2016 Research Vision & Agenda

Asset Performance Management (APM)

House Keeping Items

❑ Lines are Muted

❑ Recorded Line

❑ Chat Box

❑ Questions during the Presentation

❑ Questions after the Presentation

Our Mission is Driving Industrial Transformation

We are thought leaders and trusted advisors for Business, IT, and Automation executives

Our differentiators:

❑ Experienced analysts

❑ Primary social research

❑ Deep industry contacts

❑ Interactive data visualizations

Analyst Team

Matthew Littlefield
IIoT

Dan Miklovic
APM

Andrew Hughes
MOM

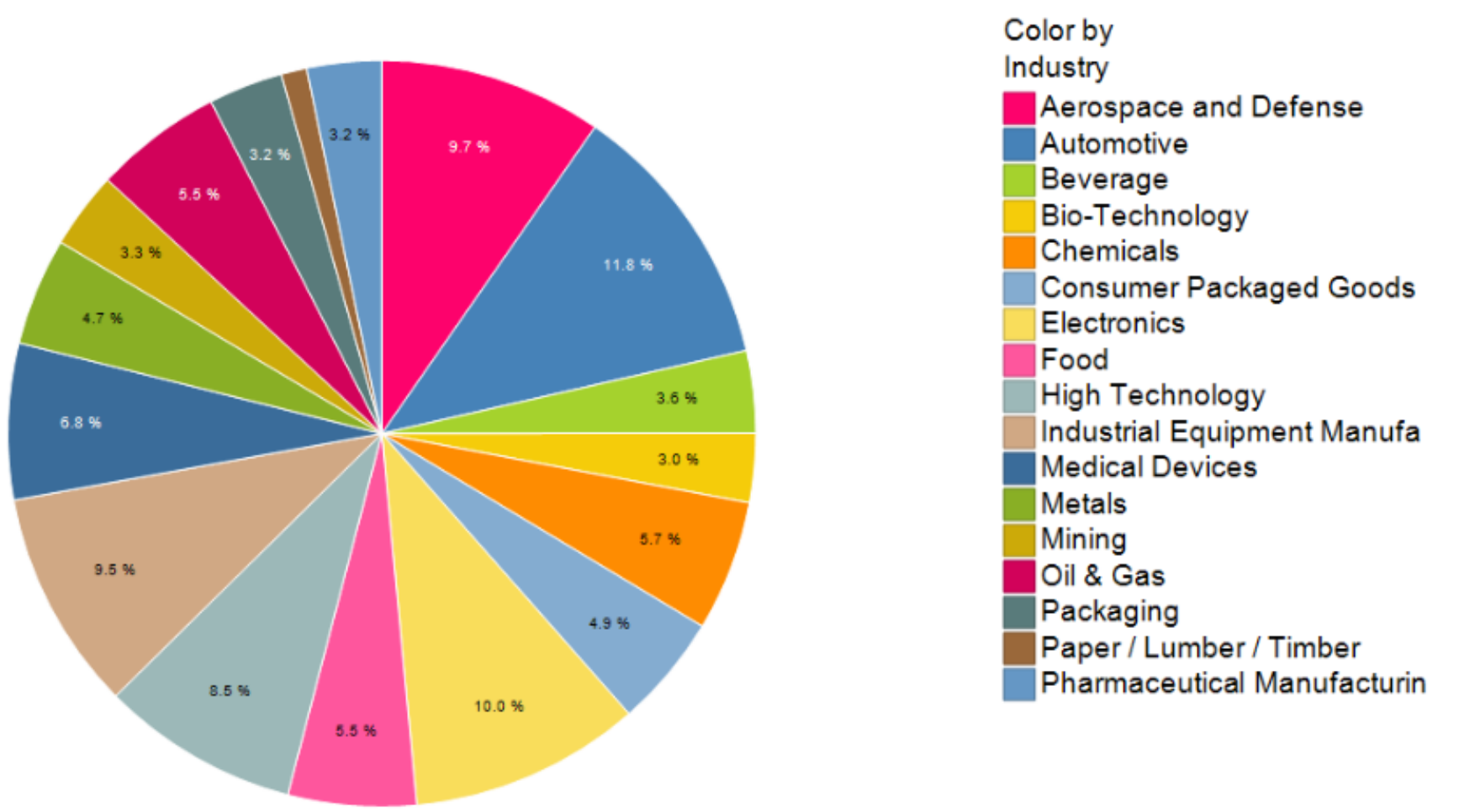Jason Kasper
APM

Dan Jacob
EQMS

Starting Jan 14, 2016
EHS

LNS Research in Media

Benchmarking Research

LNS has benchmarked 4,000+ executives, industry demographics include:

Color by Industry

- Aerospace and Defense
- Automotive
- Beverage
- Bio-Technology
- Chemicals
- Consumer Packaged Goods
- Electronics
- Food
- High Technology
- Industrial Equipment Manufa
- Medical Devices
- Metals
- Mining
- Oil & Gas
- Packaging
- Paper / Lumber / Timber
- Pharmaceutical Manufacturin

LNS Research's End User Clients Include:

Digitalization and Industrial Transformation Framework

Digital Transformation

Reimagining Business Process and Service Delivery

Operational Excellence

Realigning People, Process, and Technology

Enterprise Architecture

Managing IT-OT Convergence and Next-Gen IIoT Technology

Business Case Development

Defining Immediate and Long Term ROI

Solution Selection

Eliminating Bias and Finding Long Term Partners

LNS Research's Vendor Clients Include:

Strategy, Insight, and Content

Buyer Persona

Who is the buyer and what are the concerns
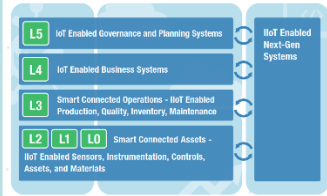
Competitive and Partner Analysis

What companies have competing strengths and weaknesses

Technology and Product Roadmap

How is IIoT and Big Data Analytics impacting development

Thought Leadership

Creating a unique perspective in the industry

Content Marketing

Communicating and connecting with the market

APM Research Vision: Uncovering New Insights on Best Practices

Organizational challenges for APM success

- How successful manufacturing and asset intensive companies breaking down traditional organizational silos

- How are companies dealing with APM skills shortages?

- How to align team and individual goals and metrics to create alignment and accelerate success

Which APM processes do World Class companies Optimize?

- What are the APM process areas, by industry, that define companies as "World Class

- What are the critical success factors to be managed?

- What metrics do these companies use to measure their success?

What APM technologies support World Class performance?

- What is the timeline for Smart Connected Assets to take root?

- Which suppliers are offering critical elements of the Smart Connected Assets profile?

TECHNOLOGY

APM Research Vision – Smart Connected Assets

2016 Reports
- Vendor Progress
- User Adoption

APM Blogs
- Vendor Conferences
- Survey Results
- New Business Ventures

SMART CONNECTED ASSETS
Converged Sensors, Instrumentation, Controls, and Assets

REAL TIME ➔ PREDICTIVE ➔ AUTONOMOUS

AWARE OF AND CAN REACT TO:

Design and Configuration

Internal and External Operating Conditions

Past Performance

Predicted Future Failure

MRO Inventory (Internal and External)

Raw Material

Supplier Performance

Customer Requirements

Environmental Impact

Failure In Any Leg Creates Instability/ Failure In Two Or More Creates Disaster

OPERATIONAL EXCELLENCE SUPPORT

People — Process — Technology
Operational Excellence Platform
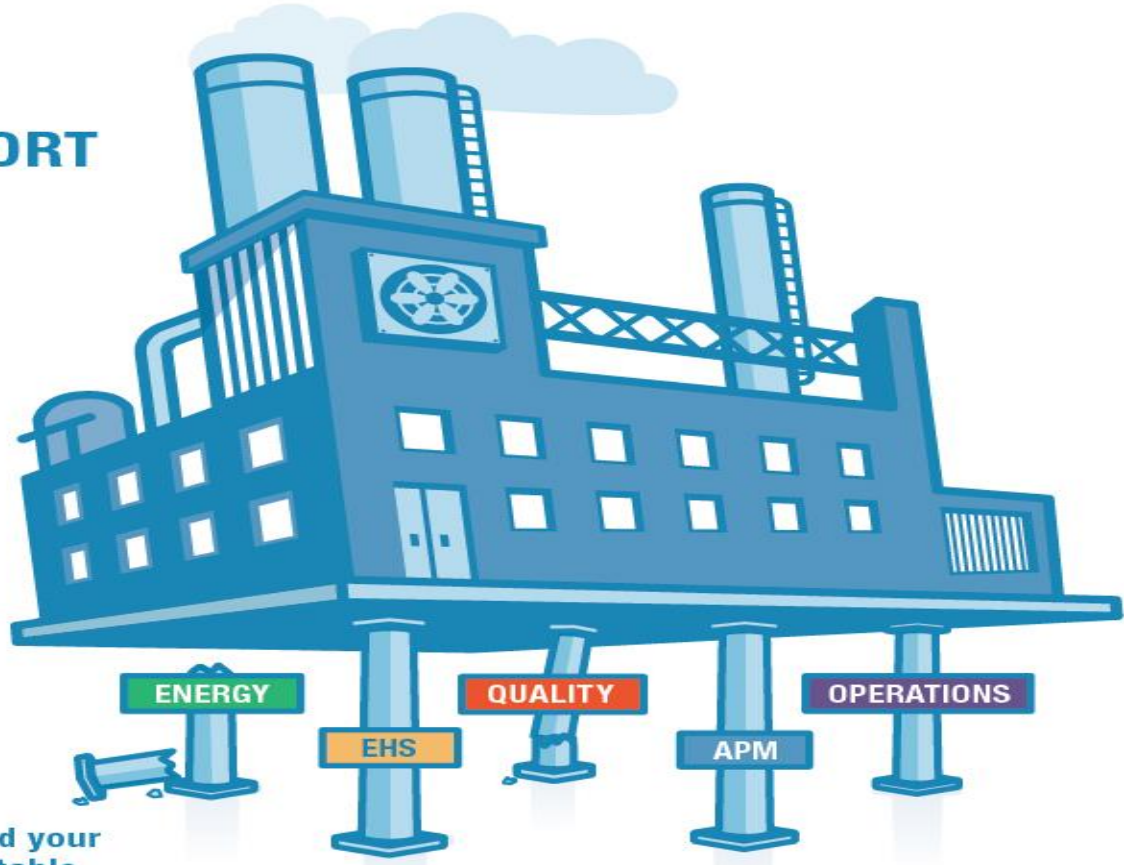
Fall short on any pillar and your
OpEx platform becomes tippy

Fall short on two or more pillars and your
OpEx platform becomes totally unstable

ENERGY   QUALITY   OPERATIONS

EHS   APM

APM Research Vision: How APM Relates

Reports and blogs pertaining to: APM & IEM, APM to Improve OEE, Vendor Conferences, APM & Quality, APM & EHS, & Elements in APM

APM CENTRIC VIEW
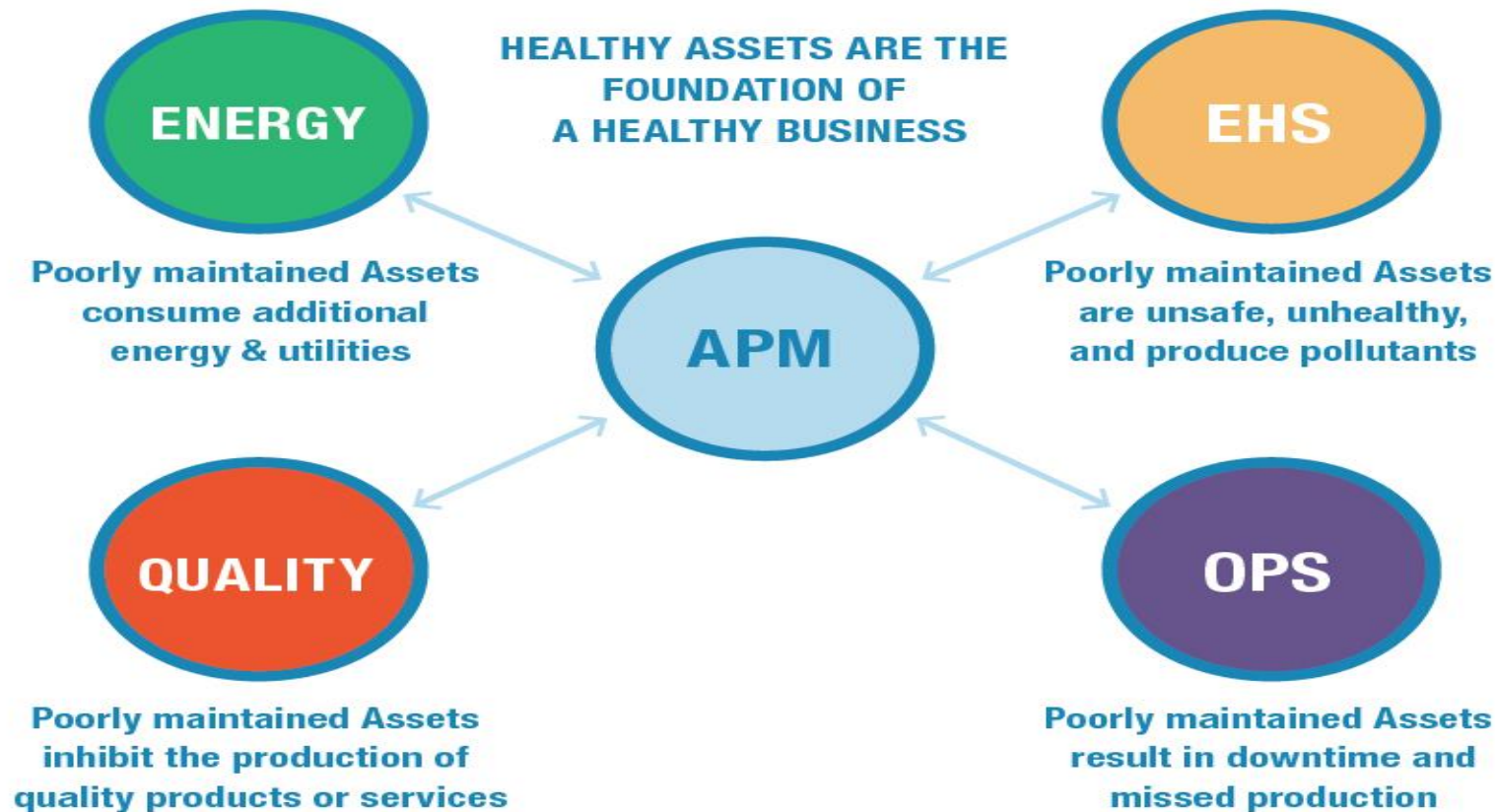
HEALTHY ASSETS ARE THE FOUNDATION OF A HEALTHY BUSINESS

ENERGY

Poorly maintained Assets consume additional energy & utilities

EHS

Poorly maintained Assets are unsafe, unhealthy, and produce pollutants

APM

QUALITY

Poorly maintained Assets inhibit the production of quality products or services

OPS

Poorly maintained Assets result in downtime and missed production

Reports and blogs pertaining to: APM Metrics That Matter, Metrics by Industry, & Interesting Survey Results

In which APM metrics do you know your organization's performance?

| Metric	%
Reliability/Availability (Uptime %)	34 %
Maintainability (Downtime %)	24 %
Mean Time Between Failures (MTBF)	21 %
Unplanned Downtime	20 %
Planned vs. Unplanned Work %	19 %
Mean Time to Repair (MTTR)	15 %
Work Order Backlog	15 %
Work Order Closure Rate	11 %
Maintenance Cost per Unit of Production	7 %
Return on Net Assets (RONA)	7 %
Labor per Planner	5 %

% Total Respondents
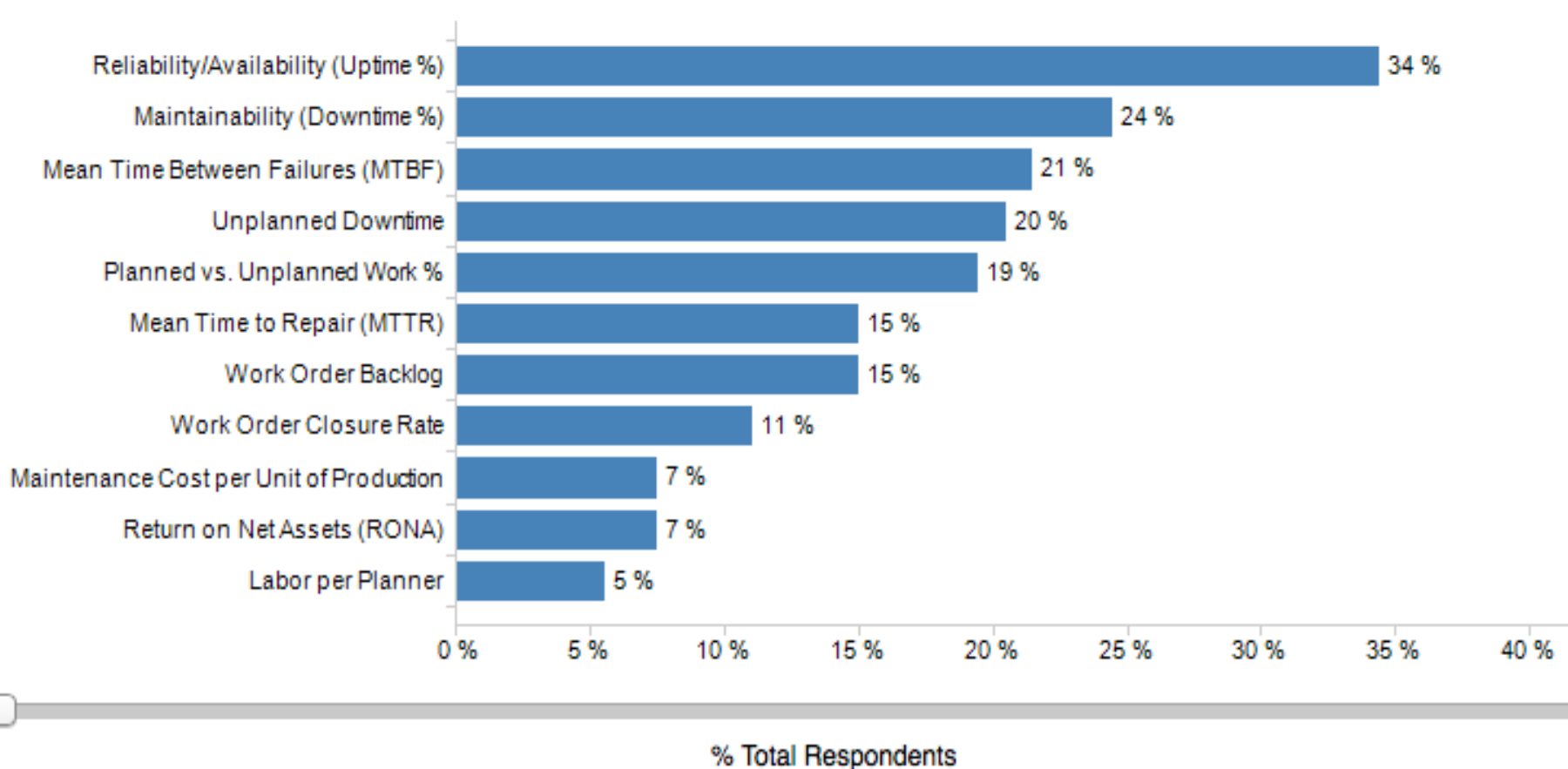
APM: 2016 Global Executive Council Topics

- MRO Inventory Optimization
- RCM as Tool for Operational Excellence
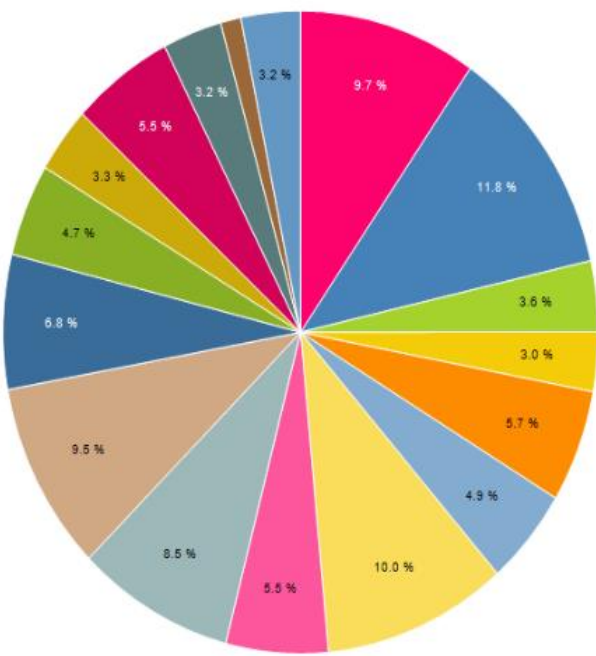- Building an APM Culture
- SCA's & New Services
  APM & Sustainability
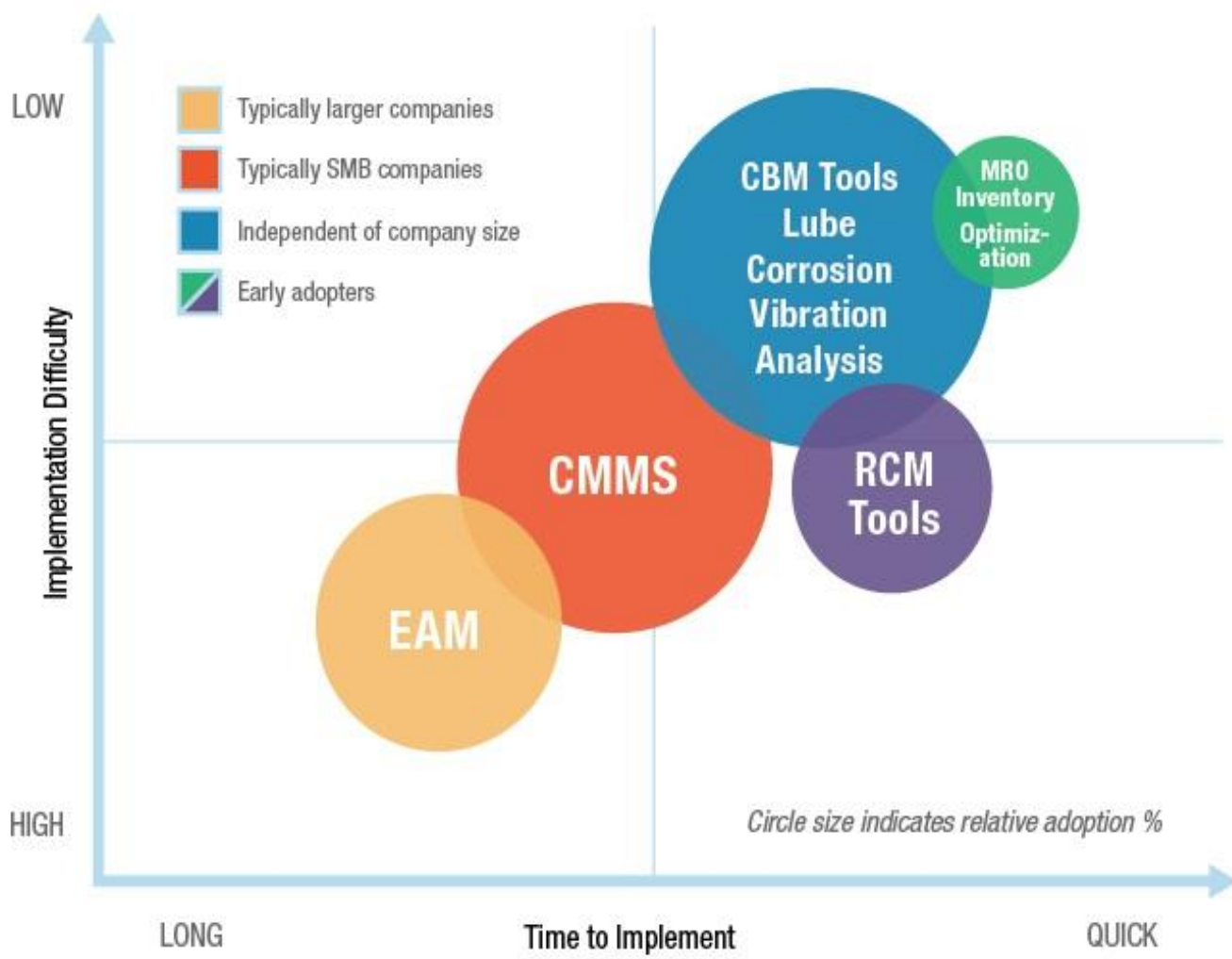
APM Research: 2016 Vertical Industry Focus

In 2016, we will take a closer look at specific APM strategies and case studies in the following industries:

- Utilities

- Oil & Gas / Chemicals

- Mining & Metals

- Asset Intensive Public Sector

- Heavy Transportation

- Food & Beverage

- Life Sciences/Pharmaceuticals

- Forest Products/Pulp & Paper

Color by Industry

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APM: 2016 Integrated Campaign

Asset Performance Metrics: The Potential of Big Data & Predictive Analytics

- Understand the impact of metric programs, KPIs, the supporting processes, and key technologies being utilized to accelerate asset performance and management

- Key metrics being used across the spectrum of roles and responsibilities in asset performance activities:

  o Reliability/RCM,

  o MRO inventory, uptime/downtime

  o Maintenance utilization

  o OEE and sustainability

EH&S
- Incident Management
- Risk Management
- Compliance

ERP
- Financials
- HR & Training/ Certifications
- Procurement/Receiving
- Production Schedules

APM
- EAM/CMMS
- Reliability Centered
- Condition Based
- Predictive/Preventative Maintenance
- Compliance/Reporting

IEM
- Demand Compliance
- Carbon Usage & Reporting
- Water/Wastewater
- Landfill volumes

MOM
- Run Times
- Speeds & Feeds
- Procurement/ Receiving

EQMS
- Compliance
- NC/CAPA/Audits
- Training & Certification
- Reporting

APM: 2016 Integrated Campaign

Smart Connected Assets role in Digital Transformation: How People, Process & Technology are disrupting Business Models
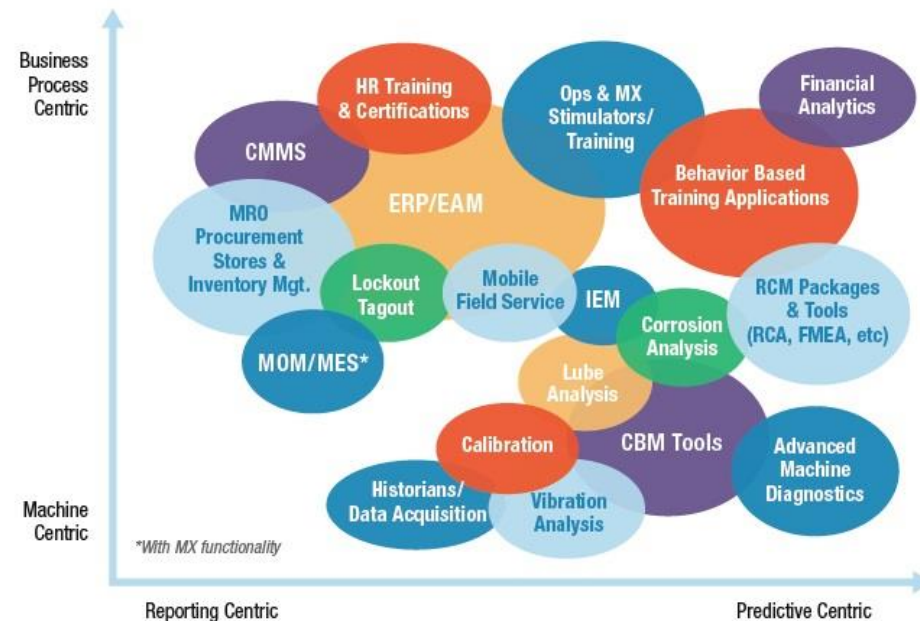
- Research focused on how Smart Connected Assets can drastically alter business models

  o   Usage as a Service

  o   Asset Lifecycle Management as a Service

  o   Connected Workforce (operate assets anywhere)

- Research on new types of innovation and creativity in APM and how it will change the way we work, communicate and maintain assets

  o   Wearables integrated into the workforce

  o   Industrial internet of things

  o   Digital Models

APM: 2016 Integrated Campaign

Enterprise APM is Enabling the Pursuit of Operational Excellence

- Learn how APM is the foundation of Operational Excellence

- See how the EAM providers, Automation companies and traditional APM solution providers are reaching a convergence point

- Understand how this evolving vendor landscape is making the pursuit of Operational Excellence easier than ever and to architect an APM to drive operational excellence going forward.

Q&A

Thank You!