Digital Transformation in Manufacturing:
Strategies to successfully unlock the value of manufacturing data.
Lighthouse Systems

- 25 years expertise in MES software
- Global
- Featured in Gartner’s MES Critical Capabilities
- 500+ sites
- 45+ countries

Shopfloor-Online MES: flexible, out-of-the-box, configurable

- OEE
- Scheduling
- Workflow
- Quality
  - SPC
  - CAPA
- Alarms
  - Process Parameters

- Traceability
  - Genealogy
  - Inventory / Logistics
  - Warehouse Management

- Maintenance
- Energy

Hundreds of references in the Batch, Process, and Discrete industries

- Packaging
- Automotive
- Food & Beverage
- High tech
- Pharma / Life Science
- Aerospace
- Other industries

25 years expertise in MES software

500+ sites

45+ countries
Key challenges facing manufacturing organisations

- NPI & product customisation
- Stronger customer expectations
- Quality compliance
- Pricing constraints driving need for efficiency
- Globalization of your markets

Top 3 Operational Objectives*

#1 Ensuring good and consistent Quality
#2 Responsiveness to customer order demands
#3 Increasing production capacity

*LNS Research 2018
How to address these challenges at an operational level?

**DATA**

- **Empower** Operators, Teams, Managers
- **Demonstrate** Compliance and pass Audits
- **Drive** Continuous improvement programs
- **Maximise** Existing Asset Utilisation
- **Reduce** Costs, manpower, stock

**Historical, real-time, accurate.**
Let stop for a moment! What we’ve seen manufacturers do
Connected business Processes …without any IT global support

Manufacturing Operations (Level 3)

- Inventory
  - Inbound Deliveries
  - Warehouse
- Production
  - Planned Production Orders
  - Setup Instructions / Docs / Recipes
  - Manpower Plan
  - Manpower Tracking
- Quality
  - Inbound QC
- Maintenance / Engineering
  - Maintenance Plan
  - Planned Maintenance Activity

ERP

- Local Storage
- Print Label
- Move Inventory
- Create Inventory

WMS

- Move Inventory
- Warehouse
- Outbound Shipping
- Isolations
- Scrap

Production system

- Execution
  - Productions Counts
  - Waste
  - Downtime Events

OEE

LIMS

- Process Parameters
  - In-Line Qc
  - Lab Checks

MMS

- Unplanned Maintenance Activity (Repairs)
- Energy Usage

PLC’s (level 1/2)

ERP (Level 4)

- ERP
  - ……..

LIMS

- OEE
  - WMS

MMS

- …without any IT global support
... which generates silos of information
... which generates silos of information

- **Business needs**
  - Work Orders
  - Production counts
  - Scrap / spoilage
  - Process parameters
  - Inline quality

- **Planning**
  - Inbound deliveries
  - Outbound deliveries
  - Work Orders
  - Setup instructions
  - Inbound QC check
  - Maintenance plan

- **Supply chain data**
  - Inbound deliveries
  - Outbound deliveries

- **Business data**
  - Labor manhours
  - CAPA
  - Process parameters
  - Energy

- **Quality data**
  - Process parameters
  - Inbound QC check
  - Inline quality

- **Health & Safety data**
  - Maintenance plan
  - Scrap / spoilage
  - Downtime
  - Work Orders
  - Production counts

- **Maintenance data**
  - Planned maintenance
  - Repairs breakdowns
  - Energy

- **Production data**
  - Tool management
  - Energy

- **Outbound deliveries**
  - Storage
  - Local storage
  - Inbound QC check
  - Energy
Sitting at the same table, sharing the same data

• Data is:
  • Unique, consistent
  • Relevant
  • Contextualised
  • Real Time

• ...allowing:
  • Real time alerts
  • Information sharing
  • Advanced reporting
  • Quicker identification of data
  • Use of all information
How to make it possible

You need a very rich and broad set of functionalities in your MES.

You need an MES system able to connect to your infrastructure, to collect data and to share data.
To make it possible: MES **MUST** support all your processes in a single database to build a shared application.

**Production Operations**
- Scheduling
- Job Tracking
- Downtime
- Production Counting
- Waste
- Line Log Book
- OEE
- Labour

**Inventory Operations**
- Inventory
- Label Printing
- Traceability Consumption
- Build Traceability
- Warehousing / Logistics

**Quality Operations**
- Quality Checks
  - SPC
  - Process Monitoring
- Links to Documents
- Concerns/CAPA
- Supplier Complaints
- Customer Complaints

**Maintenance Operations**
- Asset Register
- Maintenance Management
- Repairs
- Tool Management
- Energy
To make it possible: Full Shop floor to Top floor integration

- Information Technology (IT)
- Office Information Technology
- MES
- IT/OT convergence
- Operations Technology (OT)
  - Automation Systems on the factory floor

- ERP
  - Layer 4
    - Days, Months, Quarters & Years

- Plant Operations
  - Layer 3 – MES
    - Days, Shifts, Hours, Minutes, Seconds

- Plant Assets
  - (Automation, PLCs, IIOT sensors)
  - Layers 0,1,2

- Production Operations
- Quality Operations
- Maintenance Operations
- Inventory Operations

Ind. IoT
- OPC UA
- MTConnect
To make it possible: Plan your journey

If a company can’t be significantly more digital by 2020 it will no longer be competitive*

*Gartner 2018

Focus on the Value and Return on Investment for the company
To make it possible: Plan your journey

« Think Big

Start Small....

Scale Fast »
Example of a 1.5 year transformation example

- Collect data
- Use them
- Collect more
- Add more ...

**Quality & SPC**

- Improve OEE (+5%), Optimize WIP stock (-3%)
- Get full traceability

- Decrease customer penalties by 25%

**MES data used for Artificial Intelligence projects**
How can Lighthouse Systems help?

Lighthouse Systems can help you through your journey

From your initial idea ...

... to your full implementation
Drive your transformation through Value.

Questions?

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