We will begin shortly!

Harness Your True Business Story

Manufacturing Efficiency Analytics Best Practices

Technology & Manufacturing Association
<table>
<thead>
<tr>
<th>Topics</th>
<th>INTRODUCTION</th>
<th>CHALLENGES &amp; OPPORTUNITY</th>
<th>ABOUT MIKAN</th>
<th>MAKING THE CASE FOR OEE</th>
<th>WEBINAR OBJECTIVES</th>
<th>KEY SKILLS</th>
<th>OEE DEFINED</th>
<th>EXAMPLE</th>
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</table>

**Maketing the Case for OEE**

**Key Skilss**

**OEE Defined**

**About Mikan**

**Webinar Objectives**

**Challenges & Opportunity**

**Introduction**
Who We Are

• Established in 2008
• Privately Owned
• Boutique, Highly-skilled
• Less than 50 Consultants
• 234 Customers
• All customers are reference-worthy

• HQ’d in Chicago / Lincolnshire
• Team in Chicago, Portland, DC
What We Do

Strategy & Advisory
Assess & Roadmap

Data Preparation
Data Modeling, Data Architecture | Data Integration

Data Governance
Catalog & Glossary | Policies & Procedures | Stewardship

AI & Analytics
Harnessing your true business story

Cloud Migration
Your Data Mgt., AI & Analytics onto cloud of choice

Enablement
Adoption & Governance
Industries

Healthcare
Associations
Financial Services
Education
Manufacturing
Logistics
Strategic Partnerships

- Tableau
- Dataiku
- Erwin
- Talend
- Power BI
- Fivetran
- OneTrust
- Jitterbit
- Databricks
- Amazon Web Services
- Boomi
- Informatica
- Snowflake
- Microsoft Azure
Webinar Objectives
Webinar Objectives

What it takes to establish a foundation for collecting, storing and transforming raw data from the production processes into decision-provoking visual analytics that tell the true story about your manufacturing efficiency

Take-aways

- Identifying relevant metrics that make up efficiency
- Streamlining data collection, integration and preparation
- Adopting visual best practices for more impactful manufacturing efficiency analytics
- A framework for sharing analytics with business users
Overall equipment effectiveness (OEE) indicates how well equipment is being used. OEE considers three key indicators:

- **Availability**: Percentage of time that an equipment can operate
- **Quality**: Percentage of good parts produced
- **Performance**: Percentage of maximum operation speed used
Manufacturing Efficiency Defined

Therefore, 100% OEE is understood to mean:

- **Availability** – There is no unplanned down time
- **Performance** – Production speed is the same as the ideal speed
- **Quality** – 0 defective parts produced
Why OEE Is Imperative - Challenge

Manufacturing has become very competitive – dynamic market demand.

Expected Low-volumes and more personalization

Products or Work orders - Availability & Performance

Tight Change-over times - Availability

Expected Low Scrap - Quality

Business demands real time visibility into production processes - Performance & Availability

Manufacturing world is hyperconnected and digital
Why OEE Is Imperative - Opportunity

Advances in real time Data Wrangling and Visual Analysis Technologies

- Track OEE in real time; on the go
- IoT

Accessible Benchmarks (Industry & Cohort)

- Gain competitive insights
- Continuous improvement

High return on optimized OEE

- Peg due value on Efficiency Improvements

Optimize your Supply Chain
Making The Case For OEE

1. Articulate reason for OEE Improvement – link to business objective
2. Secure Buy-In from Executives
3. Rationalize Implementation Framework and Tech Platform
4. Define and Socialize how OEE Analysis will be delivered
   Educate the organization
Right Skills

Someone who understands the Manufacturing processes and capable of establishing real-world scenarios and valuable outcomes.

Someone who understands analytics (Diagnostic & Forward-looking)

Someone who understands data: Where Data comes from; Required Data Quality; What it takes to integrate, prepare and manage data

A who knows how to put analytics in action – Sharing for wide-spread adoption
Steps Toward Streamlined OEE

Data Prep
- Versatile, Flexible, Adaptive Data Modeling & Integration @ Scale
  Or Purchase

Analytics Prep
- Iteratively Design and Develop Analytics – Involve SMEs
  Or Purchase

Deploy & Share
- Agile Rollout and enterprise Enablement

Tune & Enable
Sample OEE Information Flow

Inventory
Warehousing
Production
Benchmark
Other Internal
Other External

Data Hub

Historical

Data Warehouse
Integrated & Sanitized
Data for Analysis

Predictive Models & Insights

Integrated Analytics
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Manufacturing Efficiency & Throughput Analysis

As of 11:15

Now
5/14/2020 11:15:00 AM

Manufacturer
(All)

Choose Dimension
Work Center

Sort by Measure
Order count

Asc or Desc
Descending

OEE
84%

Absorption
89%

($1,503K)

Avg Burn Rate by Work Center
40min

Avg Unp DT by Work Center
46min

Efficiency by Work Center

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<th>OEE</th>
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Throughput by Work Center

Throughput (Orders per Hour) | Actual vs. Plan | Burn Rate

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168min 54min 69min 81min 97min 94min

End of Shift

-215min
Sample Visual Analytic
Sample Visual Analysis Continued

### Efficiency by Work Center

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<td>89%</td>
<td>58min</td>
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<td>MIG</td>
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**Target Values:**
- OEE: 80%
- Availability: 80%
- Performance: 80%
- Quality: 80%
- Abnormal Costs: $0-$200K
THANKS FOR JOINING US

CONTACT US

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@mikanassociates
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