Risk Mitigation Through a Dual Sourcing Strategy
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By Chris Eldred

A decision that every original equipment manufacturer (OEM) that outsources must navigate is how to divide the outsourcing spend. Dividing the pie into three or four pieces may lower the volumes at some of those suppliers to a point below the most economic order volume. It also increases the complexity and cost of managing the supply chain. Sole sourcing may be efficient from a transactional standpoint, but it can limit options if the contractor is near capacity, experiences a catastrophic event or has performance issues. Dual sourcing often represents the best of all worlds, when the volumes justify use of multiple suppliers. There are several advantages to this option including:

- Provides production capacity redundancy in the event of natural disaster
- Provides a faster response in the event of product demand increases
- Can support a regional approach to outsourcing that places production near OEM facilities, near end markets or in lower cost labor markets
- Enables better alignment of contractor resources with production capability requirements when outsourced production has a mix of high volume and lower volume, higher mix products
- Helps ensure competitive pricing as contract manufacturers compete for new business.

TeligentEMS, an electronics manufacturing services (EMS) provider headquartered in Havana, FL, supports a number of dual sourced projects. Outsourcing strategies that have driven its selection as a dual source include:

- Better fit for high mix product
- Support for products with specialized requirements such as complex mechanical assembly or specialized test
- Support for legacy product
- Location with competitive domestic labor and excellent logistics options.

A Better Fit for High Mix Product

Many EMS providers claim to be experts at high mix production. The reality is that effectively managing high mix production requires real-time systems visibility, and a supply chain and production floor strategy that is optimized to support high mix. When the outsourcing spend includes high volume, low mix production plus some high mix production, there can be value in moving the high mix production to a supplier whose business model has been optimized to support it.

TeligentEMS’ systems strategy includes tools that give both supply chain and production management real-time visibility into materials and production status. It is paired with a supply chain management and equipment strategy that is optimized to support high mix production.
This approach utilizes proprietary systems tools to minimize variation within its production operations and enable real-time monitoring of the entire product realization process. This strategy offers the dual benefit of eliminating defect opportunities while reducing non-value added “opportunity” costs related to poor quality, excess inventory, unneeded transactions and expedited freight. Additionally, it has helped the Company redeploy people from administrative activities such as expediting late material into roles that better serve the customer.

The system is exception-based, meaning that instead of drowning employees in data, it instead alerts the appropriate team member the minute an exception occurs and provides the real-time data necessary to understand the options available for addressing the issue.

Originally, TeligentEMS opted to build proprietary tools around an Epicor ERP system to fill the gaps its team had identified in their overall systems strategy. This has grown into a system known as Possible-X 2.0 and a related proprietary system, known as TeligentEMS Purchase Order Tracking System or TPOTS, which provides a dashboard designed to help buyers more easily track cost and order status.

Possible-X 2.0 provides Purchasing, Inventory and Materials Management with instantaneous detailed information on purchased components from the approved materials list (AML) to supplier cost information; order quantity; minimum order quantity; and current on-hand, current on-order, on-hand dollars and excess inventory.

Stockroom personnel can quickly identify the inventory location and the next delivery. It also provides possible crosses for a component, cost history, MRP requirement, where used, PO history, quote history and BOM detail.

The system also helps Engineering quickly identify and resolve any issues that arise in new product introduction or production. It supports customer quality data collection requirements and the rapid identification of issues needing corrective action. Configuration management is maintained via centralized electronic documentation which ensures that production personnel are always accessing the latest revision of documentation. Electronic checklists are utilized during kitting and product changeover to ensure process repeatability.

Program management and senior management also utilize these tools to monitor existing production status and performance metrics.

In addition to its real-time systems strategy, TeligentEMS embraces Lean manufacturing philosophy, selecting flexible equipment requiring minimal changeover time and eliminating inefficiencies in transport and processing.

The end result is that all product configurations are appropriately maintained, changeover time is minimized wherever possible and the changing demand dynamics that often occur in high mix production are easily managed via real-time, exception-based systems.
Specialized Support

Capitalizing on an EMS provider’s economies of scale and shared resources is a fundamental part of the cost savings associated with outsourcing. However, when a product needs specialized production or test capability, that savings may be reduced if the required equipment must be consigned or specialized processes are further outsourced to the EMS provider’s suppliers. A dual sourcing strategy that includes an EMS provider capable of supporting these specialized requirements is often the most cost effective solution.

TeligentEMS specializes in mission critical and RF-related product. As a result, it offers a broader range of assembly, encapsulation and test options than most regional EMS providers. Subassembly and box build assembly services include:

- Optical Assembly
- Mechanical assembly
- Backplanes
- Higher-level Assemblies
- Cabling
- Fiber Technology.

Many of TeligentEMS’ customers’ products are installed in harsh or hazardous environments that are subject to adverse environmental conditions such as:

- Extreme temperature
- Moisture and humidity
- Shock and vibration
- Explosive (intrinsically safe).

TeligentEMS’ capabilities support requirements for ruggedizing products for the harsh and hazardous conditions they require and include:

- Application of conformal coatings
- Application of potting material (encapsulation)
- Application of RTV and other bonding agents
- Ultrasonic welding.

Test capabilities include:

- Test strategy development
- AOI
- X-ray inspection
- Flying probe testing
- ICT program and fixture development to ensure maximum coverage of the PCBA
• Functional test development including:
  o Radio Frequency
  o Digital
  o Analog
  o Fiber Optic Communications
  o Full system test

• Environmental Stress Screening (ESS)
• Leak detection tests
• G-force testing.

As a result, customers requiring specialized support have the ability to achieve the same cost savings via shared resources typical in more traditional EMS business models.

**Legacy Product Support**

Many EMS providers simply don’t have a business model that easily supports legacy product. As a result, one driver of a dual sourcing strategy may be a requirement for a contract manufacturer whose specialties include legacy products. The team at TeligentEMS, routinely supports its customers’ legacy product needs including:

• Robust supply chain management and component engineering capabilities
• Counterfeit mitigation measures
• Well-defined production processes and documentation control
• Extensive and varied test expertise
• The ability to provide post-manufacturing support services.

TeligentEMS’ ability to support legacy product is enhanced by its supply chain management team’s commodity approach which ensures competitive costs, appropriate lot sizes and minimal lead-time on fabricated parts such as PCBs, custom cables, molded plastics, cast aluminum, custom extruded aluminum, fabricated sheet metal parts, custom magnetics, custom fasteners and enclosures. An International Procurement Office (IPO) is located in Asia to enhance its global procurement capabilities and expertise, for both custom fabricated parts and subassemblies such as keypads or displays.

The team also has strong relationships with franchised distribution and has a formalized, multi-tiered system of trusted non-franchised brokers capable of supporting requirements for EOL parts with limited availability. When a customer is willing to agree to the liability and cost of a lifetime buy, TeligentEMS will store that inventory on premises. The supply chain management team has also worked with component packaging companies capable of procuring EOL silicon from the original manufacturer and packaging it to the required standard. Additionally, if a situation warrants it, TeligentEMS can perform BGA de-balling and re-ballng, XRF for Pb-detection, and non-destructive or destructive component test and analysis.
The team’s suite of software tools provides the ability to automatically collect mandated compliance data related to RoHS, lot, certificates of compliance and Conflict Minerals, etc., as required by customers. Possible-X and TPOTS support tracking of material by work order, lot code and date code to ensure a full device history is kept on each product.

TeligentEMS also provides a variety of post-manufacturing services that can be relevant to supporting legacy product including:

- Programming of internal ESN (electronic serial numbers)
- Capturing factory test data measurements to the ESN
- Internet access to both program status and quality reports
- Configure to Order (CTO)
- Laser etching capability to support serialization
- Provisioning of SIM cards
- Build to Order (BTO)
- Bar code label creation and tracking systems
- Low Cost Region Order fulfillment
- Product labeling, unit packaging, and over packaging
- Outbound logistics
- Depot repair
- Failure analysis
- Ship to end user locations worldwide.

Materials and all products manufactured at TeligentEMS are tracked via bar codes. Possible-X collects data on the processes each product undergoes along with inspection and test results. This ability to look up a detailed history on each product is helpful in repair depot activities, since the product’s original revision level and revisions since it was assembled are contained in the database.

Assuming parts are available, TeligentEMS will commit to specific cycle times in repair depot activities. As a result, TeligentEMS can serve as a standalone supplier for legacy products supporting all elements from manufacturing through shipment to end customer.

**Competitive Cost and Logistics Simplicity**

As OEMs continue to analyze total cost, it has become more evident that working at offshore often drives excess logistics costs, miscommunication and even missed deliveries. New products and/or complex products are often better served by a domestic EMS provider for that reason.

TeligentEMS’ location in Tallahassee, FL offers competitive labor costs and access to a wide range of shipping options. It is also in close proximity to several technology corridors, making it a convenient location for manufacturing and distribution.
choice for companies with operations in the Southeast. Tallahassee’s temperate climate also eliminates the unexpected work stoppages that extreme winter weather can cause in the Northeast and Midwest.

A dual sourcing strategy can open the door to greater outsourcing savings by allocating projects to the EMS provider best suited to manufacture them. Questions to ask include:

- Is my current supplier adequately supporting the requirements of higher mix or variable demand production?
- Is price escalating on products my supplier feels are not a good fit for its business model?
- Is there a pattern in quality or delivery issues in certain product types my current supplier is building?
- Are there additional activities I could outsource if I had a supplier with better post-manufacturing and fulfillment capabilities?
- Am I paying a double mark-up on encapsulation because my current supplier lacks this capability?
- Am I having to consign environmental test equipment because my supplier lacks this capability?

Careful gap analysis of what is working and what is not working at a sole-sourced EMS provider can help to define the capabilities the second source will need to have, and ultimately focus the search on a supplier that represents the ideal fit.

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**About TeligentEMS**

*For more than 30 years, TeligentEMS has provided a full range of electronic manufacturing services to companies in the industrial, medical, military/aerospace, telecommunications and instrumentation industries. We specialize in technically complex printed circuit board assemblies, subassemblies and box build. Our superior RF expertise enables us to support a wide range of communication technologies. We are ITAR registered and ISO 9001 and ISO 13485 certified.*

*Our global procurement and supply chain capabilities, combined with our real-time systems for project status, quality data collection and device history recordkeeping ensure we offer customers a cost effective and highly responsive solution.*