

Becoming World-Class in the Electronics Industry

Creating *World-Class* Manufacturers



Innovation, yield, flexibility, cost and time-to-market are core business drivers for world-class electronics manufacturing companies. Industry leaders strive to deliver better products under demanding customer specifications and schedules, while increasing output with highly efficient practices. Yet with much of the electronics manufacturing process now taking place outside a company's four walls, maintaining control has become difficult.

Adding to the problem is the inherent combination of the cyclic nature of the industry and the way electronics manufacturers do business. But the time it takes for OEMs to recognize downturns in demand, incorporate them into planning cycles, and then notify contractors, who must go through the same exercise, takes months. During that time, backlogs are filled and plants operate at full capacity. By the time suppliers learn about cancelled orders, it's too late. Companies are sitting on massive and costly inventories. The harsh realities of economic downturns demonstrate and exaggerate the need for greater supply chain communication and synchronization.

MAPICS Offers a Valuable Perspective

With nearly 25 years experience alleviating manufacturing business pressures, MAPICS professionals and products deliver proven electronics industry solutions manufacturers need to improve performance. MAPICS offers an electronics solution that helps streamline outsourcing processes worldwide and that let's electronic manufacturers respond quickly to changing market demand.



World-Class Response to Changing Market Demand



Precise Coordination Enables Flexibility

OEMs are under constant pressure to introduce innovative products that are more appealing, reliable and in demand. This requires cross-entity communication to get the right volume of product to the marketplace. The challenge becomes even greater with short product lifecycles, long procurement lead times, indirect channels and complex supply chain networks.

The challenge for this industry is to become more demand-driven. OEMs typically forecast demand and push inventory. In an effort to reduce the high cost of fixed assets, they are selling plants and contracting out production around the globe. Contractors now provide turnkey design, production, sourcing, and repair services. And they offer standard processes and technology solutions that integrate information on a global scale.

Time- to-Volume

Market timing is crucial in the cutthroat, short-lifecycle environment of the electronics industry. There is little room for error as manufacturers and their partners launch new products, ramp up production to plan, and strategically enter and exit targeted markets to maximize revenues. Time-to-volume relies on the speed of ramping up production once product designs, sales plans and logistic strategies are approved.

Everything must flow and coordinate like clockwork, which requires cross-functional coordination between internal departments and contractors. Workflow-driven integrated systems that apply best practices to unify engineering product structures, manufacturing bill of materials (BOM) and engineering change processes across development, production and order fulfillment provide this needed collaboration. This approach provides a basis for cross-functional understanding and visibility, rapid approvals and revisions, and coordination required to rapidly move designs into development, production and out to channels.

MAPICS has a fully integrated engineering, production and supply chain solution designed to facilitate rapid product transfer and production volume ramp up. Our electronics industry solution:

- Provides translation of engineering product structures into manufacturing BOMs, build structure effectivity dating, and simultaneous build of multiple revisions to maximize product lifecycles
- Integrates CAD, product data management and variant product structures to efficiently modularize designs and speed up engineering development

- Incorporates a supplier qualification matrix to engineering change control
- Supports CAD/CAM integration for work order drawings and instructions
- Handles fractional quantities at six-decimal precision
- Offers advanced demand planning based on sales and operations planning and customer collaboration
- Includes constraint-based production scheduling with mixed model order sequencing to provide production flexibility and manage frequent order changes
- Tracks engineering lots as separate from production lots, samples and evaluation boards
- Integrates maintenance management with production planning and procurement to minimize equipment downtime, maintain highest calibration and manage tooling

Outsourcing and Contract Management

Fabless semiconductor and many OEM companies follow business models that maximize internal design, marketing and distribution competencies and outsource assembly, test and packaging to lower-cost contractors. This growing trend changes supply chain dynamics and adds greater complexity to managing fulfillment and replenishment processes.

Electronics Industry



Speed
Time-to-Volume



Streamline
Outsourcing



Exceed Channel and
Customer Expectations

Powerex, a manufacturer of semiconductor devices, reduced inventory carrying costs by more than \$500,000 and cut delivery time from two weeks to not more than 32 hours with MAPICS electronics solution.

expensive. The pace is relentless and requires cross-functional and even more problematic in the electronics industry, characterized by

stock out to channel assemblers who fulfill orders from stocked production to regional Electronic Manufacturing Service (EMS) providers to accomplish this collaboration, OEMs and contractors must rely on

Companies striving for highest quality output at least cost have built virtual networks of contractors that span multiple continents. These networks are very complex and need to be coordinated to meet global customer obligations. Some companies consolidate shipments in one country, de-consolidate in another for postponement assembly, and reconsolidate for final shipment in a third. Others use localized fulfillment through contractors that source, assemble, test and fulfill orders in a region. The ongoing challenge for all of them is minimizing both shortages and costly excess capacities across the base of contractors.

The electronics industry is working toward common data standards and private networks to facilitate real-time communications with suppliers and systems integration with contractors and key accounts. They are achieving online connectivity for workflow-driven processes that facilitate collaborative forecasting, document exchange, dynamic order management, replenishment signaling, outsourced operation planning, reporting, and visibility of progressive yields and in-transit shipment status.

MAPICS is unique for multi-entity visibility and reporting, particularly when applied to outsourced operations. Its highly integrated unified solution that promotes common data standards and uniform processes configured for localized requirements. Our electronics industry solution:

- Delivers one instance global architecture with highly configurable multi-entity, multi-site standardized processes and localized requirements, consolidated and autonomous reporting, centralized and decentralized operations, procurement, financials and master data
- Enables outsourced operation planning, reporting and tracking and management of outsourced consignment inventory handling and backflushing
- Provides synchronized scheduling and yield tracking of production, test and packaging operations across multiple entities
- Facilitates distributed global order management for online visibility, multi-site fulfillment and rapid change management
- Includes product data management, engineering change management and document management to provide complete engineering change control and product lifecycle and lot tracking across all internal and external operations
- Offers a robust portal framework to support online communication, document exchange and collaboration

Channel and Customer Expectations Management

Customers and channel partners expect the highest product quality at lower prices, configurable options, complete order fulfillment and no waiting. World-class manufacturers are streamlining operations and improving supply chain practices to rapidly fulfill orders to customer specifications and consistently meet request dates. OEMs are revamping operations to support to-order shipments from any supplier—without building excess WIP or component inventories. This is driving contractors to improve their operations to rapidly respond to changing order release schedules and kanban replenishment volumes. Electronic companies also give distribution channels direct access to information, disseminating leads to those with the best follow through, providing backup support and better training.

Key Keys to Success



Creating *World-Class* Manufacturers

WORLD CLASS

One of the greatest challenges is the inability to dynamically respond to order requests, changes or exceptions. Market leaders are centralizing and distributing their order management and fulfillment functions and turning to global planning systems that are dynamic and order-driven. This enables real-time visibility to customer orders anywhere in the network or in production, and dynamic order reallocations and rescheduling. They are also integrating multiple sales channels and service centers into one order fulfillment, customer service and information hub. And they are centralizing demand, distribution and inventory planning for optimal network logistics and localized service objectives.

MAPICS is unique for its strength in integrated global sales, development, production, fulfillment and service management processes, as well as order-driven planning and fulfillment, which enables rapid flexibility and a unified face to the customer. Our electronics industry solution:

- Supports distributed global order management for online visibility, multi-site fulfillment and rapid change management
- Provides order-driven ATP and CTP promising through order-driven production planning and distributed multi-site order management
- Offers a rules-based, parametric and multi-level sales configurator (with unlimited attribute descriptors) to rapidly and accurately configure and dynamically price complex products
- Includes comprehensive and centralized customer relationship management that fully addresses requirements for sales, support, field services and installed base tracking
- Provides remote system access to customer history; contract, project, engineering, service, and order status; and product configuration for all those that touch the customer

- Facilitates multi-channel sales management for handling and supporting direct, distributor, reps, reseller and Web site sales channels
- Integrates contract management with product specifications, delivery dates, payment conditions, freight terms, installation and service agreements to ensure common views and real-time accuracy
- Tracks lot and serial numbers through internal and contract operation
- Manages robust customer release schedule handling (including Kanban signals) and release accounting, as well as configurable EDI and labeling
- Based on a one instance global architecture with highly configurable multi-entity, multi-site standardized processes and localized requirements, consolidated and autonomous reporting, centralized and decentralized operations, procurement, financials and master data

Assuring a World-Class Future

Achieving and maintaining world-class status is an ongoing challenge. The MAPICS electronics industry solution helps manufacturers synchronize multi-entity operational processes for faster time-to-volume, higher production yield at lower cost through managed outsourcing, greater customer satisfaction, reduced obsolescence and increased global expansion performance.

MAPICS is a visionary, global software company focused exclusively on delivering collaborative business applications and expert consulting services that help manufacturers become world class.

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