

**The MES software solution  
for continuous Productivity  
Efficiency improvement**



INDUSTRIAL AUTOMATION SOFTWARE  
**progea**

# Pro.Lean<sup>®</sup>

The software solution for collecting and analyzing **production data** in real-time, to detect and anticipate the production system's weak points and to act on **effective decision** making to **increase productivity and efficiency.**



# MES software technology for open and flexible architectures

Progea offers Pro.Lean<sup>®</sup> as a MES software solution that interconnects the plant floor with the enterprise resource planning (ERP) system to provide KPI and OEE data, calculate machine downtimes, track and schedule production runs.

Every modern company operating in the Industry 4.0 age needs simple and efficient tools to ensure connectivity, data collection, aggregation and analysis, with minimum and rapid return of investment (ROI). The production and manufacturing context, in today's increasingly competitive world, demands efficiency, quality and continuously improving processes according to the "Lean Manufacturing" philosophy and Industry 4.0 guidelines. Automation systems that manage manufacturing production can only be optimized based on real-time data.

The Movicon.NExTTM Pro.Lean<sup>®</sup> module offers maximum efficiency and leverages Progea's vast experience in the industrial automation software sector. Production lines are normally subjected to events that cause their performance efficiency to decline in respect to their potential: malfunctions, downtimes, waste and rejects all contribute to reducing productivity, often causing financial losses to companies and leaving them to deal with the consequences without the ability to apply effective countermeasures. The knowledge of the real-time performance indicators (KPI) allow you to calculate the Overall Equipment

Effectiveness (OEE) values to discover the calculate efficiency of your production plant. It is then easy to understand how a small investment, allowing to acquire knowledge of critical data and to use them to optimize the production efficiency, can lead to a significant increase in business revenues. Even a small percentual increase in performances and loss reductions will generate substantial financial gains. In addition, data management and interconnections to ERP, within the Industry 4.0 enables digitalization of production processes, reduce errors and machine downtimes. Other features such as production Traceability, Scheduling and Maintenance , make Pro.Lean the open and adaptable ideal solution to any production system



# A easy to use and effective MES solution

**Pro.Lean<sup>®</sup> makes your plants more efficient by providing the key performance indicators that allow you to improve your production system's quality and efficiency.**

The KPI indexes, OEE value and production downtime analysis calculated by pro.Lean<sup>®</sup>, will enable your company to maximize production by increasing productivity in the three main areas: Availability, Performances and Quality.

## **Increase Efficiency**

Improving local (machine) and global (line) production efficiency will enable you to make better use of existing production systems and reduce rejects and downtimes. As a consequence, this will reduce plant running costs to satisfy your production plans without needing to rely on overtime work and the threat of delayed delivery deadlines.

## **Reduce Machine Downtimes**

The downtime analysis will enable you to identify and prevent recurring problems in the production process. This will lead to a significant reduction of plants downtime events and associated costs, also allowing reallocation of human resources to more productive tasks.

## **Increase Productivity**

By increasing efficiency and decreasing downtime events, that are caused by loss of production time or breakdown, will enable you to increase the effective productivity rate of the plant.

## **Quality Improvement**

Analysing production data for defective products will allow you to detect and identify the causes, apply countermeasures, reduce rejects, and thus increase product quality and client satisfaction.

## **Production Traceability**

Since production processes have digitalized, it is now possible to record and trace the use of raw materials and semi-finished products throughout the entire production chain. This allows you to manage the components of production batches, the quantities used to meet orders, component codes and archive recorded data in order to track every part of the production batch path throughout the process, from raw material to logistics and warehouse.

## **Production Scheduling**

The interconnection between the ERP systems and the production plant allows you to keep machine availability under constant control and directly set the machines' production requirements, as well as handle priorities and factory floor availability.

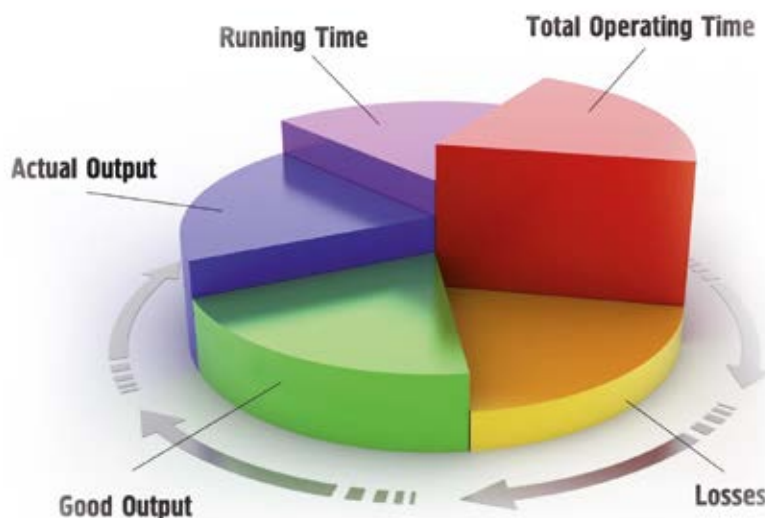


# Increase productivity with KPI and OEE

## Connectivity and data analysis to measure plant productivity according to the Industry 4.0 directives

The OEE is an essential parameter, as a reference indicator for analysing production processes by calculating the overall performance of the production plant and classifying the different production losses according to the three following factors: Availability, Efficiency, Quality. The accuracy of the OEE values depends on substantial amounts of production data collected automatically in real time. Without accurate measurements and access to punctual extraction of production data it would be impossible to ascertain the right interventions needed for improving the production process more efficient. This is why Progea has developed Pro.Lean®, the most cost-effective and easy to use solution. Production line information flows can be managed by being aggregated and placed at the disposal of company managers with great clarity and simplicity.

This tool is essential for closing the gap too often separates the factory floor from the planning and management of production processes. The Pro.Lean® module provides automatic and intuitive management of the “Historian” component for collecting and recording data, the “Dashboard” component for displaying the key indicators (KPI, OEE, Downtime) in real time and Reports for analyzing data collected and archived by date, shift, operator, machine, product and batch. Pro.Lean® offers cost-effective tools for collecting real time information from production flows and analyzing the coefficients of efficiency, using tables and graphs in an open and integrated web-enabled architecture that also enables direct connection to the company IT tools (ERP, SAP).

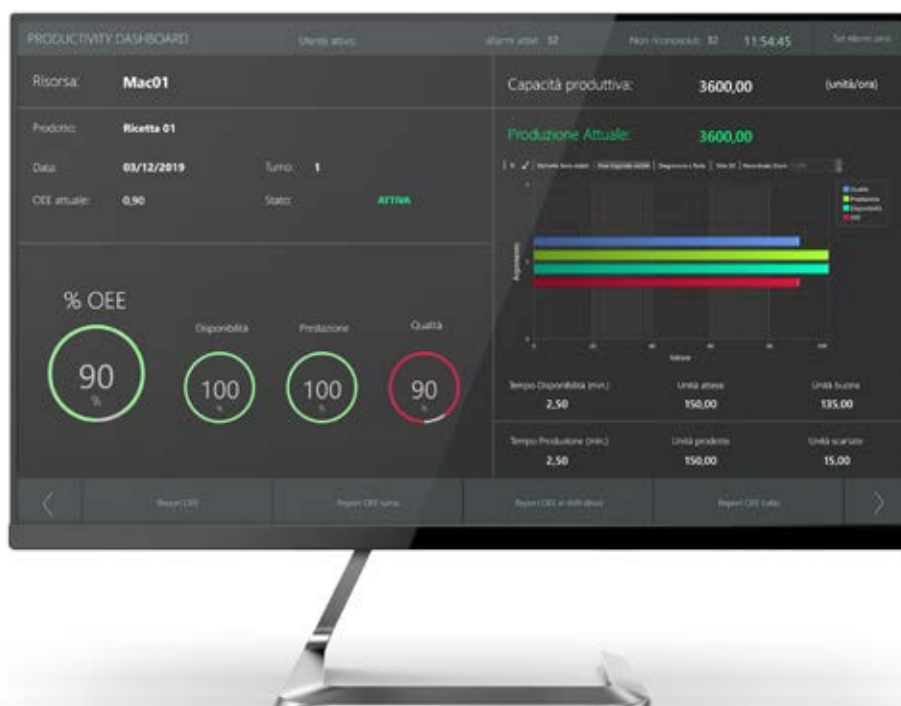


# Dashboards

Efficient, complete, fast and transparent downtime and performance value visualization.

Pro.Lean® has been designed to guarantee perfect visualization of all the performance parameters and indicators collected by the production system using the real-time data dashboard displays and analytical reports. These tools provide clear and accurate data containing all the information needed to achieve reduced production loss and increased business results. By using the Movicon.NExT™ technology combined with the Pro.Lean® module, you will be able to view your company's performance indicators on dashboards displayed on local workstations as well as over the internet by using any HTML5 web browser.

This will drastically cut management, maintenance and licensing costs more than any other OEE system on the market can do allowing you to minimize company investments. The dashboard interface has been designed with the most modern ergonomics requirements in mind and is completely customizable. Its open technology allows you to easily integrate additional screens, animated layouts and any other desired data visualization





# Plant Downtime and Maintenance

## Downtime Analysis and Maintenance Planning to reduce plant downtimes and improve efficiency.

The information managed by Pro.Lean® is essential to allow production managers to improve production assets and machinery efficiency, optimize time and reduce waste.

### Downtime Analysis

Pro.Lean® includes analysis modules that generate statistical analysis of downtime causes based on various configurable reasons. Production managers can refer to this analysis to obtain the vital information they need to recover efficiency with targeted action plans.

### The Statistical Analysis

The Downtime Analysis Module is used to display statistical data relating to production downtimes. Data is graphically represented in classifications of date order, total duration or event frequency. The values are extracted from the historical archives and represented in charts that come with a selection of filters, such as by time range, batch, shift or operator. The charts can be displayed and printed to show statistical data as histograms or with overlapping curves.

### Maintenance Planning

Planned Maintenance management is easy to create using the statistical information, which is automatically available in the collected variables, to schedule set points on each device total activity time or calendar schedule. Maintenance staff are kept informed on the maintenance states and maintenance work is recorded in Audit archiving system. Requested maintenance alarms, or any other event type, can also be notified directly to staff by using the optional Alarm Dispatcher function that sends notifications by email, voice, or push notifications to on-call duty staff.



# Standard Technology that is reliable, scalable and modular

Pro.Lean® is based on standard technology that is reliable, scalable and modular for open solutions that integrate with any architecture.

Pro.Lean® is based on open architecture enabling integration with any control device for production line and machine management. An integrated system must be capable of collecting any field value coming from any PLC, CNC, PAC, Inverters, fieldbus or I/O instrumentation.

## I/O Drivers

The I/O Driver library contains a vast selection of native and integrated I/O Drivers to communicate with control systems (e.g. Modbus, Siemens, Schneider, Rockwell, Omron, Saia, Mitsubishi, Profibus, Profinet, EtherCAT and others).

## OPC UA

The OPC UA standard technology (IEC62541) is supported and native as the platform's information Model. It is supported as both Client and Server for the maximum data integration and openness.

## Networking and data sharing

Vast network connectivity for distributed architectures, or SQL database table sharing with distributed workstations for connecting to any ERP system or SAP business system.

## IIoT Gateway

Communication Drivers for integrating IIoT systems, for example transport layers on public networks. PubNub, OPC UA Azure, MQTT and other Protocols.

## Microsoft SQL Server-based

All process data collected by Pro.Lean® are recorded and archived for subsequent analysis using Data Logger objects that are automatically created by the project configuration wizard. Pro.Lean® can even work without a Microsoft SQL Server™ license in simple projects.

## Data collection openness

The collection of measurements, operating states and alarms, if not already available as digital information from the PLC, may require a local HMI interface on the production system. The Pro.Lean® architecture the ideal solution for connecting human-machine interface displays of any type: local HMI, in networks or over the HTML Web. In this way, any necessity for distributed collection or visualization points will be managed by the integrated features, safeguarding investments and reducing costs avoiding invasive interventions.

## Data Redundancy

Pro.Lean® offers the possibility to manage the Data Redundancy function, by automatically synchronizing historical data on PC systems with redundant hardware and communications permitting its application in "Mission Critical" data collection systems.





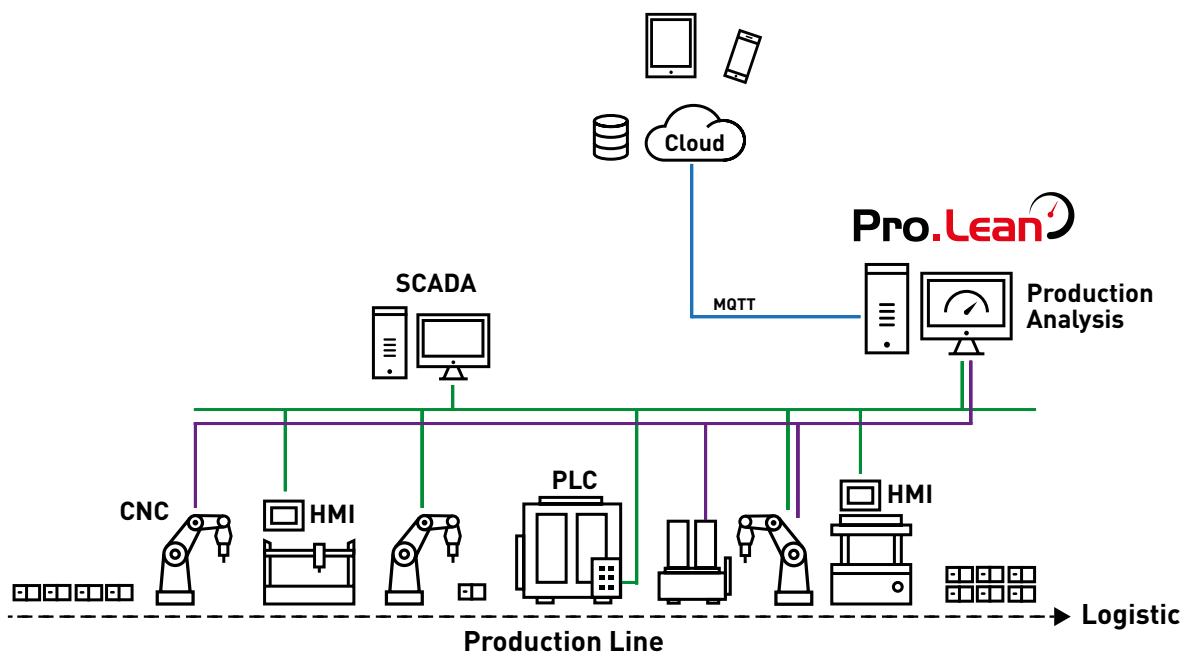


# Fast and safe return of investment

Pro.Lean® can be applied anywhere, in any manufacturing context and existing automation infrastructures, with minimum investment and minimum level of invasiveness.

Pro.Lean® is a “standard” solution that can be used in all production data collection and analysis applications. It can be applied as an onboard machine module or as a production line supervisory module combined with the Movicon™ SCADA/HMI supervisory projects, or in independent and stand-alone architectures applied in existing plants, without changing, modifying or replacing existing control systems. Pro.Lean® can connect to existing PLCs or already available SCADA/HMI by collecting production information in its own databases.

The solution offered by Pro.Lean® also allow those without a main Supervisor to integrate other screens and animated plant layouts to manage and display all the production line information. This has all been designed to reduce your investment to a minimum, without making changes to the existing situation unless absolutely required. It is the best technology available for collecting, managing and analyzing production data.





# Key Features

## Openness

Pro.Lean® is a Movicon functional model and inherits the platform's .NET, XAML, SQL Server™ and HTML5 technology.

## Configuration Wizard

By using a wizard, Pro.Lean® makes it easy for users to select field variables and create data collection databases automatically. With just a few steps, real-time dashboards, calculation databases and analysis reports can all be created automatically.

## Standard

Pro.Lean® is based completely on the most modern standard technology to safeguard your investment.

## Performance

Pro.Lean® guarantees real-time data management and offers a structured data analysis management on databases for big data as well.

## Powerful Historian

Collected data are recorded using Historian objects that store data on SQL Server archive tables with automatic data recycling management.

## Connectivity

Pro.Lean® integrates a library containing a vast selection of communication drivers for connecting to all types of automation devices (Modbus, Siemens, Schneider, Rockwell, Omron, Saia, Mitsubishi, Profibus, Profinet, Ethernet/IP and many others). The drivers include functions for automatically importing tags, remote connectivity with telemetry systems or IIoT. In addition, it offers full connectivity with OPC UA both as Client and Server.

## Ready-to-use and Customizable Reports

Pro.Lean® offers integrated and ready-to-use Analysis Reports of historical data which can be accessed both locally and via web, and that can be fully customized and integrated using the Report Designer.

## HTML5 Web Architecture

Data on the Server can be access by using internet browsers. The performance and security of the HTML5 standard contribute to cost and maintenance reductions. Pro.Lean® offers local and web-based dashboards and reports with real-time data, and allows access to data on the server via internet browsers. The performance and security of the HTML5 standard guarantee cost reduction and maintenance.

## Integrated Connectivity with Movicon™

In addition to interfacing with any supervisory system, Pro.Lean® also offers the great advantage of integration and connectivity with the Movicon.NEXt SCADA/HMI systems.

# Service and Consultancy

## The service, an added value

The Total Cost of Ownership (TCO) of a software platform is also strongly influenced by the quality of related services. Important parameters such as learning times, response times, quality of service and consultancy are generally considered to be the true added value of a software product. Progea services have the quality that only the manufacturing company can guarantee. Training, Assistance and Consultancy guarantee the user in coping with any application or unexpected need, helping to reduce internal implementation and development costs.

Progea is directly present with its offices in Italy, Switzerland, Germany and the United States. Furthermore, an international distribution network guarantees the presence of the Progea™ brand all over the world.

## A solid partnership

Progea software technologies are widespread and used in automation by leading companies in every industrial sector, with over 150,000 licenses installed worldwide. As a demonstration of the quality and reliability of its software products, Progea is proud to have been selected by the major players in the industrial automation sector.

Progea technology is used and distributed, even with product customizations with the customer's brand, by the world leaders in automation.

Do not hesitate to contact us, we will be happy to analyze your needs and offer you the ideal solution, also through the international network of System Integrators who are experts in Progea technologies.

**Progea is available for your every analysis and consultancy need, supporting you in all your Industry 4.0 projects. Contact us for a demo and for any further information:**

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