MES investment rationale
Is MES the right way to go towards Operational Excellence?

How to define success?

How can you argue on an MES investment?

An objective guideline for implementation!
  The road to success!
  How to fail...
About Prediktor

- **Start-up**: 1995
- **Offices**: Norway, France, China
- **Employees**: 52
- **Installations**: 700 APIS-installations (40 MES-installations)
- **Competences**: Industrial IT, MES, Automation & APC, Process and Production, Industrial communications

*Mission: We make optimal production possible!*
What is MES?

Manufacturing execution system
From Wikipedia, the free encyclopedia
(Redirected from Manufacturing Execution Systems)

Manufacturing Execution Systems (MES), are information technology systems that manage manufacturing operations in factories.

ISA 95

ERP

MES

Control systems, PLS, HMI, SCADA

The production process

Process 1 discrete
Process 2 continuous
Process 3 batch

Prediktor
Is MES the right way to go towards Operational Excellence?

![Status of MES Implementation Graph]

- Successfully Completed
- Completed with a few small outstanding issues
- Completed with many outstanding issues
- Struggling to go live
- Aborted

- Reduces manufacturing cycle time
- Reduces or eliminates data entry time
- Reduces Work in Progress (WIP)
- Reduces paperwork between shifts
- Reduces lead times
- Improves product quality
- Eliminates lost paperwork/blueprints

[Graph showing percentages of different outcomes]
How to define success?

• Improves business performance!
  ... against well defined metrics?

• The system is in use!
  ... by all stakeholders

• Matures over time
  ... continuous improvements
How to calculate RoI?

Common argumentation:

«OEE will increase machine availability by 10%»

«SPC will reduce product variations by 15%»

«Tracking and root-case analysis will increase product quality by 20%»

Versus:

«We estimate a potential profit of x% on increasing our machine availability»

We need to describe an optimization process for this

For this process, OEE should be considered as a tool»
«Industrial IT system in itself will not create value, only costs»

...  

Optimization activities using the right IIT-tools will create value
A typical scenario

**Contract**
- Consultant writes req. spec.
- Client issues RfQ
- Vendor responds with quotation
- Shortlisting, negotiations, contract

**Project**
- Detailed specification, definition
- Build
- Installation, commissioning, validation
  - (Users hired...)

**Operation**
- SLA
- Modification
- Extension

![Graph showing investments A, B, C, D over time with operations performance chart]

**Plan**
- Act
- Do
- Check
Our common challenge...
(An objective status description)

• System scope is too broad

• Vendors are too technology focussed
  – Alarm bell 1: «With this function you can ...»
  – Alarm bell 2: «Our system can store 1.000.000 signals...»

• Too little time spent on understanding clients

• Project ownership is with IT-dept

• Project not anchored with all stakeholders
  – Management, Operations, Maintenance, IT, Economy...
Communication...

How the customer explained it
How the Project Leader understood it
How the Analyst designed it
How the Programmer wrote it
How the Business Consultant described it

How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed
How to structure: S95

<table>
<thead>
<tr>
<th></th>
<th>Production</th>
<th>Quality</th>
<th>Maintenance</th>
<th>Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definition Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detailed Scheduling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispatching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Execution management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data collection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What do I want, how do I prioritize?
Success factors

MES is a **means** towards Production Excellence, not the objective

Combined competences

Long term client-vendor partnerships

Business and organization focus

Stepwise implementation
Conclusions...

MES is the right way to go towards Operational excellence

- Needs to be the **right solution**

- Needs to be in line with the production **organization**

- Needs to be rolled out **sequentially**

- Needs to be run as a **strategic tool**, rather than just another IT-system
Some literature references...

- *Metrics that Matter: Uncovering KPIs that justify operational improvements*, MESA International, 2006

