



**Manufacturing Outsourcing for Small
and Mid-Size Companies:
Ten Key Challenges and How to Address Them**

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Abstract:

The ability to outsource the manufacture of products to contract manufacturers is not just a matter of convenience for small and mid-size companies; it is a pre-requisite for survival. Without the ability to farm out their manufacturing to contract manufacturers, they simply lack the economies of scale that allow them to effectively compete with their larger competitors. At the same time, these small and mid-size companies are faced with unique challenges that are a direct result of the relatively small revenue that they offer their contract manufacturers. Consequently, they must pursue outsourcing with more planning, preparation, analysis, and due diligence than larger companies. This whitepaper examines ten key challenges that smaller companies may face when outsourcing their manufacturing—and potential solutions for how to successfully address those challenges.

Introduction:

The ability to outsource the manufacture of products to contract manufacturers is not just a matter of convenience for small and mid-size companies; it is a pre-requisite for survival. Without the ability to farm out their manufacturing to contract manufacturers, they simply lack the economies of scale that allow them to effectively compete with their larger competitors. Few companies have the ability to invest in – and routinely upgrade – the millions of dollars in equipment, personnel, and process technology required to compete in a market of shrinking product lifecycles and eroding margins.

If you are a smaller company, you will likely face more challenges than your larger competitors when it comes to outsourcing. The traditional paradigm of customer vs. supplier in which the customer makes demands that the supplier meets without asking questions or posing challenges does not apply when you are working with contract manufacturers (CMs). The economics of contract manufacturing, that is, the razor-thin margins on which these companies operate, do not leave much room for inefficiencies. The onus is on you, the original equipment manufacturer (OEM), to make the right CM selection, establish robust business processes, negotiate win/win pricing and contract terms, and invest time and resources in the relationship on an ongoing basis. The objective of this whitepaper is to identify some issues and risks that are unique to smaller companies, offer you insights on how to address them, and ultimately help set you up for long-term success in manufacturing outsourcing. This paper identifies ten key areas in which the unique challenges facing smaller companies are most apparent:

1. Right-sizing your contract manufacturer selection
2. Forecasting with reasonable accuracy
3. Reducing your inventory liabilities
4. Eliminating pricing surprises
5. Monitoring quality before and after shipment
6. Managing product changes effectively
7. Defining an exit path with your contract manufacturer
8. Assigning the right team
9. Assessing the total cost of offshore manufacturing
10. Ensuring compliance with environmental directives

Before examining these areas in greater detail, two key terms should be defined. First, the term *outsourcing* denotes the process of transferring manufacturing and related support functions to outside companies, whether those companies are onshore or offshore. (While for some OEMs this *may* mean transferring manufacturing to a low-cost region like China, *outsourcing* does not necessarily mean going offshore.) Second, while there are no clear lines delineating large, medium, and small companies, in this paper, the designation of *smaller* refers to small and mid-size companies ranging from pre-revenue startups to those with approximately \$250M in annual revenues. Typically, these companies have less than \$50M of annual purchases in outsourcing.

Ten Key Challenges and Solutions:

1. Right-sizing your contract manufacturer selection

Challenge: Not all CMs with the capabilities you need will be interested in the amount of business you can offer.

At the foundation of every outsourcing relationship is the number of dollars at stake. Virtually every CM will be interested in determining the amount of revenue that could result from a business relationship with an OEM. This question is sometimes posed by asking for a volume projection along with a product's specifications and bill of materials (BOM), thus enabling the CM to roughly calculate the overall business opportunity. In other words, the amount of business you are able to provide matters a great deal to the CM. That said, a contract manufacturer may consider working with smaller OEMs if they help the CM enter a new market with strong growth potential. In these cases, a CM may be willing to compromise short-term revenue gains for the chance to become a pioneer in a growing industry.

Before sending out a request-for-quotation (RFQ) to a CM, you should ask some strategic questions to gauge whether or not the contract manufacturer is truly interested in your business. This will save you a lot of time later. If you are considering a multi-billion dollar CM for a few million dollars of revenue per year, you need to invest time validating why the CM is showing interest in your business. Is the interest fueled by your product technology, which might help the CM enter a new market and win more customers? Or is it purely to meet a short-term revenue objective in a recessionary environment? During the technology downturn that started in 2001, several tier-one CMs were bidding on deals that generated less than \$1M per year. Shortly after the market recovered, they began pruning their customer base and removing the smaller, less profitable OEMs.

Solution: Make your business the right proportion of a CM's revenue, and confirm interest before engaging in a lengthy RFQ process.

Unless there are other compelling circumstances, your annual purchases should represent a minimum of 5% of the CM's plant-level revenue and no more than 20% of the CM's total company revenue. Dropping below the lower threshold may make it difficult for you to get the right level of management attention from your CM, while exceeding the upper threshold may over-expose your CM to your business. You should obtain confirmation of interest in your business not just from the account team, but more importantly, from their executive management. If you are too small for these senior executives to reasonably get involved before you make your selection, then you should see that as a warning sign. In this situation, chances are that after you consummate the business relationship, they will be even less inclined to lend their support in resolving any issues that arise.

2. Forecasting with reasonable accuracy

Challenge: Forecasts are uncertain, but they set the foundation for your credibility with a CM.

Any sales, marketing, or operational professional will tell you that forecasting is an art, not a science. No company forecasts perfectly and only a few can do it consistently with a reasonable level of accuracy. Even with the best forecast, there are going to be changes due to customer

push-outs, cancellations, spikes in demand, or unexpected shifts in product mix. Despite these challenges, the forecast that you submit to your contract manufacturer serves as the most important evidence of your credibility as a company, especially if you are a start-up. A forecast is a mechanism that serves two fundamental purposes. First, it gives your contract manufacturer visibility to the amount of revenue or profit that can be generated from your business. This determines how much and what caliber of resources the CM will assign to support your requirements. Second, it defines the level of risk to which your contract manufacturer will be exposed. In most cases, long lead-time components on your BOM must be purchased based on a forecast that looks far ahead into the future. Barring any unexpected macroeconomic disasters that impact the entire economy or an entire industry, your ability to meet or exceed your forecast with reasonable accuracy will confirm your CM's best hopes or their worst fears. Once a CM loses trust in your ability to meet your forecast goals, you will have to work much harder to re-establish your credibility and get them excited about your business again.

Solution: Make forecasting a collaborative, cross-functional, and institutionalized process within your company.

Take the necessary steps to make sure that your forecast is reasonably attainable at the aggregate level, giving the CM some degree of predictability about the level of revenue they can expect to generate. Contract manufacturers are much less sensitive to changes in product mix than they are to the total dollars available to them. There is no magic target in terms of percentage of desired forecast accuracy because each market carries its own risks and uncertainties, but a variation of 10% or less at the aggregate level is considered reasonable. The best way to arrive at a forecast for your CM is to set up your internal processes to ensure ongoing interaction between sales, marketing, and operations. Do not take the sales forecast and simply feed it through your operations organization and into your contract manufacturer. It is important that you scrub these forecasts and make necessary modifications based on prior levels of accuracy, changing supply conditions, capacity at your CM, and inventory levels at your distributors or resellers. When there is a significant change, spend time understanding what is behind the change before you pass it along through the supply chain. Is the increase in demand based on confirmed customer demand that is supported by a purchase order or contract, or is it the optimistic assumption of a salesperson trying to meet quota? Forecasts are imperfect and there are bound to be variations. If you manage the processes and treat the forecast as an important input to your CM, you will create an early foundation of credibility.

3. Reducing your inventory liabilities

Challenge: Inventory liability is often unknown or ignored until a crisis occurs.

During the technology downturn of 2001, OEM-CM relationships were severely strained because each party was trying to pass on inventory liability to the other. The question of inventory liability is still one of the most significant causes of dispute between OEMs and their contract manufacturers. While this issue often stems from forecasted demand that never materializes, that is only part of the story; there are more important lessons in other areas. A big problem for smaller OEMs, especially those with leaner staffing levels and broader functional responsibilities, is that they do not ask the right questions early enough. Most companies do not enter the CM relationship with a clear understanding of what their liability profile might look like; they often find out later when they get a charge for excess or obsolete inventory.

Solution: Focus on inventory exposure throughout your supply chain to regularly assess and mitigate liability risk.

Beyond creating a better forecast, you can mitigate and manage the risks associated with inventory liability by focusing in two areas:

- Understanding and reducing inventory exposure
- Clarifying the what, who, how, and when for inventory liability

As a smaller OEM, you have to work smarter in these areas since you cannot rely on the brute force of business dollars to get your way. By understanding the timing, knowing the dollars committed for components, and identifying the transformation points that move materials from standard to custom inventory, you can begin to define your inventory exposure in the extended supply chain. Once the baseline is established, you can begin to make process and policy changes that greatly reduce exposure and inventory risk. For example, you might slash the lead time on a key semiconductor component by giving the forecast directly to the supplier and having them keep a buffer of unfinished and lower value dies. The CM is not in a position to drive this activity as effectively as you, the OEM. Since you know the products better, you can assess the relative importance of components more accurately, and can appropriately weigh the risks and benefits of different solutions to reduce inventory exposure. In general, the CM does not have enough resources, company-specific knowledge, or incentive to drive this activity proactively.

On the second point, you should be clarifying key points on inventory liability long before an issue arises. Whenever possible, these points should be clarified before a relationship begins. Clarify *what* parts or products are considered “unique” and could become a liability for you. Make sure non-unique parts are excluded. Also, outline acceptable lot sizes, reels, and minimum order quantities. Decide *when* liability will be triggered. Will it be based on the forecast, a purchase order, a Kanban release, a min/max stocking level, etc.? Be clear about when the CM can start certain value-added steps. Once potential excess inventory or open commitments have been identified, clarify *who* will do what and *how* they will go about reporting issues and mitigating liability. By removing ambiguity early, you help minimize conflicts and ensure that appropriate steps are taken to avoid liabilities.

4. Eliminating pricing surprises

Challenge: Speeding through the sourcing process can lead to pricing inaccuracies and mistakes.

OEMs are often surprised by the constantly changing prices charged for the manufacture of their products. In fact, pricing surprises are the second most significant cause of dispute and strain between OEMs and CMs. Disagreements in this area primarily result when OEMs, in an effort to quickly select a CM, focus mainly on bottom-line pricing. Many take a quote-and-go approach and spend little time on due diligence. When the pricing looks right, they view the deal as a cost reduction achievement (especially when going offshore) and move forward. Little time is spent asking questions about the CM’s assumptions on the approved vendor list (AVL) or understanding the cost breakdown in the area of raw materials, labor, test, overhead and profit. Contract manufacturers sometimes exacerbate the problem by stacking up multiple best case scenarios (e.g. aggressively low set-up times, low labor and test times, lower than realistic component pricing) to offer a price that will beat the competition. The process for managing cost on an ongoing basis, post selection, is also ill-defined.

Solution: Seek to understand the details behind pricing, and focus on price structure, not just the bottom line.

Preventing surprises in pricing requires that you spend time upfront educating the CM on your requirements and then validating the assumptions used in providing you with a quotation. If you are a smaller company that manufactures products in Asia, take even more time for this due diligence, given the supply chain uncertainties in that region and the communication challenges of working across different cultures and time zones. Make cost-structure transparency a condition of doing business with your company and walk away from CMs that are not forthcoming with the information that you need. In your contracts, define the processes for managing purchase price variances (PPV), quarterly or semi-annual pricing updates, the impact of currency fluctuations, inventory revaluation for components, cost reduction targets, and other key points. Unexpected price increases can lead to margin erosion and impact your ability to price your products competitively in the market, resulting in loss of market share and declining revenues, both of which are especially detrimental for smaller OEMs.

5. Monitoring quality before and after shipment

Challenge: Your product quality must be at par with your large competitors.

While it may take years to build a reputable brand name, it takes just a few missteps to destroy it. Smaller companies, especially start-ups, are particularly vulnerable. The sales team of any small company will tell you that they are generally subjected to more scrutiny throughout the sales process than their larger competitors. They often must overcome many hurdles and convince their customers that they are a better choice than the competition. Despite the importance of quality, it is rare to find small companies that have a good program for monitoring product quality prior to shipment. Typically, they manage quality in a reactive way, once the damage has been done. Few have sufficient knowledge about what goes on during the manufacturing process at their contract manufacturer or worse yet, what is behind their return rates from the field. This is important information that can be factored into designing the next generation of product, yet few companies have even the most basic processes and tools in place to collect it.

Solution: Look for quality problems on the manufacturing line, not just in the field.

As you launch new products at your contract manufacturer, discuss your expected product yields, expected parts-per-million (PPM) failure rates, and control limits for each critical stage in the manufacturing process. Work with your contract manufacturer during the design phase to ensure that quality is incorporated into your product designs. Additionally, utilize tools that enable you to achieve real-time visibility into what is happening on the production line so you can monitor trends and identify potential problems. And upon return of any product, ensure that you have a process in place for managing the flow of information from your repair and refurbishment center. Remember that how you manage quality will set an example for your CM and demonstrate the priority placed on it in your company.

6. Managing product changes effectively

Challenge: With frequent product changes, establishing the “single point of truth” can be difficult.

Most electronic OEMs, regardless of their size, are faced with shrinking product lifecycles, product proliferation, and a relentless pressure to enhance the price/performance ratio. This necessitates a robust foundation for managing change. But before making any changes, a company needs to know the starting point. In other words, what is the single point of truth that describes what you are trying to build? A secondary question is who manages that single point of truth. Smaller companies struggle with this because the documentation is often a mix of hard-copy and electronic versions, with files maintained by several different people on individual computers and in filing cabinets. It is hard to tell a CM what you want your product to be if you cannot describe it fully.

Solution: Utilize tools that provide your internal organization and your CM with real-time visibility to the “single point of truth.”

As a first step, it is important for you to have a single repository with all of the pertinent files and data needed to describe and build a product. In addition, you need policies for managing version numbers so people can easily communicate what they are buying, changing, etc. Once you have your data and documentation settled, the next step is having an effective process to propose, analyze, and implement changes. You need a way to describe what you want to change in the way of parts and/or processes. By communicating the proposed change effectively, you have a much better chance of getting meaningful feedback and data from your CM. You need this information so you can analyze the tradeoffs in terms of timing and approach for implementing the changes. A classic question is: what are you going to do with the old parts – use “as is,” rework, or scrap?

Before you can make that type of decision, you need to gather information on the alternatives and decide what is going to be best for your company. Once you have made a decision, the next step is to execute. If you are implementing a change immediately, then the work should focus on the details, deadlines, revision update, etc. needed to get the change into the documentation and on to the production floor. If you are planning a future effective date, then you will have the same work but it will be cut-in at another time. One common mistake is that OEMs set an effective date for a change in the future, forgetting to monitor the activities that impact that date. For example, you might set the future date based on the availability of a new part. If the new part is delayed by three weeks, you might need more of the old part to bridge the gap. The bottom line is that you need to manage the change, which involves gathering the right data to make an informed decision upfront and then effectively implement that decision.

There is one additional key point in change management. Managing and documenting changes to your product is complicated by the fact that your needs in these areas evolve during the life of a product. The needs during new product introduction may be different than when the product is in the middle or the end of its life. Within industry, the phrase product lifecycle management (PLM) has been coined to describe the needs for documentation and change management throughout the life of a product. While there are surely stories of OEMs that have been able get by with just Excel spreadsheets, you will be better off implementing sustainable practices early by deploying a PLM software solution. A little bit of foresight in this area will allow you to operate more effectively with your CM partner and create a better foundation for growth.

7. Defining an exit path with your contract manufacturer

Challenge: Managing the end of a relationship is often viewed as adversarial and therefore not addressed until a crisis occurs.

No matter how strong and productive your relationship is with your contract manufacturer, there is a reasonable chance that someday it will come to an end. This is not necessarily an undesirable scenario for you or your CM. Stronger or weaker than expected growth, high-level changes in corporate direction, mergers and acquisitions, reallocation of resources, changes in management team, and facility closures or expansions are examples of common events that can trigger the end of an OEM-CM relationship without causing hard feelings on either side. There are also numerous examples of abrupt terminations that result from disputes over excess and obsolete inventory, price increases, quality problems, catastrophic product failures, or late deliveries. The reality is that smaller companies find themselves in search of a new relationship more often than their larger competitors. That is because when a CM's business is strained due to macroeconomic conditions or internal pressures, smaller companies are the first ones to suffer due to their smaller contribution to the CM's revenue. CMs are less likely to walk away from a large customer's revenue, and when they find themselves in a capacity crunch, they're more likely to compromise a smaller customer for a larger one. Most OEM contracts do not adequately define each party's obligations in the event of termination and do not provide smaller OEMs with the protections they need.

Solution: Include the operational details of exiting the relationship in your contract.

In your OEM-CM contracts, it is important to be explicit about what happens post-termination. First, the termination for convenience clause should *not* put the CM on a level playing field with you. This may sound selfish but you should negotiate to prevent the CM from giving you a short notice of such termination. The fact is that it would take you months to identify a replacement, transfer tooling and components, and set up the new contract manufacturer to build your products. As a smaller company, you often rely on one or two CMs, which would make any interruption in the flow of products detrimental to your business. Identify how FGI (finished goods inventory), WIP (work-in-process), and component inventory will be handled. Which party will be responsible for this inventory and based on what rationale? Will the CM continue to honor your purchase orders and if so, at what price? How will your intellectual property or tooling and fixtures be handled? Who owns them and what, if any, restrictions will be placed on their movement post-termination? It is important for you to settle all of this upfront because you cannot afford a disruption in supply, and the CM does not have as much at stake as you do in the transition.

8. Assigning the right team

Challenge: The CM team that wins your business often isn't the team that services your account.

All OEMs want to have the best support team at the CM. Smaller OEMs are often frustrated by the lack of attention they receive from their contract manufacturers. In other words, they are shown a high caliber team during the sourcing process and as soon as business is awarded, they are assigned to less experienced personnel and/or those with limited bandwidth. Even if a high caliber team is assigned, smaller OEMs are much more likely to be subjected to instability resulting from staffing changes as new, larger customers enter the picture. But there is often

another problem that is caused by the OEM. While they set high expectations for their CM, they often fail to assign the resources with the right level of expertise on their side. In many smaller companies, overhead is lean and people are forced to play multiple roles. This might mean that people in functional areas such as marketing or design engineering play a key role with the CM that would otherwise be handled by someone in operations in a larger company. As a result, operations issues may be managed reactively and as a part-time effort, encouraging the same behavior from the CM. In working with any contract manufacturer, you will go through distinct phases, which include CM selection, contract and price negotiations, transition, and ongoing management. Each phase can require a different skill set, meaning that you have to be ready to tap into different levels of expertise. The same holds true for the contract manufacturer. The diligence and professionalism with which you approach your CM relationship will strongly influence how your CM responds.

Solution: Make sure you make a strong and positive impression in how you approach the CM sourcing process.

While your business may not justify the CM assigning its best team, you can take steps to make sure you get the right team for your business. First, you should understand where you have the greatest need. If you have a product engineer that also has extensive manufacturing experience, you may not need the CM's best engineer on your team. You may want to use your influence to get the best buyer or planner. Be specific about your needs early in the relationship before the CM has begun to assign people. Set high expectations, but also assign the right people to interface with the CM.

Establish a strong first impression during the sourcing process with a team that knows the ins and outs of the outsourced manufacturing model. The process you follow, the documentation that you request, and the quality of questions that you ask during the selection process quickly give the contract manufacturer an idea of the caliber of employees required to staff your project. Before you award business, ask to meet the team that will be responsible for supporting your products, and insert contractual language that will give you reasonable control over who is assigned to your account. Treat the team like an extension of your own organization, and make them successful and willing to support your business. Much of what your contract manufacturer is able to achieve for you is based on the depth of relationships that you are able to build inside the factory in which your products are built.

9. Assessing the total cost of offshore manufacturing

Challenge: Taking your products offshore has many hidden costs that you must uncover before making the transition.

Many smaller OEMS are interested in building products in an Asian or Eastern European country. While sourcing key components or producing your products in a low-cost region will present some opportunities for cost savings, there will also be challenges. And it is these challenges that smaller companies in particular tend to underestimate. Most smaller companies fail to consider the hidden costs of offshore sourcing and are suddenly faced with unexpected surprises in the form of higher transportation costs, a higher than expected product price, quality problems, inventory exposure, and communication issues. As far as the product price is concerned, most smaller OEMS do not have a clear understanding of their product cost structure and therefore automatically assume that the lower cost of labor can lead to substantial cost reduction opportunities. In fact, labor is often a very small component of the total cost of most electronic

products (usually around 10%) and any savings in this area can be easily erased by higher transportation costs. While most companies automatically assume that they will be ocean freighting their products, many end up shipping at least a small percentage via air, primarily due to unexpected increases in volume at quarter-end. They also overlook the communication challenges that can surface as a result of significant differences in time, language, and culture.

Solution: Develop a cost model to assess feasibility before taking steps to manufacture offshore.

Before you consider embarking on an offshore sourcing project, develop a cost model. Spend time analyzing your components and validate the availability of the supply chain in Asia, particularly in the case of custom, fabricated components. Take the case of one small company that transferred production offshore without doing research ahead of time. Once the transition was well underway, the company discovered it could not find a local supplier for its power supplies due to the complexity of the design. This forced the OEM to ship these units from the US to China for integration into the product at the offshore CM and then ship the finished product back to the US. Needless to say, this had a significant and unfavorable impact on the company's profit margins. As you develop a cost model, factor in the cost of cash that you will have tied up in inventory when your product is ocean-freighted or the high cost of air transportation if your customer lead times are short. Once the cost savings are justified through this cost model, begin to assess risks such as currency fluctuations and intellectual property concerns, and develop a plan to mitigate them prior to taking the leap. In general, offshore manufacturing is most suitable for products that have very high volume, high labor content, predictable demand, and low complexity, which is a combination met mostly by large companies.

10. Ensuring compliance with environmental directives

Challenge: Compliance management cannot be entirely outsourced to your CM.

Smaller OEMs often assume that in an outsourced manufacturing model, compliance with environmental requirements can be passed on to the contract manufacturer. As a result, they make a half-hearted effort to do anything beyond pressuring their CM and component suppliers to provide certificates of compliance. Most environmental regulations – and in particular the European Union's Restriction of Hazardous Substances (RoHS) directive – place the full burden of responsibility on the brand owner, namely, the OEM. This means that should there be a compliance problem identified by a customer or government authorities, you cannot simply blame a component supplier or CM that failed to make good on its promise. In nearly all cases, such failure reflects poorly on the OEM for failing to conduct its due diligence on supply chain partners. There is also a misperception among smaller companies that enforcement of environmental directives is generally reserved for larger brand names that import a higher volume of product into various geographic regions of the world. So far, there have been shipments of small, medium, and large companies' products confiscated at the border or removed from the market for failing to comply with RoHS. Furthermore, if you are unable to demonstrate compliance to your customers' satisfaction, you could experience an immediate loss of business opportunity, which could lead to disastrous results. While some exemptions are granted for certain industries – such as medical devices, control and monitoring instruments, and telecommunication products – these exemptions are reviewed on a regular basis and lifted as soon as deemed possible. For example, the Deca-BDE exemption, which excluded this fire retardant from the original RoHS requirements, was annulled by the EU a short time later, requiring OEMs to remove the substance from their products.

Solution: Develop an environmental compliance strategy for your products and ensure adequate product documentation in case of an audit.

If your products need to comply with one or more global environmental directives, work with your supply chain partners to ensure a common understanding of each party's roles and responsibilities. Segregate your suppliers based on your degree of confidence in their compliance self-assessment and regularly audit those that are reason for concern. Blind acceptance of certificates of compliance from any supplier does not constitute due diligence in the case of RoHS, for example. Update your supply agreements – particularly in the areas of warranties and indemnities – to assign the right accountability for the components used in your BOM. Require that your CM certifies the manufacturing process as compliant. Your CM will not, and should not, accept responsibility at the component level or for the product design unless it is a service for which you have paid them. Finally, document your activities and ensure that all required information is available upon request by a legitimate authority.

Conclusion:

Manufacturing outsourcing in general was once the domain of mostly larger electronics OEMs. Now the CM industry is providing a wider variety of services to a wider variety of companies. Smaller OEMs have many of the same needs as a larger company but they have fewer resources and less clout to achieve their goals. That is why it is important for them to be even more knowledgeable and sophisticated in their approach to get the performance, motivation, and mindshare that they need from their outsourced manufacturing partners.

This whitepaper has identified some of the key challenges and potential solutions that you, as a smaller OEM, must address proactively when outsourcing the manufacture of your products to a contract manufacturer. By addressing these challenges through preparation, planning, and upfront analysis, as well as the deployment of the right personnel and tools, you can make manufacturing outsourcing a competitive advantage for your company.

Symphony Consulting, Inc. is a procurement, supply chain, and manufacturing outsourcing consulting firm located in Sunnyvale, California. As part of its practice, Symphony helps OEM companies of all sizes create and execute successful manufacturing outsourcing strategies focused on increasing revenues, mitigating inventory risk, and reducing the total cost of ownership. For more information, visit www.symphonyconsult.com.