

### Operator Overall Benefits

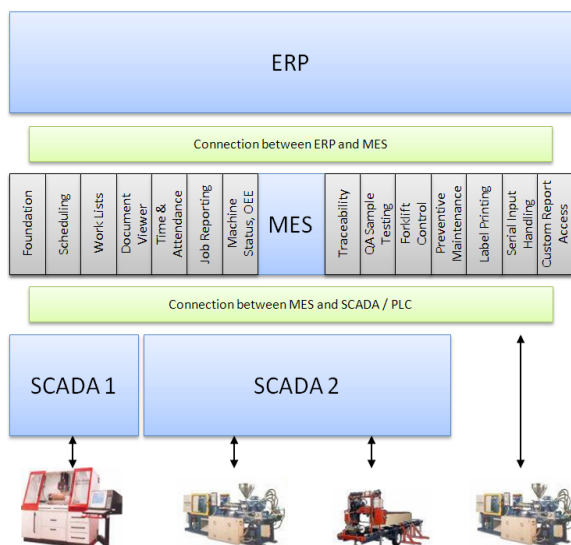
Operator functionalities are focused on benefits like: **Single point access to all relevant information; Easy data capture; Improved data quality; Visibility for better decision making; Reduction of administrative costs; Improved productivity; Shorter lead time; Faster reaction to changes; Improved delivery performance; Better product quality; Employee involvement.**

Many of the modules in Operator are developed in close cooperation with our customers and have been tested intensively in live environments – they compare favorably with “Best-of-breed” solutions. The main benefit with Operator is however the **WIDTH** of functionality and the **INTEGRATION** between the individual modules. Some examples are:

- Integration between Time & Attendance and Job Reporting enables the possibility to compare total attendance time with total time reported on production orders and indirect time for an employee for a shift or other period.
- Production reporting and maintenance reporting can be done in the same system with consistent user dialogue.
- Lost time can be analyzed with respect to which products are causing especially high losses of a certain type on a certain machine.
- Scrap can be compared with process values at the time the scrap was produced.
- Labels are printed on the shop floor when needed and only in the amount needed.

### Module Overview

The system setup with Operator between ERP and SCADA / PLC is illustrated below.



The Operator application suite consists of the following modules and functionality:

#### Module - Foundation Platform

- Database model and query tool
- Configuration tool for user dialogues
- Version management tool
- Definition of basic data

#### Module – Dynamic Integrator Engine

- Interface mapping tool
- Engine to execute the defined interfaces
- Log files to monitor interface performance and status
- Ability to buffer Operator transactions
- Inboxes to monitor/debug received data
- Outboxes to monitor/debug data send from Operator
- Views of imported data

#### Module - ERP Connectors

- Standard mappings for M3
- Standard mappings for SAP

#### Module - Scheduling

- View of current schedule and status in Gantt chart
- Manual move of operations in time
- Manual move of operations between machines

## Module - Work Lists

- View of work lists for machines or machine groups
- Access to production order work list
- Graphical status indicators
- View of BOM for an operation/order
- Notes on operation, order or machine level
- Manual sequence planning in the near horizon

## Module – Document Viewer

- Database to store links to documents
- View of any linked documentation (e.g. drawings)

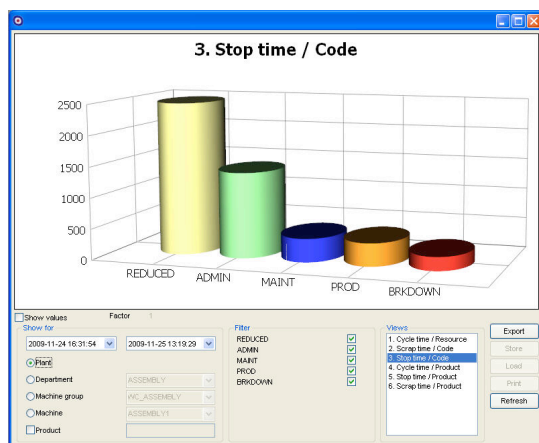
## Module - Time & Attendance

- Definition of employees, meeting profiles etc.
- Employee absence planning
- Employee clock-in and clock-out on the shop floor
- Follow up reports and correction handling
- Calculation rules for salary input

## Module - Job Reporting

- Reporting operation status
- Reporting machine time usage
- Reporting manpower time usage
- Reporting quantities produced
- Reporting quantities scrapped including reason codes
- Reporting bi-products and co-products
- Reporting material usage
- Reporting scrap on incoming materials
- Reporting indirect manpower time
- Checks against employee clock-in and clock-out
- Follow up reports

## Module - Machine Status Reporting



- A graphical view of the machine status during a shift
- Automatically collection of status from PLC
- Possibility to manually report status
- Manual assignment of reason codes and notes

- Configuration tool to setup connections for OPC
- On-line report showing status for a list of machines
- Pareto report to identify biggest problems
- Follow up reports on reasons codes
- OEE (Overall Equipment Effectiveness) report

## Module - Traceability

- Link incoming materials with outgoing products
- Generation of lot numbers and serial numbers
- Traceability tree view

## Module - QA Sample Testing

- Setup of test specifications and sample plans
- In-production sample testing and reporting
- In-production sample collection for laboratory testing
- QA work list for laboratory sample testing
- Follow up on QA test results

## Module - Forklift Control

- Setup of forklift service areas
- Raw material handling and movements
- Movement of materials from stock to machine
- Movement of goods from machine to stock
- Picking of finished goods for distribution
- Location stock counting
- Follow up on fork lift activities

## Module - Maintenance Reporting

- Show preventive maintenance orders
- Reporting on maintenance orders
- Create new breakdown maintenance orders

## Module - Label Printing

- Graphical design of labels
- Flexible query of label information
- Trigger of label print at all key events in Operator
- Customer specific labels
- Support of GS1 barcodes (former EAN)
- Print to normal laser printers
- Print to label printers
- Print to label software

## Module - Serial Input Handling

- Event handlers on all relevant user dialogues
- Logic to interpret input from a barcode scanner

## Module - Custom Report Access

- Support for Crystal Reports
- Support for MS Reporting Services
- Configuration tool