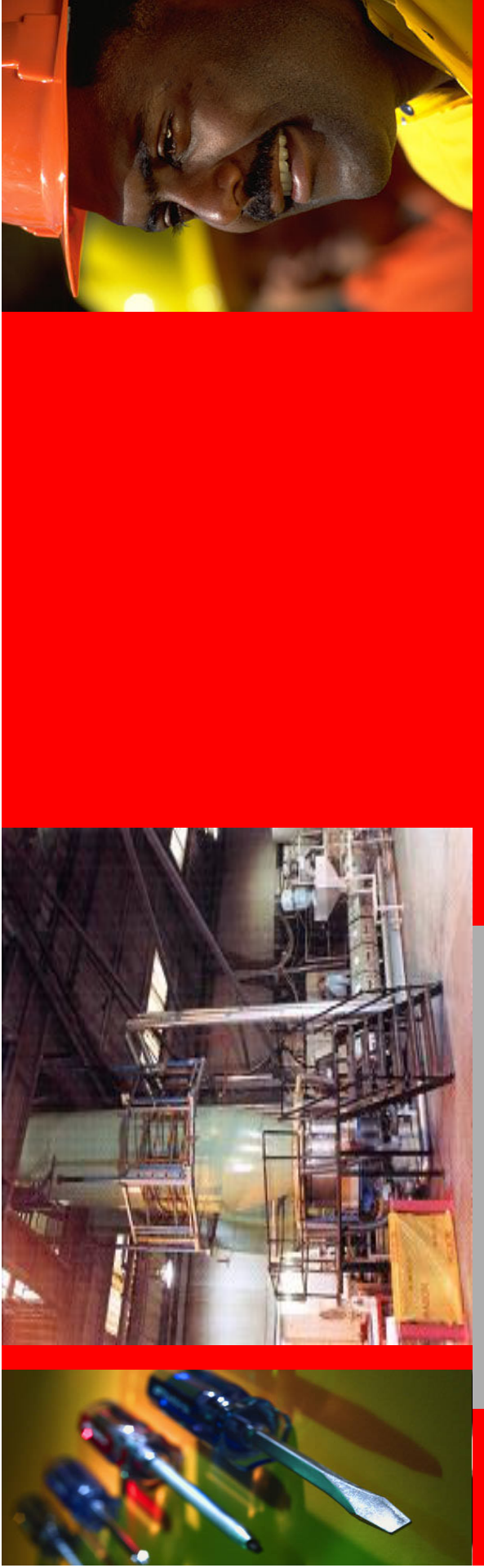ORACLE®

ORACLE®

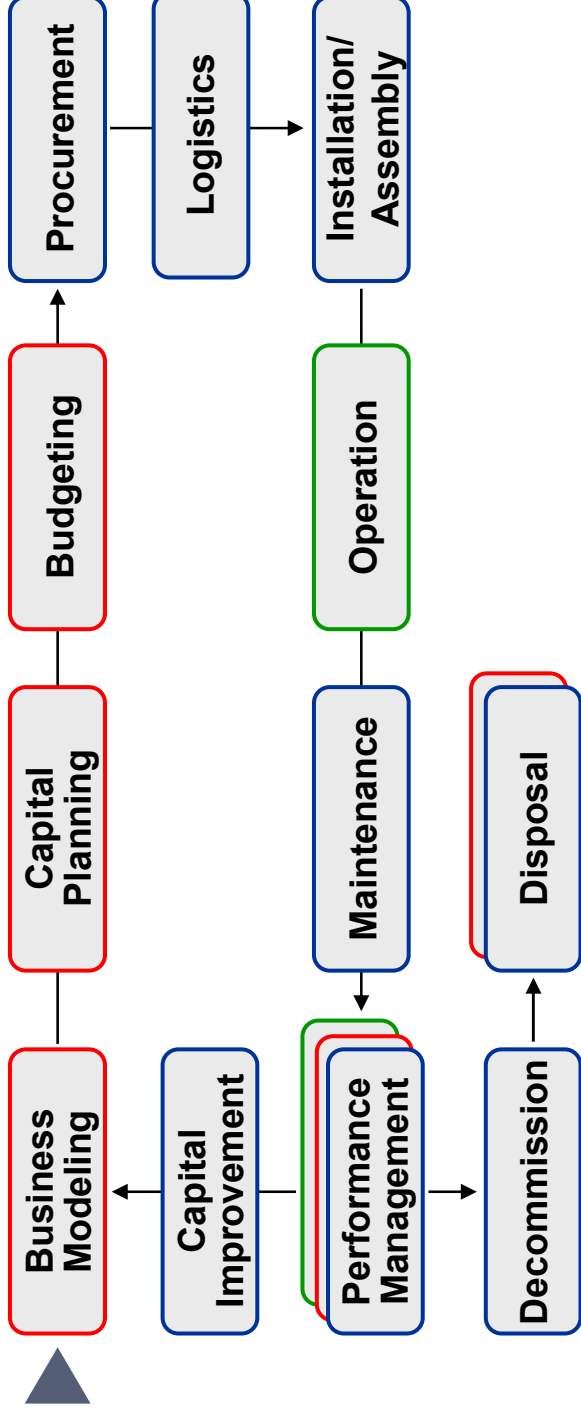## "Everybody Needs a Little Maintenance"

Nitin Katare

Oracle Product Strategy

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decision. The development, release, and timing of any features or functionality described for Oracle's products or functionality described for Oracle's products remains at the sole discretion of Oracle.

ORACLE

Asset Management At-a-Glance

Finance Strategy
- Plan current and future investments
- Track costs and cash flow
- Analyze asset value / ownership

Maintenance Strategy
- Plan and manage maintenance activities, equipment and materials
- Track asset history
- Analyze performance

Operating Strategy
- Manage production / operating schedules and asset availability
- Monitor the condition and status of assets

CONFIDENTIAL: All capabilities and dates are for planning purposes only and may not be used in any contract

ORACLE®

Types of Assets

Fixed Plant

- Productive machinery
- Equipment
- Components

Linear / Continuous

- Roadways
- Pipelines
- Transmission lines
- Railway lines

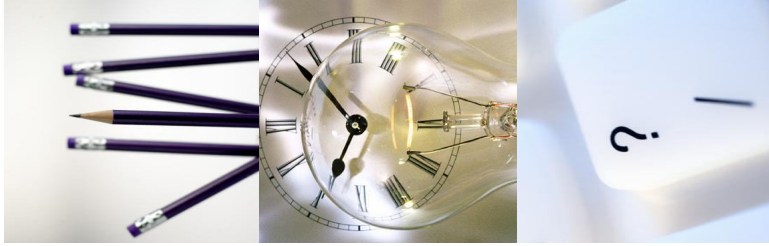## Mobile

- Trucks
- Buses
- Automobiles
- Rolling stock

Infrastructure

- Buildings
- Retail stores
- Universities
- Hospitals

A Need for Change
Leading Business Trends

- Reliability Centered Maintenance for High Utilization
- Integrated Predictive Maintenance & Ops Scheduling
- Proactive Workplace Safety & Regulatory Compliance
- Enterprise Management of Spare Parts & Equipment
- Automated Procedure and Maintenance Logs

What Customers are Saying…

"We use Oracle to coordinate our maintenance activities. We selected Oracle based on fit for functionality, its global scope, and ease of integration. eAM is used as the communications tool for our maintenance department. We communicate what maintenance work we are going to do through work orders and we track our performance against those commitments."

-- *Doug Stretton, Global Maintenance Leader*

BARRICK

"Oracle Applications are key to our strategy for maximizing equipment capacity, increasing productivity, decreasing maintenance costs, and improving health and safety across all our real estate and manufacturing operations."

-- *Majid Saif Al Ghurair, CEO*

Al Ghurair Group

ORACLE

A Few More Customers…

KT "The Value Networking Company"	ATMOS energy	TPC	BARRICK
GRUPO INDUSTRIAL SALTILLO	Metalsa	ALCOA	BurJuman A BETTER class of SHOPPING.
ONEOK	QATAR STEEL COMPANY WWW.QASCO.COM	Cabot Microelectronics	VALLEY VISTA SERVICES Dependable Waste Disposal and Recycling
MB Petroleum Services LLC The Symbol of Technology in Oil Field Services	KNOWLES ELECTRONICS	Wesfarmers	OHSU
EMERSON. Process Management	DANA	Chick-fil-A	DeKalb County Georgia Keep DeKalb Beautiful
PanUnited	Magnitogorsk Iron & Steel Works		City of Joondalup
			Hanover Compressor Company

ORACLE

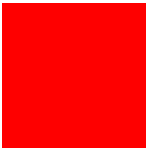# Oracle Enterprise Asset Management

Enables you to…

1. **Replace Standalone Maintenance Mgmt Systems**

2. **Perform Maintenance in a Distributed, Mobile, Global Environment**

3. **Manage the Full Asset Lifecycle**

4. **Support Compliance and Corporate Governance**

5. **Place Systems in the Hands of Maintenance Techs**

ORACLE®

Traditional Asset Maintenance
Maintain Integration, Not Assets

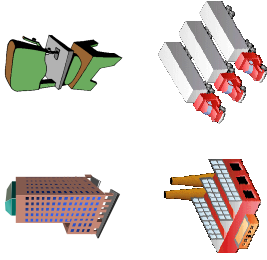**Computerized Maintenance Management System (CMMS)**

ERP Applications

- General Ledger
- Procurement
- Inventory
- Projects
- Documents
- Workflow
- APIs

Custom Interface

Custom Interface

Custom Interface

Custom Interface

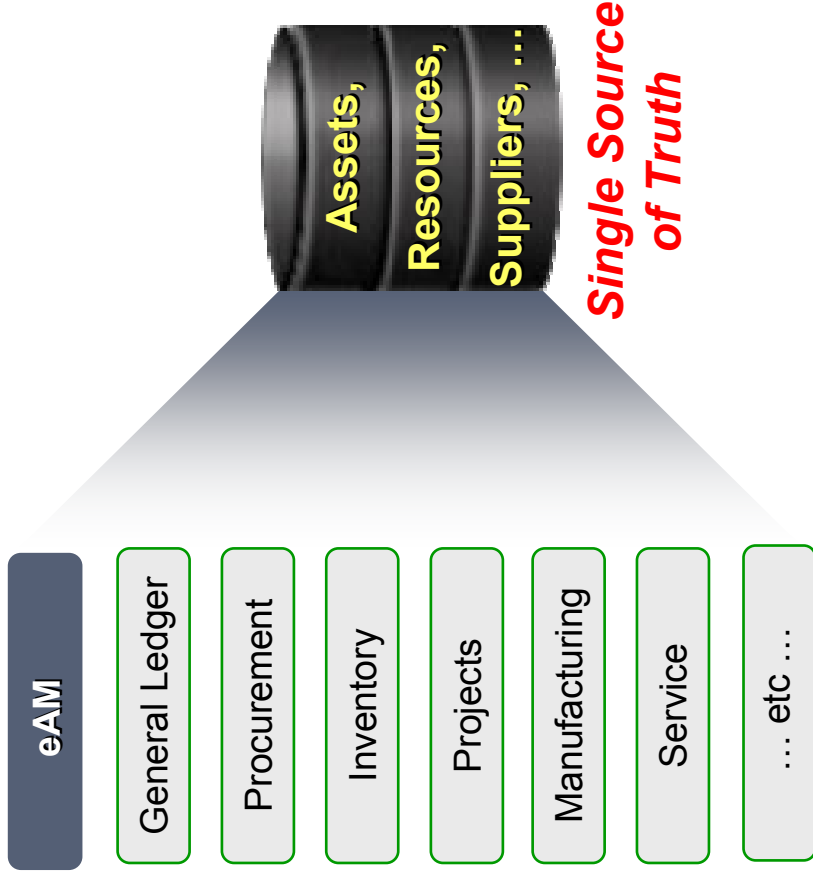**3rd Party Providers**

- Documents
- Workflow
- CMS Interfaces

Foundation: Common Data Model

Eliminate Cost and Complexity of Multi-Vendor Systems

ERP Applications

eAM

- General Ledger
- Procurement
- Inventory
- Projects
- Manufacturing
- Service
- … etc ….

Assets, Resources, Suppliers, …
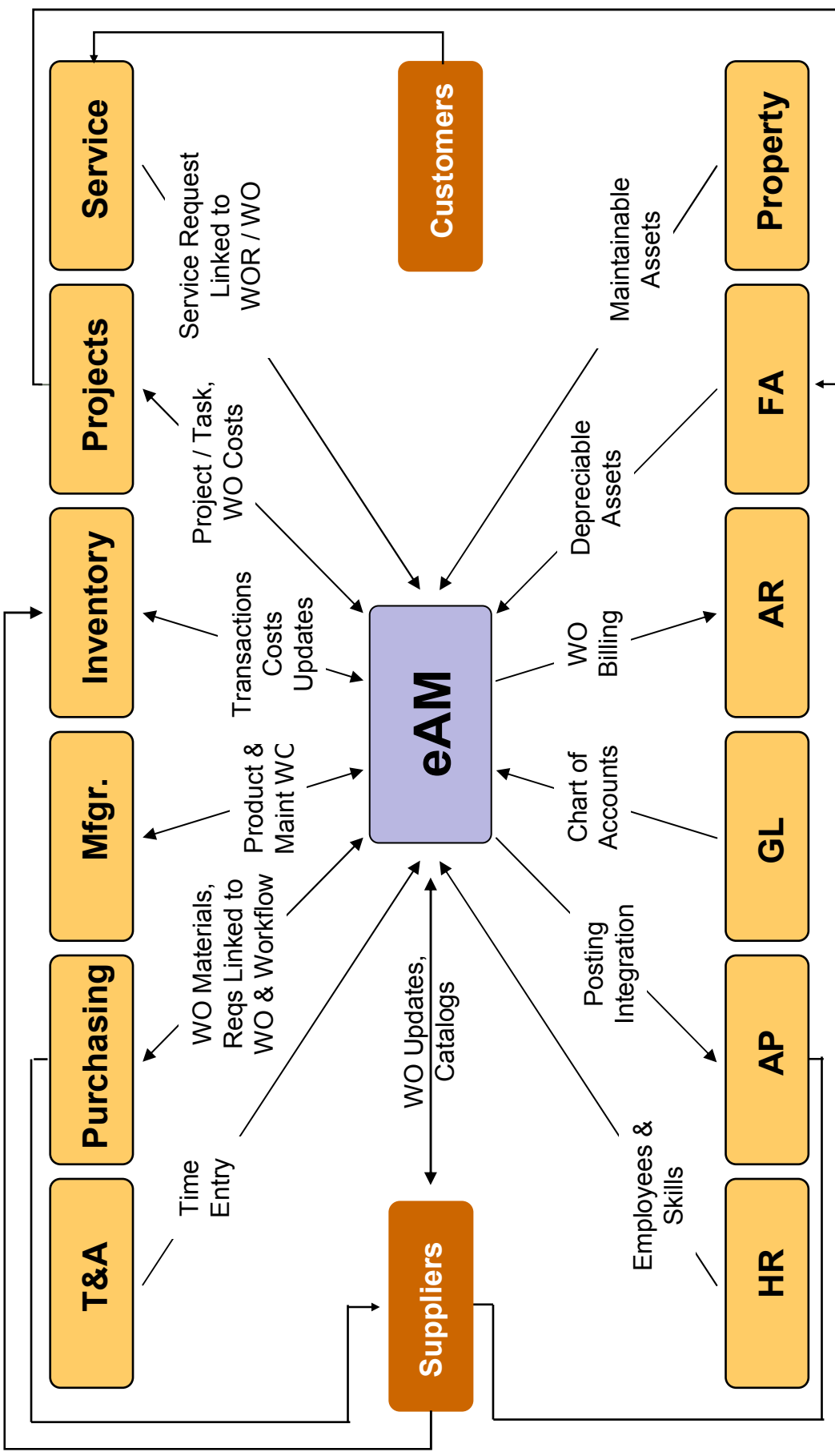
Single Source of Truth

- Reduce information latency and synchronization issues
- Minimize implementation time and cost
- Decrease maintenance and upgrade cost
- Scale to meet growth demands

ORACLE

Oracle Strategy
Out-of-the-box Integration

59 integration points - $3.75M Build + $885K Annual Maintenance (Gartner)

ORACLE

Service
Projects
Inventory
Mfgr.
Purchasing
T&A

Customers

Property
FA
AR
GL
AP
HR

eAM

Suppliers

Service Request Linked to WOR / WO

Maintainable Assets

Project / Task, WO Costs

Depreciable Assets

Transactions Costs Updates

WO Billing

Product & Maint WC

Chart of Accounts

WO Materials, Reqs Linked to WO & Workflow

WO Updates, Catalogs

Posting Integration

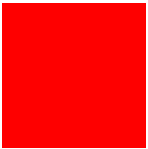Time Entry

Employees & Skills

Oracle Enterprise Asset Management

Enables you to…

1. Replace Standalone Maintenance Mgmt Systems

2. **Perform Maintenance in a Distributed, Mobile, Global Environment**

3. Manage the Full Asset Lifecycle

4. Support Compliance and Corporate Governance
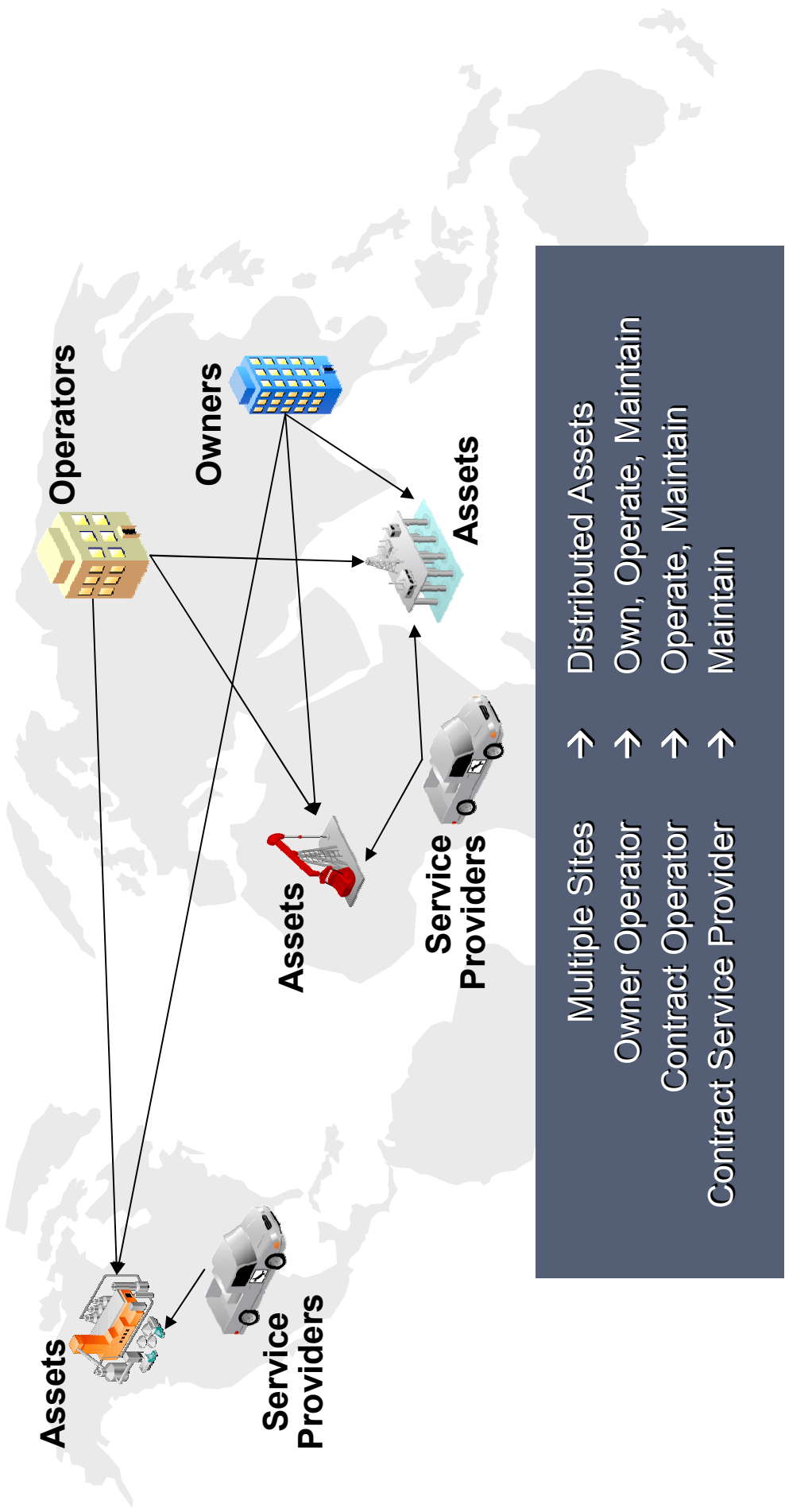
5. Place Systems in the Hands of Maintenance Techs

ORACLE
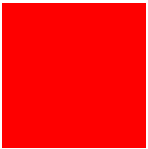
Distributed, Mobile, Global Assets

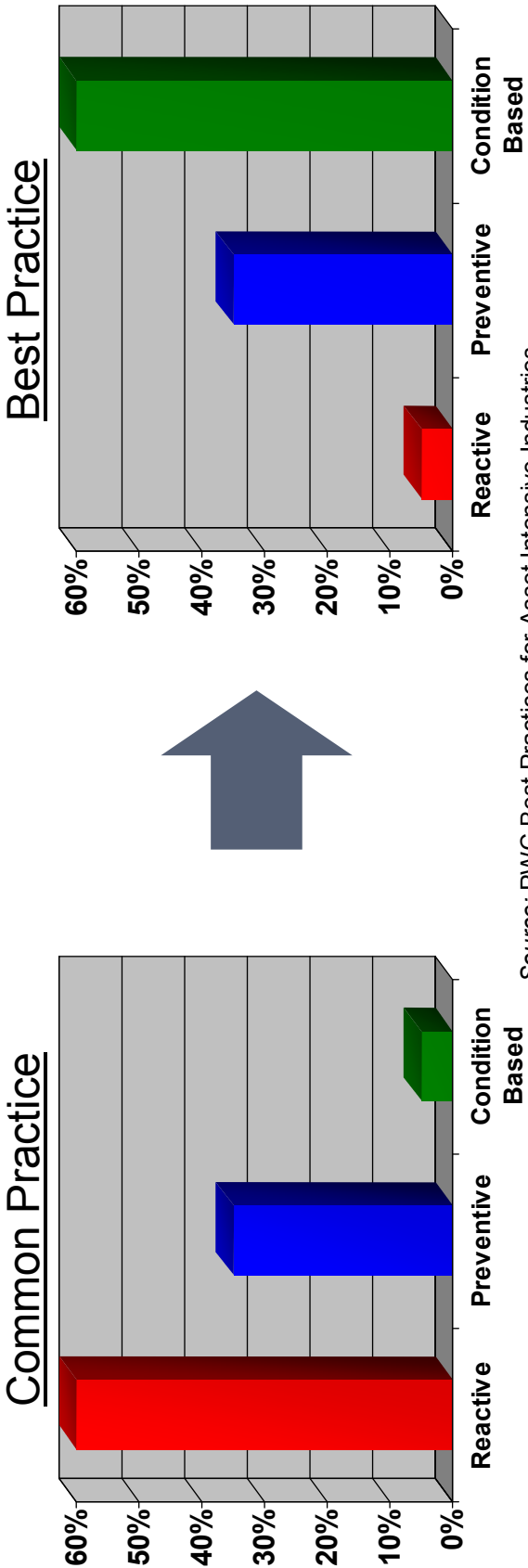*Traditional Org, Business & Geographic Relationships are Changing*

Operators

Owners

Assets

Assets

Assets

Service Providers

Service Providers

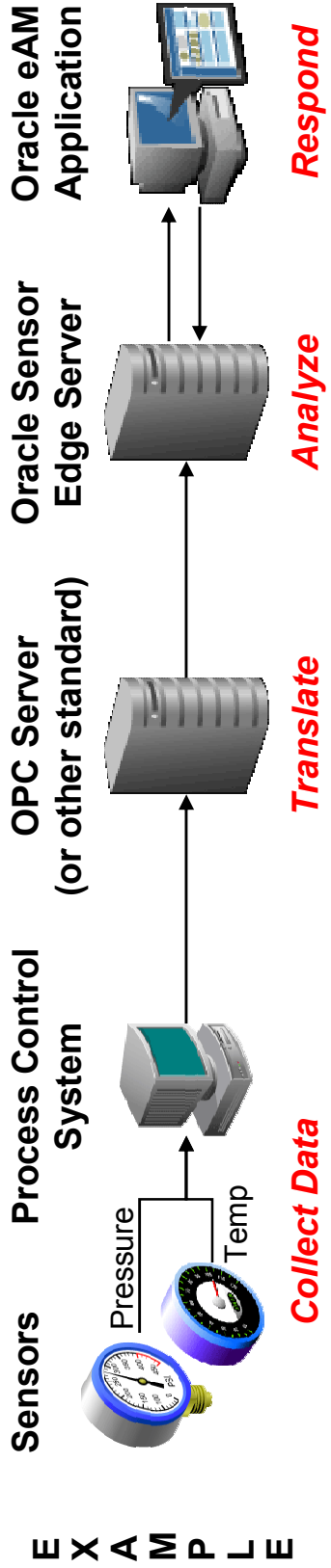|		
Multiple Sites	→	Distributed Assets
Owner Operator	→	Own, Operate, Maintain
Contract Operator	→	Operate, Maintain
Contract Service Provider	→	Maintain

Real-Time Asset Management
Move from Reactive to Condition-Based Maintenance

Common Practice

Chart with vertical axis from 0% to 60% (10% increments) and categories: Reactive, Preventive, Condition Based

Best Practice

Chart with vertical axis from 0% to 60% (10% increments) and categories: Reactive, Preventive, Condition Based

Source: PWC Best Practices for Asset Intensive Industries

E X A M P L E	Sensors	Process Control System	OPC Server (or other standard)	Oracle Sensor Edge Server	Oracle eAM Application
	Collect Data		*Translate*	*Analyze*	*Respond*

Pressure
Temp

Multiple Maintenance Strategies
Plan Maintenance and Repairs in Any Environment

Condition Based

Condition Monitoring
Temp, Flow Rate, Wear, Vibration, Calibration

→ **System Identification of Limit Violations**

→ **Workflow-Driven System Action**
- Notify Asset Owner
- Generate Work Order

Preventive

Planned Usage
Planned Calendar Events, Production Forecast

Actual Usage
APIs to Monitoring Systems / Multiple Meters

Estimated Life
Run to Failure, Planned breakdowns

→ **Maintenance Schedules**
- Auto-Creates Work
- Seasonal & Alternative Strategies

→ **Maintenance Forecast**
- Real-Time, Recommended Forecast Based on Plans, Estimates, and Actual Usage
- Dynamic Plan Adjustments

Reactive

Maintenance Request
Equipment Failure, Inspection Readings

→ **Unplanned Maint Scheduling**
- Auto or Manual Work Request Approval
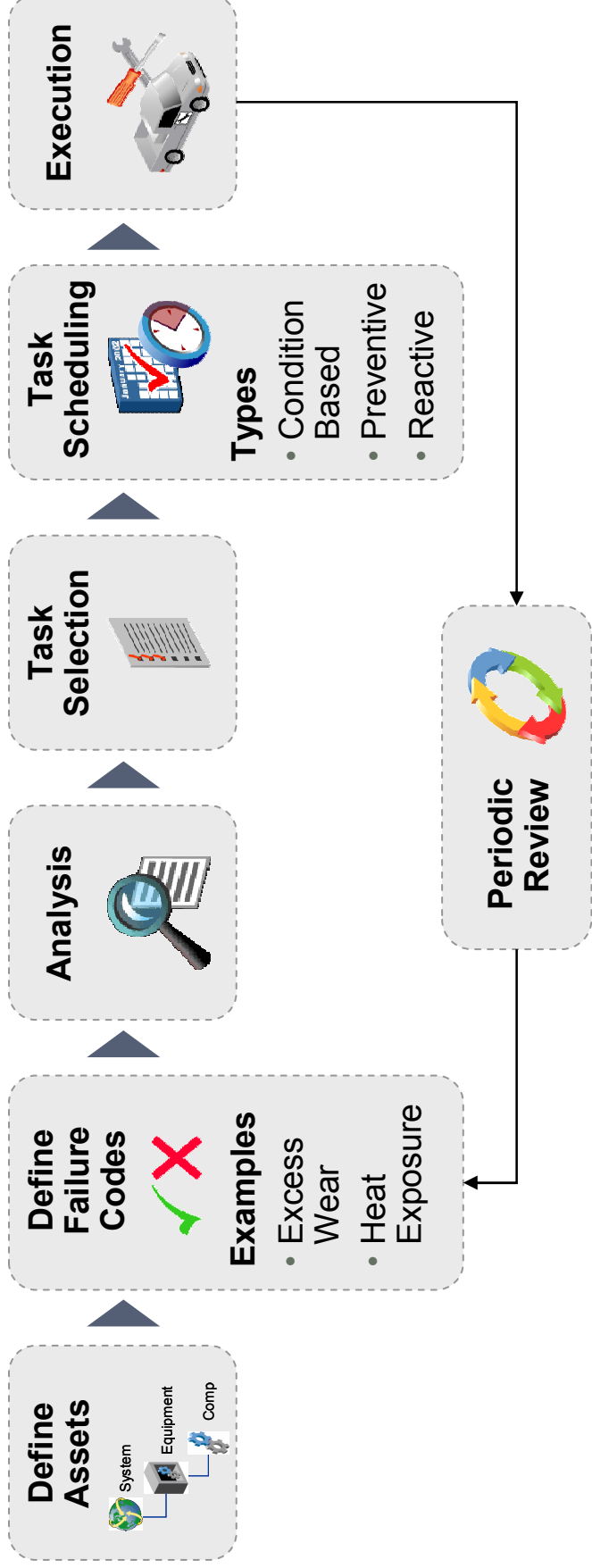
→ **Operator Initiated WO Req / Approval**
- Notify Asset Owner
- Generate Work Order

ORACLE®

Reliability-Centered Maintenance
Increase Productivity, Reduce Cost, Improve Product Quality

Define Assets

System
Equipment
Comp

Define Failure Codes

Examples
- Excess Wear
- Heat Exposure

Analysis

Task Selection

Task Scheduling

Types
- Condition Based
- Preventive
- Reactive

Execution

Periodic Review

- **Focus attention and resources on "most important" assets**
  - Preventive or Condition-Based for high value and critical
  - Reactive for low value, low priority

- **Select and implement strategy based on asset type and primary usage**
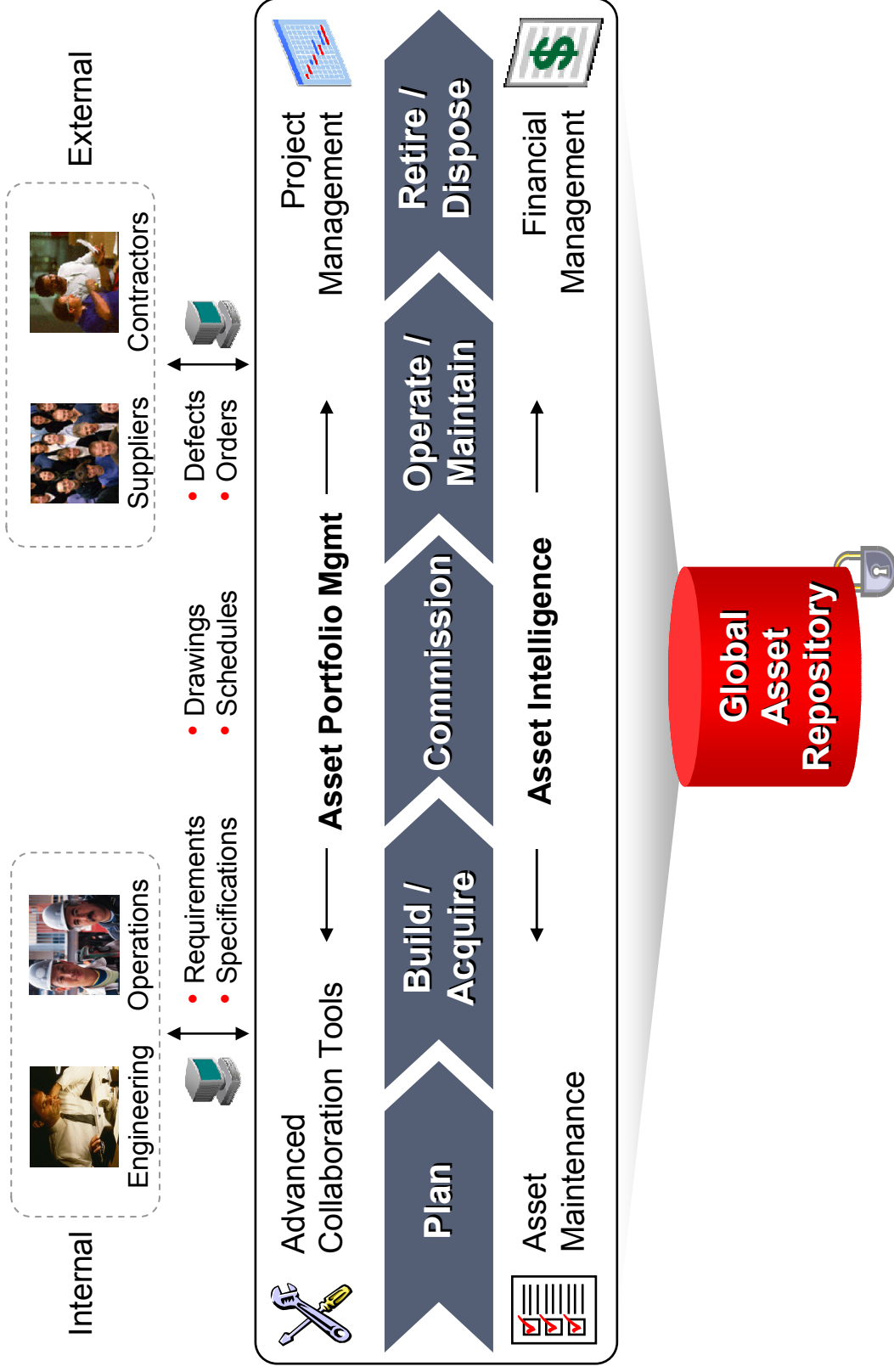
ORACLE®

Oracle Enterprise Asset Management

Enables you to…

① Replace Standalone Maintenance Mgmt Systems

② Perform Maintenance in a Distributed, Mobile, Global Environment

③ **Manage the Full Asset Lifecycle**

④ Support Compliance and Corporate Governance

⑤ Place Systems in the Hands of Maintenance Techs

ORACLE

Asset Lifecycle Management

Internal

Engineering | Operations

- Requirements
- Specifications

External

Suppliers | Contractors

- Defects
- Orders

- Drawings
- Schedules

Advanced Collaboration Tools

Project Management

Asset Portfolio Mgmt

Plan → Build / Acquire → Commission → Operate / Maintain → Retire / Dispose

Asset Intelligence

Asset Maintenance

Financial Management

Global Asset Repository

Oracle Enterprise Asset Management

Enables you to…

① **Replace Standalone Maintenance Mgmt Systems**

② **Perform Maintenance in a Distributed, Mobile, Global Environment**

③ **Manage the Full Asset Lifecycle**

④ **Support Compliance and Corporate Governance**

⑤ **Place Systems in the Hands of Maintenance Techs**

ORACLE

Define and Track Standard Procedures
Comply with Regulatory and Safety Requirements

Structured Definition

- **Define SOPs and Required Documentation**
  - Procedures (e.g., safety, hazardous material)
  - Dependent task planning (e.g., Tag out)
  - Specifications / drawings
  - Special handling
- **Manage Work Order Execution**
  - Automatically create audit trail and electronic history
- **Skills Selection**
  - Search and select by technician certifications or competencies

Benefits

- **Equipment Technicians to Perform Quality Work, on Time and Within Guidelines**
  - Minimize time to locate required documentation
  - Reduce incident rate
  - Decrease work order errors
  - Ensure optimal repair work
- **Monitor & Audit Compliance**
  - Avoid fines and reduce non-compliance risk
- **Assign Qualified or Certified Technicians to Tasks**

ORACLE

Asset Management Intelligence
Timely, Accurate, Relevant

- **Daily updates on key performance indicators**

- **Actionable information on savings and incremental revenue opportunities**

- *At a glance:*
  - Work order status (open and past due)
  - Asset downtime
  - Actual costs

Flexible Time Periods

Flexible Comparisons

Real-Time Results

Performance Measures

Links

Reports

Graphs

ORACLE® Maintenance M...   Home   Logout

Views ► Actions ►

As Of Date **23-Nov-2005** ► Period Quarter ► Compare To Prior Period ► Organization All ► Currency USD ►
38 days left in Q4 FY05

Maintenance Management KPIs
Personalize

Links
Inventory Value Summary

Name		
Work Order Cost		
Asset Downtime (Hours)	105.4	26.8
Completed Work Orders	39	178.6%
Late to Schedule Completion %	0.0%	0.0
Work Order Backlog	2	0.0%
Past Due to Schedule %	250.0%	100.0
Request to Completion (Da		

re Organizations
sor over data points to see values

Work Order Cost
Personalize

Links
Work Order Cost Summary

Assigned Department	Actual Cost	Change
Prd Maint(EM1)	6,025	---
F-Maint(EM1)	5,517	-
Prod Maint(EM2)	3,390	552.7%
Garage(FAC)	1,906	252.4%
HQ-Ops(FAC)	1,596	-17.8%
W-Maint(EM1)	889	---
Whse-Maint(EM2)	293	174.8%
FLT Maint(EM2)	91	30.4%
Grand Total	**19,706**	**490.6%**

Work Order Cost Trend

24,000
20,000
16,000
12,000
8,000
4,000
0
Q1-04 Q3-04 Q1-05 Q3-05
Q2-04 Q4-04 Q2-05 Q4-0

Asset Downtime
Personalize

Links
Asset Downtime Trend

Department	Downtime (Hours)	Change
F-Maint(EM1)	20.5	20.5
Construct(FAC)	20.0	0.0
Whse-Maint(EM2)	19.1	13.1
Garage(FAC)	16.3	16.0
HQ-Ops(FAC)	9.0	-12.2
Prod Maint(EM2)	8.0	-18.3
Prd Maint(EM1)	6.0	4.1
W-Maint(EM1)	4.6	3.6
FLT Maint(EM2)	2.0	0.0
Grand Total	**105.4**	**26.8**

Asset Downtime (Hours) Trend

1,400
1,200
1,000
800
600
400
200

ORACLE®

Oracle Enterprise Asset Management

Enables you to…

① Replace Standalone Maintenance Mgmt Systems

② Perform Maintenance in a Distributed, Mobile, Global Environment

③ Manage the Full Asset Lifecycle

④ Support Compliance and Corporate Governance

⑤ **Place Systems in the Hands of Maintenance Techs**

Self-Service Access
Provide Maintenance Workers Easy System Access

- Remote access via web browser
- Capture information at the source
- Perform step-by-step transactions
- Require minimal system training
- Reduce time to input information
- Decrease errors in data transfer
- Reduce clerical labor

Maintenance User Workbench
Enable Personalized Role-Based Access

- Employees view assigned work & self-assign work

- Issue materials, record labor, and report completion from single self service portal

- Provide workers access to performance measurements

Easy to use, personalized HTML user interface

Personal KPIs

Immediate access to employee's current, past due and future work assignments

Direct access to key processes (e.g., meter / quality reading entry, material request, asset details)

ORACLE

Asset Management

Logged In As **Moll, Joe**

Home

Work Queue
Date and Time 20-NOV-2006 14:52:02

Key Indicators

Today's Work	3 (0.0 hr)
Overdue Work	0 (0.0 hr)
Open Work	3 (0.0 hr)
Checked Out Assets	1

Organization FAC Go

Export   Printable Page

Search

Department HQ-Ops
Asset Number
View By Open Work
Go

Create Work Order | Create Work Request | Mass Time Entry | Crew Schedule

Export   Printable Page

Details	Work Order ▲	Op	Op Description	Start Date	Due Date	Priority	Asset Number	Op Attachments	Charge Time	Complete Operation	Assign Employee
⊞ Show WO243745		10	Default Operation for Work Order	20-Nov-2006 10:20:00	20-Nov-2006 10:20:00	Emergency	HVAC-B100-Unit 1				
⊞ Show WO243746		20	Balance Air	20-Nov-2006 11:11:00	20-Nov-2006 11:11:00		HVAC-B100	+			
⊞ Show WO243747		11	Calibrate TSTAT	20-Nov-2006 11:39				+			

ORACLE

Mobile Maintenance User Workbench *Remote Access to Work*
Assignments, Details, and Transactions

Employees view assigned work & self-assign work

Issue materials, record labor, and report completion from self-service portal

- Operates on any browser-based device
- Real-time data transfer versus periodic desktop hot-sync

ORACLE

Oracle Enterprise Asset Management

Replace Standalone Maintenance Management Systems

Perform Maintenance in a Distributed, Mobile, Global Environment

Manage the Full Asset Lifecycle

Support Standards Compliance & Corporate Governance

Place Systems in the Hands of Maintenance Techs

The eAM / ALM Community

- Customer / Development Advisory Calls
- OAUG eAM SIG
- Annual Oracle Maintenance Summit
- eAM Customer Advisory Board
- eAM Field Advisory Board

- Contact: Nitin Katare @ nitin.katare@oracle.com
- Contact: Jennifer Allen @ jennifer.allen@oracle.com

ORACLE

The preceding is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

ORACLE®