

Modeling with innovations
Your production in focus

VALUE

VISIBILITY

DECISION

ANALYSIS

TIME TO
MARKET

PERFORMANCE

simatic IT

MES EXTENDED MANUFACTURING



SIEMENS

What is MES?

Manufacturing Execution System (MES) is a key element for manufacturing companies to increase clear optimization potentials and to manage and improve the complete supply chain efficiently, in real time and with the correct information at the right place.

MES systems focus on:

- Harmonizing and integrating all production processes.
- Synchronizing and simplifying production processes and rendering them more flexible.
- Reduction of island solutions, paper-related methods and non-standardized processes.
- The seamless connection between production and business processes in a “closed loop” throughout the production workflow.
- User-orientated creation of KPIs (key performance indicators).

MES installations have an increasing strategic influence on:

- *Company flexibility* – a more integrated and harmonized IT landscape directly increases the flexibility for constantly changing customer requirements.
- *Operations Excellence* – establishment of Standard Operating Procedures (SOPs) for regulated working instructions at all company levels.
- *Product safety and traceability* – extended data synchronization along the supply chain for compliance with legal requirements and to minimize the subsequent costs of errors
- *Speed of innovation* – direct linking of the innovation process to the subsequent manufacturing process, shortening the time-to-market for new products.

Realizing sustainable values through SIMATIC IT

Realizing sustainable potential from such considerations, SIMATIC IT is the product to seamlessly unlock real values associated to strategic initiatives such as agility, governance, excellence and innovation. In fact, due to its flexibility, scalability and standard base, it provides the required support for any plant IT initiative.

The complete product approach at a glance:

For the success of MES installations, additional services are available to the customer besides the standard products. This support is guaranteed to partners and end users during the complete product life cycle.

ISA-95

ISA-95 is the internationally defined industry standard for the terminology and use of the integration of MES at the business level and control systems at the manufacturing level. Therefore a complete, standard compliant MES environment has been designed for SIMATIC IT.

TIA

SIMATIC IT makes part of Totally Integrated Automation (TIA). This unique offer covers the whole bandwidth of automation requirements in production – from the field devices to the extended MES – and increases the productivity of the whole workflow.

TSS

Customers and partners receive a technical support service for all products in the SIMATIC IT family. The user can choose from various service packages – multilingual, technically comprehensive, 24/7.

Partner program

SIMATIC IT is globally supported and sold to customers through specialized and certified partners. This ensures that the customer always receives the best advice, integration and service for the whole project life cycle locally available.



SIMATIC IT:

More flexibility and transparency through standards

MES is based on standardized products to minimize the total cost of ownership (TCO). However, flexibility must still be guaranteed with all standardizing measures, to optimize production processes in a way which can be modified specifically for a customer and is traceable.

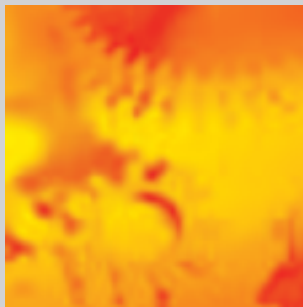
SIMATIC® IT uses the international industry standard ISA-95. This meets both standardizing and traceability requirements. A graphic user interface supports with intuitive language the simple and easy-to-understand operations, ensures a flexible adaptation to dynamic market changes, and simplifies maintenance processes.

Through standardizing measures “point solutions” still common today will be decisively reduced.

SIMATIC IT cooperates homogenously with ERP systems. This allows for the implementation of process standardization whilst ensuring the highest possible flexibility. The customer can freely decide the size of the solution – dependent on his technical requirements, budget and time.

SIMATIC IT BUNDLES

Bundles make entry into the world of MES easier. It is not automatically necessary to always implement a total MES solution – the customer can decide to initially choose a partial solution which meets his most urgent requirements most efficiently. A bundle is a combination of functionalities to achieve specific manufacturing targets.



The SIMATIC IT Production Suite

Many MES products have become excessively complex in the attempt to meet all the requirements of the vertical market. This makes the adaptation of the MES application more difficult, whilst the market demands highly flexible, pre-defined and pre-configured solutions. SIMATIC IT responds to this trend for all production and business targets via modular, integrated and flexible products:

- **SIMATIC IT Framework** – Processes are modeled in a pre-defined IT environment where the components are intuitively connected by graphic rules. The SIMATIC IT Framework builds on the plant model of the customer and enables a much more transparent view of the whole production.
- **SIMATIC IT Components** – are the basis for the Production Suite and comply with all necessary MES functionalities. Each component covers a specific range of tasks within the production.

SIMATIC IT is part of a product family and can be expanded via:

- **SIMATIC IT Historian** – a process information management system used to collect, store and analyze process and production data.
- **SIMATIC IT Unilab** – the control system for laboratory information (LIMS).
- **SIMATIC IT Insterspec** – the control system for product specification.

SIMATIC IT Framework can integrate third party components and already implemented applications. The introduced solution can be utilized again at any time in the same way (scalability).

MES Extended Manufacturing

The SIMATIC IT Intelligence Suite

Through a higher quality of information supply, the SIMATIC IT Intelligence Suite provides decision making tools in real time and maximizes the transparency of the whole production process. The information is delivered consistently, redundancy-free and user-specific.

SIMATIC IT is used as the basis to create better plant transparency and manufacturing performance. Not only are the execution data stored and managed, but due to the special architecture of SIMATIC IT, additional information is provided which has been gathered from the know-how and the experiences during the complete manufacturing cycle.

The SIMATIC IT R&D Suite

The SIMATIC IT R&D Suite is a solution supporting the development processes and activities in the field of R&D (Research & Development). It aims to develop new products using the standard SIMATIC IT functionality in order to efficiently support the plant model, the operating processes and the basic component functions. The SIMATIC IT R&D Suite thus helps both with the selection as well as with shortening the time-to-market for a new product.

With SIMATIC IT R&D Suite, companies can cover and manage the complete R&D process – from the idea to the final product specifications.

Cross-Industry Libraries (CIL)

To flexibly meet the requirements of a continually changing market, SIMATIC IT is now extended by CILs (Cross-Industry Libraries). These CILs represent pre-configured solutions for individual MES requirements like e. g. HACCP (Hazardous Analysis and Critical Control Point), weighing and packaging, genealogy, intermediate tests or SPC (Statistical Process Control). CILs can be combined into a complete MES solution.

These Cross-Industry Libraries provide a set of SIMATIC IT Best Practice templates in the form of rules, reports and user interfaces which facilitate fast efficiency, low risk projects and the lowest possible overall operating costs.

The key to the success of every IT project is the maintenance efficiency of the solution over the life cycle of a project, the compat-

ibility of the solution with other manufacturing functionalities within the plant, and the capability to repeatedly use the solution at multiple points with a small effort. CILs facilitate all this and more.

SIMATIC IT is the basis for the use of CILs making it possible to expand the comprehensive benefits of the basic product with extended Cross-Industry functionalities into a pre-configured and completely integrated total solution. The higher implementation speed and solution flexibility has a positive impact on ROI.

With pre-configured applications, the CILs cover at least 80% of the industry-specific customer requirements as standard. CILs do not require a fully installed MES solution to realize their wide benefits.

The Foundation for your Solution



Process industry scenario

Companies in the process industry (food, chemicals, pharmaceuticals etc.) need to continually optimize their operating processes to guarantee a greater competitiveness and successful responses to constantly changing market requirements. The companies need in particular:

- Guaranteed product safety
- Compliance with legal rules and regulations
- Immediate response to changing customer behavior
- Optimal control of distributed production
- Optimization of productivity and company profit

SIMATIC IT supports its customers effectively in achieving their business targets. Especially with regard to safety, growing regulatory requirements, decentralized production and market dynamics.

Regulations and product safety

SIMATIC IT integrates quality control and assurance completely into the production process and thus enables e.g. complete product genealogy and uninterrupted traceability (“wall to wall”) as demanded by authorities.

Decentralized production

SIMATIC IT clearly improves the control of production and quality at distributed locations whilst simultaneously taking production limitations and the conditions of the local market into account.

Market dynamics and brand conformity

SIMATIC IT enables both the central control for all global and local product specifications and the capability to modify production processes with regard to new processes and products.

Discrete manufacturing scenario

Companies with discrete manufacturing are in increased competition and face growing customer requirements. The most important challenges in discrete manufacturing are:

- Handling of small lot sizes
- Control of labor and material costs
- Timely response to urgent customer requirements
- Control of WIP (Work in Process) within the plant
- Reduction of stock levels
- Strict compliance with regulations
- Reconfiguration of products in line with customer requirements

Only a company which can achieve these targets can act with the relevant flexibility in its specific market segment and thus gain a considerable competitive advantage. SIMATIC IT provides the necessary, adaptable MES products for the analysis, modeling and execution of production processes for the various industries – via the following features:

- Process control for the order management of products in various manufacturing areas
- Prevention of wrong assembly through preventative measures and correction for poorly fitted components
- Generation of a precise material traceability for each process phase

SIMATIC IT can solve every personnel related task optimally, including machine failures, handling of urgent orders, optimization of critical resources and new plant configurations in real time.

SIMATIC IT Benefits

SIMATIC IT provides traceable benefits for many industries:

- Reduction of manufacturing costs
- Increase in plant efficiency
- Improvement of process and product innovations
- Increase in operating capacity
- Safeguarding standard compliance
- Promotion of manufacturing flexibility and support of “lean manufacturing”
- Integration of “manufacturing intelligence”

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