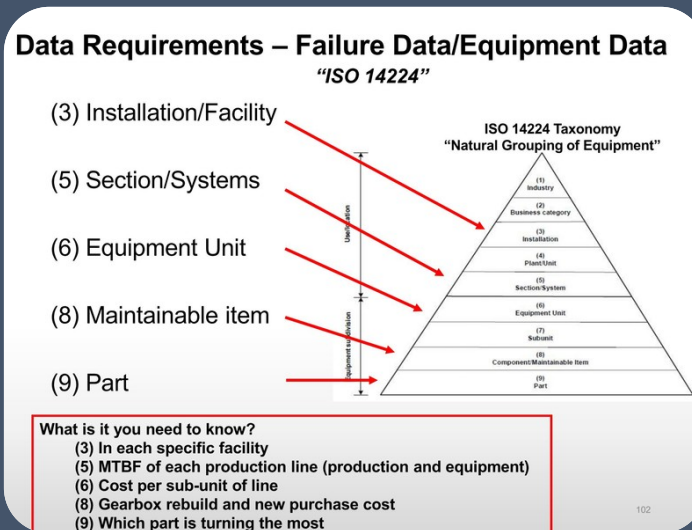
CMMS Requirements
"not options"

- **Required data field entry**
  - Asset Number at Lowest Level
  - Actual Maintenance Labor Hours posted for on Work Orders before Closure
  - Work Order Close Out Requirements
  - Algorithm to assist Decision Making based on Asset Criticality and Defect Severity
  - Automated Failure Reporting based on Bad Actors, Maintenance Rework, MTBF of Critical Assets, etc.
  - Maintenance Technicians, Reliability Engineers, Maintenance Supervisors use of PDAs or Cell Phones with Barcoding ability to review equipment history on specific assets real time
  - The Maintenance Planner closes out all Work Orders
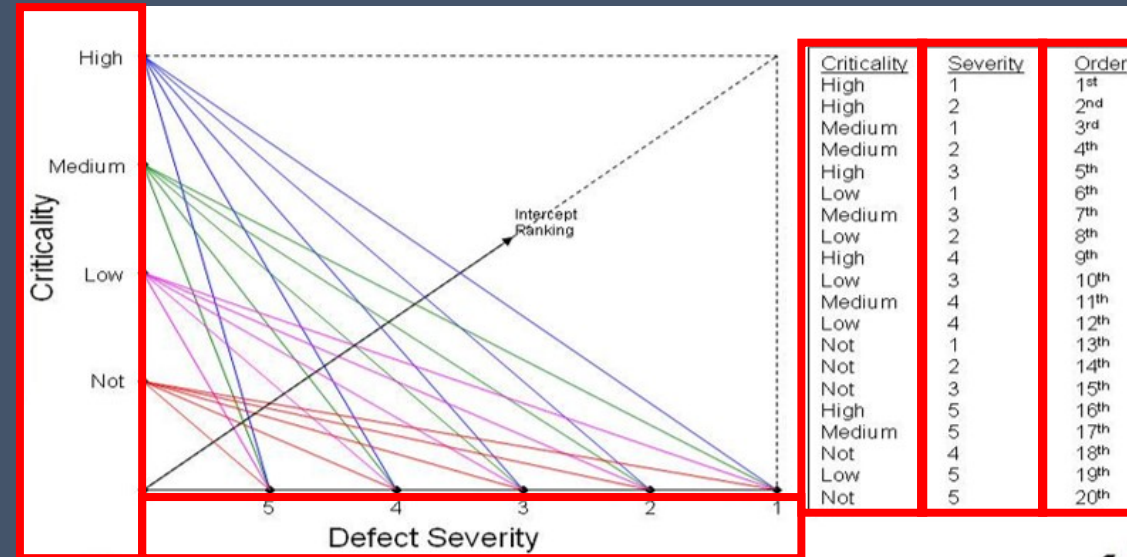
Top 7 Attributes of an Ineffective CMMS

1. An organization does not understand what Maintenance Best Practices looks like

2. Implementation oversold and under delivered

3. Needs of the Customer did not match what was delivered

4. Users do not use the CMMS as designed

5. No Maintenance Process Maps in order to align to CMMS

6. Maintenance Dashboards do not provide drill down

7. Equipment Hierarchy is not structured to meet customer's needs Vertical and Horizontally

Guiding Principles of an Effective CMMS

- A Users Manual is provided to all users with focus on meeting the requirements of Maintenance Best Practices and providing definitions of terms and words

- Maintenance Process Maps are available from Work Identification to Failure Reporting

- Maintenance Dashboards are used to ensure alignment of all Maintenance Processes

- All Maintenance Work is performed with a Maintenance Work Order and 98% plus are charged to an asset

- Paperless Systems though hand-held PDAs / Smart Cell Phones

- CMMS Data entry accuracy is a requirement

CMMS Re-Implementation Recommendations

1. **Educate Plant Leadership in Maintenance Best Practices (perfect time to change) and the value proposition**

2. **Educate the Maintenance Team in Proactive Maintenance**

3. **Paint the picture of Proactive Maintenance**

4. **Share the difference in cost between World Class vs. a Typical Maintenance Organization (where do you want to be)**

5. **Create Process Maps with RACI Charts**

6. **Create Leading and Lagging Dashboards**

7. **Test Implementation (14 days) and Adjust as needed**

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Issues You May Experience when Moving Forward

1. Equipment is currently not in a Maintainable Level

2. May not have the money to implement 100% (may need to implement in one area "POC"- Proof of Concept)

3. Leadership not educated in Maintenance Best Practices (provide training – 4 hours) "BLUFF – Bottom Line Up Front"

4. Management wants to fragment implementation (Explain future state based on known best practices, unsure of meeting expectation through experimentation)

My Recommendation to CMMS Users

1. Listen to software vendor on what is working with other companies
2. Training on the CMMS is critical to success, do not short cut this process
3. Ensure all personnel who may use or manage the CMMS have been trained and task qualified
4. Process Maps are a requirement if an organization wants success with a CMMS
5. Do not short cut recommendations from CMMS Vendor for implementation, know what a fully functional CMMS looks like
6. Ask CMMS Company to create Leading and Lagging KPI Dashboards
7. Create a Master Plan for Implementation with milestones and defined roles and responsibilities

"If a step in a process is skipped or performed at a substandard level it creates defects known of failures"

What "One" Thing you Learned Today?

Questions / Comments