



## Shini Group

Addr: No. 23, Minhe St., Shulin Dist.,  
New Taipei, Taiwan

Tel: +886 2 2680 9119

Fax: +886 2 2680 9229

Email: shini@shini.com

### Factories:

- Taiwan
- Dongguan
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## *sFactory 4.0* Industrial 4.0 Smart Factory

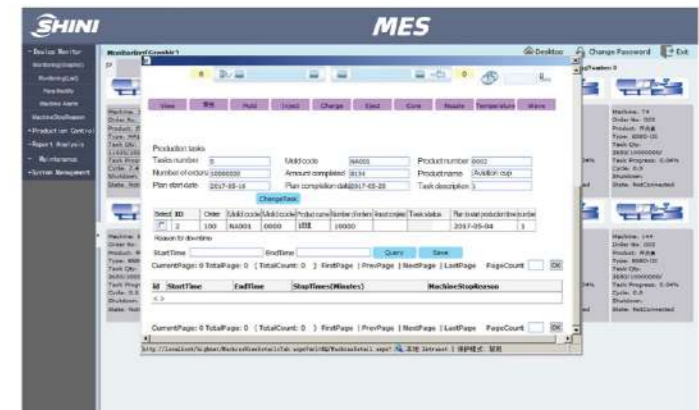
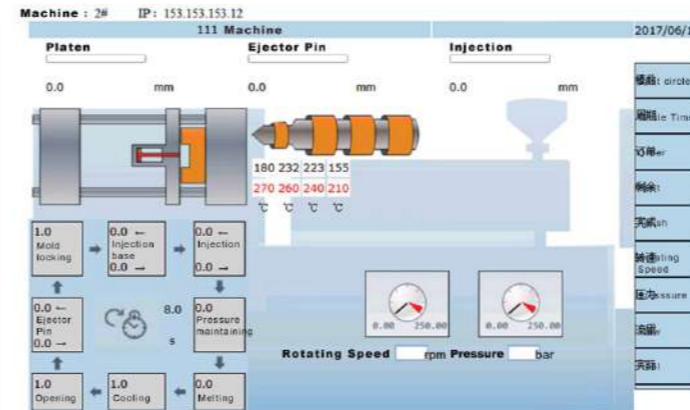
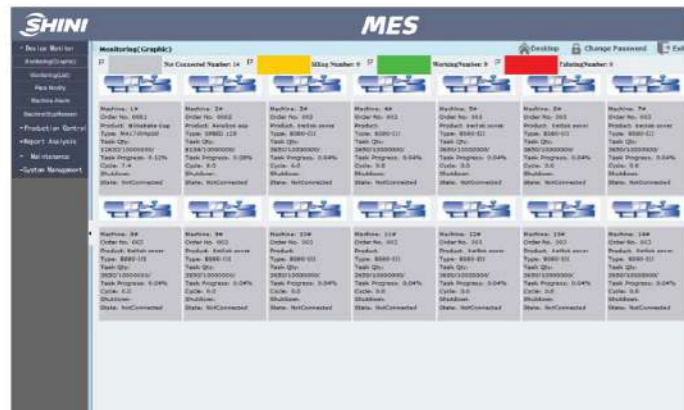
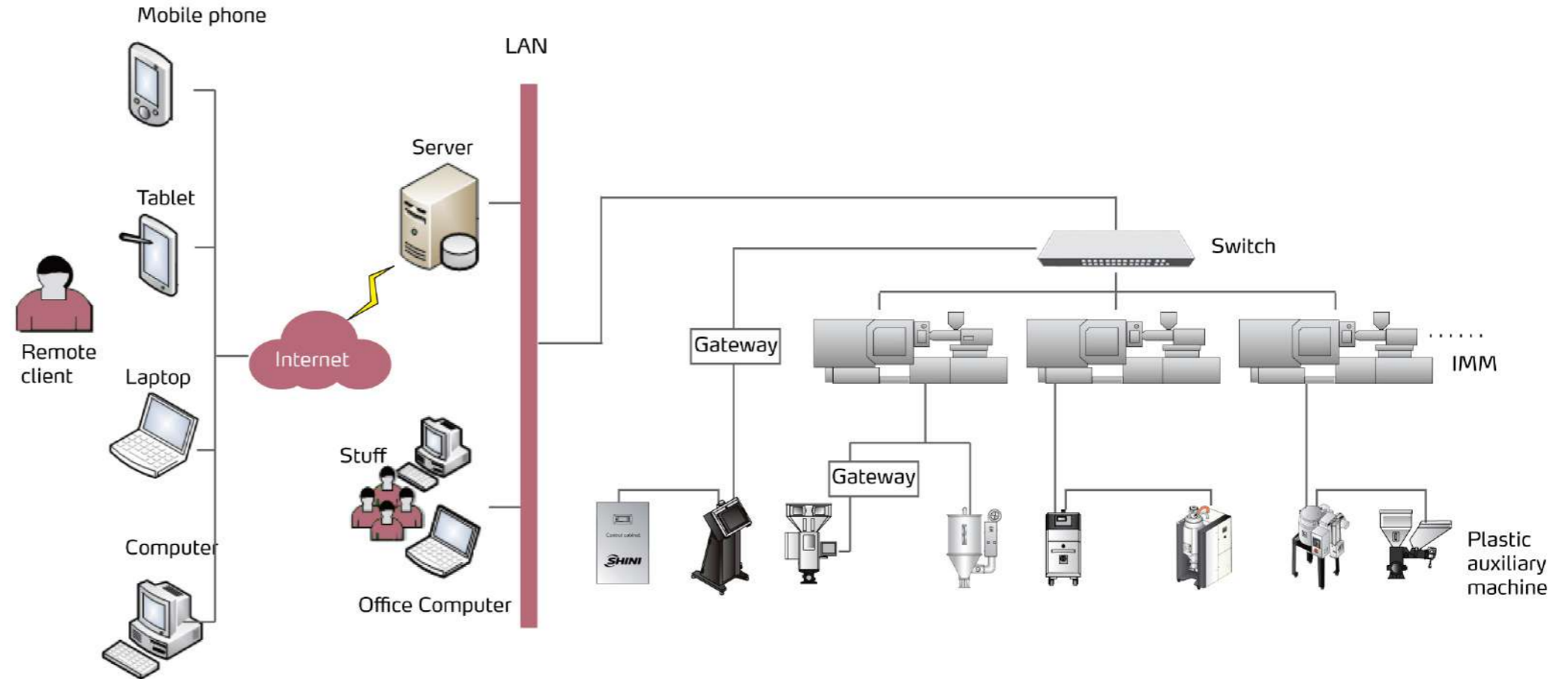
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Simple Solution



- Expandable production platform for prompt application in any production process
- Integration: Integrate production line solution with enterprise ERP (PP, PM, MM, QM)
- Intelligent: Provide direct and effective user interfaces and control panel, offering KPI according to the above visual information
- Innovation: Extensively adopt SOP sales logic, covering relative process of the customer, including plan, implementation, maintenance and quality as well as other versioning contents currently.
- Extensive partner network



## Product Structure

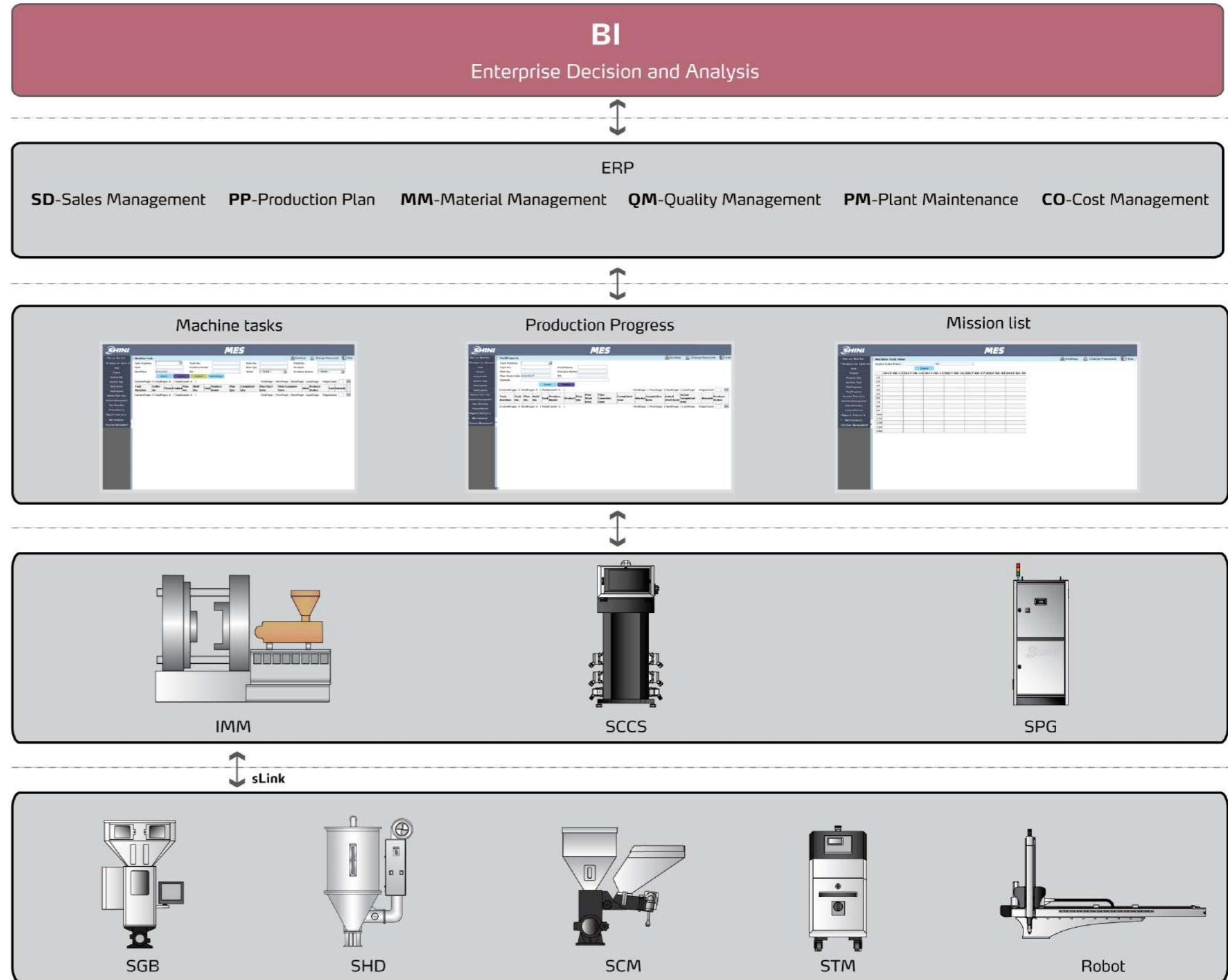
With 4.0 Intelligent Injection Molding as its core part, the sFactory 4.0 consists of some world-leading software and hardware such as raw material handling systems, water and electricity planning systems, automation solutions, sLink data collection technology and MES systems. It can provide a comprehensive series of automatic solutions for injection molding factories, promoting enterprise's informationization and automation management, laying a strong basis for fully realizing sFactory 4.0.

### MES

MES system can collect the data of networking IMM and plastic auxiliary machines and collect data of manufacturing flow to constitute a mass database. Then it will analyze and deal with these data according to client's requirements with the purpose of meeting their requirements via a most intuitive form (making customer personalized report) and providing decision-making basis for managers. Systematic integration of order management can associate planned lists with machines and molds. Based on production conditions of IMM and maintenance time of IMM and molds, it can properly arrange producing tasks, which will be directly delivered to IMM. This system can also automatically arrange a maintenance plan according to the working hours and shot cycle of IMM and molds. What's more, it can send information according to a specific time or completion status, thus improving the production management in workshops. The system can also fully communicate with the ERP system to form a complete data flow network and ultimately provide customers with advanced and integrated solutions. According to the characteristics of injection molding industry and management requirements of factories, this system is divided into five major parts including equipment monitoring, production management, report analysis, maintenance and system settings.

### sLink

Based on the general open protocol, sLink adopts standard communication terminal, integrating monitoring functions of auxiliary machines into the operation panel of IMM, thus centralizing the monitoring of IMM and auxiliary machines. Different from the traditional operation that only realized remote switch or temperature control of auxiliary machines, sLink collects all the parameters in the controller of auxiliary machine and set operations, remotely realizing all the control functions of the auxiliary machine itself. Compare with traditional scattered control methods of IMM and auxiliary machines, a new control system integrated with sLink forms a more efficient and intelligent injection molding process, greatly reducing labor and production cost.



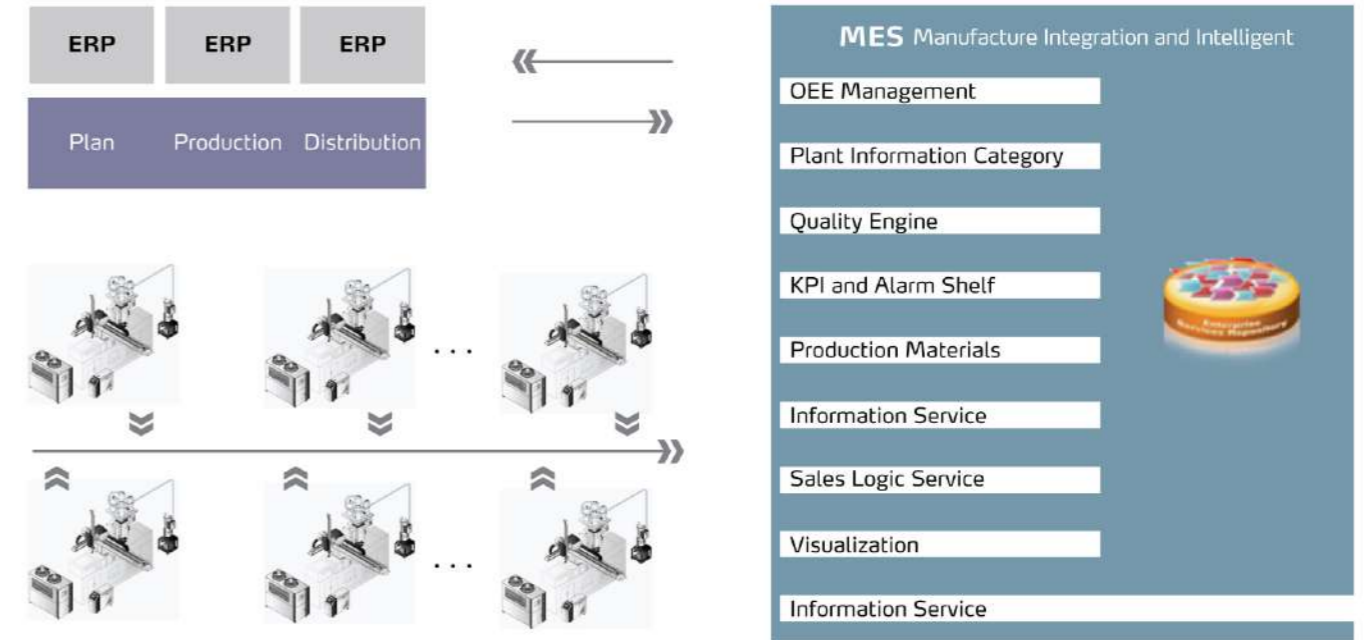
## Overview



Equipment monitoring	Production management	Report analysis	Maintenance	System settings
Data collection Centralized real-time monitoring Parameter modification Machine alarm Data monitoring for each mold	Feeding management Production plan IMM producing task Electronic board Live feedback of all-in-one machine	Alarm analysis Machine utilization OEE Downtime analysis Production report Product quality analysis Quality report Mold Report	Basic information management Maintenance plan setting Maintenance record registration and inquiry Overdue maintenance list Maintenance records	Equipment management Machine registration User Management System log Code maintenance Mail allocation

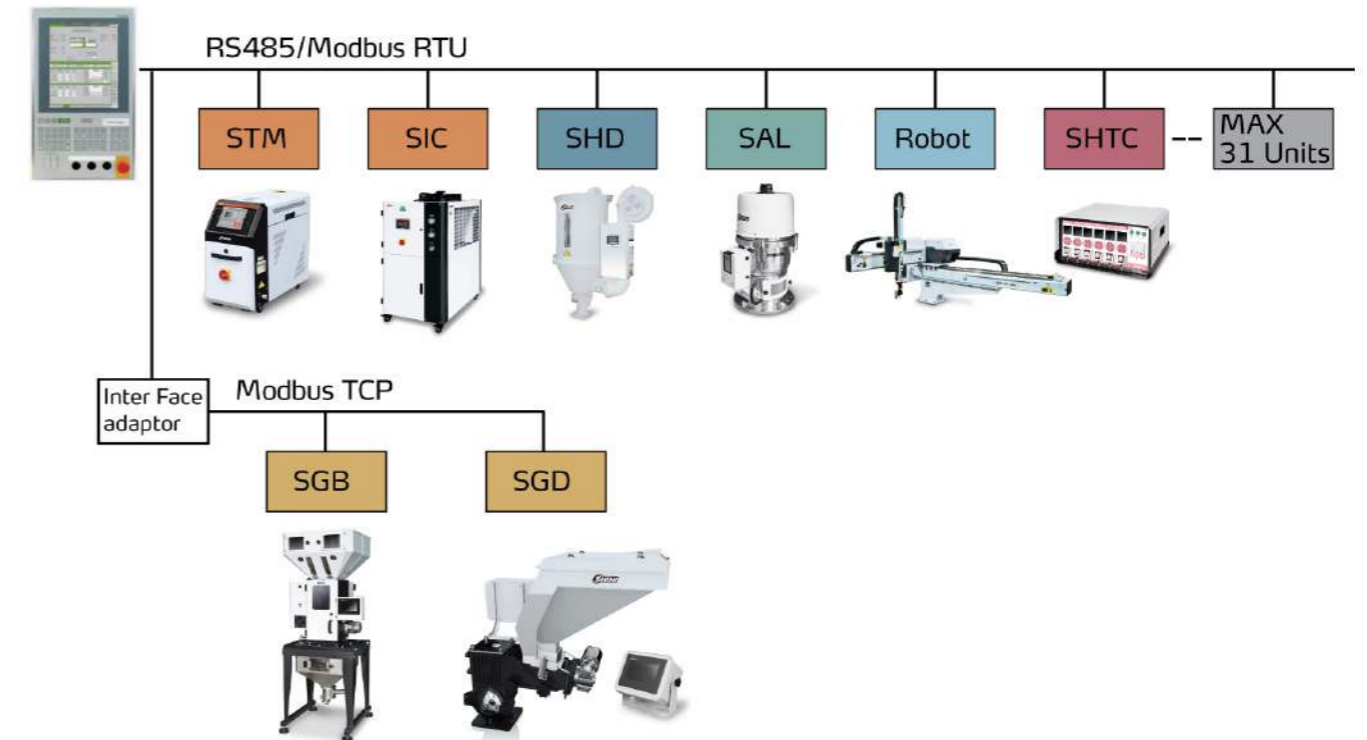


## Main Structure



## Auxiliary Equipment Integrated IMM Control System

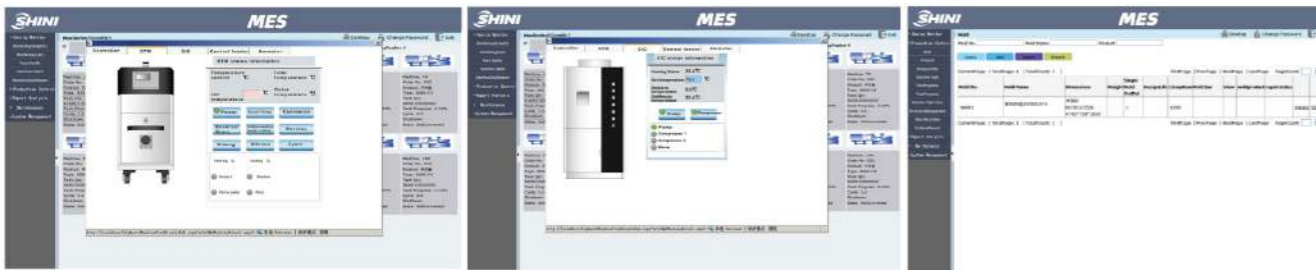
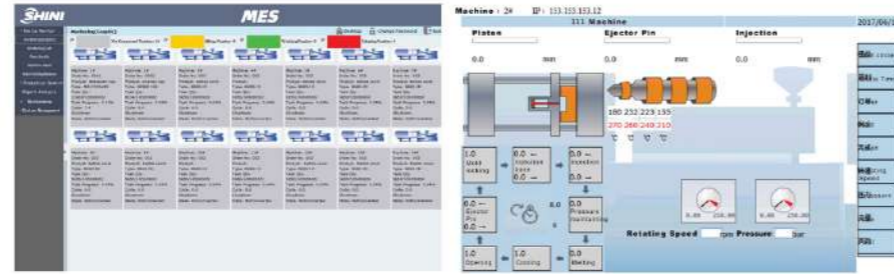
Host Machine



## MES Integration and Intelligence

### Equipment monitoring

- Data collection
- Centralized real-time monitoring
- Single machine real-time monitoring
- Single mold data
- Parameter modification
- Machine alarm



### Mold management

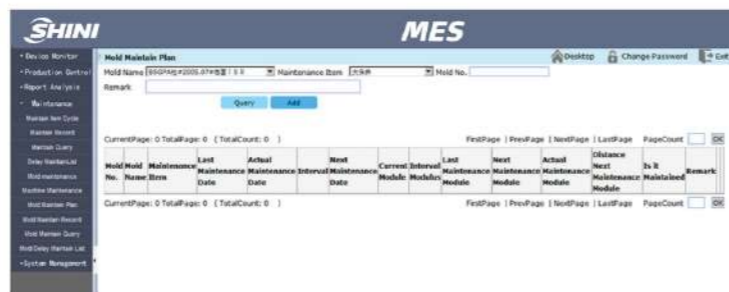
#### basic mold information management

Mold information includes mold number, name, weight, current shot cycle, single-mold output and other information.



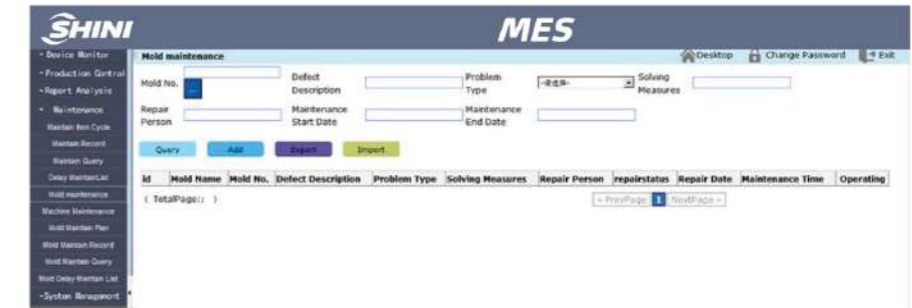
#### Mold maintenance plan setting

In equipment management, mold maintenance is a routine work, which sets up specific maintenance project and time table for each machine and mold. The maintenance cycle is set according to time interval or shot circle interval, and the relevant maintenance items and precautions can be set.



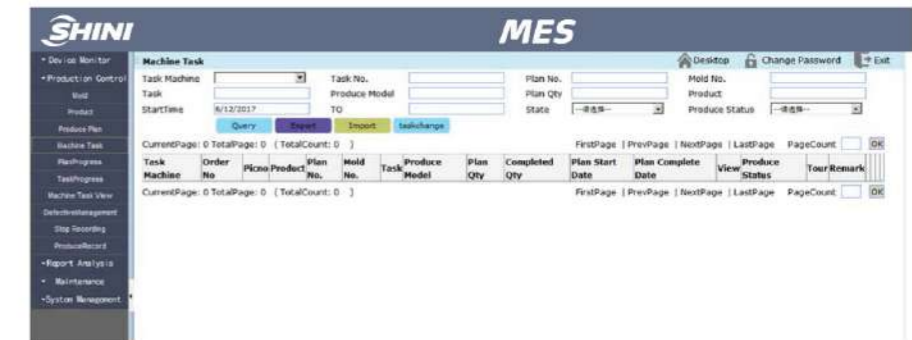
### Mold maintenance records

Record the completion status in the system after maintenance in setting plan has been accomplished, including date and maintenance log, etc. If maintenance was delayed, the system will automatically generate Overdue Maintenance List.



### Mold repair records

A comprehensive information platform, which consists of equipment construction, previous maintenance records, maintenance date record, maintenance plan, repairman information, etc, serves as a knowledge-base that provides historical maintenance information for enterprises and effectively passes on previous personal. It can also be used for staff training and timely solution of similar failure in the future, reducing repair time.



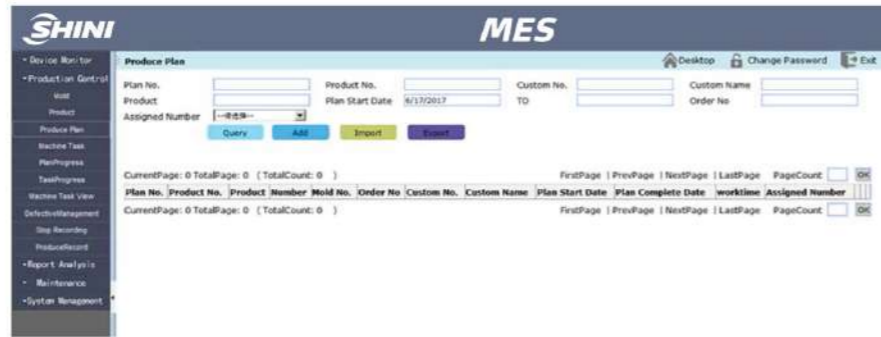
### Mold identification management

Sometimes customers can find type fault only after they have changed molds, so they are in need of automatic mold identification. Nowadays, RFID and two-dimensional code scanning have been widely used, which can achieve one-mold-one-identification through pasting a two-dimensional code on or implanting an identification chip in the mold. Thus every mold can be identified by IMM via identifying device and its information will be compared with that in the production list. There will be alarm if any inconformity exists. With this technology, the use and management of mold in specific production can be checked.

### Production process management

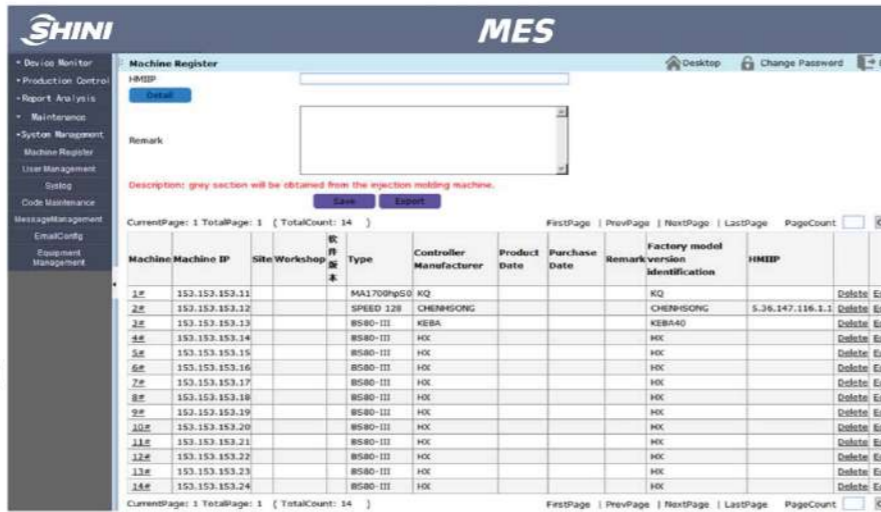
#### Production planning

According to orders, production planning can be generated in system or imported through ERP. Then enterprise can achieve unified management of production planning.



#### Production planning of each machine

Production planning of each machine has three major functions: task deleting, task changing and task checking. Besides, production process management also contains data import and export, task audit and canceling, task transmitting and exchanging. (Functions related with machine maintenance can be developed so as to arrange production tasks according to maintenance time table)



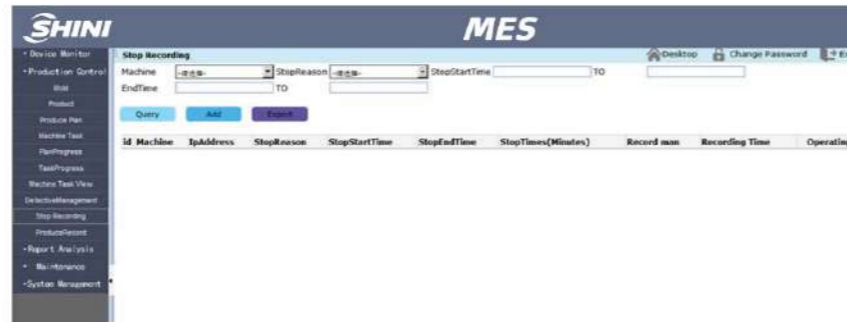
### Abnormal shutdown management

#### Automatic record of shutdown

The system automatically records shutdown period of all IMM, including the start time and the end time.

#### Shutdown causes filling in

Automatic collection of downtime records lack of causes, which need to be added. Causes can be added through two ways: (1) directly chosen in software; (2) when man-made shutdown happens, the system will generate a record, including time and cause, both of which will be matched with that automatically collected in the shutdown record of IMM's, and ultimately the cause of shutdown will be automatically transferred to the records in IMM.



### Report analysis

#### Alarm analysis

Monthly summarized statistics of the alarm number; bar diagram indicating the number of various alarms in the selected time period

#### Machine utilization

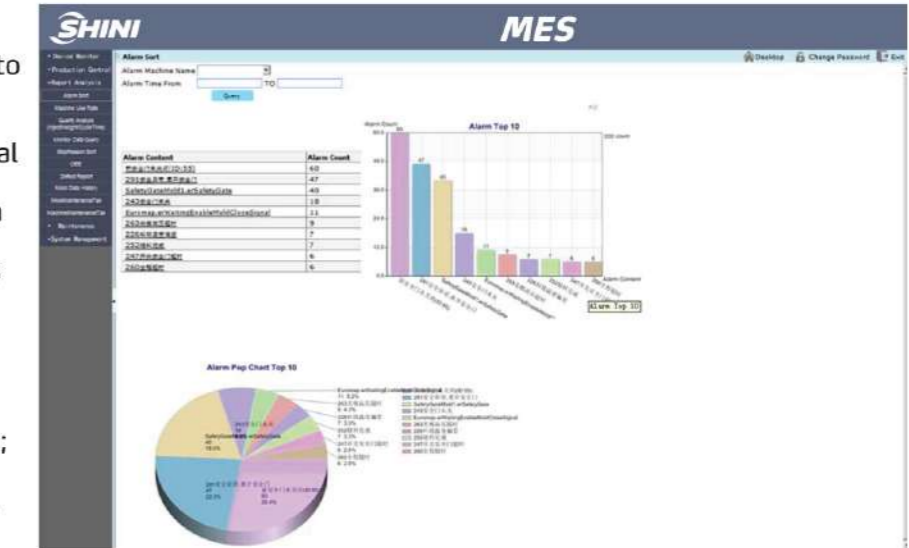
Use one month or one day as a regular cycle to record the monthly utilization of machine; use a specific time period as statistical cycle to record machine utilization.

#### OEE

On the basis of collected data, OEE data can be calculated by using the methods provided by Party A. report can be made monthly or daily or according to OEE

#### Analysis of shutdown

Summarizing statistics according to causes of various shutdown monthly or in specific period; monthly recording statistics of total downtime for each machine; the number of mold changing for each mold, the total time of mold changing, a summarized statistics of average period.



#### Production report

Product quantity report; report of production plan completion status; report of completion status of production plan for each machine.

#### Quality report

Monthly summing up the number of scrapped machine under all kinds of causes and the total amount; the scrap rate of each product and the scrap rate of each machine.

### System settings

Equipment management

Machine registration

User Management

System log

Code maintenance

Mail configuration

