MovTracer 11 ©

INTEGRATES PLANT FLOOR WITH YOUR BUSINESS

"Having production data
at your complete disposal
in realtime means being
able to recognize
and anticipate weak points
in production systems,
make bottom-line decisions
with confidence to increase
productivity and efficiency."

Manufacturing • Food & Beverage • Chemical • Pharmaceutical • Utilities • Energy • Oil & Gas • Packaging

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INTEGRATES PLANT FLOOR WITH YOUR BUSINESS

Production data acquisition in realtime and monitoring main performances (KPI) allow you to make productivity improvements, reduce loses and increase profits.

Guaranteeing production process information flow in realtime, enterprise wide, from shop floor sensors directly to the company managerial offices, is the true solution for improving productivity efficiency, reducing loses and increasing profits. In fact, the ideal production lies on the real factory machine capabilities of working non-stop at maximum speed, without downtimes or inactivity and product reject threats. Today staying market competitive is paramount but unsustainable if you don't use the right technology.

Production lines will be prone to standstills and will produce defective pieces if the machines are unable to work at their full capacity or meet demands made of them. This is often the case of misinformed factory management on realtime factory floor performances. Even though equipped with OEE indicator knowledge, they still do not have systems that run efficiently to provide productivity improvement. This is where MovTracer©11 steps in, the most simple and affordable solution to manage and aggregate information flowing directly from production lines straight into the hands of company managers, laid out in the plainest and simplest way ever. An essential aid to close that gap between shop floor productivity, managerial offices and improve enterprise-wide resource planning. Based on years of tried and tested Industrial Connection and Data Collection technology experience, Progea have come up with the best solution for plant floor and business integration with the MovTracer© platform.

A 'must have' for any manufacturing company. MovTracer© comes with a suite of historian modules which can be selected and used for collecting data, and where key indicators (KPI, OEE) can be represented in displays using an "Analyst Web-based" component to analyse data and production "dashboards". Thanks to the MovTracer© solution, manufacturing companies can truly discover the real productive capacity of their enterprise systems, machines and production lines, easily pin-point criticalities and imperfections and get the right information needed to improve efficiency. Enhancing performances to become more efficient will improve productivity, add more value to production system activity, reduce investment recovery times and re-enforce company competitiveness. Globalization today means manufacturing companies cannot risk being slack and non-competitive if they want to survive. Staying competitive, strategic steps must be taken to reduce production costs by improving production machine use and flexibility to manufacture top quality goods. MovTracer© has been created just for this by offering cost contained tools designed for collecting realtime information flowing from manufacturing points, connecting company IT tools (ERP, SAP) directly to production lines and analysing coefficient productivity processes using tables and charts in an integrated and open architecture through web access-based solutions.

Plant Intelligence solutions to improve productivity.

The most innovative and open software technologies to safeguard your investment.

MovTracer© is the best solution for supporting decision-making processes. Thanks to MovTracer© you can measure performances in realtime, by collecting and aggregating production process data deriving from different sources at factory floor level (PLC, HMI, SCADA) and analyse realtime situations with all relevant data showing general production indications, independently from the original data source. Production managers can rely and react on this information to determine the best measures to take and put them into effect immediately to improve performances. MovTracer© offers safe and efficient connectivity tools, capable of collecting information directly from its point of origin. Information can be aggregated and calculated using the pertinent configurations and control logic. Data can be recorded on relational databases using a powerful high performing ODBC Manager that works independently no matter what historical log format therefore easily adaptable to any client standard (i.e. SQL Server™, Oracle™, MySQL™,

SAP™, AS400™, etc.). Furthermore, purposely-designed ODBC connectors consent bidirectional connections with different managerial systems, permitting you to create MES solutions with ease, such as managing or launching orders or production batches or synchronizing and coordinating processes and resources. MovTracer© also includes powerful report tools for processing recorded data and producing analyses and statistics, all freely configurable locally or in distributed architectures. The KPI and OEE modules can be used to get the main productivity indicator representations in accordance with the standard requirements, which nevertheless are always customizable. The KPI and OEE indicators can be visualized in web architecture using normal internet browsers. Progea's company policies are clearly evident in the MovTracer© solution to guarantee simple, open and reliable solutions based on the best software technologies around today.
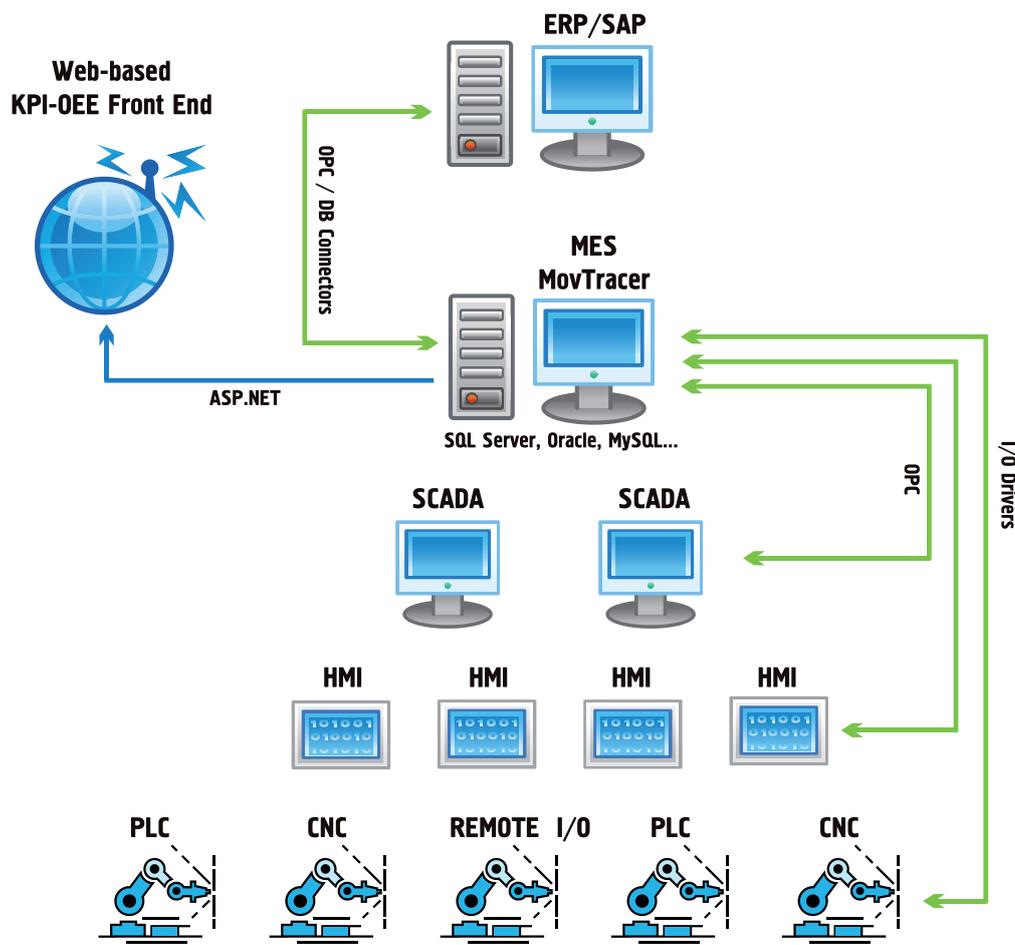
Flexible and open architecture.

Thanks to MovTracer©, you can insert your MES system directly into your business by connecting it to your production lines without having to worry about which connection modalities to use. MovTracer© actually provides you with various integrated solutions which consent connectivity towards production process systems through I/O drivers designed for connecting

PLCs, CNCs, Remote I/Os directly, and consents connectivity via OPC Client or Server towards HMI or production line pre-installed SCADA systems. Therefore data can be collected without effecting investments and without the need for additional installations on the production side. Data is then aggregated and stored on Relational DB tables tailored to your needs and preferences (i.e. SQL

Server, ORACLE, MySQL). OEE and KPI performance indicators can be displayed locally or by remote control thanks to MovTracer's© web architecture. This system also consents full bidirectional connectivity with ERP or SAP systems for total information flow control throughout the shop floor to the director's office, a complete enterprise-wide coverage.

ERP/SAP

Web-based
KPI-OEE Front End

OPC / DB Connectors

MES
MovTracer

ASP.NET

SQL Server, Oracle, MySQL...

SCADA   SCADA

OPC

I/O Drivers

HMI   HMI   HMI   HMI

PLC   CNC   REMOTE I/O   PLC   CNC

Real-time information to find and remove inefficiencies to improve productivity.

MovTracer will make your machines work more efficiently thanks to key performance indicator analysis allowing you to reduce losses and increase profits.

Thanks to the KPI indicators (OEE and Downtimes) calculated on production data collected by MovTracer©, your company can maximize productivity by increasing production in the three main areas relating to Availability, Performances and Quality parameters.

Increase Efficiency
Thanks to local and global production efficiency improvement, you can now exploit the capacity of your existing machine productivity, reduce scrap, improve efficiency, enabling you to cut down on management costs and bring production plans to term successfully and deliver on time without requiring extra staff.

Reduce Machine downtimes
With the help of analysing machine stoppages, you can eliminate foreseeable, repetitive problems causing them. This will reduce shop floor downtimes amounting to a significant reduction in management costs allowing you to reorganize human resources more productively.

Increase Production
By increasing efficiency and reducing production inactivity, will increase the real capacity potential of your shop floor production lines.

Improve Quality
Thanks to the production data and scrap production analysis, you can easily track down the causes for production defects, remove them to increase production quality that will definitely satisfy customers.
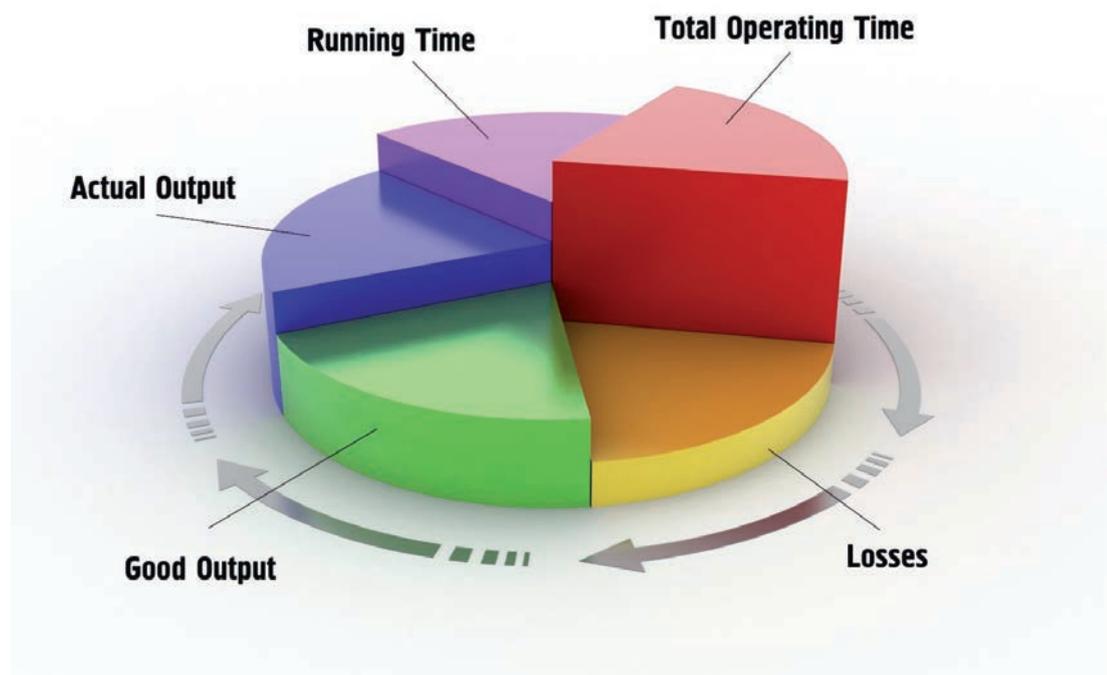
Connectivity
at all levels.

The Real-Time
database offers
integrated
I/O Drivers,
DB connectors and
'par excellance'
networking for
enterprise-wide
communication.
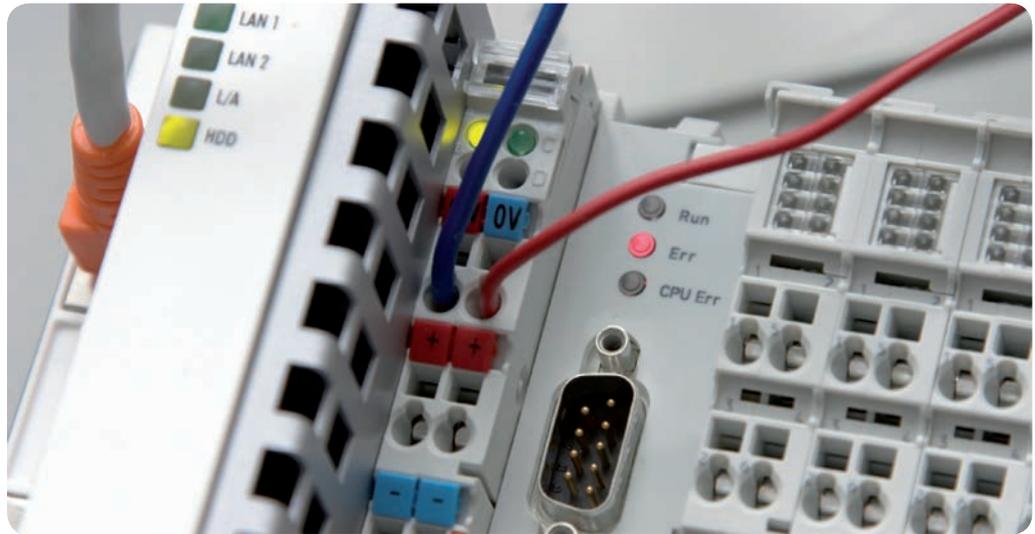
Fast and safe communication is essential for enabling the MES system to get all the necessary data instantly whenever and from wherever needed. MovTracer© represents a process data gathering point, the crossroads of enterprise-wide production system information flow at full scale. The strategic role of communication is paramount in MovTracer©, integrated with all the necessary tools to make information flow easier, faster and more transparent. MovTracer© integrates a rich library of I/O Drivers, native, integrated and included free-of-charge in the product, to render communications with various control systems completely quicker to configure and perform. Furthermore, special wizards help you configure and import project variables directly from the PLC automatically quicker with fewer errors than ever before. The I/O Driver library supports all well known PLCs and systems, and can be expanded to third parties using SDKs. The OPC technology is completely integrated both as Client and Server, covering both the DA (COM) and XML DA specifications.

The integrated Networking consents transparent data exchanging, native between other MovTracer© stations connected in Ethernet networks, or with other stations and WinCE HMI panels using Movicon™ Scada/HMI.

Connectors DB e OPC
MovTracer© also offers special DB connectors which can be activated in read and write in any variable, to allow data exchanging between the real-time database and any other business enterprise application or system using simple shared tables. This system is also predisposed with the option to customize data exchanging with third party applications, made possible by the data access driver to shared memories (Shared Memory I/O). The Real-Time database therefore permits you to connect to any existing shop floor level control device (back office) to collect and disclose information to higher enterprise-wide levels (front office) in realtime.

Data Collection with forever safe data.

## Process data archivable in any relational database, or in encrypted format.

All process data collected by MovTracer© is recorded and stored for analysing using freely-configurable and purposely-designed Data Logger objects. This information collection guarantees production managers with all process related information with the possibility to analyse data to improve productivity, by tracking down and isolating anomalous behaviour. The MovTracer© configurator enables you to aggregate data with great ease and define archive recording and management modalities. This important task is performed to guarantee concepts based on simplicity, reliability and openness. MovTracer© offers recording engines based on a ODBC Manager model which ensures maximum performances in data precision

as well as maximum openness in choosing preferred database formats. MovTracer© supports all relational DBs via ODBC or in simple formatted and encryptable text files to obtain the visualization of recorded information exclusively through the MovTracer© access control modalities being totally compliant to CFR21 Part11 requirements.

Data Loggers, Tracing and Log
The Data Loggers record process data with ease and speed. Recording on DB tables can be set to occur according to time frequency ranges, on event or variation (also with dead band). Thanks to a simple object-oriented configuration, realtime data can be aggregated within database tables and made available to Data Center

analysts to manipulate as required. MovTracer© can therefore perform tasks that are usually done by Historian systems for collecting and recording data on database. In addition to the Data Loggers, users can freely configure event records with associable text (i.e. Alarms or Messages) or record on Audit Trail events. Thanks to the powerful ODBC Manager, databases can now be in whatever format preferred (i.e. SQL Server, Oracle, MySQL), guaranteeing maximum openness and adaptation to already existing company systems, reducing costs with fast return on investments.
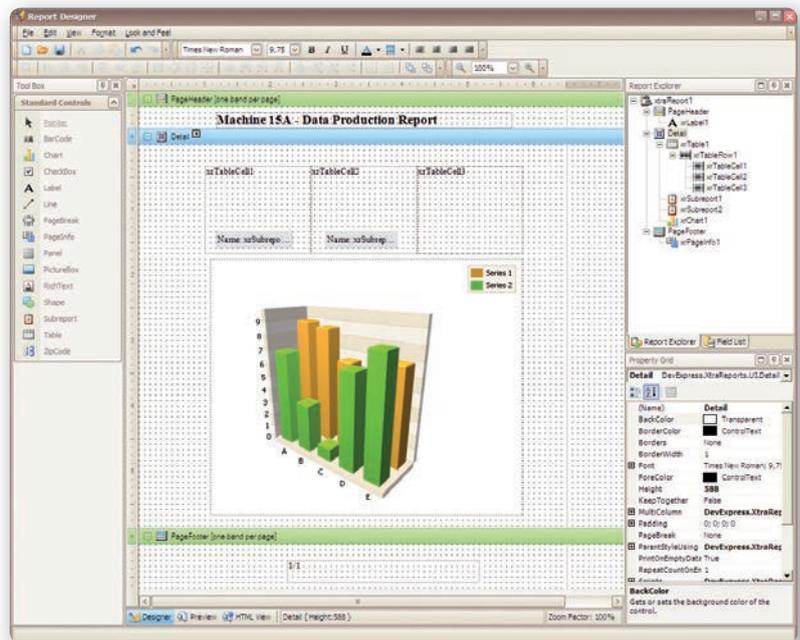
Redundant data

MovTracer© can be applied to "Mission Critical" data acquisition systems by offering the option to manage data Redundancy functions, consenting historical data synchronization in PC systems with redundant hardware and communications.

Integrable Reports

The MovTracer© Data Loggers integrate unparalleled potentiality into Data Collection systems: in the form of powerful inbuilt Report management. Thanks to MovTracer© , historically logged data can now be visualized in analytical and statistical reports, which can be created and customized directly in the data collection system. This powerful feature permits you to perform local and custom analysis of collected data in order to view total amounts, averages, reports, statistic

functions and much more without having to fork out more on additional and often rather expensive tools. The reporting solutions available in MovTracer© are:

Crystal Report™

MovTracer© integrates the Crystal Report© the Report Engine, a powerful Business object dedicated to producing professional and powerful reports. Thanks to this integrated report engine, users can now manipulate the Crystal Report Designer (.RPT) to insert report files, created with the Designer, in the MovTracer Data Loggers to then be connected to for visualizing or printing production data according to the modalities set in the custom presentations and calculations.
Thanks to the VBA scripting, reports can be managed, visualized and customized to specific user needs.

Report Designer™

MovTracer© also has a Report Designer, which is a powerful integrated Report Generator based on the .Net technology to allow powerful reports to be created visually with statistical and graphical functions. This integrated feature will further save the user time and money as external tools, like Crystal Report, are no longer necessary. MovTracer Users can now opt to use the integrated reporting tools provided to create reports within the same project with less hassle.

Integrated Languages and functions.

Script VBA™ and IL Logic offer powerful logic functions for data collection calculations and aggregation.

Object-oriented programming alone is not often enough to fulfill complex tasks and out-of-the-norm requirements. It is fast becoming more dispensable to aggregate and calculate collected data, or execute algorithms, or functions for custom aggregation and interpretation of collected data before recording it on DB tables. Whatever the requirement, it can be successfully realized using the powerful integrated language tools which offer unmatched solutions.

VBA Language
MovTracer© integrates a powerful VBA engine, capable of executing code perfectly with VBA standard (Visual Basic for Application™) compatibility along with the use of a truly powerful and wide-ranging API set. The VBA scripts, which support multithreading and .NET syntax, can be executed directly at startup or on specific events linked to variable status conditions. In addition, the powerful debugger offers the option to perform step-by-step operations or break-points.

Logic Language
MovTracer© also integrates another type of language, the IL Logic. This language is a combinatory language common to PLCs (Instruction Lists or AWL). A powerful instruction set allows logic and calculations to be managed with basic PLC programmer know-how, without the programmer needing VBA language experience.

Schedulers
MovTracer© integrates scheduler objects, capable of executing scripts and functions based on preset times and dates or cyclic conditions.

Event Objects
MovTracer© integrates Event objects, capable of executing scripts and functions based on logic conditions determined by associated variables.
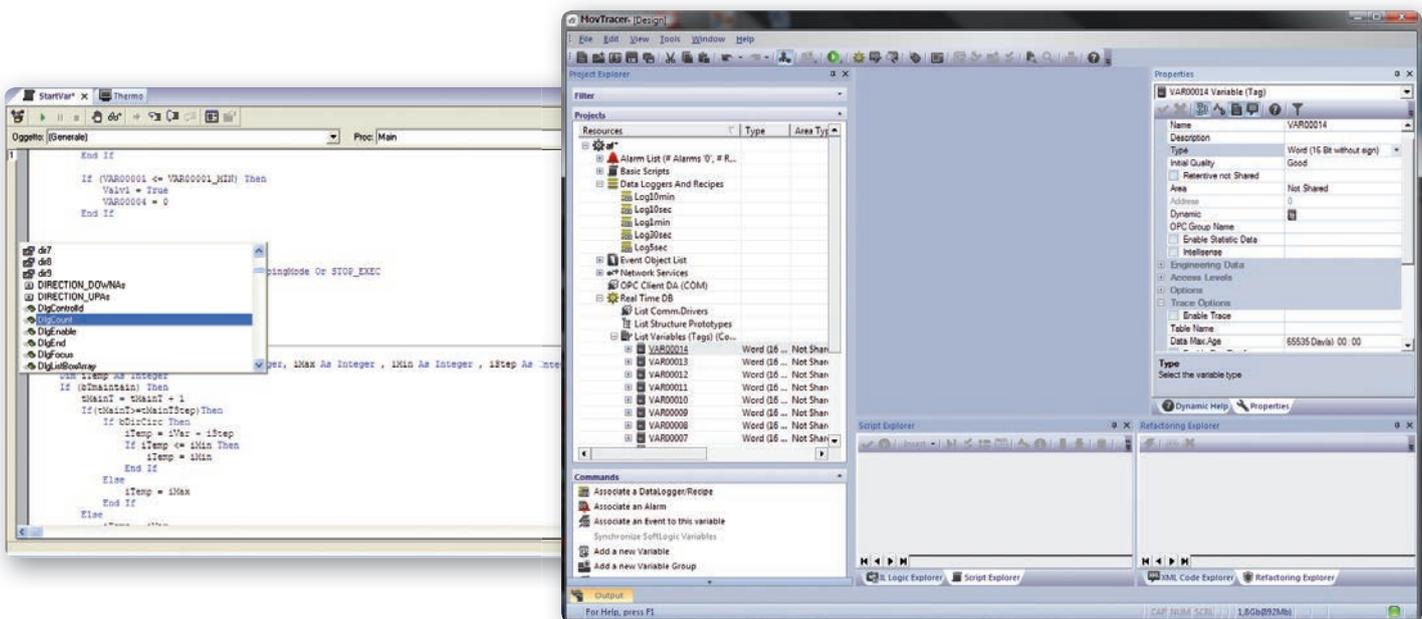
Access your business information whenever and wherever through the web.

The main objective for collecting production data is to obtain OEE indicator measures and make information available to factory managers through the web.

Every manufacturing company fully knows the importance of having the right facilities that let them access factory information in realtime from anywhere and at anytime. Progea has developed MovTracer© front-ends, an innovative software solution based on the most modern ASP.NET technologies for collecting business information at a enterprise-wide level, covering the entire shop floor right across to the managerial offices, in realtime through an Internet or Intranet architecture. Thanks to MovTracer© front-end technology you can visualize KPI performance indicators of your business using a simple browser, allowing you to drastically reduce management, maintenance and license costs that no other MES system available to day can guarantee, keeping company investments to the minimum.

Open and flexible OEE Modules for "Plant Intelligence"
The Analysis modules included with MovTracer© are based on web technology and are equipped with completely open and customizable solutions to fully meet any type of need covering a wide range of specific production methodologies. The locally installed MovTracer© modules, are based on the ASP.NET technology and consent the use of the Windows Web Server (IIS) so that users can visualize all the statistical information needed in real time from any Client terminal through the company's local network or over the internet. The modules are open to customization and equipped with the appropriate Licensing formulas tailored to reduce implementation costs drastically and provide maximum freedom to customize, thanks to the most popular and widespread used technologies and standards. In addition to these modules, the system has been designed to guarantee accessibility to recorded data using custom solutions or DB Connectors for reading/writing data towards other managerial systems.
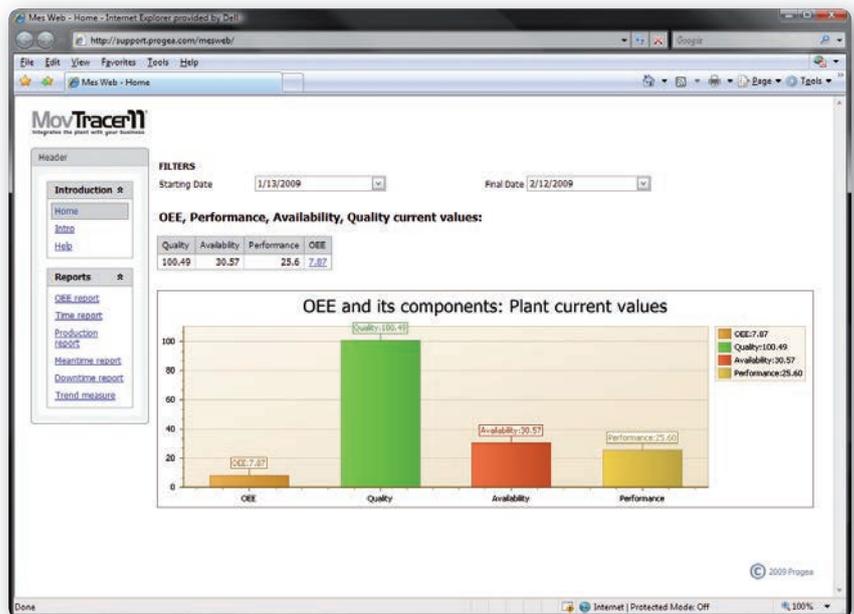
OEE Module

The OEE indicators are recognized as the main and most effective indicators for measuring global shop floor efficiency. The principle use of OEE is to maximize marketable products by increasing productivity in the three main areas: availability, performance and quality. Thanks to archiving production data in realtime and relative OEE analysis, manufacturing company business managers can now understand production performances much better and identify those areas which are lacking in efficiency. The OEE provides a very clear picture on how things are going on the efficiency side of production by showing measured rates and qualities with an overall performance total.

The OEE manufacturing unit performance measurements are based on three factors:

1. **Availability**-The percentage of actual operating time, known as Uptime, compared to the one planned.

2. **Performance** -The percentage of pieces actually produced compared to the planned amount.

3. **Quality**-The percentage of defective pieces compared to the total pieces produced.

These indicators are obtainable by applying specific filters based on different time ranges, production lines and machines, Shifts, Batches and Workers.

OEE = Availability * Performance * Quality

This essential information consents factory managers to improve production assets, machine efficiency, optimize times and reduces any wasted. A company registering a very low OEE value will be constrained to increase its unitary production costs and therefore may jeopardize profit gains and business opportunities. For example, a production line running 24/7 will loose the company 4% productivity for each hour of downtime a day. By being able to analyse production data, the company will be able to discover the weak points and production downtime causes and take action to correct and reduce further losses. By retrieving just 2% of production losses will gain the company 3.5 hours of productivity a week, totaling 168 hours more productivity a year. This small 2% production recovery alone will make a substantial impact on profit increase. Today, based on a challenging OEE value of 100%, the most efficient companies with major productivity usually benchmark and reach an OEE target value of 80-85%. Most companies that do not implement any productivity control only operate at an average of 60-70% of their real capacity. It is clearly in the best interests of any manufacturing company to fully consider the great advantages offered by these OEE indicators to help reduce loss and make profit gains.

DownTime Module

However, the OEE indicators alone are not enough to pinpoint the exact causes of inefficiency. It is essential that the data collection system be capable of providing the right information needed for discovering such causes (or macro causes) of productivity loss and performance inefficiencies. This information is fundamental to ascertaining the inefficiency causes so they can be removed. Receiving notifications of alarm occurrences, generated automatically by the system, usually do not contain sufficient information.

Not just production line machinery but everything else on the shop floor should be submitted to full inspection. There may be various reasons causing production downtimes (i.e. shift or machinery component changes, missing raw material, machines being serviced due to scheduled maintenance or breakdown,

shop floor staff breaks or meetings and so forth) and these must be found out with the full and essential collaboration of all shop floor staff. MovTracer© has just the right modules for analysing these types of DownTime causes. Statistical analysis on production downtimes can be produced according to the possible motivations (configurable). This analysis will provide, production managers with all the vital information ever needed to make the right decisions and implement the right actions for correcting errors to improve production management.

Statistical Analysis

The DownTime analysis module permits you to statistically visualize data relating to downtimes and show them in different classifications graphically in order of Total Duration or Intervention Frequency, to report values retrieved from historical logs and represent them clearly in graphs and charts using various filter methods which include; time range, batch, shift,

operator and more. The graphical charts and graphs can be displayed and printed as historgrams or overlapping statistical curves. In addition to statistical calculations and graphical representations, the system permits users to create summaries on all filtered data in detailed reports.

Trend Module

The Trend Module is a straight forward simple approach to give users better focus on their production behaviour. Users just simply select the desired values recorded by the system and use the Trend curves to represent their behaviour throughout the selected time ranges which then can be displayed, exported or printed as pleased.
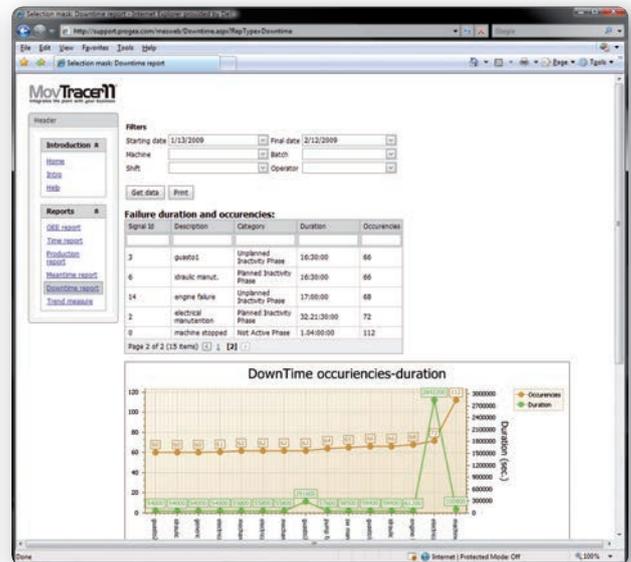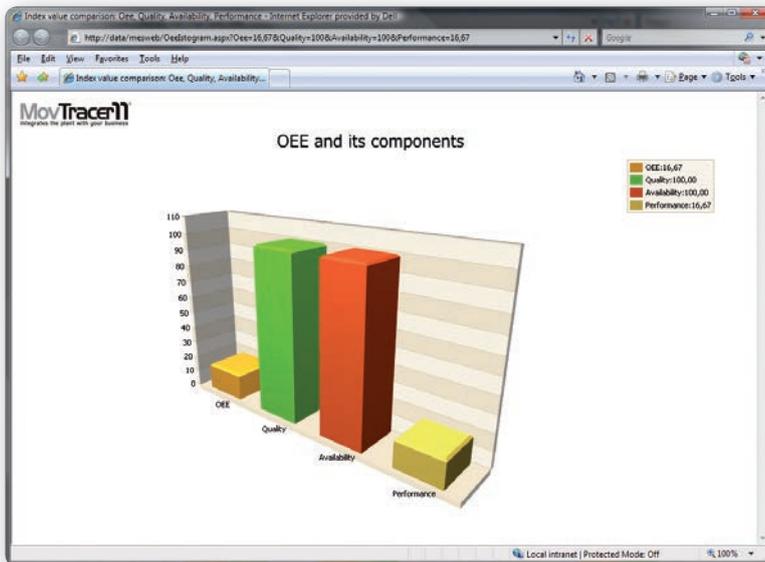
Look confidently to the future
with our valued added Support and Services.

Progea, through its network of Partners, Solution Providers and System Integrators, are experts in providing their end clients with all the support and services necessary and fundamental to any project success. There are many advantages to be had in using a standard product, but setting up the project, tailoring it to specifications of each manufacturing company needs requires skill and expert know-how which play crucial roles, if not the main roles, in guaranteeing success

of the entire project from beginning to end. Any company using the Progea products can rest assured that they are in the right hands. Progea is completely competent in assisting their clients in analysing specific needs, putting them into the right prospective and implementing them on a tried and tested basis until fully validated and working to client's satisfaction. The OEE (for a machine, production line or entire factory) only gives you an indication on how bad or how good

your productive system is performing. This indicator alone cannot improve productivity without being combined with the cooperation and willingness of all enterprise-wide levels working in unison, which means from shop floor right through to the business management offices. Working together to remove the OEE indicated causes that are jeopardizing company productivity is the only way to complete success and a secure future.

Progea has been in operation since 1990 producing software platforms for industrial automation. A long tradition attesting Progea's matured experience in this sector is based on a strong vocation for innovation boosted by a young, reliable and enthusiastic team working together in harmony. Progea's top priority is quality: the company is ISO 9001:2000 certified and their software products undergo strict testing with certification based on the required standards. Their services are provided by a motivated and competent team, fully focused on specific client needs, providing great satisfaction proven by numerous partner references which include Phoenix Contact, Panasonic, Asem, Vipa, Suetron and many more.

Main Features.

➜ **Openness**. MovTracer© is completely based on XML. Collected data is handled by powerful ODBC Mangers to guarantee preferred formats in Relational DBs. The Front End technology is based on ASP. NET.

➜ **Security**. MovTracer© guarantees maximum data security which can be encrypted with 128 bit algorithms. The FDA CFR21 Part 11 specifications are supported in the data collection system.

➜ **Standards**. MovTracer© is completely based on standard technology to safeguard your investment. The XML, ODBC, OPC, VBA, Web Services, TCP-IP and SQL and Crystal Report technologies are integrated in the platform to guarantee easy access and data transparency.

➜ **Performances**. MovTracer© increases performances thanks to its renewed "exception-based" technology concept together with the powerful ODBC manager which consents data collections up to a frequency of 10 m s.

➜ **Powerful Data Logging.** Collected data can be recorded using Data Logger object oriented configurations, which can be connected to DBs in different formats. Data can be recorded according to preset times, on event or change. The Tracing (Audit) feature is also supported for recorded data and Alarm events.

➜ **Connectivity**. MovTracer© introduces a new generation of communication drivers. These drivers include functionalities such as automatic Tag importing, remote connectivity via modem, multi-station concept for point-to-point protocols. They also guarantee full configurability and the option to communicate on event in custom mode using VBA logic as well. In addition to the free included drivers library, MovTracer© offers full connectivity via OPC, using OPC DA and OPC XML DA technologies, for both Client and Server.

➜ **Custom Reports.** MovTracer© integrates a Report Designer to allow users to create powerful custom reports locally, which can be associated to the project's Data Loggers.

➜ **Open and Custom KPI analysis Modules** The KPI analysis modules propose simple and effective solution for obtaining OEE and Downtime indexes with a straight forward, quick and open approach. Reports, Tables and graphs permit complete and thorough production analysing, with the option to print and export them as desired.

➜ **Integrated Connectivity with Movicon™.** In addition to interfacing with any supervisory system, MovTracer© also offers users the great advantage of having network connectivity with the Movicon Scada systems and with WinCE HMI panels based on Movicon CE.

**For further information
please contract the Progea offices.
Our expert personnel are also available
for on site demonstrations and training.**

INDUSTRIAL AUTOMATION SOFTWARE

progea

Present in your future

Progea Srl
via S.Anna 88/E
I-41100 Modena Italy
tel +39 059 451060
fax +39 059 451061
info@progea.com
www.progea.com

Italian Branch
via XX Settembre 30
Tecnocity Alto Milanese
20025 Legnano (MI) Italy
tel +39 0331 486653
fax +39 0331 455179

Progea International Ltd
via Moncucco 7
6900 Lugano - Schweiz
tel +41 (91) 9676610
fax +41 (91) 9676611
international@progea.com

Progea Deutschland GmbH
Marie-Curie-Str. 12
D-78048
VS-Villingen - Deutschland
tel +49 (0) 7721 9925992
fax +49 (0) 7721 9925993
info@progea.de

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