



Connect yourself to MES

MES pocket guide

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SIEMENS



Bringing excellence to your manufacturing enterprise with SIMATIC IT - your modular MES

As a link between the technical production level and the management level, Manufacturing Execution Systems (MES) establish a new level of plant transparency - not only enabling traditional activities but also fully integrating information flow and just-in-time scheduling.

SIMATIC IT, the Siemens MES solution, meets all the requirements for a modern MES landscape, offering a wide range of components for optimal planning, execution, as well as documentation development and planning processes - thus enabling the seamless integration of your company. SIMATIC IT helps you achieve greater plant efficiency, higher product quality, and increased delivery reliability as well as shortening cycle times and ensures end-to-end traceability for raw materials and products.

The benefits at a glance:

- Fast, secure and flexible engineering
- Assured quality and regulatory compliance
- Higher process efficiency and greater flexibility
- Shorter time-to-market
- Lower cost of ownership



Siemens Automation and Drives

With more than 70,000 employees in the fiscal year 2006 the Siemens Automation and Drives Group (A&D) is the leading global manufacturer in this field. Products supplied by A&D include standard products for the manufacturing and process industries and the electrical installation industry as well as system solutions. With Totally Integrated Automation (TIA) A&D is the only supplier of a line of comprehensive, integrated products and systems for the implementation of customer-specific automation solutions - in a variety of sectors. SIMATIC IT plays a key role in TIA.

The heart of SIMATIC IT beats in Genoa, Italy, where our modular MES was developed. With our team working on five continents, we support more than 1,000 installed solutions worldwide. Genoa is also the location where a dedicated team of more than 500 engineers, technicians and consultants develop complete software solutions for the process, hybrid and discrete industries. Our customers can benefit from a wide range of highly innovative technologies for customer-specific or industry-specific solutions. This ensures greater productivity, higher quality, maximized speed and enhanced competitiveness.

Bringing excellence to your manufacturing SIMATIC IT - your modular MES

All over the world, manufacturing companies face the need to handle more and more information in an efficient way to support timely decision-making - reflecting the fact that time-to-market is one of today's key success factors.

As a long-term partner to your industry understand these challenges and we have developed targeted solutions. With SIMATIC IT we fully focus on your company's operations where 90 percent of crucial data in the manufacturing environment are delivered today. This is the place where all important data and information is created, aggregated, contextualized, warehoused, visualized, and made available to other systems and people. With Totally Integrated Automation we offer an integrated range of products and automation systems for particular industry sectors - from inbound to outbound business processes. That's how we help you leverage the full potential of your plant and enterprise systems. Now and in the future.



Seamless integration right from the start

To supply comprehensive, integrated closed-loop solutions we launched the SIMATIC IT Interoperability Campaign already in 2005 in cooperation with our worldwide partners for ERP technology and system integration. To further facilitate communication between business and manufacturing operations, we intentionally focused on plant-to-business information flows (P2B) based on the industry standard ISA-95 that also incorporates the B2MML language standard.

Depending on your investment preferences, total cost of ownership (TCO) considerations, and architectural requirements, you can choose from a range of SIMATIC IT options that are standardized, configurable, and interoperable right from the start. This ensure a high level of operational integration - and investment security.

SIMATIC IT for your industry Proven, compliant, adaptable - and highly successful

Whatever your specific needs are, SIMATIC IT offers the best combination of a customized solution and a standard product. SIMATIC IT consists of proven and scalable software components fitting together perfectly - and can be tailored to meet your particular industry specific needs. SIMATIC IT offers cross-industry and industry specific libraries with a wide range of easy-to-configure software templates for diverse implementations, including unit objects, workflows, and best-practice business processes.

SIMATIC IT is used throughout the following industries:

- Aerospace and defense
- Automotive
- Cement
- Chemicals
- Consumer packaged goods
- Electronics
- Food and beverage
- Home and personal care
- Machinery and tooling
- Metals and mining
- Oil and gas
- Pharmaceuticals
- Plastics and rubber
- Pulp and paper

Glossary

Connect yourself to MES

21CFR Part 11

A rule created by the FDA to facilitate introduction of electronic technology in the process of FDA submissions as well as in manufacturing and production. Part 11 was created to provide common sense guidelines on how to implement electronic equivalents of audit trail and signature processes previously performed on paper.

Adaptive Manufacturing

Adaptive Manufacturing is a product paradigm where a design concept for automation is tied to a concept "production to product". It contains the integration of all systems of the production and business level, e.g. SCADA, LIMS, Historian, SPC, MES, up to ERP, SCM or Data Warehouse. Adaptive production is a large-scale integration, an allocation of intelligent services: Data and information from production and business systems get merged on a common platform to combine with each other and provide significant KPIs.

Agent-based maintenance

An intelligent agent is a software module capable of flexible autonomous action in a dynamic environment. Agents have sensors to gather information, reasoning to evaluate it and the authority to act. Agents allow service engineers to remotely monitor system and product behavior and to act immediately to prevent critical scenarios. Such new technologies help top performers in manufacturing to look beyond the horizon, anticipate the future and take maintenance measures well ahead in time to gain significant competitive advantage.

APC - Advanced Process Control

An Advanced Process Control System (APCS) indicates a combination of diverse process control technologies. It has considerably strong influence on production time and cost factors since the homogeneous and function-integrating automation of complex production plants represents an important competitive advantage. APC is composed of different kinds of process control tools, for example, model predictive control (MPC), statistical process control (SPC), Run2Run (R2R), fault detection and classification (FDC), sensor control and feedback systems.

APS - Advanced Planning & Scheduling

Supporting tool within the production management to plan functions based on the MRP-II method. APS delivers work orders to the plant. It refers to a manufacturing management process by which raw materials and production capacity are optimally allocated to meet defined demands.

B2MML - Business to Manufacturing Markup Language

A format, a generic object model based on the XML standard within the ISA-95 defined environment. B2MML is an XML implementation of ANSI/ISA-95. It is meant to be a common data format to link ERP and supply chain management systems (SCM) with manufacturing systems such as control systems or MES.

Batch Analysis

IT tools to analyze data related to batch production, for example, batch composition or genealogy. Batch analysis provides a way of analyzing production performances not in terms of time but of executed batches. SIMATIC IT provides two off-the-shelf process and integration applications, the CIL BAN (Batch Analysis) and the CIL BMG (Batch Management).

BI - Business Intelligence

Global term used to explain the ability of software to generate user-specific information (via reports, graphs, and charts), e.g. the performance of various aspects of the company and its customer relationships to foster intelligent and fast decision-making. BI may also use "role-based dashboards" and balanced scorecards. The required data come from an integrated Data Warehouse or Data Mart.

BOM - Bill of Material

Bill of Material (BOM) lists materials (components or ingredients) and is the single most important deliverable that an engineering team gives a manufacturing team for the product design. At the simplest conceptual level the BOM is a list of each part needed to create a finished product. In real-world usage, however, the BOM is a complex collection of pieces of information and the relationships between them. The BOM is also a vendor list that specifies materials planning and corresponding expenses.

BPM - Business Process Management

Defines, enables, and manages the exchange of enterprise information thru the semantics of a business process view, which involves employees, customers, partners, applications, and databases.

CAB - Client Application Builder

Client Application Builder (CAB) is a web-based, GUI (graphical user interface) development environment for SIMATIC IT applications. CAB is fully based on Microsoft Visual Studio .Net and provides ZAC (Zero Administration Client) solutions. CAB natively provides connectors to all SIMATIC IT Components and, due to the open architecture, enables the development of project-specific connectors to any data source in the plant or at the business level. It provides multi-language support and web farm architectures for load balancing and for redundancy. The new version CAB# additionally provides a "portal" infrastructure for building Plant Portal applications. CAB# applications can be integrated in any .Net compliant environment such as MS Sharepoint.

CAD/CAM - Computer-aided design/computer-aided

CAD/CAMs the combination of computer-aided design and computer-aided manufacturing. CAD contains all processes in which computers are used for conceptual and detail design, the use of a wide range of computer-based tools that assist engineers, architects and other design professionals in their design activities. It is the main authoring tool within the PLM (Product Lifecycle Management) process and involves both software and special-purpose hardware. Linking it to MES allows for closed-loop integration to e.g. maximize design-to-market.

CAPA - Corrective and Preventive Action

CAPA are required quality measures that must be maintained as outlined in the 21 CFR 820.100 and 21 CFR 211.180 regulations and in ISO 8402. The purpose of CAPA is to make sure that the root cause of any problem is addressed in order to alleviate current or future problems. Corrective Action is the response to an occurring problem, e.g. a product or a customer complaint. Preventive Action is the process of detecting, meeting and eliminating potential problems or errors. CAPA consists of the following steps: Identification - Evaluation - Investigation - Analysis - Action Plan - Implementation - Follow-up.

cGMP - current Good Manufacturing Practice

Guidelines for the quality assurance of production processes and environments in pharmaceuticals, active ingredients and medical devices as well as foods and animal feeds. A cGMP-conformant quality management system guarantees product quality and compliance with legal requirements.

CIL - Cross-Industry Library

SIMATIC IT Components that consist of proven, easy-to-configure off-the-shelf functionalities addressing specific topics of the manufacturing execution area such as ERP Integration and Interoperability, Electronic Work Instructions, Defect

Management, etc. Cross-Industry Libraries (CILs) include plant model objects, workflows for best-practice business processes (Production Operations), dedicated GUIs and Reports. Models and production operation logics are stored in a hierarchy of reusable Libraries. This reduces the time, cost and risk of a project whilst at the same time increasing quality. CILs are an intermediate stage between the SIMATIC IT and industry-specific Libraries. Cross-Industry Libraries contain: rules that can be modified using configuration capabilities of SIMATIC IT Framework, GUIs that can be modified using the capabilities of SIMATIC IT Client Application Builder, reports that can be modified using the capabilities of SIMATIC IT Report Manager, functionalities provided by specific add-on components that can be modified using their standard configuration capabilities. CILs can be used in all industries - Discrete, Process and Hybrid.

CM - Collaborative Manufacturing

Strategy by which all appropriate individuals and organizations work together. SIMATIC IT supports that strategy via its Framework and Components approach: the SIMATIC IT Libraries address specific manufacturing actions and processes. They also collaborate with the business level to achieve manufacturing excellence.

Coding

Coding means implementing rules that are used to map elements, usually on a one-to-one basis. Since coding requires a cost-intensive and time-consuming software adaptation with little scalability, SIMATIC IT production options are rule-based, where every rule represents a call to a certain function provided by a component. Thus, no coding is required.

Compliance Service

SIMATIC IT option to address 21 CFR Part 11 (audit trail and electronic signature). It has been designed as a common service for SIMATIC IT Production Suite, SIMATIC IT Historian, SIMATIC IT Interspec, SIMATIC IT Unilab and any SIMATIC IT library, and can be used by any application in order to secure the compliance of a complete MES solution.

Components

Individual elements that provide the functionality for e.g. Order Management, Material Management, Personnel Management, KPI Management, Product Definition Management, Data Integration Management. Engineered and fully harmonized, they provide detailed functions for the manufacturing process management. The SIMATIC IT Components cover the required tasks necessary to handle manufacturing processes.

CPM - Collaborative Production Management

System that, on the basis of integrated software applications, enables resource planning, monitoring of production processes, and re-confirming real-time data to the ERP thru plant data collection (Adaptive Manufacturing).

Data Mart

Specialized version of a DW. Data marts contain a snapshot of operational data to help business people plan strategy based on analyses of past trends and experiences. The key difference is that the creation of a data mart is based on specific, predefined needs for a certain grouping and configuration of selected data. Since data mart configuration emphasizes easy access to relevant information, the star diagram is a fairly popular design choice, as it enables a relational database to emulate the analytical functionality of a multidimensional database.

Data Mining

Integrated process for detecting patterns within a database or data sets thru various methods such as the extraction of potentially useful information.

DCS - Distributed Control System

Distributed Control Systems are an element of a manufacturing system. They are used in industrial and civil engineering applications to monitor and control distributed equipment with remote human intervention. A DCS is generally digital and consists of field instruments. These instruments are analogically or digitally connected to computer buses or electrical buses via multiplexers/demultiplexers. A connection from distributed or central controllers to the HMI or control consoles is being implemented by buses.

Demand-driven Manufacturing

Manufacturing plans and operations triggered by customer demand signals, ensuring shorter production, purchasing and supply chain paths.

Design-to-Manufacture

Concept based on a strong integration between product engineering/development and the manufacturing process.

Digital Factory

The Digital Factory offers everything around IT required by a digital product, from concept to customer services. Within Siemens the Digital Factory consists of Digital Mockup, Digital Engineering, and Virtual Commissioning. The Digital Factory brings together decision makers of the manufacturing industry across sectors.

Digital Manufacturing

Digital Manufacturing is an integral component of a full broad-based PLM strategy. Many of the PLM investments can only be achieved by a clear and comprehensive digital manufacturing program - therefore, it is critical for the realization of the PLM promises. Digital Manufacturing creates solutions that effectively support collaborative manufacturing process planning among engineering disciplines, such as design and manufacturing - based on best practices and a full digital product definition.

DIS - Data Integration Service

Event-driven component that handles the message exchange between SIMATIC IT and the transactional (business level) world. Being an event-driven component, it is based on XML and provides transformation patterns (XSLT). DIS stores every message exchanged and handles also communication failures. The service uses the B2MML format and is based on a business logic.

Discrete Manufacturing

Discrete manufacturing varies from process manufacturing. In discrete manufacturing, the manufacturing floor processes orders to build for example toys, medical equipment, computers and cars. Discrete manufacturing is mainly characterized by individual or separate unit production. SIMATIC IT supports the specific requirements of discrete industries such as Car Makers, Truck Makers, Power Train & 1st Tier Suppliers, Electronic Assembly as well as for Aerospace & Defense with innovative functions like job control, tracking and tracing, quality management and plant floor process control. The support includes also traditional solutions for manual monitoring and control of production processes and scheduling.

DMS - Document Management System

Software applications designed to manage all types of documents, including scanned, electronic and paper documents. All documents are stored in a single repository that facilitates all actions that need to take place from search and retrieval to email and printing. They commonly provide check-in, check-out, storage and retrieval of electronic documents.

DNC - Distributed Numerical Control

Common manufacturing term for networking CNC (computerized numerical control) machine tools. On some CNC machine controllers, the available memory is too small to contain the machining program (for example machining complex surfaces), so in this case the program is stored in a separate computer and sent directly to the machine, one block at a time. If the computer is connected to a number of machines it can distribute programs to different machines as required. DNC networking or DNC communication is always required when CAM programs are to run on some CNC machine controls.

DSS - Decision Support System

Automated system that supports the process of decision-making. It enables an employee, typically a manager, to make better and faster decisions based on the analysis of collected data.

DTM - Downtime Management

Strategy used by manufacturers for plant optimization, monitoring and ultimately minimizing downtimes of equipment tool due to failure (both plant and HW/SW) or scheduled maintenance, with the scope of reducing loss in effectiveness.

DW - Data Warehouse

Data warehouse is not an operational system but the main repository of an organization's historical data: its corporate and manufacturing memory. It contains the raw material for management decision support systems. Users can perform complex queries and analyses by accessing such a data warehouse responsible for the data mining. It is crucial to access the information without slowing down the operational systems. The data warehouse is optimized for reporting and analysis.

EAI - Enterprise Application Integration

Concept for the company-wide integration of business functions along the Value Chain. There are different methods such as Data Integration Enterprise Bus, Application Integration Message Broker, and Process Integration Process Management Tools.

EBR - Electronic Batch Record

Batch recording thru a computerized system that specifies and controls manufacturing operations and documents all processes and quality information, providing instant visibility and facilitating retrospective analysis of batch manufacture.

EDI - Electronic Data Interchange

Method for exchanging data between systems based on a set of standardized specifications using networks such as VANs or the Internet. As more and more companies get connected to the Internet, EDI is becoming increasingly important as an easy mechanism for companies to buy, sell and trade information. ANSI has approved a set of EDI standards known as the X12 standards.

ELN - Electronic Lab Notebook

The SIMATIC IT R&D Suite provides targeted functionality to make sure that every researcher has the full freedom to easily capture all data of any type of experiment or report in an electronic format. Contextual handling of raw data, experimental details and test results can be configured according to the corporate policy whilst allowing complete flexibility for annotations and additional activities.

ERP - Enterprise Resource Planning

Business management system that integrates all facets of the business as defined in the industry standard ISA-95, Level 4. ERP typically attempt to cover all basic functions of an organization, regardless of the organization's business or charter. Due to its silo-type architecture and its strong legal impact on compliances (e.g. software packages covering payroll, accounting), it offers a rather rigid, non-process-oriented but transactional architecture with limited support towards adaptive and real-time manufacturing with its high requirements on speed and flexibility.

ERP - MES Integration

Off-the-shelf and flexible integration software solutions to connect the shop floor to the top floor realizing a seamless MES-ERP interoperability. In a highly standardized way, Siemens offers comprehensive solutions to create e.g. a higher visibility of processes, the ability to make them more collaborative and responsive, provision of track and trace capabilities, and real-time handling of exceptions. The CIL ERP facilitates the connection of SIMATIC IT to any B2MML-compliant ERP system. It speeds up the synchronization of basic functions as well as of modules for resource management, scheduling and documentation. The SOA of SIMATIC IT enables efficient implementation via plug'n'play using existing middleware, with no need for additional interfaces.

FDA - The US Food and Drug Administration

Agency of the United States Department of Health and Human Services responsible and setting the most important regulations and guidelines for food (human and animal), dietary supplements, drugs (human and animal), cosmetics, medical devices (human and animal) and radiation emitting devices (including non-medical devices), biologics, and blood products in the United States. SIMATIC IT provides the infrastructure and the technology that allow the implementation of MES applications compliant with 21CFR Part 11.

Framework

SIMATIC IT Framework is a modeling environment in which the functions of SIMATIC IT Components and other Siemens and third-party components are coordinated graphically to define an execution logic. In this Framework a plant model is created to represent the physical objects, tangible devices and equipment, and logical objects such as software packages and applications. Production Operations, the graphical representations of the execution logic, use the components to access the status and trigger the functionality of the objects defined in the plant model. SIMATIC IT Libraries (CILs) are pre-defined configurations of SIMATIC IT Framework and are used to speed the design and implementation of repetitive and similar solutions.

Genealogy

Genealogy allows the user to track backwards thru the manufacturing history of a product batch to the original materials used to manufacture the batch and thus rebuilds the manufacturing history of a product. SIMATIC IT supports genealogy with a dedicated CIL Genealogy.

GMP/GxP - Good Manufacturing Practice

Set of regulations, codes and guidelines for the manufacture of drugs (known as medicinal products in Europe), medical devices, diagnostic products, food products and Active Pharmaceutical Ingredients (APIs). The term "current" Good Manufacturing Practices or "cGMPs" refers to the way the pharmaceutical product regulations are called in the USA in order to emphasize that the expectations are dynamic.

GUI - Graphical User Interface

A connection between the computer and the user employing a mouse and icons to allow the user to make selections by pointing at icons and buttons and clicking the mouse to execute actions: drag-and-drop actions are also supported. Computer interfaces are normally associated with operating systems like Windows and Macintosh where a mouse can be used to navigate the screen. A GUI allows the use of graphics such as icons and buttons to execute actions and also uses drag-and-drop to perform actions. SIMATIC IT GUI is implemented thru the Client Application Builder (CAB) component.

HACCP - Hazard Analysis and Critical Control Point

Systematic approach to food safety that addresses physical, chemical and biological hazards as a means of prevention rather than finished product inspection. HACCP is used in the food industry to identify potential food safety hazards. The system is used at all stages of the food production and preparation processes. SIMATIC IT supports this with its CIL HACCP for Quality, Performance, Process and Integration.

HDD - Historian Data Display

GUI component that enables displaying data from PPA (Plant Performance Analyzer) and PDA (Product Data Analysis). It provides a trend, a bar graph and a production/batch oriented view. These views are OCX (OLE Control eXtension) components and can therefore be used in OCX containers such as SIMATIC IT CAB and Siemens WinCC GUI.

Historian

A group of SIMATIC IT components for managing process data and plant information across the enterprise for time-oriented KPI calculation, quality assurance, reporting, certification, statistical analysis and performance monitoring. The SIMATIC IT Historian is the management system for process and production data (PIMS).

SIMATIC IT Historian covers the three main activities related to plant information management: Production Data Collection, Production Performance Analysis and Production Tracking and exploits the general concept of Plant Intelligence. Main features are the collection of all process and production data, calculation of Key Performance Indicators (KPI), reporting and advanced analysis functions such as Statistical Process Control (SPC). Offering all these features, this Historian is an integral part of SIMATIC IT and the basis for more advanced MES solutions. Thru the Totally Integrated Automation (TIA) concept SIMATIC IT Historian is seamlessly integrated with other SIMATIC products like SIMATIC PCS7.

HMI - Human Machine Interface

Human Machine Interface (HMI) is an operator control and monitoring system that interfaces between machine operator and machine. It works with a dedicated electronic operator panel and PC based visualizations. Siemens offers thru SIMATIC HMI Siemens offer products for all applications with WinCC flexible and a wide variety of operator panels up to large scale PC based SCADA systems with WinCC. As timely access to accurate information is critical in making the right decisions, the importance of a technology called human machine interface has been increased.

Hybrid Industry

Manufacturing processes in the Process Industry are often "hybrid". They are characterized by primary process activities such as reacting, mixing or separating and are combined with discrete applications of secondary processes, inbound or outbound. Hybrid industries are also characterized by mixed automation technologies.

Integration of the Manufacturing layer, vertically and horizontally

Concept of Horizontal Integration that describes the combination of companies of the same production stages to with an integrative management. This enables a common supply of raw material and thus a common strategy to the market all the way to the finished products. Since 1996, Siemens is pushing the Horizontal Integration on the field and control level with "Totally Integrated Automation" (TIA) thru its SIMATIC automation technology. Vertical Integration means the transparent data communication from the process level to the corporate management level. Vertical Integration enables production flexibility and adaptation thru modularization and standardization of the entire and seamlessly integrated sub-processes. Results are lower investments and increased productivity.

Siemens sets the stage for a seamless Vertical Integration from the ERP via the MES and Control level down to the field devices. The SIMATIC IT CIL ERP facilitates the connection of SIMATIC IT to any B2MML-compliant ERP system. This CIL speeds up synchronization of basic functions as well as of modules for resource management, scheduling and documentation thru seamless Interoperability .

Intelligence Suite

Suite of SIMATIC IT Components for handling Manufacturing Intelligence requirements for fast decision-making. It provides decision supporting tools that generate information out of a vast data collection of diverse data sources and locations in real-time (e.g. from plants of different countries) to maximize the transparency of the whole production process with the ability to drill down to critical events.

The SIMATIC IT Intelligence Suite collects, aggregates and contextualizes all relevant production and business data generating dashboard-oriented, role-based GUIs to support decision-making throughout the entire organization.

Interoperability

The ability of a system or a product to work with other systems or products without special integration efforts on the part of the customer. This generally requires the compliance with common standards. The collaborating systems or products become compatible. SIMATIC IT realizes interoperability not only as point-to-point solution but strategically as seamless interoperable workflows based on the portfolio of SOA, CIL ERP & E2S, SIMATIC IT Interspec (part of the R&D Suite). The CIL E2S allows maximum interoperability between SIMATIC IT and SAP solutions such as IDoc, RFC or BAPI, even without middleware such as SAP NetWeaver.

ISA-88

ISA-88 is the international standard for production flexibility that defines terminology specific to batch control systems. The standard provides models and terminology that support the structuring of production processes and the development of control for equipment.

ISA-95

ISA-95 is an international industry standard that was defined by the Instrument Society of America (ISA, founded in 1945 in the USA) to set standards for automation. ISA-95 defines the terminology between an ERP system and a MES framework down to the Control level. This standard has been developed for global manufacturers to be applied in all industries and in all sorts of processes (batch, continuous, discrete).

Part of that framework relies heavily on the World Batch Forum (WBF) standard, called the B2MML, which provides the appropriate context around the data. As long as the ERP system and the MES system both comply with these standards, they speak the same language. This standard helps address questions such as which tasks can be executed by which function and what information must be exchanged between the applications. SIMATIC IT is fully compliant with this standard and uses it as a blue print for its architecture.

JIS - Just-in-Sequence

Scheduling technique that delivers to the manufacturing lines the needed parts used for production not only just when they are needed (Just-In-Time) but also in the correct sequence required by the production orders SIMATIC IT Scheduler.

JIT - Just-in-Time

Inventory strategy implemented to improve the Return On Investment (ROI) of a business by reducing the in-process inventory and its associated costs. The process is driven by a series of signals, or Kanban, that tell production processes to make the next part. JIT can lead to tangible improvements in a manufacturing organization's ROI, quality and efficiency, when implemented correctly.

Kanban System

Concept that maintains inventory levels and is related to Lean or Just In Time (JIT) production operation based on simple visual signals, such as the presence or absence of a part on a shelf. A signal is sent to produce and deliver a new shipment as material is consumed. These signals are tracked thru the replenishment cycle and bring extraordinary visibility to suppliers and buyers.

KPI - Key Performance Indicator

Indicators with which the progress of objectives and/or critical success factors within a company can be detected to support important and fast decision-making. While the vast majority of companies rely on ERP and database management capabilities to accomplish manufacturing enterprise tasks today, emerging technologies, such as next generation MES, manufacturing intelligence (Intelligence Suite) and business analytics are playing an increasing role to realize mature real-time manufacturing KPI solutions for continuous improvement programs. For instance, OEE checks as one possible KPI the real machine efficiency compared to the theoretical one. Such KPIs can also be standardized across different locations thru Manufacturing Enterprise level initiatives to create operational benchmark levels.

Lean Manufacturing

Generic process management based on reduction of process variation to improve overall customer value. The Lean Manufacturing concept tends to reduce the number of operations that do not add value to the final product, such as 'inefficient transport system' or 'repeated manual operations'. Often the number of non-adding value operations still exceeds 50% of the entire operations for manufacturing a product today. SIMATIC IT can also be used as an effective tool to support multi-plant lean manufacturing initiatives.

Manufacturing Enterprise

Manufacturing Enterprise systems give manufacturing organizations a tool on hand to respond to today's increasing market pressure for shorter product life cycles, higher legal and regulatory requirements, faster time-to-market, Just-InTime (JIT) or Make-to-Order requirements and many other issues. The manufacturer can then consider plant operations (where the products are physically manufactured) as an integral part of the supply chain and, more generally, as an integral part of the corporate business processes. This system supports the manufacturer to be more flexible and agile and to orchestrate all the individual elements that cooperate and collaborate to achieve the manufacturing targets. This way the manufacturing cycle becomes this way fully integrated with the corporate enterprise.

LIMS - Laboratory Information Management System

Software-based system that automates the work processes and long-winded administrative functions of a laboratory in R&D and manufacturing. A LIMS manages above all in process industries the complete test routine including sample log-in, testing, re-testing and final reports. It also covers functions such as stability studies, sample management, inspection plan and test equipment calibration. An enterprise LIMS extends this functionality thru the integration to company-wide resource planning systems including lab management, work scheduling and product release as well as trending and analytics. This way, a LIMS is capable of managing the workflow in laboratories, optimizing the collection, analyzing and reporting on all quality data in the laboratory, and managing and communicates the quality data to all involved stakeholders. With the SIMATIC IT Unilab product, Siemens holds a market leading LIMS offering.

Material Manager (MM)

Component that handles material life cycles according to SIMATIC IT PM (Production Modeler) rules. This includes the handling of material transformations, movements and, in particular, the building of all the genealogy records for production lot traceability. The SIMATIC IT MM, thru the PM, is integrated with material master data (including recipes, BOM etc.) from the ERP or the PLM systems.

MES - Manufacturing Execution System

An integrated hardware and software solution designed to measure and control critical activities in the production environment. A MES is a dynamic information system that drives effective execution of manufacturing operations. Using current and accurate data, MES guides, triggers and reports on plant activities as events occur. MES is a set of functions that manages production operations from the point of order release into manufacturing to the point of product delivery of finished goods.

State-of-the-art MES provide and work with mission-critical information before, during and after production activities and also connect to other systems across the organization and supply chain via bi-directional communication. The ISA organization has defined standards regarding the scope and character of MES and its integration into a larger company-wide IT architecture independent of a particular solution vendor. SIMATIC IT is based on and fully compliant with this standard. SIMATIC IT, designed as a standardized and modular MES product, closes the fundamental information gaps between corporate management and production processes.

MI - Manufacturing Intelligence

Concept which focuses on the possibility to provide production users with tools and information to let them respond better and faster to shop floor requirements. MI presents a transformation process on how to generate intelligence from data, and how to use it proactively for increasing manufacturing efficiency.

MIS - Management Information Systems

Integrated IT infrastructure that helps coordinate production on a global scale and, if necessary, in real-time. Examples include specifications, equipment and facilities, processes and procedures and quality tests, as well as personnel resources. However, current IT infrastructures are typically not ready to effectively accommodate these levels of integration. There is an information and functionality gap between the production level (where products are made) and enterprise level business systems (where high-level decisions on production are made).

MRO - Maintenance, Repair and Operations

Ideal method for the effective planning of all resources of a manufacturing company thru simulation capabilities to determine material, labor and machine requirements. MRPII is the consolidation of MRP (Materials Requirement Planning), capacity requirements planning (CRP) and master production scheduling (MPS). MRP was originally designed for materials planning only. When labor and machine (resources) planning were incorporated it became known as MRPII. Today the definition of MRPII is generally associated with MRP systems.

MRPII - Manufacturing Resource Planning

Component that handles configurable messages and alerts from SIMATIC IT PM to users to inform them about the entire operational execution.

MsM - Messaging Manager

Component that enables SIMATIC IT Production Modeler to interact with the user through messages, instructions, and commands.

OEE - Overall Equipment Effectiveness

Calculation method that focuses on individual items of process or manufacturing equipment at a finite level and allows their 'effectiveness' to be measured individually or in groups (i.e. with other equipment items). The OEE calculation is based on the ratio of the three key production parameters: availability, performance, and quality with time (e.g. planned shift time/s). It can be viewed as the percentage of time that equipment would need to run at its maximum speed in order to attain the actual output of the tool or machines. OEE acts as a measure for the control and management of the life cycle of manufacturing plants. SIMATIC IT covers this important functionality thru its CIL OEE/DTM and SPC for quality and performance.

OLE - Object Linking and Embedding

A concept that includes on top of MES (as defined in the industry standard ISA-95) also Production Operations with executable workflows of business and production logic. Via such an operations intelligence management system, (SIMATIC IT XHQ), particular KPIs can be generated on basis of real-time data and visualized on personalized dashboards from which drill-downs are also possible at any time to perform root cause analysis.

OPC - Openness, Productivity, Collaboration

System used to automatically control a process thru network connections, sensors, controllers, operator terminals and actuators. It forms a part of the Shop Floor Automation System level (PLC, SCADA, HMI, DCS...). With PAS Siemens is one of the top 3 global players covering e.g. automation systems, communication networks, sensors and analytics, drive systems, low-voltage control, and power supply.

Operations Intelligence

Critical element in production and manufacturing technology and an important prerequisite for the continuous optimization process in production. Via static methods (for instance SPC), stability and scalability of a process or a process step can be measured.

PAS - Process Automation System

SIMATIC IT Product Definition Manager is an engineering environment for translating specifications into manufacturing actions. It maps and defines the product specifications (operations, resources and parameters) necessary to produce a product.

PDA - Product Data Analysis

A sometimes very large component of the manufacturing system to create and store product drawings and process information and supply that data for plant floor use.

PDefM - Product Definition Manager

Component that handles the creation of the Product Production Rules (PPR) that make up the group of tasks necessary to produce a certain product (in ERP terminology the PPR is also called routing). With each of these so-called product segments (PS) a rule in the Production Modeler (PM) is associated. One or more rules of the PM correspond to each PS.

PDM - Product Data Management

Component that handles short term scheduling of work orders downloaded from ERP or APS. It schedules orders at the level of a plant or of an area and provides the tools to manually interact for the definition of the schedule, in particular thru a Gantt chart that is able to handle different scheduling scenarios.

PDS-I - Predictive Detailed Scheduler - Interactive

The detailed scheduling is a function typical of scheduling at the plant or area level. It provides the functionality to support the user (a human scheduler) for defining a feasible plan of production orders. The orders are downloaded from the business level (ERP and/or APS) and have to be properly scheduled in a detailed way into a feasible plan. PDS-I provides several tools for supporting users in performing these actions including project specific automatic algorithms, scheduling measures for comparing different scheduling scenarios, concurrent editing of different scheduling scenarios and many other. It's a unique proposition in the detailed scheduling word.

PIMS - Plant Information Management System

PIM systems collect and integrate information from production processes via different sources company-wide. The environment where SIMATIC IT Historian is applied is the typical Plant Information Management, where data must be collected, grouped, aggregated, validated and manipulated. It provides functions that sometimes overlap or are integrated with typical SCADA functions, in particular for detailed data collection and presentation.

Plant Intelligence

Overall visibility of the manufacturing process and all the relevant information, actions, responses, statistics and performances. It can be considered as the meeting point between high-end HMI, SCADA and low-end MES functionality (Data Collection and Performance Analysis, according to ISA-95) up to the Manufacturing Enterprise including its evolution towards Operations Intelligence.

PLC - Programmable Logic Controller

A digital computer that usually uses microprocessors to realize the automation of industrial processes, such as the control of machinery on factory assembly lines.

PLCs can also control complex sequencing. The program is stored in battery-backed memories and/or Electrically Erasable Programmable Read-Only Memories (EEPROMs). Unlike general-purpose computers, PLCs are packaged and designed for extended temperature ranges, dirty or dusty conditions, immunity to electrical noise, and are mechanically more rugged and resistant to vibration and impact.

PLM - Product Lifecycle Management

Solution to collaborately manage all related activities along the entire lifecycle of a product from its conception, thru design and manufacture to service and disposal. PLM is a set of capabilities that enables an enterprise to effectively and efficiently innovate and manage products and related services throughout the entire business life-cycle. It addresses product, design-related and process aspects. PLM generally covers Program and Portfolio Management, Requirement Management, Design and Validation, BOM, Closed Loop Quality, Document Management, Design to Source, Target Cost Management, MRO and Compliance. The Siemens PLM portfolio helps to provide a single, accurate view of product and process to accelerate new product introductions, maximize the value of the product throughout its life cycle and plan future investments.

PM - Production Modeler

Graphical object-oriented tool allowing the user to follow the entire lifecycle of a MES project - from the design to the commissioning phase. PM offers a modeling environment in which the various functions provided by SIMATIC IT Components are graphically combined to define the execution logics of a physical plant. This logic shows all operating procedures in a user-friendly way.

PPA - Plant Performance Analyzer

SIMATIC IT Component that collects data from the field (PLC or field devices) and from historical archives such as HMI/SCADA or DCS. Within Totally Integrated Automation (TIA), PPA collects data from Siemens WinCC (SCADA system), Siemens PCS7 (DCS) and Siemens S7 (PLC), Siemens SIMATIC BATCH (batch). Also standard RDBs are supported. It handles data aggregation with pre-defined or custom algorithms. It stores this data into SQL. If associated to PM, it can provide context to archived data. It includes performance analysis tools, e.g. HDD and an Excel add-in.

PRM - Personnel Manager

SIMATIC IT Component that manages personnel data thru an integration with production data. This allows the tracking of each individual's detailed activities anytime. PRM defines personnel profiles and associated skills for the execution of manufacturing workflows.

Process Industry

The Process Industry covers industries like Food & Beverages, Pharmaceuticals or Oil & Gas. It is characterized by batch/semibatch processes and continuous/discontinuous processes, for the manufacturing of products. Many production steps demand inputs such as time, pressure or heat. With its functionalities and portfolio of standardized products, SIMATIC IT supports higher productivity and flexibility over the entire life cycle, shorter time-to-market, quality assurance for continuous manufacturing such as for Batch Chemical, Refining, and hybrid manufacturing such as Brewing, Tobacco, Dairy or Pharmaceuticals.

Production Modeling

Modeling a Production Operation means to sequence functionality exposed by different Components according to the defined manufacturing target.

Production Operation Recorder

SIMATIC IT Component that archives every individual step of SIMATIC IT Production Modeler for the purpose of recording and future analysis.

Production Operations

Executable workflows of business and production logic to precisely specify all the MES activities related to production (production definition management, dispatching, execution, tracking, etc.).

Production Order

Production orders are part of the Production Planning. They are used to plan and control the manufacturing activities of a company. Production Planning includes bills of material, routings, work centers, sales and operations planning, master production scheduling, material requirements planning, shop floor control, product costing and Production Orders. Other names are work order, manufacturing order, or production order. In manufacturing, it consists of providing specifications and quantities for the required products, usually including material lists and routing paths.

Production Suite

SIMATIC IT Production Suite is the complete suite of Components to address MES requirements. It is based on a Framework and Components. Components are described to provide the functionality required by a MES solution (as defined in ISA-95 Part 3). It also supports the integration of existing legacy systems, if required, and provides full features for integrating shop floor automation and control systems (such as PLC, DCS, HMI etc.). A set of services for interoperability with the business level and in particular with ERP is included. Reporting and web-based client environments complete the portfolio of the Production Suite.

QA - Quality Assurance

Activity of providing the needed evidence to establish confidence that quality-related activities in manufacturing are performed effectively. These actions may be systematic or specifically required to meet defined processes and given requirements.

QM - Quality Management

Structure of defined and scheduled operations to ensure the highest possible quality of products. The QM method is widely used in manufacturing to develop and implement products that match the highest effectiveness and efficiency level with respect to the system and its performance.

R&D Suite

Scalable suite of components to handle R&D-related tasks and synchronize them with production tasks based on the SIMATIC IT Framework. It covers and streamlines the complete MES-related R&D processes and transfers the final product and process designs to one or more manufacturing plants in a consistent and efficient way, so that R&D and manufacturing will be aligned. Included are document management systems as well as the formulation and specification capability thru the product specification management SIMATIC IT Interspec and the SIMATIC IT Unilab (the Laboratory Information Management System). The R&D Suite also visualizes the progress of product development projects by presenting experiments and trial production for each planned project stage.

RFID - Radio Frequency Identification

Refers to the technology that uses devices attached to objects transmitting data to an RFID receiver. These devices can be large pieces of hardware the size of a small book, like those attached to sea freight containers, or very small devices inserted into a label on a package. RFID has advantages over barcodes such as the ability to hold more data, change the stored data as processing occurs, no line-of-sight requirement to transfer data and high efficiency in harsh environments where barcode labels won't work. SIMATIC IT CIL RFID capabilities provide a valid method for contextualizing and improving the possibilities offered by this technology representing a bridge between the warehouse and manufacturing management software tools.

RM - Report Manager

SIMATIC IT application that provides reporting functionality, archiving, and distribution of reports (also via the world wide web). It has an engineering environment to create/modify reports including a systematic distribution. It is based on Business Objects.

ROA - Return on Assets

The Return on Assets provides a percentage measurement of the profitability of a plant by effectively calculating the revenue of its assets such as of total assets (fixed and current), long term assets, and operating profit.

ROI - Return on Investment

Calculation of the net income to be saved or earned as the result of an investment. The earnings stay in relation to the size of the total amount invested, expressed as a percentage. For this calculation, investments of both time and capital are factored in.

Root Cause Analysis

Class of problem solving methods aimed at identifying root causes of problems and events by deductive reasoning down to the physical and human root, also using inductive reasoning to identify a broader, latent, or organizational root.

SCADA - Supervisory Control and Data Acquisition

System that refers to the combination of telemetry and data acquisition whereby computers are used to automatically or via operator commands collect real-time data from plant machinery to provide central monitoring, control and process visualization of the plant and its facilities. Plant instrumentation (sensors, switches, motors, pumps, valves etc.) is connected to the PLC, which in turn is connected to the PC running the SCADA software. SCADA comprises of collecting information, transferring it back to a central site, carrying out analysis and control, and displaying these data on various operator screens.

SCM - Supply Chain Management

Process of planning, implementing and controlling the operations of the supply chain with the purpose of satisfying customer requirements as efficiently as possible. Supply chain management spans all movements and storage of raw materials, work-in-process inventory and finished goods from point of origin to point of consumption. It thereby encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. It therefore supports the coordination and collaboration with third parties contributing to the Manufacturer's supply chain.

Service & Maintenance

Depending on plant requirements, the scope of services can include planning and implementation services for all stages in the plant's life cycle. SIMATIC IT Maintenance follows the complete project life cycle - from the first analysis of customer requirements and the development of a business scenario via implementation and commissioning

to the complete maintenance cycle including the phase-out of installations. Predictive maintenance systems consist of pre-defined concepts and pre-defined modules that attempt to prevent unscheduled machine downtime by collecting and analyzing data thru equipment condition monitoring. The acquired data is used to forecast machinery down-times and plant maintenance. Siemens Proactive Global Support complements the SIMATIC IT cross-industry software products and solutions with a blend of technical support: application consulting services, Siemens Technical Support Services (TSS), empowering service, assessment services, and pre-evaluation & scenario development, and support for end-users throughout the product and application life cycle to maximize their ROI.

Shop Floor Automation and Control

Automation of the dynamic, flexible and resource-friendly assignment of production. This means a to-the-minute timing of all production processes, permanent transparency in manufacturing as well as an ideal capacity efficiency.

SIMATIC IT

SIMATIC IT is the Siemens MES product and solution. SIMATIC IT consists of highly-integrated components designed to coordinate the systems within each plant and between plants. It standardizes production across the entire enterprise and orchestrates, executes and traces manufacturing processes aligned with supply chain activities. SIMATIC IT provides a high level Framework that allows the description of the manufacturing processes and operation procedures by synchronizing and coordinating the functions provided by the individual components. These functions properly perform the actions required for managing the production, such as orders management, material management, KPIs. SIMATIC IT follow the paradigm of a modular building block system. The core is the SIMATIC IT Production Suite and a broad spectrum of optional Components for extended performance.

Two further Suites are integrated: SIMATIC IT R&D Suite and SIMATIC IT Intelligence Suite. As an integral part of TIA, SIMATIC IT is based on the rigorous standardization of Siemens automation products and solutions. At the same time, it is compliant with ISA-95 structures and hierarchization with both Siemens as well as third party products. It enables coordination of business and production processes thru horizontal and vertical integration and works rule-based and object-oriented.

Six Sigma

Systematic methodology for quality management trying to eliminate errors on products and services. Six Sigma refers to the ability of highly capable processes to produce output within specification. It utilizes information and statistical methods for measuring a plant's performance, focused on improving business processes. In particular, processes that operate with six sigma quality produce defect levels below 3.4 defects per (one) million opportunities (DPMO).

SOA - Service Oriented Architecture

SOA is primarily a management concept that aims at an infrastructure aligning business processes while at the same time considering the fast changing requirements of a business environment. SOA is an architectural style usually based on Web services standards (e.g. using SOAP) combined with business logic. These standards provide greater interoperability thru the aggregation of Web services into the services of the business layer. SOA can be implemented using any service-based technology. Thru its open, flexible, and adaptable SOA structure, SIMATIC IT enables efficient implementation via a plug'n'play approach with no need for additional interfaces.

SOAP - Simple Object Access Protocol

Remote procedure call mechanism that transfers data in XML format thru communication channels such as HTTP. It defines the supported methods with its arguments and data types as they are transferred in XML form. The SOAP server's capabilities are described in a WSDL (Web Service Definition Language) document.

SOP - Standard Operating Procedures

A set of instructions directs and covers features of operations that refer to a definite or standardized procedure and thus increases effectiveness.

SPC - Statistic Process Control

A set of statistical methods for installing quality control in manufacturing processes. It is covered by the identification and control of causes of variations in a process and its separation from common cause variations. The CIL SPC enables root cause analysis, weight control, defect analysis, and analysis of quality production data.

SQC - Statistical Quality Control

Methodology of analyzing quality test result and testing performance in order to determine how to improve product quality. SIMATIC IT SQC permits the handling of quality issues from a statistical perspective in conjunction with SIMATIC IT SPC (Statistic Process Control).

SQL - Structured Query Language

The most popular computer language used to create, modify, retrieve and manipulate data from relational database management systems. The language has evolved beyond its original purpose to support object-relational database management systems. It is an ANSI/ISO standard.

TCO - Total Cost of Ownership

Financial calculation designed to help investors of e. g. manufacturing projects to assess direct and indirect costs related to the purchase of any capital investment, such as (but not limited to) computer software or hardware. A TCO assessment ideally offers a final statement reflecting not only the cost of purchase but all aspects in the further use and maintenance of the equipment, device, or system under consideration. SIMATIC IT is based on standardized products that enhance the minimization of the TCO.

TIA - Totally Integrated Automation

TIA describes a hierarchically built process control system introduced and marketed by Siemens, structured from the enterprise level down to the field level. Facing continuously changing markets, manufacturing industries increasingly rely on control and automation systems to deliver higher energy efficiency, lower life cycle costs for plants, and smooth and transparent information flows across production and business areas.

TIA integrates all levels of instrumentation, control and automation – from materials acquisition to final product delivery – to create a single, open automation system with a common equipment and software base. This results in many advantages, including simpler, easier-to-operate solutions, increased productivity and lower operating expenses. It is an integrated solution platform for all industry areas and is based on a complete range of harmonized products and solutions. TIA enables the entire production workflow to be automated – from goods reception thru through production to dispatching.

TQM - Total Quality Management

Management strategy aimed at embedding awareness of quality in all organizational processes, with the scope to create customer satisfaction at continuously lower real costs. TQM has been widely used in manufacturing.

Tracking & Tracing

Tracking & Tracing for MES is the concept of locating material and resources (from raw material to finished goods) that are being forwarded from origin to a specific destination - thus providing the complete manufacturing history of a product and storing performance analyses, including for regulatory purposes.

SIMATIC IT RFID provides comprehensive and exact tracing of materials by logging every change in amount, status or identification in the process – upstream or downstream – within e.g. a closed production or packaging cell or throughout the entire supply chain.

TSS - Technical Support Service

TSS is the Technical Support Service that all Siemens SIMATIC IT customers and partners can contact with a valid service support contract can contact to receive a professional multi-language support - tailored to their needs for their installed SIMATIC IT product and solutions. They can choose from a variety of basic packages and options including a 24/7 support thru to a Predictive Maintenance Program based on latest Agent technology.

Value-based Project Analysis and Management

Concept of generating higher customers confidence during project execution, based on analysis, project methodologies and its tangible results that enable an efficient balance of compliance, cost, resource utilization and transfer of knowledge. The SIMATIC IT Value Framework is a method to evaluate and support exactly this balance and to define customer-specific optimal MES systems. Value-based project management applies to the values and leverages of both the user and the project owner. This helps each individual to commit oneself to and perform his/her respective duties and targets, and to contribute to the growth of asset and value development.

Value Chain

Value Chains consist of a set of activities that are supposed to maximize value creation while minimizing costs. SIMATIC IT Value Framework helps to find and create potential values and benefits for a manufacturer - from inbound logistics to sales, distribution and services. MES's responsibility is to support enterprise and manufacturing environments along the value chain to optimize any critical activity.

Value Framework

Methodology for evaluating a MES project from different perspectives to allow senior management and executives to see the value and benefit potential from their planned investment. The Value Framework is strongly linked to the evaluation of SIMATIC IT projects and its diverse levers towards e.g. quality, speed, resources. Through a use case catalog functionalities can be mapped to their respective potential benefits and their influence on the company's shareholder value can be made transparent.

WFM - Workflow Management

A particular methodical procedure within the SIMATIC IT Value Framework that encompasses all tasks to be performed for specification, simulation, modeling, or control and execution of all workflows. It impacts the electronic execution of business processes and specific operational procedures via IT systems.

SIMATIC IT allows the handling of WFM functions defining workflows and performing corrective actions for particular tasks whenever a workflow is violated.

Work in Progress

Status monitoring of goods manufacturing in various stages of completion throughout the plant, including all material from raw material that has been released for initial processing thru to completely processed material awaiting final inspection and acceptance as finished good inventory.

WMS - Warehouse Management System

Key part of the supply chain that integrates activities performed mechanically and by individuals with an information system to effectively manage warehouse business processes and direct warehouse activities in the plant environment.

With SIMATIC IT, the complete in-house material flow can be mapped: incoming goods, storage, stock transfer, removal from storage, and dispatch. During transportation, data security and stock transparency are guaranteed. SIMATIC IT respond fast to events in the production process and links to SIMATIC IT Predictive Detailed Scheduling.

XML - eXtensible Markup Language

World Wide Web Consortium (W3C) recommended general-purpose Internet protocol that transmits data between applications and companies over the Internet, capable of describing many different kinds of data. XML is a format that includes both data and rules for how the data is to be described. Such a XML file can contain the data in a database. XML is used to format batch recipes or production orders. The exchange of such XML-documents between involved systems such as the ERP is thereby standardized.



SIMATIC IT Suites Concept

SIMATIC IT R&D Suite

SIMATIC IT R&D Suite covers the rather PLM-focused aspects within Manufacturing (today: mainly Process Industry) allowing companies to shorten the time-to-market thru faster development, ramp-up, and release.

SIMATIC IT Intelligence Suite

SIMATIC IT Intelligence Suite transforms and unifies real-time and historical data collected during production activities combined with business data - from single or multi-plant environments.

SIMATIC IT Production Suite

SIMATIC IT Production Suite fills the gap between Business Systems (e.g. ERP) and Control Systems, creating the conditions for an efficiency increase of the overall supply chain.



Connecting production and management MES solutions

With SIMATIC IT, we offer innovative MES solutions to adapt production processes and optimize them flexibly and economically to changing conditions – whilst additionally significantly reducing the life cycle costs. SIMATIC IT controls, coordinates, analyzes and optimizes everything from manufacturing-centered product development thru production execution. With SIMATIC IT, you can rely on established industrial standards and a component approach that is unique worldwide.



Interested in SIMATIC IT? Just click for more information

Are you looking for an integrated path to increase your competitiveness and bring excellence to your manufacturing enterprise? Then you are interested in SIMATIC IT. Don't hesitate to check our website for broad and high quality technical and business content on SIMATIC IT products and solutions. Learn how to use the software framework and components for your particular requirements including industry-specific integrations.

You can of course also talk personally to one of our specialists and discuss your existing particular questions, requirements and individual configuration expectations. Find your nearest contact on our SIMATIC IT website.

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