

Manufacturing Operations Management

Software evolution for your manufacturing revolution

SMARTMANAGER

SCHEDULE



PUBLISH



COLLECT



TRACK



ANALYSE



IMPROVE

Increase Productivity by Minimising Loss to Lower Production Costs

Smart Manager Manufacturing Operations Management (MOM) helps you revolutionise your company to gain competitive advantage in today's market without having to change your core systems. By extending and enriching your existing ERP or PLM system you can quickly and easily create a Manufacturing Execution System (MES) that meets your specific industry requirements.

Smart Manager MOM/MES has been formed around the globally recognised standard for Manufacturing Operations Management (IEC62264) and provides a single solution for:

- Advanced Planning and Scheduling
- Shop Floor Data Collection and Tracking
- Factory Digitisation and Automation
- Factory Performance and Loss Management
- Lean Six Sigma and Continuous Improvement

Helping manufacturers:

- **Measure performance** to drive toward world class standards of operation for overall equipment effectiveness (OEE), total effective equipment performance (TEEP) and overall labour effectiveness (OLE)
- **Increase productivity** and lower costs by minimising loss within the business
- **Optimise operations** through better workflow of core manufacturing activities: schedule, publish, collect, track, analyse and improve
- **Connect machines** and other devices to digitise the factory (Industry 4.0)

Providing answers by resolving the challenges below:

- Provides realistic delivery dates
- Improves on time delivery
- Provides live job status
- Improves accuracy of job costing
- Minimises changeover time
- Reduces downtime
- Reduces cost of manufacture
- Increases productive time of employees
- Increases productive time of equipment
- Eliminates paper from the shop floor

360° View of Production

Smart Manager MOM/MES supports your complete manufacturing life-cycle, providing you with a 360° view of your production. In addition, the solution also enables you to automatically connect with machines in order to read data without manual inputs.

- **Schedule** - quickly and accurately schedule to maximise order fulfillment and resource utilisation
- **Publish** - publish schedules and job lists to the shop floor and other departments easily
- **Collect** - collect data from the shop floor from humans And machines
- **Track** - gain real time visibility of employees, equipment and jobs
- **Analyse** - access out of the box analytics for Six Big Loss, OLE, OEE and TEEP
- **Improve** - drive continuous improvement with alerts, messaging, online documents and more



Any Device Anywhere

Smart Manager MOM/MES makes use of the latest technologies to provide a modern and intuitive, browser-based user interface, allowing you to gain visibility over any stage of the manufacturing process, from any device.

Smart Factory

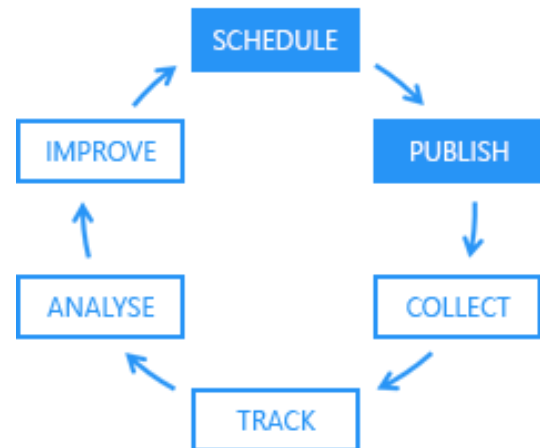
LYNQ's innovative solution enables you to connect equipment to digitise your factory by collecting data from your machines and other devices automatically. This capability allows Smart Manager to 'talk' to devices, using this data to optimise and streamline the business. In terms of future-proofing your business by embracing industry 4.0, the technology offers the foundation to building your smart factory. By embedding interactive technology in key machines, manufacturers can look to creating more intelligent manufacturing processes - combining humans with machines, resources with processes and systems.

Advanced Planning and Scheduling

Planning and scheduling is a major challenge for many organisations. The variables within processes can make or break a company, and unsatisfactory production planning leads to high operating costs and customer delivery problems.

Smart Manager MOM/MES incorporates an advanced, finite capacity based, planning and scheduling (APS) system allowing you to quickly and accurately schedule while minimising downtime.

The solution enables organisations to create accurate schedules that factor in constraints around tooling, machines, personnel and inventory. Manufacturers are then able to make smarter use of materials and resources helping them deliver to customers fast and in the more cost-effective way possible.



Smart Manager MOM/MES meets all of your production planning and scheduling needs.

- **Visual APS** - define your resources and their available capacity by the shifts that they operate. Create, optimise and share your production schedule online. Publish job lists to your resources for easy data collection.
- **Dashboard** - balance equipment utilisation and order fulfillment to maximise factory output. View your most/least utilised resources, top orders by value and popular products by value.
- **Production Plan** - view the agreed production plan. List and/or print packets. Review progress including hours reported, quantities produced and issues logged to expedite and/or provide delivery information.
- **Equipment Plan** - review the impact of the production plan on your equipment. Drill into each equipment card to view loading detail and expected daily output.

- **Production Status** - review open jobs to check their status. Use progress bars to gain visibility of hours booked, materials issued and overall progress at a glance. Drill to view specific job details including attached documents and issues recorded.
- **Material List** - view specific material requirements by individual resources for today or this week designed to support cell manufacture and for use with mobile and/or tablet devices.
- **Job Lists** - view job lists by resource groups for today or this week designed for use with mobile and/or tablet devices.
- **Production History** - view activity history in relation to both open and closed jobs.

Benefits Include:

- Flexible and simple to use
- Easily create, update and share schedules
- Shorten delivery times with smarter use of materials and resources
- Give accurate customer promise dates by quickly simulating scenarios based on real capacity



Shop Floor Data Collection and Tracking

Front-line managers need complete visibility and control of the shop floor to prevent problems such as overruns, bottlenecks, downtime, poor employee or machine performance and excessive scrap. Collecting this data by conventional methods can be complicated, time-consuming and expensive.

LYNQ's Manufacturing Operations Management solution incorporates shop floor data collection (SFDC) from your employees and equipment with options to automatically connect your machines in order to read data without manual inputs, helping to digitise your factory (Industry 4.0).

The solution provides manufacturers with real-time shop floor visibility, helping to eliminate manual processes and increase productivity. It enables you to execute production plans while simply and accurately capturing and measuring activities on the factory floor such as labour hours, materials issued, quantities reported, scrap and more.



Smart Manager MOM/MES meets all of your shop floor data collection and tracking needs:

- **Workbench** - collect data both on and off the shop floor from your employees or equipment in real-time using a "stopwatch" style of recording for accuracy. Data recorded here is used to support the calculations of overall labour effectiveness (OLE) and overall equipment effectiveness (OEE).
- **Connect Equipment** - digitise your factory by collecting data from your machines and other devices automatically.
- **Dashboard** - high level view of your orders, products, employees and equipment. Select specific employees and equipment to view status and performance for a selected time period.
- **Employee Status** - at a glance live view of your employees, what their current status is, what they are working on, and how they are performing during their shift. Drill down into each employee card for a detailed view. Use status indicators to access their workbench to help with clocking and other management issues.
- **Job Status** - review open jobs to check their status. Use progress bars to gain visibility of hours booked, materials issued and overall progress at a glance. Drilldown to view specific job details including attached documents and issues recorded.

- **Review** - review (edit, delete, add) and/or approve all transactions generated via the workbench or entered from timesheets. Automated, scheduled posting of approved transactions to LYNQ for financial analysis. Manual "sync now" option also available. Export to payroll systems (optional).
- **Employee Performance** - detailed analysis of an individual equipment performance with supporting detail including audit trails and a record of the issues encountered.
- **Equipment Performance** - detailed analysis of an individual equipment performance with supporting detail including audit trails and a record of the issues encountered.
- **Management Reports** - analytics associated with employee availability (uptime/downtime) for management purposes. Includes daily clock hours reconciliation and option to create custom management reports using pivot tables.

Benefits Include:

- Simple and accurate data collection
- Real time status tracking of jobs, employees and equipment
- Powerful employee and equipment performance analysis
- Seamless integration with ERP
- Option to export data to your payroll systems



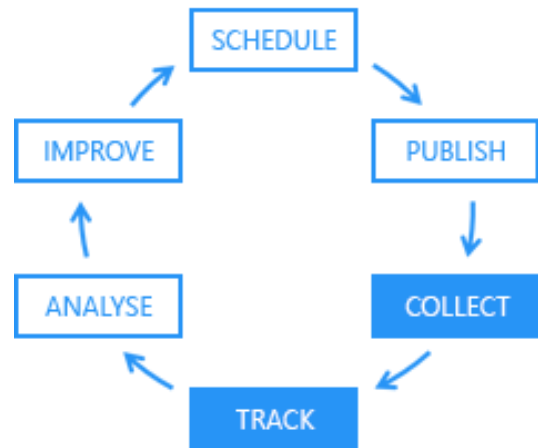
Factory Digitisation and Automation

Helping you take the first steps towards industry 4.0 and the digitisation of your factory.

Smart Manager MOM/MES provides the platform to digitise your factory by allowing you to connect machines, measuring equipment and other devices. You can automatically connect with machines in order to read data without manual inputs.

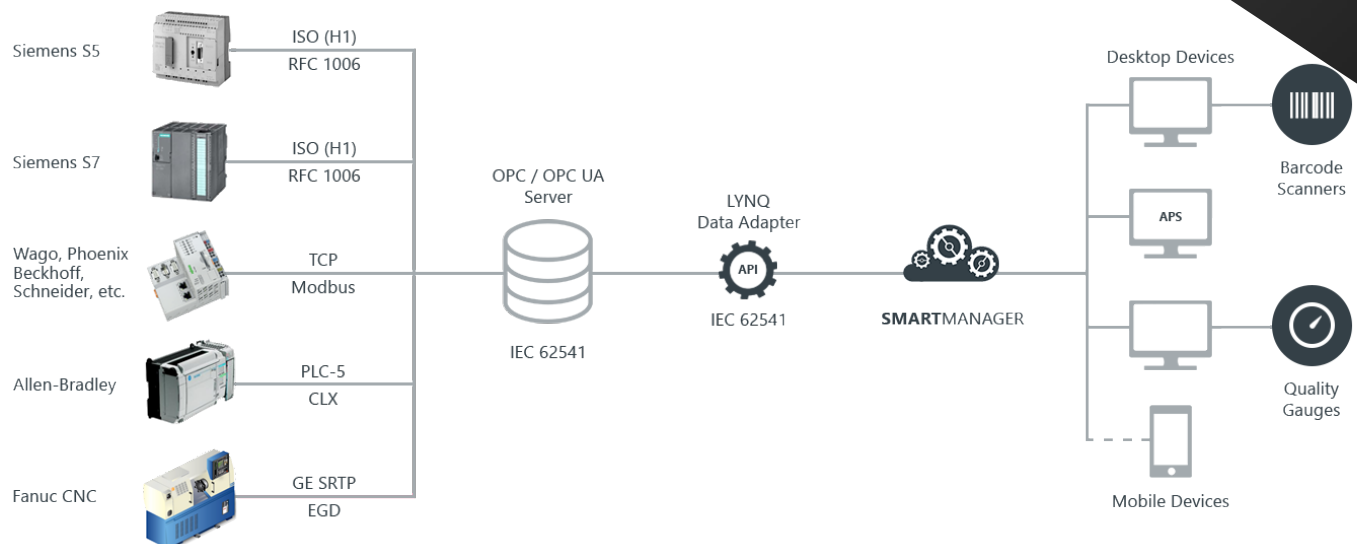
Gain Real Visibility of:

- Start/stop and downtime
- Job assignment
- Operation status (e.g. operation completed)
- Machine status (e.g. warming up; idle; running; down)
- Parts count (total, good and bad)
- Component count (total, good and bad)
- Performance issues (e.g. slow running; equipment wear; component jam)
- Custom values (e.g. temperature; pressure; spindle speed)



How it Works

Depending on whether your machines are already data enabled or not, you will need a sensor capable of capturing data in relation to the activities on the previous page. These sensors provide raw machine data which needs to be recorded centrally before being transformed into readable data.



Smart Manager MOM/MES supports the following protocols and/or specific IO devices:

- OPC UA/DA
- Modbus
- MQTT
- Siemens S7 series devices
- Allen Bradley devices

Smart Manager MOM/MES provides job analytics by combining machine data collected automatically (good quantity, scrap quantity, machine state, etc) with human data that is manually input (job/operation) via Smart Manager terminals. Transactional data is stored within the Smart Manager SQL database in real-time for live status and minute by minute analysis.

Integration Services

Digitisation of your factory requires specialist hardware, software and skill sets. You should ensure that you have the knowledge within your immediate team to maintain and support your day to day operations. Please ask about our machine-device integration services and start connecting your factory today.

Factory Performance and Loss Management

If you can't measure it, you can't improve it...to increase your productivity and lower production costs you need to benchmark your performance and minimise loss within your manufacturing process.

Smart Manager MOM/MES provides out of the box factory performance and loss analytics to allow your organisation to drive to world class standards for overall labour effectiveness (OLE), overall equipment effectiveness (OEE) and total effective equipment performance (TEEP).

The solution utilises Six Big Loss analysis to identify, classify and quantify your loss enabling you to determine the countermeasures that will help to reduce them.

Smart Manager MOM/MES meets all of your factory performance analysis and loss needs:



- **Loss Management** - dashboard realisation of loss across your manufacturing operations with every loss identified, classified (Six Big Loss) and quantified to allow for counter measures to be applied and continuous improvement to be made.
- **Dashboard** - factory level analytics of your equipment showing both OEE and TEEP key performance indicators. Drilldown to supporting metrics and measurement of Loading, Availability, Performance and Quality.
- **Employee Analysis** - detailed analysis of your employee performance. Filter by individual employees or analyse performance for a specific group of employees. Further analyse by date or diversion.
- **Equipment Analysis** - detailed analysis of your equipment performance. Filter by individual equipment or analyse performance for a specific group of equipment. Further analyse by date or diversion.
- **Product Analysis** - output and quality analysis for your products by employee and/or equipment.
- **Loading** - detailed analysis of the loading position of your resources with comparisons to last month and/or quarter to understand trends. Use this to compare your planned uptime with all the time available (calendar time) to gain insight of asset utilisation to support capital expenditure and other management decisions.

- **Availability** - detailed analysis of the availability of your employees or equipment with comparisons to last month and/or quarter to understand trends. Use this to gain insight of your actual uptime compared with your planned uptime and see where unplanned downtime occurs in relation to equipment breakdowns, tooling failures, operator shortages and more.
- **Performance** - detailed analysis of the performance of your employees or equipment with comparisons to last month and/or quarter to understand trends. Use this to gain insight of why your actual run rates differ from your planned run rates and see where performance loss occurs in relation to operator inefficiencies, equipment wear and tear, minor stops from component jams and more.
- **Quality** - detailed analysis of the quality output from your employees or equipment with comparisons to last month and/or quarter to understand trends. Use this to gain insight by resource of where product quality issues have affected your output.

Benefits Include:

- Out-of-the-box analytics
- Lower production costs and higher margins
- Increased productivity and output
- Competitive advantage

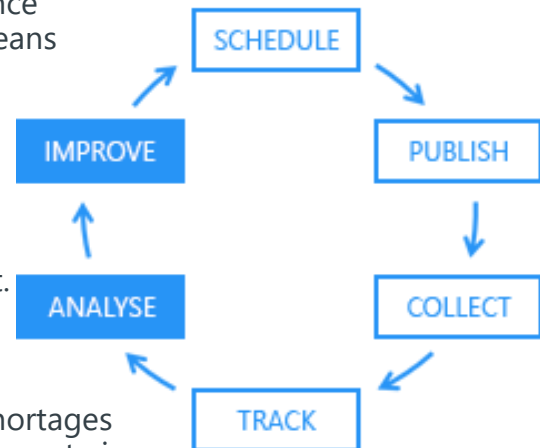


Lean Six Sigma and Continuous Improvement

The Six Sigma core management process is to define, measure, analyse, improve and control (DMAIC). Smart Manager MOM/MES supports this approach by providing Six Big Loss, Loading and other analysis. It not only provides the key performance indicators(KPI's), but also provides the metrics and the means of measurement, out of the box.

This supports your continuous improvement teams and Six Sigma black belts by providing definition on what to measure, the measurement itself and the analysis so that loss can be targeted and the environment brought under control with greater efficiency and productivity as a result.

Alerts and messaging triggered by the data being collected helps to ensure control. The provision of online document control offers a countermeasure to operator shortages involving documentation helping to eliminate and reduce waste in the organisation as a result of paperwork trails.



- **Management Alerts** - receive performance management alerts to improve efficiencies and prevent issues becoming problems.
- **Messaging** - send and view messages to and from the shop floor.
- **Issue Workflow** - view, assign and resolve custom and/or performance related production issues.
- **Paperless Shop** - manage and maintain static attachments or online forms related to jobs, operations employees, equipment. Add hyperlinks to videos and/or document management systems where audit trail or document versioning control is required.
- **Anytime, Anywhere** - access mission critical information whenever and wherever you need it via tablet and/or mobile devices.
- **Safe and Secure** - sign in authentication with full organisational control to restrict information that can be viewed by workgroup or individual.
- **Quality Assurance** - the solution has been formed around the globally recognised standard for manufacturing operations management, IEC62264 providing the tools and analytics essential for effective manufacturing operations management to help you compete in today's market.



About LYNQ

LYNQ is a global provider of manufacturing execution system (MES) software targeted at small to mid-sized manufacturers across a variety of industries.

Our Smart Manager MOM/MES platform connects with your existing ERP or PLM system to offer a unique level of delivery, cost and quality control of manufacturing operations for job shop, batch production, production line and mixed mode environments.

Using latest technologies, our solution can effectively schedule, publish, collect, track, analyse and help to improve both human and machine execution of orders on the shop floor, providing faster delivery and lowering your production costs.

Contact LYNQ

LYNQ LIMITED
Lancaster Court
8 Barnes Wallis Road
Fareham
Hampshire
PO15 5TU

Tel: +44 (0) 1329 800 000
Email: sales@thinklynq.com
Web: www.thinklynq.com

