

Solution Capabilities Guide

SYSPRO Manufacturing Operations Management (MOM)

Product Version 2019 R1

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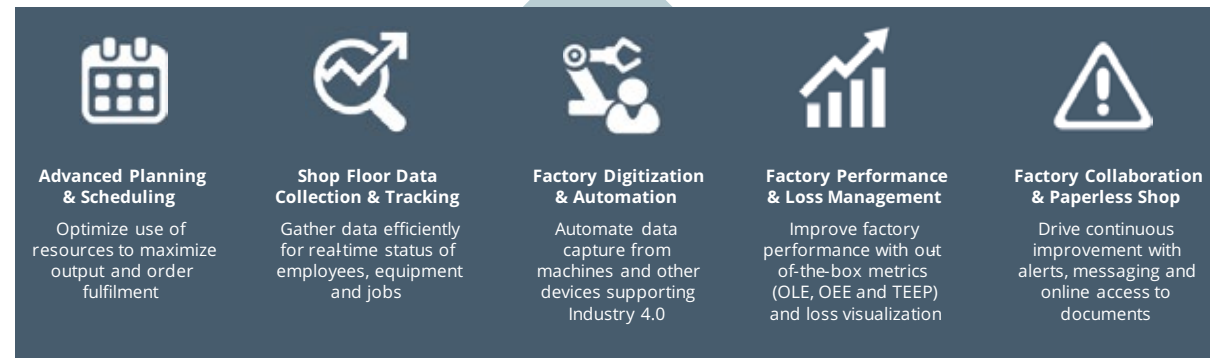
Platform Overview

For manufacturers with between 50 to 1000 employees, SYSPRO Manufacturing Operations Management (MOM) is a low cost, quick start, next generation manufacturing operations solution with a proven track record that will simplify and automate the management of your factory. By extending and enriching your ERP system this integrated solution will unite your planning and production process to help you quickly and easily create flow, measure performance, connect machines and increase your output and margins through the elimination of loss.

SYSPRO ERP Integration

Certified integration with today's leading ERP systems

SYSPRO
Manufacturing
Operations Management



THIRD PARTY

Payroll, WMS, QMS, SPC, SQC, SCADA, CMMS

MACHINE INTEGRATION

Over 140+ native drivers to the most common PLC/IO devices

Core Features

- Designed for job shop, batch production, production line and mixed mode environments
- Closed-loop, fully integrated solution aligned to international standards for manufacturing operations management IEC 62264-3 and ISO 22400
- Supports Lean Six Sigma manufacturing initiatives and methodology (DMAIC)
- Provides key manufacturing performance indicators and loss analysis out of the box
- Realized as a mobile ready web application with a powerful desktop-based advanced planning and scheduling (APS) component
- Accessible via any device, anywhere with multi language and multi time zone support
- Supports touch screen oriented (HMI) and factory automated (IOT) data collection
- Runs from a Microsoft SQL backend with Microsoft Windows domain authentication and security
- Seamless, flowless, bi-directional integration with your SYSPRO ERP using approved APIs
- Can be integrated to third party software: payroll, label printing, QMS, DMS, PMS and others
- Can be deployed as an on premise or hosted solution
- Can be installed and made ready for use quickly
- Lightweight and highly configurable

SYSPRO Manufacturing Operations Management (MOM)

Version: 2019 R1



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3 Factory Digitization & Automation

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Advanced Planning & Scheduling

1.1 Resource definition and management

- Primary (machines, employees) and secondary (tools) resource import from SYSPRO ERP
- Shift calendars and custom activities: working, lunch, breaks, maintenance, etc.
- Variable resource availability definition on hourly, daily or weekly basis
- Easy shift maintenance including planned/unplanned maintenance, public holidays etc.
- Alternative resource management
- Primary and secondary constraint management

1.2 Detailed scheduling

1.2.1 Multiple resource scheduling including:

- Machine scheduling
- Labor scheduling
- Tool scheduling
- Maintenance scheduling

1.2.2 Customizable loading of scheduling demand

- Production jobs
- Sub jobs
- MRP jobs
- What-if jobs
- By period, job status, planner or equipment

1.2.3 Powerful grids and views for job prioritization

- Job, sub-job, operation and raw material views
- Data filters, grouping and sorting
- Customizable fields, mappings and naming
- Unlimited job markers and user defined fields
- Data exports to excel

1.2.4 Customizable workflows for identification of scheduling demand and priority (e.g. urgent, unscheduled, past due)

1.2.5 High resolution calendar-based Gantt graphical planning board

- Detailed visibility from minutes to weeks
- Color coded shift and time patterns
- Visibility of schedule, resource utilization and time phased resource consumption

Visibility of schedule execution

1.2.6 Manual and auto scheduling of individual operations, sequenced operations within a job and sequenced jobs within sub job hierarchies

- Parallel operations scheduling
- Scheduling with move and queue times
- Schedule with overlapping operations (quantity and percent)
- Schedule run, start-up, setup, wait and teardown activities
- Outside process operation scheduling

1.2.7 Forward and backward auto scheduling with rule and priority-based scenarios for scheduling optimization

- Schedule optimization with Grid field-based grouping
- Schedule optimization with Grid field-based cascade grouping (i.e. schedule by color: red, green, blue; then by shape: round, rectangle, stripe.)
- Schedule optimization with custom priority-based grouping
- Schedule optimization with group sequencing
- Schedule optimization with group dependency linkages

1.2.8 Drag and drop scheduling with enhanced impact behaviors

- Autofit
- Auto shift with replace and move options
- Schedule around

1.2.9 Semi-automatic reschedule of late operations with autofit, shift, replace, move and schedule around options

1.2.10 Fixed jobs and period fencing (pinning)

1.2.11 Alternative resource scheduling with item/operation-based constraints

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1.2 Detailed scheduling (cont.)

- 1.2.12 Variable resource constraint consumption strategies
- 1.2.13 What If and Capable to Promise (CTP) scenarios for capacity and materials
- 1.2.14 Dynamic scheduling and execution alerts
 - Dynamic visualization of execution progress
 - Running late/early visualization with hours and percent calculation
 - Change tracking by scheduling action
 - Schedule early and schedule late visualization

1.3 Material planning and availability analysis

- Dynamic time-phased stock consumption and replenishment calculation
- Dynamic job-based availability with good to go, shortage and partial shortage indicators
- Detailed BOM drilldown with component availability, shortage and partial shortage indicators
- Detailed BOM component time-phased stock movement analysis
- Material availability in What If scenarios
- Material reservation and exclusions
- MRP overview & detailed stock movement analysis (on the fly)

1.4 Capacity planning

- MPS capacity charts and reporting
- Overall, weekly or monthly capacity plan
- Capacity plan drill down to regular, MRP and forecast jobs

1.5 Publishing and dispatching

- Real-time update of SYSPRO ERP manufacturing data based on a finite capacity based schedule
- Planning dashboard publishing with drillable loading and order fulfillment analysis
- Production schedule Gantt view publishing with online execution analysis
- High level and detailed live and trended equipment loading analysis
- Online jobs status view
- Materials requirement lists by work center and machine schedule
- Work center and machine detailed production plans
- Printable production plan, shop packet and late delivery reports
- Real-time dispatching of production plan to shop floor terminals

Shop Floor Data Collection & Tracking

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2.1 Data acquisition

2.1.1 Employee time and attendance clock in/out (i.e. start/end day)

2.1.2 Real-time data collection from employees, crews, equipment and equipment groups using:

- Touch screen based (HMI) for manual start-stop data collection
- Automatic data collection (IOT) from a digitized factory
- Combination of automatic (IOT) and manual (HMI) data collection
- Barcode entry

2.1.3 Optional timesheet data entry

2.1.4 Optional custom integration with payroll and/or HR systems

2.1.5 Support of data collection from multiple time zones

2.2 Terminal configuration

2.2.1 Configurable web based human-machine interface (HMI)

2.2.2 Fully customizable functional and graphical terminal behaviors

- Entrance terminals
- Factory terminals for employees and equipment
- Shared and dedicated terminals

2.2.3 Visualization of live job and operational progress and execution statistics

- Real-time publishing of the production plan to factory terminals
- Live execution statistics by shift at employee and equipment level
- Terminal based OLE and OEE key performance indicators

2.2.4 Data capture and transaction management options

- Customizable process parameters (weight, pressure, etc.)
- Customizable activity classification codes
- Real-time generation or accumulated transaction control

2.2.5 Manual, barcode and RFID terminal access with optional password protection

2.3 Job management

2.3.1 Job selection

- Start/end job by an employee, crew or equipment
- Select from jobs list (with option to pre-filter)
- Select from scheduled job list by terminal – machine
- Select from an enforced schedule by terminal - machine
- Select by scanning a barcode

2.3.2 Job transaction

- Operational completion including warehouse/bin/serial/lot control
- Operational and job scrap reporting including scrap reason codes
- Job completion (finished good) including warehouse/bin/serial/lot control
- Tracking of rework related activity

2.3.3 Job labelling

- Contact your regional office for recommended solutions

2.3.4 Production issue management

- Support of Six Big Loss analytics
- Manual issue creation based on custom values
- Semi - automatic issue creation based on slow or fast performance
- Automatic issue creation based on predefined alerts and thresholds

2.4 Time management

2.4.1 Execution of single and multiple jobs at a time

2.4.2 Variable time split scenarios in multi job environments

- Even time split
- Proportional time split
- No time split

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2.4 Time management (cont.)

2.4.3 Crew control (Start/end jobs or downtime for entire crew)

2.4.4 Downtime and non-productive time management

- Start/end non-productive and down time (employee, crew, equipment or equipment group)
- Differentiation between non-operational, non-productive, direct and indirect activity
- Unlimited, customizable non-productive codes
- Posting of non-productive time to SYSPRO ERP

2.4.5 Scheduled events, i.e. auto break or lunch deduction; end of working shift

2.5 Inventory management

2.5.1 Material issues including warehouse/bin/serial/lot control

- Single component issues
- Multiple component kit issues
- Backflush based on completed operational quantity and scrap

2.5.2 Material reject including reject reason codes

2.5.3 Warn or prevent controls for:

- Over/under production
- Over/under material issues
- Completion while open remaining quantity exists
- Serial/lot/bin control
- Scrap/reject reason code enforcement
- Starting an operation while the previous one has not been completed or started

2.6 Real-time status tracking

2.6.1 Live execution dashboard

- Employee and equipment tracking

- Order management indicators with drill downs
- Production output planned vs actual statistics
- Real-time and trending OLE and OEE metrics

2.6.2 Live employee and equipment status

- Card and list views
- Resource photo identification
- Color-coded productive, non-productive or downtime indication
- Visualization of overall daily statistics
- Visibility of current jobs and jobs progress
- Visibility of OLE/OEE with supporting metrics
- Live loss visualization and classification
- Live visualization of production issues and alerts
- Drill down for detailed information (current activity; progress versus schedule; history of alerts and production issues)

2.6.3 Live job status

- List of open jobs with real time execution analysis
- Indication of open production issues related to a job
- Drill down to job card for detailed analysis
- Overall job execution statistics
- Operations execution statistics
- Raw materials consumption
- Production issues related to a job
- File, link and online-form attachments
- Drill downs to sub job hierarchies

2.7 Performance management

2.7.1 Dashboard with key metrics and statistics

- OLE/OEE: availability, performance and quality
- Loss visualization and classification

Shop Floor Data Collection & Tracking

2.7 Performance management (cont.)

- 2.7.2 Detailed employee and equipment performance analysis
 - Summarized execution statistics by day, week or month
 - Planned vs actual productive time
 - Direct vs indirect downtime
 - Good vs bad parts count
 - OLE/OEE key performance indicators
- 2.7.3 Alerts and production issues visibility

2.8 Supervisory control and administration

- 2.8.1 Management reports for consolidated tracking
 - Attendance (payroll) vs activity (transactions) reconciliation and adjustment
 - Calendar view of resource availability with productive, non-productive and total time visibility
 - Daily activity audit trail
 - Custom configurable pivot reporting

2.8.2 Transaction control & management

- Edit/delete transactions generated from shop floor terminals
- Create new transactions directly in transactions review
- Approve transactions prior to posting to SYSPRO ERP
- Configurable rules to drive automatic transaction approval
- SYSPRO ERP posting workflow management
- SYSPRO ERP posting reversals with audit trail
- Management of SYSPRO ERP posting errors

2.8.3 Quick timesheet data entry for handling multiple employees

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3.1 Industrial connectivity

3.1.2 140+ native drivers to the most common PLC/IO devices including:

- Allen Bradley
- Siemens
- Fanuc
- Honeywell
- Mitsubishi
- Toshiba
- IFM
- GE
- Yokogawa

3.1.3 Support of industrial automation protocols:

- OPC; MTConnect
- Proprietary protocols - GE NIO, SuiteLink, FastDDE
- IT protocols - MQTT, REST, ODBC and SNMP

3.2 Automatic data collection from digitized equipment

3.2.1 Equipment state: running, not running, off

3.2.2 Output: good and bad quantities including scrap/reject reason

3.3 Semi-automatic data collection from digitized equipment

3.3.1 Combination of machine data (IIoT) and data entered manually via terminals (HMI)

- Job identification and assignment
- Operational quantity
- Operational scrap including reason code
- Equipment downtime with custom classification
- Live assignment of completion and scrap to active running jobs on equipment
- Live equipment tracking, including, status, OEE analysis and loss profile breakdown
- Live equipment alerts and issue logging

3.4 Data management

- Live or controlled data posting to ERP/PLM systems
- Data collection from multiple geographical facilities
- Data historian

Factory Performance & Loss Management

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4.1 Factory performance analysis

4.1.1 Live factory dashboards with supporting metrics for Overall Labor Effectiveness (OLE), Overall Equipment Effectiveness (OEE) and Total Effective Equipment Performance (TEEP)

4.1.2 Dedicated equipment loading dashboard with actual, averaged and trended analysis

- Loading loss profile
- Categorized qualitative and quantitative loading metrics
- Detailed analysis by individual equipment

4.1.3 Dedicated employee and equipment availability dashboard with actual, averaged and trended analysis

- Availability loss profile breakdown
- Categorized qualitative and quantitative availability metrics
- Detailed analysis by individual employee or equipment

4.1.4 Dedicated employee and equipment performance dashboard with actual, averaged and trended analysis

- Performance loss profile breakdown
- Categorized qualitative and quantitative performance metrics
- Detailed analysis by individual employee or equipment

4.1.5 Dedicated employee and equipment quality dashboard with actual, averaged and trended analysis

- Quality loss profile breakdown
- Categorized qualitative and quantitative quality metrics
- Detailed analysis by individual employee or equipment

4.2 Employee performance analysis

- Overall dashboard with key statistics for actual, averaged and trended OLE analysis
- Detailed OLE analysis by employee
- Detailed OLE analysis by period: daily, weekly and monthly breakdown
- Detailed activity type (diversions) analysis by period: daily, weekly and monthly breakdown
- Detailed calendar view of employee availability with productive, non-productive and total time visibility: daily, weekly and monthly breakdown

4.3 Equipment performance analysis

- Overall dashboard with key statistics for actual, averaged and trended OEE analysis
- Detailed OEE analysis by equipment
- Detailed OEE analysis by period: daily, weekly and monthly breakdown
- Detailed activity type (diversions) analysis by period: daily, weekly and monthly breakdown
- Detailed calendar view of equipment availability with productive, non-productive and total time visibility: daily, weekly and monthly breakdown

4.4 Product analysis

4.4.1 Actual and trended product performance analysis

- Average product performance by employee and equipment
- Detailed stock code/operation performance analysis with drill-down to daily, weekly or monthly breakdown
- Calculated cycle times by stock code/operation

Factory Performance & Loss Management

4.4 Product analysis (cont.)

4.4.2 Actual and trended product quality analysis

- Average product quality by employee and equipment
- Detailed stock code/operation quality analysis with drilldown to daily, weekly or monthly breakdown
- Calculated scrap factor by stock code/operation

4.5 Loss visualization

- Loss management dashboards and visualization of employees and equipment
- Breakdown and visualization of plant loss from calendar hours to effective hours
- Loading loss visualization of planned downtime
- Availability loss visualization of unplanned downtime
- Performance loss visualization of reduced speed and minor stoppages
- Quality loss visualization of production rejects (i.e. scrap reasons)
- Drilldowns to detailed and summarized raw data

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5.1 Instant messaging

- Messaging between employee and higher-level management
- Rich text format messaging with optional email message delivery
- In-application or email alert delivery
- Message notifications

5.2 Configurable alerts

5.2.1 Automated alert creation and tracking of manufacturing process abnormalities

5.2.2 Multiple process measurement by single resource or organizational groups

- Availability
- Performance
- Quality
- Downtime duration
- Scrap reason
- Shift duration

5.2.3 Configurable thresholds

5.2.4 Custom measurement schedules

5.2.5 Automatic designation of alerts based on organizational structures

5.3 Issue management

5.3.1 Simple production issue creation and notification

- Automatic creation of production issues based on exceeded tolerances
- Manual creation of production issues requiring further action
- Automatic notification of issues based on organizational structures

5.3.2 Integrated workflow and insight of production issues

- Classification of issues based on Six Big Loss or custom values
- Assignment of issues for corrective and preventative action
- Tracking of corrective and preventative action activity
- Resolution of corrective and preventative action for historical analysis

5.4 Paperless shop

5.4.1 Easy access to static files, simple forms supporting online:

- Assembly instructions
- CAD drawings
- Basic data capture with simple forms
- Quality control checks
- Instructional videos
- Other

5.4.2 Link to document management systems for versioning and audit trails

5.4.3 Associate with multiple record types including:

- Job
- Operation
- Employee
- Equipment
- Item

5.4.4 Document library for centralized maintenance

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6 Administration, Security and Connectivity

6.1 Administration and accessibility

- Unlimited APS desktop client installs for environment with multiple production planners
- Secure, web-based, configurable SFDC terminals for operators and team leads
- Any device-anywhere access of factory schedules, alerts, messages, documentation and performance analysis
- Separate IT and factory administration settings for simple and secure user, resource, terminal and alert maintenance

6.2 Information sharing and security

- Integration with Microsoft Active Directory for single sign on
- Multi factor authentication for workbench employees (e.g. pincode entry required)
- Information access control by organizational group (vertical and horizontal)
- Role-based control for data security, ownership and responsibility
- Easy to understand dashboards with powerful drill downs
- Real time manufacturing process visibility across the organization
- Online production plan publishing with plan enforcement options

6.3 In-app integration

6.3.1 Easy to configure webhooks for linking to external applications for

- Electronic 'attachment free' shop travelers, work instructions and custom form information
- Label printing services and printers
- Custom web-based reporting (SSRS, Crystal reports, other)
- External document management systems
- Video instructions and tutorials
- Quality management systems

6.4 Application extensions

6.4.1 Optional custom integration to resource management software (e.g. Payroll, Time & Attendance):

- Contact your regional office for recommended solutions

6.4.3 Optional custom integration to quality management software (QMS, SPC, SQC, CAQ):

- Contact your regional office for recommended solutions

6.4.4 Optional custom integration to inventory management software providers (e.g. Label Printing, WMS, Demand Management):

- Contact your regional office for recommended solutions

6.4.5 Optional custom integration to preventative maintenance software providers (CMMS, PAMS):

- Contact your regional office for recommended solutions

6.4.6 Optional custom integration to product lifecycle management software providers (PLM):

- Contact your regional office for recommended solutions





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