



Optimize Manufacturing Process through

Manufacturing **E**xecution **S**ystem

Manufacturing Execution System



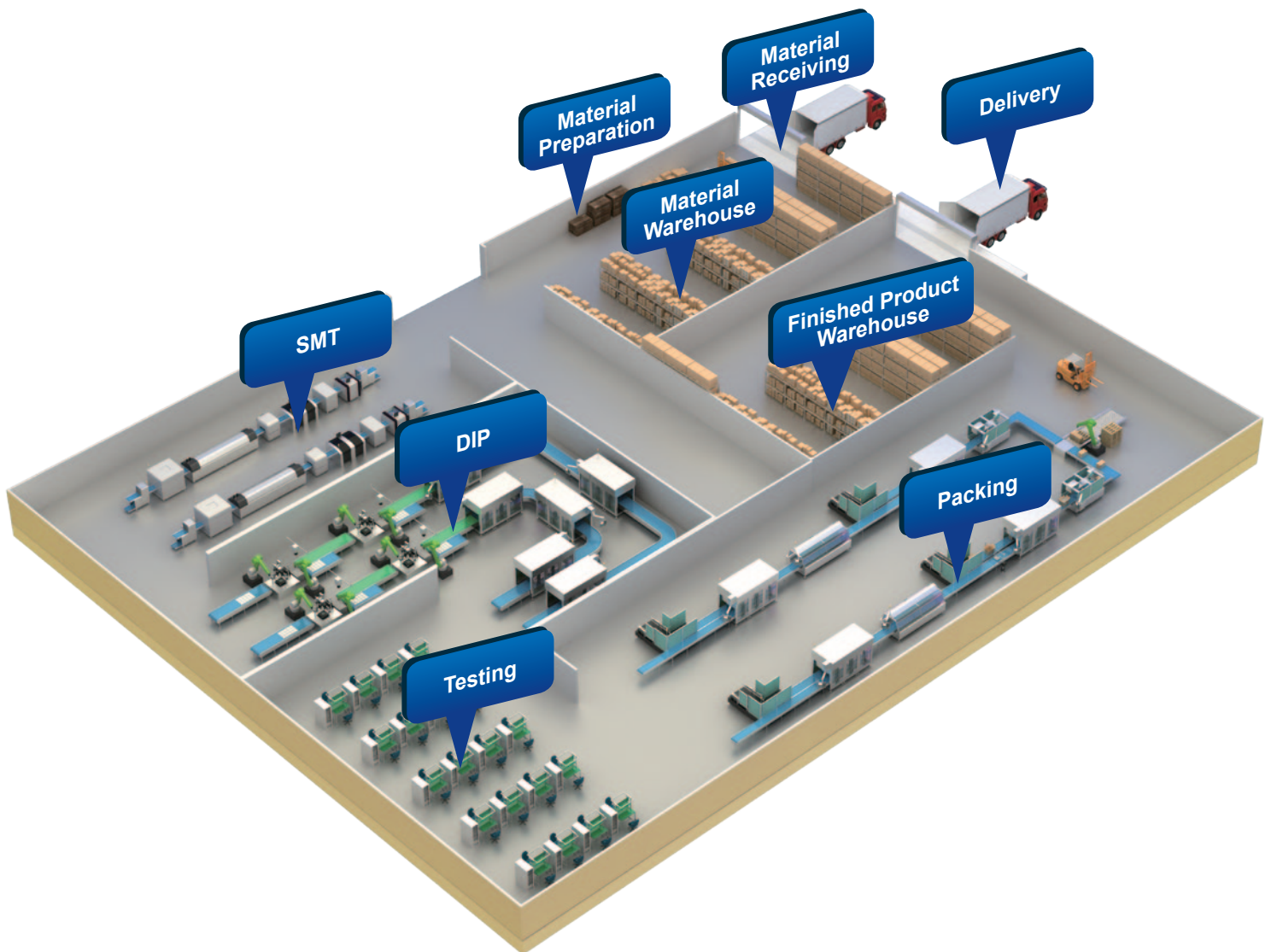
For more information, please visit: www.ieiworld.com

When it comes to manufacturing, it represents sophisticated cooperation among different departments in a company, such as engineering, procurement, manufacturing, and quality control. Since globalization has been a common phenomenon, knowing how to manage cross-country and cross-function teams becomes a major challenge for most of companies. MES (Manufacturing Execution System) is made for improving manufacturing efficiency and accuracy.

Challenges in Manufacturing Management

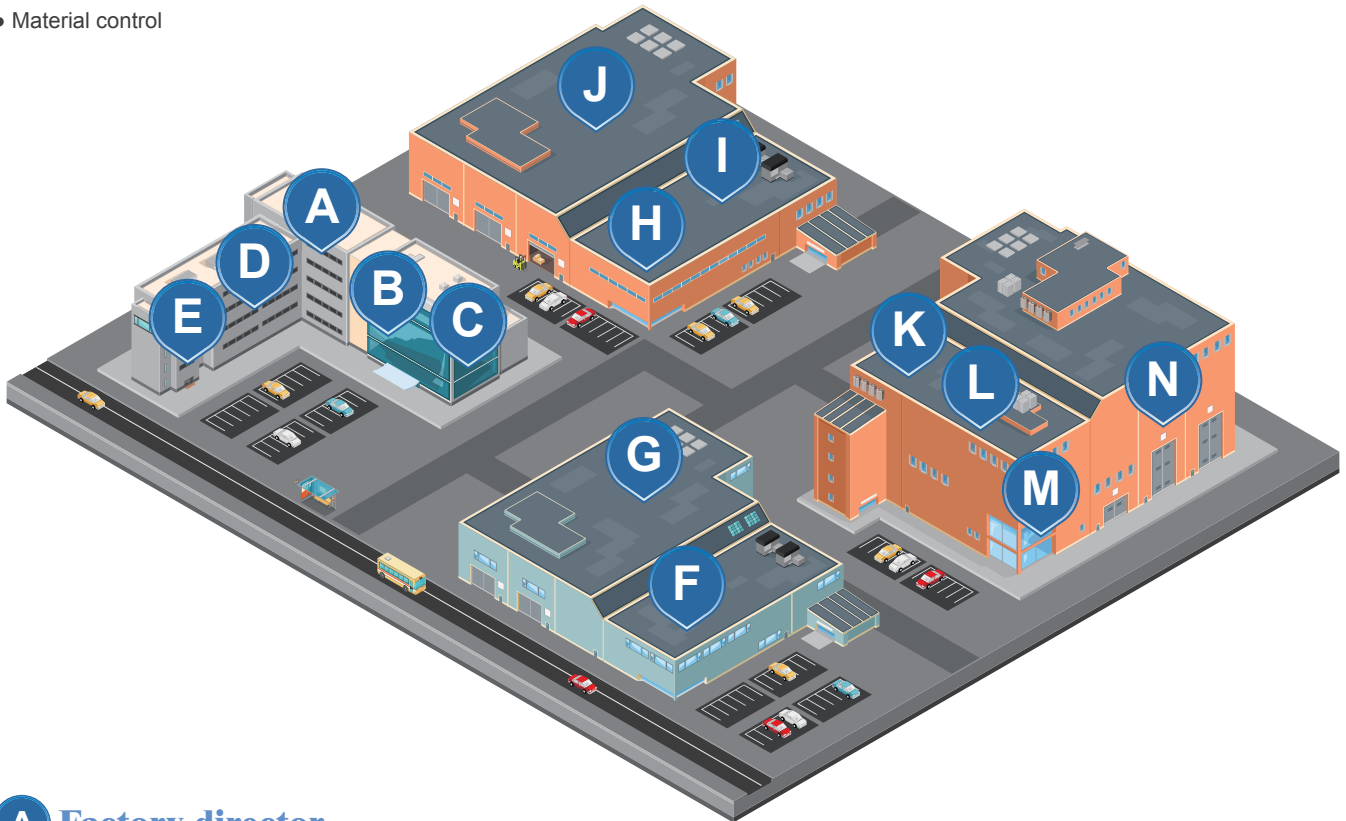
To fulfill customers' needs, manufacturers are all dedicated to provide high quality products with reasonable price and in time delivery. Therefore, the challenges of improving quality and production efficiency are critical.

Take the electronic motherboard as an example as shown in the following picture. The manufacturing process starts from material procurement. When all the materials arrive in the warehouse, the assembly process begins. After the motherboards are assembled and pass the testing/quality control process, all the qualified goods will be moved to the packing area. Finally, these goods will be shipped out based on the order details.



The key factors to optimize manufacturing efficiency include

- Progress control of orders
- Manufacturing time
- Quality record and analysis
- Material control
- Cross-function communications of design change
- Equipment management
- Accuracy of cost estimation



- A Factory director**
How's the production amount and quality today?
- B Sales**
Can the customer's products be delivered on time?
- C After-sales service**
How's the production process of the products that customer complains about?
- D Cost evaluation and control**
How much production time does the product consume?
How's the yield rate?
- E Standard working hours / Efficiency improvement**
Can the efficiency be increased?
- F Equipment maintenance**
How's the machine crash rate?
- G Production**
Why today's productivity is so low?
- H Process management**
What's the production parameter of product B in machine A?
- I Quality assurance**
What's the yield rate of that customer's product?
- J Process**
This issue needs long time process data to be analyzed
- K Material Requirement Planning (MRP)**
When can the next order be placed?
- L Material Requirement Planning (IM)**
When and what kind of materials should be resupplied?
- M Purchasing**
How's the quality of the materials provided by supplier A?
- N Quality control**
How's the product quality today?

It is difficult to collect and analyze information manually when the manufacturing scale becomes larger, and the data processing becomes a highly complicated and comprehensive subject. MES is the best solution for these challenges.

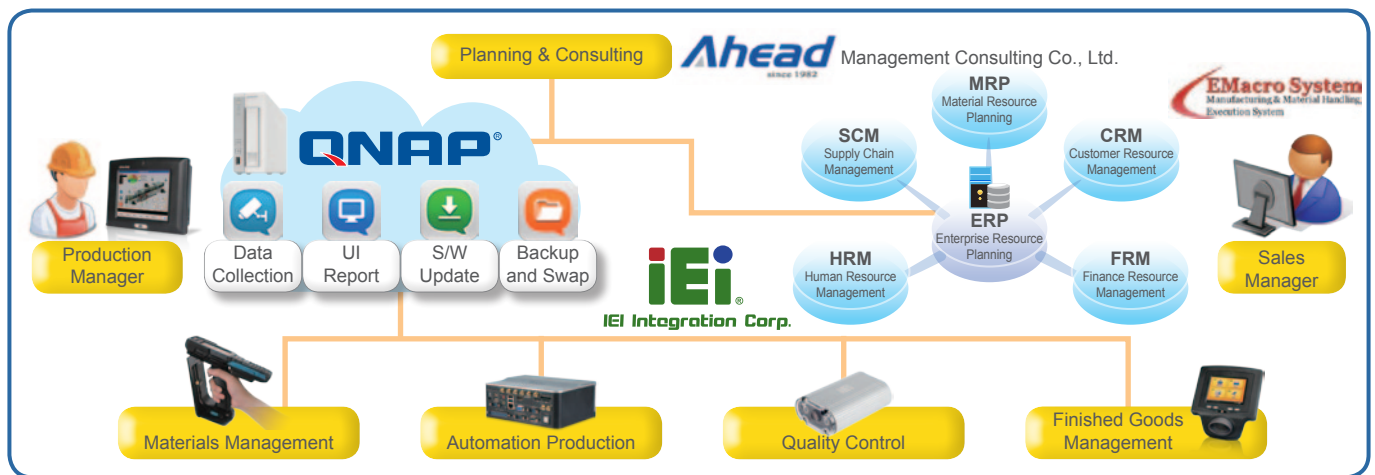
IEI Manufacturing Execution Systems (MES) Service

IEI Manufacturing Execution Systems (MES) service is a total solution which includes hardware, software, and professional services to improve factory automation efficiency. In hardware, IEI provides comprehensive industrial-grade devices that precisely acquire signals and deliver data immediately for automation applications in the harsh environments. In software, IEI cooperates with the leading MES service third party, which provides complete service on computerization and automation of manufacturing system and procurement system.

The system architecture is as the following diagram. The fundament of MES solution is ERP (Enterprise Resource Planning) software system, which includes:

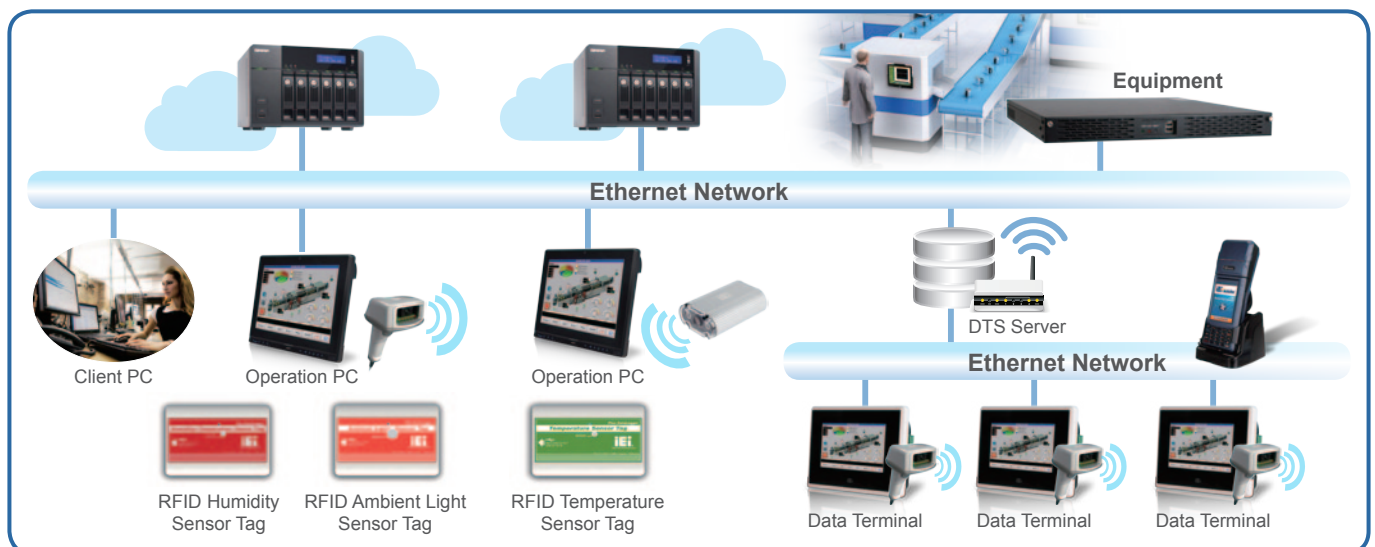
- SCM (Supply Chain Management)
- MRP (Material Resource Planning)
- CRM (Customer Resource Management)
- FRM (Finance Resource Management)
- HRM (Human Resource Management)

ERP is a total solution starting from manufacturing to customer relationship management; at the same time, it helps companies to manage internal task force and finance.



As the leader in industrial computing, IEI provides complete hardware solutions for manufacturing control and data collection. For example, the industrial panel PC and the monitor with touchscreen can be used as HMI (Human Machine Interface) for automation control. High-speed barcode reader, UHF (Ultra High Frequency) RFID solution and ruggedized mobile devices are ideal for packaging and warehouse management.

Asides from computing solutions, the sister company of IEI group, QNAP, dedicated in NAS (Network-attached Storage) development, offers strong storage and server solutions.



Suggested Products

1D/2D Barcode Data Collector

New



New



Product	High speed 2D barcode reader	Handheld 2D barcode reader	Industrial PDA
Series	ITDB-100L	HTDB-100F	MODAT
LCD Size	-	-	2.8"/3.5"
Processor	ARM-based	-	RISC-based

HMI Solution



	RISC-based	X86-based	
Series	IOVU PPC	AFL(2) PPC	PPC
IP Rating	IP64 front panel protection	IP64 front panel protection	IP65 front panel protection
LCD Size	5"/7"/8"/10.1"/10.4"	7"/8"/8.4"/10.4"/10.2"/12.1"	8.4"/10.4"/12.1"

Mobile Solution



Product	Tablet PC	Industrial PDA
Series	ICE	MODAT
LCD Size	5"/7"/8"/10.1"/10.4"	2.8"/3.5"
Processor	RISC-based /X86-based	RISC-based

MES Storage Solution



Product	Industrial Computer Chassis	TurboNAS
Series	RACK/PACK	TS-x70 Pro
Processor	RISC-based /X86-based	RISC-based /X86-based