

# Nexplant **MESplus**

Manufacturing  
**Execution**  
System

**Start your productivity innovation**

Nexplant MESplus is the best MES solution for optimizing productivity.  
It empowers you to achieve your goals and to win in today's competitive business environment.



**MIRACOM**

# What is **MES** (Manufacturing Execution System)?

MES is an integrated production management system that focuses on real-time monitoring, control, logistics, work history tracking, status monitoring, and defect management at the manufacturing site. Through MES, manufacturing companies can understand all the information on the production site in real-time, so that not only production processes are improved, but they can also make the best decision for manufacturing operation management.



## Challenges faced by manufacturing companies

### Pressure to increase production efficiency

Increased market pressure to reduce production costs and improve quality to secure competitiveness

### Increased complexity of raw materials and equipment

Increased complexity of resource & equipment management due to different production equipment used for various kinds of product orders

### Increased management difficulties due to different processes

Different processes between sites makes it difficult to collaborate and work might be disrupted due to delayed instructions

### Increasing demand for thorough tracking and management of production processes

Lack of a systematic process (system) to accurately check the progress rate of customer orders and error/incident occurrences

### Increased need for data-driven production - execution - analysis

Inadequate system to analyze various data generated during production process to improve production efficiency



## **Nexplant MESplus**

Manufacturing Execution System

Enhance competitiveness through manufacturing innovation  
with Miracom's Nexplant MESplus.

# Nexplant MESplus

Nexplant MESplus is an optimized MES (Manufacturing Execution System) solution for integrated management of production processes such as production management, resource management, equipment and material management.



## Main features

### Performance-proven MES Package



- 1 · GS certification, Used by more than 150 companies in seven countries  
· Continuous upgrade and product development based on latest technology  
· Defined as global vendor in [Gartner MES Market Guide Report]  
· Highlighted as Key MES player in [Frost & Sullivan MES Market Analysis Report]

### Industry know-how and customer needs reflected



- 2 · Easily applicable industry-specific templates at manufacturing sites provided  
· Optimized user conveniences provided based on user feedback  
· IT professionals well-experienced in project execution of integrated production management within various industries

### Easy extension of functionalities with modular configuration



- 3 · Freely Scale Up & Scale Down depending on system size  
· New functions can be easily added only by adding modules

### Easy customization and interface with existing systems



- 4 · Flexible interface provided with legacy systems such as ERP and others  
· Less customizing efforts by using Attributes of Key Items, Customized field, and GCM table

### Providing Total Smart Factory Solutions



- 5 · Ability to supply MESplus-centric total solutions of Smart Factory including quality analysis, manufacturing intelligence, equipment modification, and logistics automation  
· Stable and systematic project execution based on MSIM (Miracom Solution Implementation Methodology)

# Major Functions

## Essential

### WIP (Work In Process)

- Create / manage production master data, production work instruction / control, product LOT status and production tracking / history management

### BOM (Bill of Material)

- BOM Master Data, BOM Version Management, BOM based work order / control / history management

### INV (Inventory)

- WIP management, inventory history tracking management (forward, reverse)

### RAS (Resource Allocation and Status)

- Resource information generation / status and history management, resource allocation and usage management, preventive maintenance, daily inspection, equipment failure management

### EDC (Engineering Data Collection)

- Production data collection & history management, production by collection data / equipment status control

### LBL (Label Management)

- Print code generation through label designer, label printing and history management

## Extended

### SPC (Statistical Process Control)

- Online/Offline SPC management (management chart, process capability analysis, histogram), various Error Action (alarm, process control) in case of SPC rule violation, Spec Limit management, Control Limit management / automatic calculation

### QCM (Quality Control Management)

- Quality inspection standard setting management, quality inspection result input management, quality inspection data history management

## Dispatch/Archive

### RTD (Real-Time Dispatch)

- Rule-based real-time Dispatch, work priority rule

### ACV (Archive Module)

- Condition based Data Backup & Restore install, setting & status view through Web UI

## System

### GCM (General Code Management)

- Flexible industry-specific code management, code validation check

### SEC (Security)

- User create/manage, user security/authentication, authorization per user

### MSG (Message)

- Multilingual support, messages characterization by each industry site, notification and information sharing

### ALM (Alarm Management)

- Quick notification (screen, e-mail, SMS) and alarm history management for various incidents

## Development

### Development Tools

- Web UI development tools: UI Modeler, Form Execution Engine, Form Resource Manager
- Automatic source code generation, service test tool, automatic document generation, development procedure guide

# Case Study



## Case 1.

### Global MES implementation for integrated management of overseas production site

Challenge	Solution	Benefits
<ul style="list-style-type: none"> <li>· Excessive maintenance costs incurred due to distributed sites (head office, five overseas subsidiaries)</li> <li>· Difficulties in management and expansion due to non-standardized processes</li> </ul>	<ul style="list-style-type: none"> <li>· Expanded to each site through set-up method after implementing module-based standardized MES</li> <li>· Integrated Global monitoring environment implemented of all production data (operation of control center)</li> </ul>	<ul style="list-style-type: none"> <li>· Securing visibility through seamless collaboration between sites and global monitoring</li> <li>· Ensuring production governance and upgrading global operations through standardization of company-wide operations</li> <li>· Lower maintenance costs and reduced time efforts &amp; costs for implementing new sites through standardized solution based modular configuration</li> </ul>



## Case 2.

### Production site visualization through real-time manufacturing environment management

Challenge	Solution	Benefits
<ul style="list-style-type: none"> <li>· Real-time status aggregation not possible due to manual management of production plan and results               <ul style="list-style-type: none"> <li>- Overhaul</li> <li>- Inconsistent planning vs. performance</li> <li>- Delayed delivery</li> <li>- Delayed root cause detection</li> </ul> </li> <li>· Information sharing within different time zones (8hrs difference between HQ and local site)</li> </ul>	<ul style="list-style-type: none"> <li>· Real-time sharing with production site after implementing enterprise integrated planning system</li> <li>· Real-time production status sharing by implementing production management system</li> <li>· Integrated management/supply of materials</li> </ul>	<ul style="list-style-type: none"> <li>· WIP reduction, timely error response, improved equipment utilization rate through real-time production management</li> <li>· On-time delivery through delivery monitoring</li> <li>· Improved working speed between head office and production site</li> </ul>



## Case 3.

### Product 4M<sup>1)</sup>-based product tracking enhancement case

Challenge	Solution	Benefits
<ul style="list-style-type: none"> <li>· Tracking of production process not possible               <ul style="list-style-type: none"> <li>- Not possible to identify root cause</li> <li>- Not possible to response to quality data request by customer</li> </ul> </li> <li>· Difficulties to apply system due to old equipment and network limitations</li> </ul>	<ul style="list-style-type: none"> <li>· Implementation of 4M change history tracking system from raw materials up to finished products               <ul style="list-style-type: none"> <li>- Quality data collection through process segmentation, designation of process resources and remodeling of old equipment</li> </ul> </li> <li>· Propose non-conforming product management methodology through 4M analysis item standardization</li> </ul>	<ul style="list-style-type: none"> <li>· Preventive system for quality accidents and quick detection of root causes provided</li> <li>· Defect reduction and higher transparency in manufacturing processes through change management for each process and on-site fool proof implementation</li> <li>· Leakage prevention of defective products through non-compliance management and by establishing a process to prevent recurrence</li> <li>· Work-load reduction due to process automation</li> </ul>

1) 4M: Man, Machine, Material, Method

# Major Benefits



## Maximize operational efficiency

### Reduction of production time

- Reduced data input time
- Reduced document work
- Reduced repetition rate

### Efficient resource management

- Prevention of document loss
- Improved workers' productivity & work ability
- Quick process upgrade

### Optimized decision-making support

- Product quality improvement
- Strengthening regulatory enforcement

## Risk prevention and profit increase

### Cost reduction and increased investment efficiency

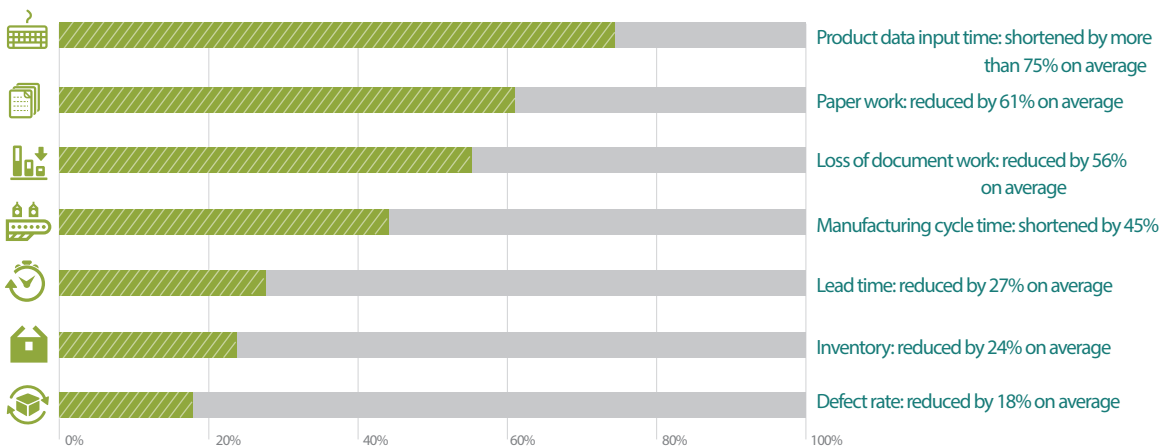
- Increased ROI
- Reduced operational costs
- Reduced inventory costs

### Service improvement

- Increased reliability in meeting deadlines
- Improved customer service

### Business risk prevention

- Increased compliance rate
- Reduced product defects
- Reduced product liability risk



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